

A reliable, flexible and powerful entry point to the on demand world



IBM @server® p5 510 server



@server p5 510 drawer

Highlights

- ***High-performance applications and database server***
- ***Mainframe-inspired reliability, availability and serviceability (RAS) features for enterprise and branch applications***
- ***Flexibility to run UNIX® and Linux® applications simultaneously***

The IBM @server® p5 510 server is an affordable, compact, high-performing system with reliability features for businesses of all sizes. It offers the flexibility to run enterprise applications or replicated branch/store applications in remote locations. With leading-edge IBM POWER5™ processor technology, a range of tools to ease management, support for both UNIX and Linux environments and enterprise-level reliability and availability features, the p5-510 is an excellent solution for a

wide range of business-critical applications, including transaction processing, applications serving, database serving, data mining, datamarts, e-mail, file and print serving and more. It can be used as a standalone company server, replicated branch server, security or knowledge server, or as a powerful clustered compute server running analytical, scientific or engineering applications.

Outstanding performance in a small package

The p5-510 server is designed to help companies do more work with fewer computer systems. With its compact 2U (two EIA units) rack drawer package, the p5-510 is mounted in an

industry-standard 19" rack. It is equipped with fifth-generation 1.65 GHz POWER5 processors in 1- or 2-way symmetric multiprocessing (SMP) configurations. The speed and architecture of the p5-510 processors help to ensure outstanding performance for a broad array of applications.

Simultaneous multithreading¹ on the POWER5 processor further improves the performance of the p5-510 server by allowing two application threads to be executed concurrently. At the same time, L2 and L3 caches help to stage information effectively from processor memory to applications. Consequently, the p5-510 can run workloads significantly faster than previous IBM POWER4™ 2-way servers while being designed to reduce the cost of computing.

The p5-510 server can be scaled easily to meet a company's growing needs. Equipped with 512MB of memory in its minimum configuration, the p5-510 can accommodate up to 32GB of memory. Internal disk capacity can be scaled up to 1.2TB. The p5-510 can also be connected to a range of external devices through the external SCSI port and three PCI-X slots.

Improved asset utilization

The p5-510 server can utilize logical partitioning (LPAR) technology implemented via IBM Virtualization Engine™ systems technologies and the operating system. The two processors on a 2-way system may run separate workloads, thereby helping lower costs. p5-510 partitions are designed to be shielded from each other to provide a high level of data security and increased application availability. The IBM AIX 5L™ and SUSE LINUX Enterprise Server 9 operating systems also implement dynamic LPAR which allows clients to dynamically allocate system resources to application partitions without rebooting.

The p5-510 server optionally offers Advanced POWER™ Virtualization which includes Micro-Partitioning™ and Virtual I/O Server capabilities which allow businesses to increase system utilization while helping to ensure applications continue to get the resources they need. With virtualization technologies, multiple copies of operating systems can be run on the same system, reducing the number of servers needed and helping to reduce software licensing costs. Micro-Partitioning technology allows the system to be finely tuned to consolidate multiple independent AIX 5L and Linux workloads. Micro-partitions can be defined as small as 1/10th of a processor and changed in increments as small as 1/100th of a processor.

Innovations such as Virtual I/O Server allow the sharing of expensive disk drives and communications and Fibre Channel adapters to help drive down complexity and systems/administrative expense. The shared processor pool allows for automatic non-disruptive balancing of processing power between partitions assigned to the shared pool—

resulting in increased throughput and utilization. The use of these leading-edge technologies means that companies can get more done in less physical space and for less expenditure.

Mainframe-inspired RAS for peace of mind

Though the p5-510 server comes in a small package, it is loaded with mainframe-inspired features that help to ensure high reliability and availability of applications. The p5-510 is equipped with a built-in service processor, which can be monitored remotely, check system operations continuously and take preventive or corrective action for quick problem resolution. First Failure Data Capture (FFDC) capabilities help to identify and log problems before system failures occur. IBM error checking and correction (ECC)/Chipkill™ memory technology detects and corrects memory errors to help prevent costly system

crashes. If problems do arise, data is protected by a finely grained L2 cache deallocation and improved L3 cache line delete capabilities.

The p5-510 server also includes features to help ensure outstanding availability and serviceability. Redundant hot-plug cooling and an optional redundant hot-plug power supply help administrators keep the server running around the clock. Selective dynamic firmware update capabilities enable administrators to selectively update system firmware without taking down the server. For near continuous operations, the p5-510 can also use IBM High Availability Cluster Multiprocessing (HACMP™) to provide automatic failover to another system in the case of failure.²

The p5-510 server is backed by worldwide service and support from IBM. The three-year, end-to-end limited warranty includes hardware fixes, staffed phone hardware support and call tracking.

Flexibility and easy management

The p5-510 server supports the AIX 5L and Linux operating systems, thereby delivering the flexibility to run vast libraries of available applications. Both AIX 5L and Linux may be run simultaneously on a single p5-510 server for potential cost savings through server consolidation.

AIX 5L is an industrial-strength UNIX environment specially tuned for application performance and loaded with exceptional RAS features. The AIX 5L OS delivers enhancements to Java™ technology, Web performance, and scalability for managing clusters of all

sizes. Web-based remote management tools give administrators centralized control of the system, enabling them to monitor key resources, including adapter and network availability, file system status and processor workload.

By supporting the Linux OS, the p5-510 server offers important cost-saving opportunities. Because Linux is an open source technology, it can be less expensive to license than many proprietary operating systems. With a growing list of Linux applications available, it provides the freedom to use the right applications for organizations' needs. The Linux OS is available from selected Linux distributors in packages that include a range of open source tools and applications. IBM is firmly committed to Linux and offers expert service and support.

Value Paks deliver price advantage

The p5-510 server offers specially priced Value Paks to help organizations customize systems quickly while delivering exceptional value. The p5-510 Value Paks provide popular pre-configured options with financial incentives for processor, memory and disk drive packages. Additional memory, disk drives or adapters—or displays and external storage—can be added to a p5-510 Value Pak without affecting the savings on the original configuration.

@server p5 510: Affordable entry server

A compact design and fast processors make the p5-510 server an excellent choice for retail, wholesale, manufacturing, distribution, financial services, insurance and healthcare organizations that support remote stores, branches, regional offices or kiosks. It is also well suited for media and entertainment and compute applications. With its outstanding performance, mainframe-inspired RAS features, flexible support for both AIX 5L and Linux operating systems and affordable price, the p5-510 redefines what an entry-level system should offer.

p5-510 at a glance

Standard configurations

Microprocessors	One or two 64-bit 1.65 GHz POWER5 processors
Level 2 (L2) cache	1.9MB
Level 3 (L3) cache	36MB
RAM (memory)	512MB to 32GB of 266 MHz DDR1 SDRAM
Internal disk storage	1.2TB
Processor-to-memory bandwidth (peak)	10.3 GBps
L2 to L3 cache bandwidth (peak)	26.4 GBps
Internal SCSI disk bays	Four standard (73.4/146.8/300GB 10K rpm or 36.4/73.4GB 15K rpm disks)
Media bays	One slimline for optional DVD-ROM or DVD-RAM
Adapter slots	Three 3.3V full length PCI-X (64-bit/133 MHz)

Standard features

I/O ports	Dual channel Ultra320 SCSI controller (one internal, one external) Two Ethernet 10/100/1000 Mbps ports Two USB, two HMC, two service processor communication ports
-----------	--

Connectivity support (optional)	2 Gigabit Fibre Channel; 10 Gigabit Ethernet
--	--

POWER Hypervisor™	LPAR Dynamic LPAR ³ Virtual LAN ¹
--------------------------	---

Advanced POWER Virtualization¹ (option)	Micro-Partitioning Shared processor pool Virtual I/O Server Partition Load Manager (AIX 5L only)
---	---

RAS features	Copper and silicon-on-insulator (SOI) microprocessors Selective dynamic firmware updates (planned for 2Q 2005) IBM Chipkill ECC, bit-steering memory ECC L2 cache, L3 cache Service processor Front access hot-swappable disk bays LED indicators for failing parts Hot-plug power supplies and cooling fans Dynamic Processor Deallocation Dynamic deallocation of logical partitions and PCI-X bus slots Extended error handling for PCI-X slots Redundant cooling fans Redundant power supply (optional)
---------------------	---

Operating systems	AIX 5L Versions 5.2/5.3 SUSE LINUX Enterprise Server 9 for POWER (SLES 9) or later Red Hat Enterprise Linux AS 3 for POWER Update 4 (RHEL AS 3) or later
--------------------------	--

Power requirements	100v to 127v or 200v to 240v AC
---------------------------	---------------------------------

System dimensions	Rack drawer: 3.5"H x 19.0"W x 27.0"D (89mm x 483mm x 686mm); weight 16.8 kg (37 lb)*
--------------------------	--

Warranty	8 A.M. to 5 P.M., next-business-day for three years (limited) at no additional cost; on-site for selected components; CRU (customer replaceable unit) for all other units (varies by country). Warranty upgrades, IBM install support and maintenance are available.
-----------------	---

* Weight will vary when disks, adapters and peripherals are installed.

For more information

To learn more about the IBM @server p5 510 server, please contact your IBM marketing representative or IBM Business Partner, or visit the following Web sites:

- ibm.com/eserver/pseries
- ibm.com/servers/aix
- ibm.com/linux/power
- ibm.com/common/ssi



© Copyright IBM Corporation 2005

IBM Systems and Technology Group
Route 100
Somers, NY 10589

Produced in the United States
April 2005
All Rights Reserved

This publication was developed for products and/or services offered in the United States. IBM may not offer the products, features, or services discussed in this publication in other countries.

The information may be subject to change without notice. Consult your local IBM business contact for information on the products, features and services available in your area.

All statements regarding IBM future directions and intent are subject to change or withdrawal without notice and represent goals and objectives only.

IBM, the IBM logo, the e-business logo, AIX 5L, Chipkill, @server, HACMP, Hypervisor, Micro-Partitioning, POWER, POWER4, POWER5 and Virtualization Engine are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries or both. A full list of U.S. trademarks owned by IBM may be found at: ibm.com/legal/copytrade.shtml.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries or both.

Linux is a trademark of Linus Torvalds in the United States, other countries or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Other company, product and service names may be trademarks or service marks of others.

IBM hardware products are manufactured from new parts, or new and used parts. In some cases, the hardware product may not be new and may have been previously installed. Regardless, IBM warranty terms apply.

This equipment is subject to FCC rules. It will comply with the appropriate FCC rules before final delivery to the buyer.

Information concerning non-IBM products was obtained from the suppliers of these products or other public sources. Questions on the capabilities of the non-IBM products should be addressed with the suppliers.

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.

When referring to storage capacity, 1TB equals total GB divided by 1000; accessible capacity may be less.

Many of the features described in this document are operating system dependent and may not be available on Linux. For more information, please check:

ibm.com/servers/eserver/pseries/linux/whitepapers/linux_pseries.html.

¹ Not supported on AIX 5L V5.2

² Statement of direction: IBM intends to provide High Availability Cluster Multiprocessing V5.2 support on the p5-510 running AIX 5L V5.2 and V5.3 by second quarter 2005.

³ Available with AIX 5L and SLES 9 operating systems