

IBM *@server*® p5 520 server



@server p5 520 rack system with I/O drawer

Highlights

- ***Innovative, powerful, affordable, open and adaptable UNIX® and Linux® environment system design***
- ***Dynamic partitioning capabilities facilitate efficient resource utilization***
- ***Mainframe-inspired reliability, availability and serviceability (RAS) capabilities***

The IBM *@server*® p5 520 system is a new breed of entry server for small and medium-sized businesses and distributed system for large enterprises. Fast and affordable, it is packed with features and functions that can be found in the most sophisticated systems from IBM. The p5-520 is designed to run the AIX 5L™, IBM's industrial-strength UNIX, and the Linux operating systems.

The versatility, leading-edge performance and manageability position the *@server* p5 520 as a branch server, small database server or e-business platform for enterprises of all sizes. The p5-520 server can handle mission-critical e-business applications, secure Web transactions and small datamarts for business intelligence. It can also be clustered into powerful high performance computing (HPC) clusters.

Mainframe-inspired RAS for on demand systems availability

The *@server* p5 520 server features many of the same mainframe-inspired reliability, availability and serviceability capabilities as larger *@server* p5 models, helping keep the system up and running around the clock. The p5-520 extends the IBM *@server* pSeries® heritage of world-class RAS to an entry system by including selective dynamic firmware updates, designed to allow administrators to selectively update system firmware without taking down the server; and finer-grained L2 cache deallocation, improved L3 cache line deletes and ECC cache for better self-healing capabilities.

Flexibility to grow and adapt to changing needs

The p5-520 server is available as a 2-way symmetric multiprocessing (SMP) system with 1.65 GHz IBM POWER5™ processors. The POWER5 architecture incorporates simultaneous multithreading,¹ which allows two application threads to be executed concurrently and can significantly reduce the time to complete tasks. Clients have extensive growth potential in a choice of 19" 4U (four EIA units) rack drawer or deskside package with up to 32GB of memory, up to four optional I/O drawers resulting in 16.8TB of disk storage and up to 34 hot-plug PCI-X slots. In addition, as many as 64 p5-520 systems may be included in a single HPC cluster. For the ultimate in IBM server availability, the p5-520 can be clustered with IBM High Availability Cluster Multiprocessing (HACMP™) software designed to provide near continuous availability.

Virtualization technologies drive utilization and improve productivity

The p5-520 can utilize logical partitioning (LPAR) technology implemented via IBM Virtualization Engine™ systems technologies and the operating system (OS). LPAR allows the two processors to run separate workloads thereby helping lower costs. p5-520 partitions are designed to be shielded from each other to provide a high level of data security and increased application availability. The 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 p5-520 server optionally offers Advanced POWER™ Virtualization including Micro-Partitioning™ and Virtual I/O Server which allow businesses to increase system utilization



@server p5 520 deskside system

while helping to ensure applications continue to get the resources they need. Micro-Partitioning technology helps lower costs by allowing 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 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.

Security features to count on

Security is no longer just a desirable function. It is an absolute requirement. The p5-520 server can ease the worry associated with providing a secure operating environment. Dynamic LPAR enhances the security of applications running on the p5-520 system by providing Evaluation Assurance Level 4+ (EAL4+) and Controlled Access Protection Profile (CAPP) certification. The system is designed to prevent applications running in logical partitions from violating the security and privacy

policies across partitions. The p5-520 also comes with enhanced network filtering for better network security and intrusion detection. In addition to the robust security features built into the system, the AIX 5L operating system comes with Tivoli® agents that offer easy integration with Tivoli identity management and directory services.

Value Paks deliver price advantage

The p5-520 server offers a specially priced, pre-configured Value Pak that is designed to meet the needs of many business-critical applications and deliver outstanding business value to small and medium-sized business and departments of large enterprises. The Value Pak offers a popular, easy to order configuration with financial incentives. Additional memory, disk drives or adapters—or displays and external storage—can be easily added to the p5-520 Value Pak without impacting the savings on the original configuration.

@server p5 520: Flexible entry server

The combination of flexible expansion and reliability features and exceptional price/performance make the p5-520 server an outstanding choice for retail, wholesale distribution, financial services, insurance and healthcare environments that support remote stores, branches or regional offices. With a choice of desktide or rack-mount packages, this server is designed to be easy to install, integrate and manage. Based on these qualities, the p5-520 can help give businesses enterprise-class on demand computing without compromising availability, performance or security—at the value price of an entry-level server.

The IBM @server p5 520 server sets a new standard for entry UNIX and Linux environment systems.

p5-520 at a glance

Standard configurations

Microprocessors	2-way 64-bit 1.65 GHz POWER5 processors
Level 2 (L2) cache	1.9MB
Level 3 (L3) cache	36MB
RAM (memory)	1GB to 32GB of 266 MHz DDR1 SDRAM
Internal disk storage	16.8TB (with optional I/O drawers)
Processor-to-memory bandwidth (peak)	10.3 GBps
L2 to L3 cache bandwidth (peak)	26.4 GBps
RIO-2 I/O subsystem bandwidth (peak)	4.4 GBps
Internal SCSI disk bays	Four standard and four optional (73.4/146.8/300GB 10K rpm or 36.4/73.4GB 15K rpm disks)
Media bays	Two slimline and one standard
Adapter slots	Six 3.3v PCI-X (2 – 32-bit/66 MHz; 4 – 64-bit/133 MHz)

Standard features

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

I/O expansion	Up to four optional 7311-D20 I/O drawers, each providing seven 3.3v 64-bit PCI-X slots and up to 12 disk bays (73.4/146.8/300GB 10K rpm or 36.4/73.4GB 15K rpm disks)
----------------------	---

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

POWER Hypervisor™	LPAR Dynamic LPAR ² 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 PCI-X slots (on base system and I/O drawers) Blind-swap PCI-X slots on I/O drawers 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)
---------------------	--

p5-520 at a glance

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	Deskside: 21.1"H x 8.0"W x 23.0"D (533mm x 201mm x 584mm); weight: 35.5 kg (78 lb)* Rack drawer: 7.0"H x 17.2"W x 20.0"D (178mm x 437mm x 508mm); weight: 35.5 kg (78 lb)* 7311-D20 I/O drawer: 7.0"H x 19.0"W x 24.0"D (178mm x 482mm x 610mm); weight: 45.9 kg (101 lb)*
Warranty	8 A.M. to 5 P.M., next-business-day for one year (limited) at no additional cost; on-site for selected components; CRU (customer replaceable unit) for all other units (varies by country). Warranty upgrades 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 520 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 Corporation
Integrated Marketing Communications
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's future direction 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, POWER5, Tivoli 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**.

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

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

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. 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 Available with AIX 5L and SLES 9 operating systems