IBM

IBM Power 570 server

Power 570 modular building blocks

Highlights

■ **For mid to large transaction processing such as ERP and CRM applications**

■ **For mid to large database serving**

■ **For server consolidation across UNIX®, IBM i (formerly known as i5/OS®) and Linux® workloads**

■ **For a complete business system combining all aspects of a company's IT infrastructure**

For mid to large transaction processing workloads, the IBM Power™ 570 server delivers outstanding perform- ance, mainframe-inspired reliability, modular non-disruptive growth and innovative virtualization technologies. These features are integrated to enable the simplified management of growth, complexity and risk.

For mid to large database serving, the Power 570 provides a system designed for demanding, critical, back-end work- loads. Demonstrating outstanding per- formance across multiple database solutions and multiple operating sys- tems, the 570 shows its true heart and soul when challenged with a company's most treasured IT asset, the database.

For server consolidation, the Power 570 provides the flexibility to simultaneous run any combination of AIX®, IBM i, Linux for Power and x86 Linux applica- tions, all on the same system. In addition, PowerVM™ virtualization

POWER6™
BUILT ON

Power™

enables dynamic resource adjustments across all these environments to optimize performance and efficiency while minimizing energy usage. Get control of your environment with the Power 570.

For complete business system needs, the Power 570 provides a unique combination of performance across multiple workloads and availability features to keep your business running. In addition, PowerVM virtualization helps to maximize your efficiency and non-disruptive growth options are designed to keep your costs in line with your business. With all this coming together in one integrated energy-saving package, the 570 makes a great business solution.

The IBM Power 570 is a modular server available in four building block, rack-mounted configurations. The system includes the industry-leading IBM POWER6™ technology and mainframe-inspired reliability, availability and serviceability (RAS) features as well as innovations like EnergyScale™ and PowerVM virtualization technologies. This innovative approach enables secure, non-disruptive growth, while maintaining outstanding performance and maximizing your investment.

Feature	Benefits
Industry-leading POWER6 performance	• Better customer satisfaction due to improved response time to your customers • Infrastructure cost savings from a reduction in the number of servers and software costs • Improved efficiency in operations from consolidating multiple workloads on fewer systems
Exceptional PowerVM virtualization capability	• Improves system efficiency which lowers operational expense • Provides flexibility in responding to changing business requirements • Enables energy savings and maintains application availability • Provides ability to handle unexpected workload peaks by sharing resources
Mainframe-inspired availability features	• Better customer satisfaction due to improved application availability • Get more work done with less disruption to your business • Faster repair when required due to sophisticated system diagnostics
Non-disruptive growth options	• Enables your system to change with your business without forcing everything to stop • Aligns expense with usage without sacrificing performance or future growth options
Frugal EnergyScale energy-saving technology	• Helps lower energy costs without sacrificing performance or business flexibility • Allows business to continue operations when energy is limited
Broad business application support	• Allows clients the flexibility to select the right application to meet their needs • Helps keep you in the mainstream and off the bleeding edge

Industry-leading POWER6 performance

The leadership performance of the POWER6 processor—the world's fastest chip—makes it possible for applications to run faster and be more responsive which can result in competitive advantages or higher customer satisfaction. In addition, a single system can now run more applications and can reduce the number of required servers which means cost savings in infrastructure costs. The improved performance with POWER6 also enables clients to get more processing power with fewer processors resulting in lower per core software licensing costs.

POWER6 processors feature simultaneous multithreading[1], allowing two application "threads" to be run at the same time, which can significantly reduce the time to complete tasks. Hardware Decimal Floating-Point support is designed into the POWER6 processor, helping to improve the performance of the basic mathematical calculations

of financial transactions that occur daily on today's business computers. In addition, the processor includes an AltiVec™ SIMD accelerator, which helps to improve the performance of high performance computing workloads.

Exceptional PowerVM virtualization capability

PowerVM is the family of technologies, capabilities and offerings that deliver industry-leading virtualization on IBM POWER processor-based systems. On the Power 570, PowerVM includes base components provided with IBM Power Systems firmware which includes logical partitioning (LPAR) technologies. In addition, optional components, PowerVM Editions, are designed to provide advanced virtualization technologies resulting in efficiencies in resource utilization and cost savings. These are managed through use of a hardware management console (HMC).

PowerVM Standard Edition includes Micro-Partitioning™ and Virtual I/O Server (VIOS) capabilities, which are designed to allow businesses to increase system utilization, while helping to ensure applications continue to get the resources they need. VIOS allows for the sharing of disk and optical devices as well as communications and Fibre Channel adapters to help drive down complexity and systems/administrative expenses. Also included is support for Multiple Shared Processor Pools, which allows for automatic non-disruptive balancing of processing power between partitions assigned to the shared pools, and Shared Dedicated Capacity, which helps optimize use of processor cycles.

PowerVM Enterprise Edition[3] includes all the features of Standard Edition plus Live Partition Mobility (LPM), which allows a partition to be relocated from one server to another with virtually no impact to the applications running

inside the partition. LPM is designed to enable servers to work together to help optimize system utilization and energy savings, improve application availability, balance critical workloads across multiple systems and respond to ever-changing business demands.

Mainframe-inspired availability features
Among the world-class RAS capabilities provided in the Power 570 are a sophisticated service processor with a second redundant service processor for systems larger than one building block; hot-plug, hot-swappable, blind-swap and redundant components; IBM Chipkill™ ECC and bit-steering memory; First Failure Data Capture mechanisms, and dynamic deallocation of system components. These capabilities help to increase system availability and allow more work to be processed with less operational disruption. For enhanced server availability, the Power 570 can be clustered with IBM high availability software that is designed to provide near-continuous availability.

Additional RAS capabilities, Processor Instruction Retry and Cold-node Repair, are designed to enhance application availability and improve the quality of the service provided. Processor Instruction Retry comes standard on the Power 570 and provides for the continuous monitoring of processor status with the capability to restart a processor if certain errors are detected. If required, workloads can be redirected to alternate processors, all without disruption to application execution. In certain select cases where the system has deactivated a module due to component failure, Cold-node Repair is designed to enable repair and replacement of components within the inactive module without disruption to existing applications in the system. When the repair is complete, the module can be brought back online and the new resources made immediately available for assignment to new or existing application environments.

Non-disruptive growth options
IBM's modular design allows clients to start with what they need and grow by adding additional 4-core building blocks, all without disruption to the base system. This is accomplished via a new innovative feature for the 570 referred to as Hot-node Add.

As enhanced growth options, several types of Capacity on Demand (CoD) are optionally available. Clients can install processors or memory and activate them on a 30-day trial (Trial CoD), a day-to-day basis (On/Off CoD) or permanently (Capacity Upgrade on Demand (CUoD). Additionally, Utility CoD allows clients to install processors and activate them on a minute-to-minute basis. Clients may start small and grow with systems designed for continuous application availability.

Frugal EnergyScale energy-saving technology
As the price of energy increases and resources become limited, energy efficiency through better utilization has

become increasingly vital. Leveraging IBM Power Systems and virtualization technologies, corporations around the world have reduced energy consumption by up to 70 – 80%[5], better managed system growth, and achieved total operating cost reductions of up to 72%[6].

IBM's PowerVM Editions can help simplify and optimize your IT infrastructure by reducing energy and infrastructure costs. IBM Systems Director Active Energy Manager™ software exploits EnergyScale technology by monitoring power/thermal utilization and conserving energy through enablement of power management features for improved system utilization and energy efficiency.

Broad business application support
The Power 570 is designed to give clients the flexibility to run the AIX, IBM i and Linux operating systems concurrently. The AIX operating system, IBM's industrial-strength UNIX environment, is built on a tradition of reliability,

availability, security and open standards for business-critical applications. New security features are designed to be compliant under the Common Criteria of CAPP/EAL4+. The newest version of AIX delivers two new virtualization features—Workload Partitions (WPAR) which allows consolidation of multiple, isolated workloads inside of a single AIX instance; and Live Application Mobility, the capability to move Workload Partitions between systems or partitions without restarting the applications inside of the WPAR. IBM offers a binary compatibility guarantee for AIX 6[7] to assure clients that applications created on previous versions of AIX will continue to run on AIX 6.

The IBM i operating system is a highly scalable and virus resistant architecture with a proven reputation for exceptional business resiliency. Running applications based on this platform has helped companies over many years to focus on innovation and delivering new value to their business, not just on managing

their data center operations.
The IBM i operating system integrates a trusted combination of relational database, security, Web services, networking and management capabilities. It provides a broad and highly stable database and middleware foundation for efficiently deploying business processing applications.

The Red Hat and Novell/SUSE Linux for Power operating systems may be ordered from IBM and select Linux distributors and include many open source applications, tools and utilities. IBM is firmly committed to Linux and has enabled many of the unique Power Architecture® technologies into the Linux kernel. When configured with a PowerVM Editions feature, PowerVM Lx86, running on a Linux for Power distribution, the 570 platform offers the flexibility and performance to consolidate x86 servers running a mix of Web, LAMP (Linux, Apache, MySQL and PHP/Perl/Python) and database workloads, helping clients to better manage growth without adding complexity.

IBM Power 570 at a glance

Standard configurations	Per building block	570 (maximum)
Processor cores	Two or four 3.5, 4.2 or 4.7 GHz POWER6 processor cores in the first building block; four cores in all others	16 3.5, 4.2 or 4.7 GHz POWER6 processor cores
Cache	4 MB L2 cache per core 32 MB L3 cache shared per two cores	64 MB L2 cache per system 256 MB L3 cache per system
RAM (memory)[2]	• 2 GB to 48 GB of 667 MHz DDR2 or • 16 GB to 96 GB of 533 MHz DDR2 or • 32 GB to 192 GB of 400 MHz DDR2	• 192 GB of 667 MHz DDR2 or • 384 GB of 533 MHz DDR2 or • 768 GB of 400 MHz DDR2
Internal disk drives (CEC)	One to six SAS	24 SAS
Media bays (CEC)	One hot-plug slimline	Four hot-plug slimline
PCI adapter slots (CEC)	Four PCI Express 8x slots; Two PCI-X DDR @ 266 MHz.	16 PCI Express 8x slots; Eight PCI-X DDR @ 266 MHz.
Standard I/O adapters		
Ethernet (CEC, excluding PCI slots)	• Standard: — One dual-port Gigabit Ethernet or • Optional: — One quad-port Gigabit Ethernet or — One dual-port 10 Gigabit Ethernet	• Standard: — Four dual-port Gigabit Ethernet or • Optional: — Four quad-port Gigabit Ethernet or — Four dual-port 10 Gigabit Ethernet
Integrated disk (CEC)	One SAS controller	Four SAS controllers
Other ports (CEC)	Two USB; two HMC; two SPCN	Eight USB; two HMC; eight SPCN
Expansion features (optional)		
I/O expansion	Up to 12 I/O drawers	48 I/O drawers
High-performance connectivity	4 Gigabit Fibre Channel, 10 Gigabit Ethernet	
GX slots (I/O loops)	Two (second slot shares space with one PCI Express 8x slot)	Eight (four slots share space with four PCI Express 8x slots)

IBM Power 570 at a glance

PowerVM virtualization technologies

POWER Hypervisor™	Dynamic LPAR; Virtual LAN (Memory to memory inter-partition communication)[1]
PowerVM Standard Edition[1] (optional)	Micro-Partitioning with up to 10 micro-partitions per processor; Multiple Shared Processor Pools; Virtual I/O Server; Shared Dedicated Capacity; PowerVM Lx86
PowerVM Enterprise Edition[3] (optional)	PowerVM Standard Edition plus Live Partition Mobility
Capacity on Demand features (optional)	Processor and/or Memory CUoD On/Off Processor and/or Memory CoD Trial Processor and/or Memory CoD Utility CoD
Operating systems	AIX V5.2 or later IBM i 5.4 or later SUSE Linux Enterprise Server 10 for POWER (SLES10 SP1) or later Red Hat Enterprise Linux 4.5 for POWER (RHEL4.5) or later RHEL5.1 or later
High availability	IBM PowerHA™ family
Power requirements	200 v to 240 v AC
System dimensions	570 building block: 6.85"H (4U) x 19.0"W x 32.4"D (174 mm x 483 mm x 824 mm); weight 140.0 lb (63.6 kg)[4]
Warranty (limited)	9 hours per day, Monday through Friday (excluding holidays), next-business-day for one year 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 Power 570 server, please
contact your IBM representative or
IBM Business Partner, or visit the fol-
lowing Web sites:

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

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comply with the appropriate FCC rules before
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IBM products should be addressed with the
suppliers.

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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 1000; accessible
capacity may be less.

[1] Not supported on AIX V5.2.

[2] 400 MHz memory is not available on 3.5 GHz
systems.

[3] Not supported on AIX V5.2, IBM i 5.4, 6.1.

[4] Weight will vary when disks, adapters and
peripherals are installed.

[5] Based on joint press release by IBM and PG&E,
May 2007 (www.ibm.com/press/us/en/
pressrelease/21517.wss); Vioth customer case
study, April 2007 (www-306.ibm.com/software/
success/cssdb.nsf/CS/STRD-72NM7N?
OpenDocument&Site=eserverpseries&cty=
en_us) and Plala Networks, May 2007
(www-306.ibm.com/software/success/
cssdb.nsf/CS/CMPN-732N6Q?
OpenDocument&Site=eserverpseries&
cty=en_us)

[6] "Impact of IBM System p Server Virtualization,"
Transforming the IT Value Equation with
POWER6 Architecture. International Technology
Group, 05/2007. Study methodology:
Companies in financial services, manufacturing
and retail with $15 Billion+ revenues focusing on
UNIX large enterprise environments with
multiple, broad-ranging applications. Study
compared the cost of the company's workloads
running on multiple vendor servers and
employing minimal virtualization to the cost
of the company's workloads running on
System p™ 570 (POWER6 processor-based) as
well as POWER5+™ processor-based servers—
all using Advanced POWER Virtualization
(APV—now known as PowerVM Standard
Edition). This cost analysis was performed for
financial services, manufacturing and retail
example environments with an overall average
savings of up to 72% in total operating cost
savings by virtualizing and consolidating on the
Power Systems servers. Total operating cost
may not be reduced in each consolidation case.
Total operating cost depends on the specific
client environment, the existing environments
and staff, and the consolidation potential.

[7] More information on the binary compatibility of
AIX 6.1 can be found at **ibm.com**/systems/p/
os/aix/compatibility/index.html.