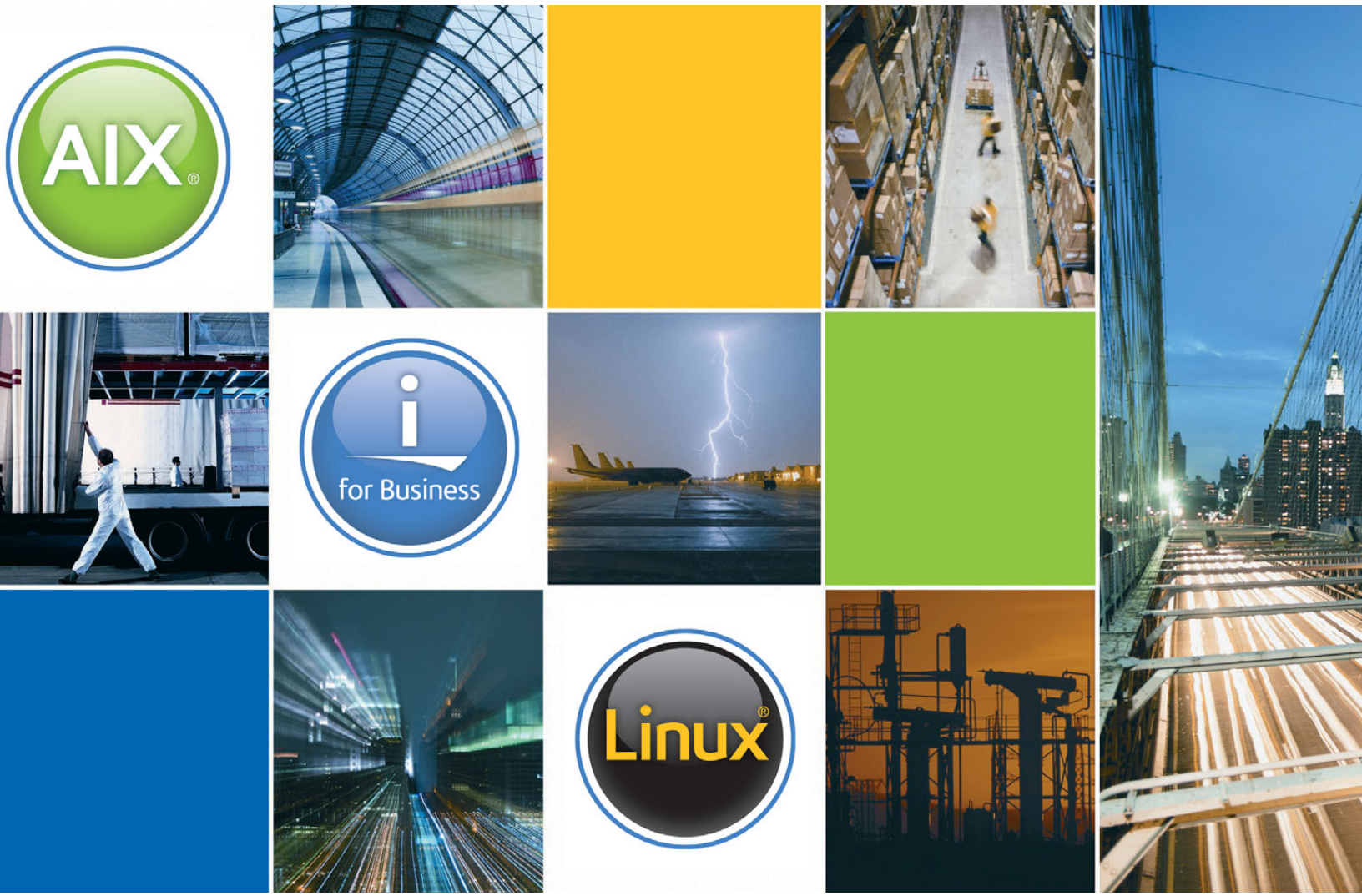
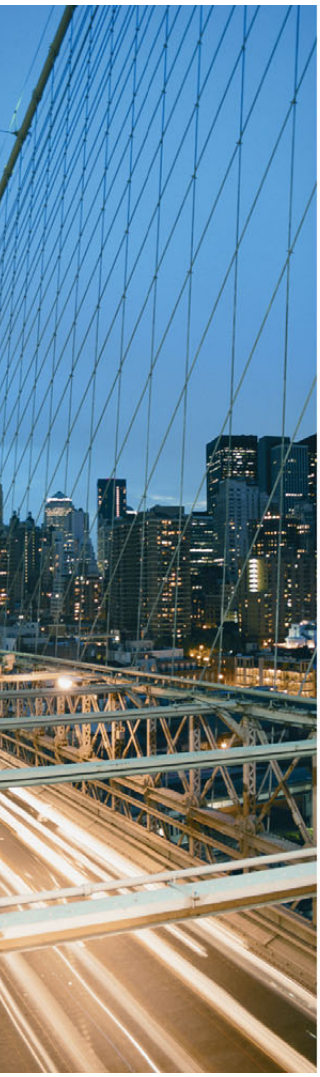
IBM Power Systems

Take steps to a more dynamic infrastructure with The New Power Equation





Now is the time to become part of a smarter planet by improving service, reducing cost and managing risk.

- Choose the right solution from a complete IBM Power Systems™ family of enterprise, mid-range, entry and blade servers with the IBM POWER6™ technology known for high performance and reliability.
- Increase the utilization of individual systems with the capability to run UNIX®, IBM i and Linux® applications together on a single server using IBM PowerVM™ virtualization technologies—and run Windows® applications in the same IBM BladeCenter® chassis as Power™ blade servers.
- More easily manage servers, better align IT and business operations, and reduce energy costs while improving processing flexibility and availability with a complete suite of management and high availability solutions.

Why businesses choose The New Power Equation

From reliability and virtualization features inspired by IBM's unrivaled success in mainframe systems to unique energy savings capabilities—a Power solution can help you get the most from your IT assets so end users are enabled quickly through a cost-effective infrastructure with around-the-clock availability.

Businesses around the world are moving to a more dynamic infrastructure with Power Systems to achieve the following:

- Reduced system administration costs
- Reduced data center energy costs
- Reduced need for weekend overtime hours
- Reduced risk for system downtime in the event of a disaster
- Improved service and data center management

According to IDC, Power Systems leads in worldwide UNIX server revenue share.[1] Businesses migrate to the latest generation of Power Systems in order take advantage of the exceptional performance, scalability and reliability of today's POWER® processor-based servers with the added "plus" of Power Systems Software™ in order to improve flexibility and availability as well as reduce overall infrastructure costs. The predictable delivery of innovation through the POWER processor roadmap and IBM's commitment to investment in AIX®, i and Linux operating systems on Power—with more than 15,000 supported applications—provides clients with the confidence that Power Systems are the right choice, for now and for the future.

Only IBM builds systems and systems software together, from the ground up

A totally integrated approach to the design, development, and testing of each and every Power server ensures the resiliency required for today's IT critical infrastructures. All POWER6 processor-based desk side, rack-mount and blade server models include innovative reliability, availability and serviceability features that help you avoid unplanned downtime. And, with Capacity on Demand, Hot-Node Add and Hot-Memory Add—Power Systems enterprise servers ensure you can keep your most important applications available, even as you add capacity to handle business growth on your largest servers.

Power Systems are also optimized with the ability to securely run multiple applications on AIX, i and Linux operating systems on a single server—so you can manage fewer systems with lower cost and higher utilization. No longer do you need to manage complex and energy inefficient server farms with each server dedicated to a single application or operating environment. Now you can consolidate workloads and significantly reduce costs throughout your infrastructure, while dramatically improving your ability to meet changing processing demands.

Power Systems software options enable you to manage both physical and virtual environments, including the capability to control data center energy usage and orchestrate processing resources to better meet business goals. And, Power solutions are designed to provide you with a roadmap to continuous availability of mission-critical applications—even when an expected or unexpected interruption occurs.

POWER is built on an open architecture, making it an open ecosystem that supports freedom of design.

Take the right steps now to a more dynamic infrastructure

From on-line, self-evaluation tools and workshops to comprehensive assessments and complete migration services, IBM experts around the world can help you determine where to begin or how to make your current Power solution more dynamic. Work with IBM Global Finance to learn the financing options most appropriate for your business. For more information on great rates, flexible payment plans and loans, and asset buyback and disposal, visit: **ibm.com**/financing

It's all part of The New Power Equation—only from IBM.

Power Architecture:
Open, innovative, reliable

Today's POWER6 systems combine industry-leading performance, scalability and modularity to enable you to get the most from your investment and build a flexible, dynamic infrastructure that easily adapts and grows based on your business needs.

No other systems provide the performance per processor core, the range of scalability or the ability to incrementally and linearly add performance and capacity. Features include:

- Ultra-high frequency, dual-core processor technology with leading performance across the most-published server benchmarks representing the broadest range of application performance[2]
- Mainframe-inspired reliability with instruction retry on alternate processors and storage keys to deliver higher availability and protect your data from corruption
- Modular growth with near linear scalability from the IBM BladeCenter JS43 Express blade server and the IBM Power 570 to enable flexible growth
- EnergyScale™ technology to reduce energy consumption and provide the ability to manage and customize energy usage
- Live Partition Mobility and Live Application Mobility to sustain system availability during maintenance or re-hosting
- Concurrent firmware and operating system updates to enable applications to remain available

And, only POWER6 systems have two integrated hardware accelerators designed to enhance performance: Decimal Floating-Point for business applications and AltiVec™ vectorized math common in support of 3D modeling for high performance computing.

POWER6™ BUILT ON Power™

POWER processor technology is an instruction-set architecture that spans applications from consumer electronics to supercomputers. POWER is built on an open architecture, making it an open ecosystem that supports freedom of design. Learn more about the world of POWER at www.power.org.

Power Systems Software:
Completing the Power Advantage

Move to the Power Architecture® and get "performance plus" by deploying Power Systems Software technologies to fully exploit Power Systems servers. Realize the benefits of leadership virtualization with AIX, i and Linux operating systems on a single server—as well as availability, energy, security and management advantages with a Power solution.

Virtualization:
Power = Efficiency - Cost

As businesses look for ways to maximize their IT infrastructure investment returns, they turn to IBM PowerVM virtualization to consolidate multiple workloads onto fewer systems—increasing server utilization and reducing cost. PowerVM provides a secure and scalable virtualization environment for AIX, i and Linux applications built upon the advanced RAS features and leading performance of the Power Systems platform.

PowerVM offers Micro-Partitioning™ with the ability to run up to 10 partitions per processor core, and dynamically move processor, memory, and I/O resources between partitions to support changing workload requirements. PowerVM Live Partition Mobility enables active partitions to be moved between servers, virtually eliminating planned downtime.

AIX:
Power = Innovation + Performance

AIX exploits decades of IBM technology innovation and is designed to provide the highest level of performance and reliability of any UNIX operating system.

AIX 6.1 is binary compatible with previous versions of AIX, including AIX 5L™. This means that applications that ran on earlier versions will continue to run on AIX 6.1—guaranteed.[3] AIX 6.1 is an open standards-based UNIX OS designed to comply with the Open Group's Single UNIX Specification Version 3.

IBM i:
Power = Integration + Solutions

IBM i is an integrated operating environment with a more than 20-year reputation for exceptional security and business resilience. IBM i integrates a trusted combination of relational database, security, Web services, networking and storage management capabilities.

IBM i 6.1 includes expanded options for virtualization, upgraded storage and availability management, breakthrough Java™ performance, new support for POWER6 and BladeCenter, and a broad range of middleware and tools to help drive SOA transformation.

Linux:
Power = Choice + Reliability

Both Red Hat and Novell SUSE Linux run natively on Power Systems, offering a scalable alternative for your open source applications.

PowerVM Lx86 cross-platform virtualization technology also enables x86 Linux workloads to run without recompilation and take advantage of

Get 'performance plus' by deploying Power Systems Software technologies to fully exploit Power Systems servers.

the scalability of Power Systems. This means Power Systems clients can immediately benefit from the latest Linux applications, not wait until they are natively compiled for Linux on Power.

Availability:
Power = Uptime – Downtime

Power Systems solutions benefit from decades of IBM experience in designing and deploying high availability hardware and software. PowerHA™ disk clustering solutions are available to help keep your systems—and your business—running 24x7x365.

Extensive experience in Predictive Failure Analysis and dynamic system adaptation ensures you the peace of mind that comes from IBM reliability, availability and serviceability (RAS) features built into every Power server.

Security:
Power = Compliance – Threats

IBM offers tools to protect data from threats and unauthorized access on Power servers running AIX, i and Linux workloads. Data encryption capabilities to protect file systems, data and backup are an integral part of the AIX and i operating systems, both of which also support role-based access control. Whether you want to manage the security of your Power servers, or include other elements in your infrastructure—IBM solutions provide intuitive administration that helps you to define, enforce and audit your business security policy.

Energy:
Power = Performance + Conservation

Power Systems energy management solutions monitor and control energy usage to help you manage energy efficiency in your data center. Each Power server has EnergyScale technology built into the POWER6 processor. Through consolidation and virtualization with PowerVM, businesses have realized dramatic energy savings. And, with IBM Systems Director Active Energy Manager™, you can identify trends in your energy usage and thermal profile, turn off processor cores or limit the energy draw across one or a group of Power servers and track environmental data from applications used to monitor air conditioning units, Uninterruptible Power Supplies and Intelligent Power Distribution Units.

IBM® Systems Director

Management:
Power = Simplicity + Control

With IBM Systems Director for platform management and Tivoli® for enterprise service management solutions, Power Systems offer a unified systems management solution that can improve service delivery. Businesses not only get a complete picture of their systems and how well they are operating, but also the tools to deploy, optimize and maintain these systems at maximum effectiveness and efficiency. Now business can meet requirements for optimized workload performance, energy management and cost control.

Power Systems Quick Reference Guide

	BladeCenter JS12 Express	BladeCenter JS22 Express	BladeCenter JS23/JS43 Express	Power 520 Express	Power 550 Express	Power 560 Express	Power 570	Power 595
System package	BladeCenter Chassis	BladeCenter Chassis	BladeCenter Chassis	4U, 19" rack or tower	4U, 19" rack or tower	4U/node, 19" rack	4U/node, 19" rack	42U, 24" CEC frame
# of cores (GHz & processor)	2 (3.8 GHz POWER6)	4 (4.0 GHz POWER6)	JS23: 4 (4.2 GHz POWER6+™) JS43: 8 (4.2 GHz POWER6+)	1, 2, 4 (4.2 GHz POWER6) 2, 4 (4.7 GHz POWER6+)	2, 4, 6, 8 (3.5,/4.2 GHz POWER6) 2, 4, 6, 8 (5.0 GHZ POWER6+)	4, 8, 16 (3.6 GHz POWER6+)	2 to 16 (3.5/4.4 GHz POWER6, 5.0 GHz POWER6+) 4 to 32 (4.2 GHz POWER6+)	8 to 64 (4.2 GHz POWER6) 16 to 64 (5.0 GHz POWER6)
Min – max GB memory	4 to 64	4 to 32	23: 4 to 64 43: 8 to 128	2 to 64	4 to 256	8 to 384	2 to 768	16 to 4096
Max internal disk bays	2	1	JS23: 1 JS43: 2	8	8	12	24	26 per PCIe I/O drawer
Max internal TB storage	0.29	0.14	JS23: 0.14 JS43: 0.29	2.7	2.7	5.4	10.8	3.8 per PCIe I/O drawer
Max CEC PCI slots	1 PCIe + 1 PCI-X	1 PCIe + 1 PCI-X	1/2 PCIe + 1/2 PCI-X	3 PCIe + 2 PCI-X DDR	3 PCIe + 2 PCI-X DDR	8 PCIe + 4 PCI-X DDR	16 PCIe + 8 PCI-X DDR	20 slots per 24" I/O drawer
AIX rPerf	14.71	30.26	JS23: 36.28 JS43: 68.20	up to 39.73	up to 78.6	up to 100.3	up to 193.25	up to 553.01
IBM i CPW	7,100	13,800	JS23: 14,100 JS43: 26,590	up to 18,300	up to 37,950	up to 48,500	up to 104,800	up to 294,700
Warranty	3-year 9x5 next business day			1-year 9x5 next business day				1-year 24x7
Max partitions	20	40	80	40	80	160	160	254
AIX release	5.3, 6.1	5.3, 6.1	5.3, 6.1	5.3, 6.1	5.3, 6.1	5.3, 6.1	5.3, 6.1	5.3, 6.1
IBM i release	6.1	6.1	6.1	5.4, 6.1	5.4, 6.1	6.1	5.4, 6.1	5.4, 6.1
Linux support	RHEL4.6, 5.1 SLES10/11	RHEL4.6, 5.1 SLES10/11	RHEL4.6, 5.1 SLES10/11	RHEL4.5, 5.1 SLES10/11	RHEL4.5, 5.1 SLES10/11	RHEL4.5, 5.1 SLES10/11	RHEL4.5, 5.1 SLES10/11	RHEL4.6, 5.2 SLES10/11
PowerVM Express				Option	Option			
PowerVM Standard	Standard	Standard	Standard	Option	Option	Option	Option	Option
PowerVM Enterprise	Option	Option	Option	Option	Option	Option	Option	Option

For more information

Contact your IBM representative or IBM Business Partner or visit:

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[1] IDC Quarterly Server Tracker Q408 release, February 2009

[2] More information on Power Systems performance benchmarks can be found at http://www-03.ibm.com/systems/p/hardware/reports/system_perf.html

[3] More information on the binary compatibility of AIX 6.1 can be found at http://www-03.ibm.com/systems/p/hardware/reports/system_perf.html

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