Powerful, expandable entry system designed for the on demand world

IBM @server® p5 550 server

@server p5 550 rack system with I/O drawer

Highlights

- ***IBM POWER5™ technology offers exceptional price/performance and flexibility***
- ***Virtualization technologies help increase systems utilization and productivity***
- ***Capacity on Demand features help provide cost-effective scalability***

The IBM @server® p5 550 server is an up to 4-way UNIX® or Linux® system designed to meet the rigors of the on demand world. It delivers outstanding price/performance, mainframe-inspired availability features, flexible capacity upgrades and innovative IBM Virtualization Engine™ systems technologies. Powered by IBM's most advanced 64-bit processor, POWER5 with simultaneous multi-threading[1] the p5-550 supports critical enterprise applications with exceptional price/performance—all while helping improve affordability and responsiveness.

The @server p5 550 can serve as a versatile departmental or regional server for enterprise applications running on either AIX 5L™, IBM's industrial-strength UNIX, or Linux operating environments. The performance, reliability and affordability of the p5-550 can make it a strategic platform for server consolidation, scalable database servers, e-commerce application servers, Web servers, operations systems, business intelligence (BI) and high performance computing (HPC) workloads. The p5-550 also offers flexible Capacity on Demand (CoD) features to help reduce IT costs by allowing companies to pay for processor resources they use when they use them.

Extensive configurability

Built for attachability, the p5-550 server offers tremendous configuration flexibility to meet most capacity and growth requirements. Clients have extensive growth potential in a choice of 19" 4U (four EIA units) rack drawer or deskside packages with up to 64GB of memory, up to eight optional I/O drawers resulting in 31.2TB of disk storage and up to 60 hot-plug PCI-X slots. In addition, as many as 64 p5-550 systems may be included in a single HPC cluster. For the ultimate in IBM server availability, the p5-550 can be clustered with High Availability Cluster Multiprocessing (HACMP™) software designed to provide near continuous availability.

Virtualization technologies drive utilization and improve productivity

The p5-550 server can utilize logical partitioning (LPAR) technology implemented via Virtualization Engine systems technologies and the operating system (OS). LPAR allows the processors to run separate workloads thereby helping lower costs. p5-550 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 p5-550 server optionally offers Advanced POWER™ Virtualization including 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. 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 helping to drive down complexity and systems/administrative expenses. 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.

Growth on demand

The Capacity on Demand (CoD) optional features can help the p5-550 server meet changing resource requirements in an on demand environment by using processor resources installed in the system but not activated at the time of the original purchase:

- ***Capacity Upgrade on Demand (CUoD)*** *allows companies to purchase additional permanent processor capacity to be activated when needed.*
- ***Trial CoD*** *offers a one-time, no-additional-charge 30-day trial to allow clients to explore the uses of inactive processor capacity on the server.*
- ***Reserve CoD*** *allows companies to purchase processor features in prepaid blocks of 30 processor days, activate them in full day increments in response to workload demand, and then to automatically deactivate the processors when the demand subsides.*
- ***On/Off CoD*** *enables processors to be temporarily activated in full day increments as needed.*

Designed with RAS in mind

The @server p5 550 server features many of the same mainframe-inspired reliability, availability and serviceability (RAS) capabilities as larger @server p5 models, helping keep the system up and running around the clock. The p5-550 extends the IBM @server pSeries® heritage of world-class RAS to an entry system by including selective dynamic firmware updates, in which applications remain operational while system firmware is selectively updated without taking down the server; and finer-grained L2 cache deallocation, improved L3 cache line deletes and ECC cache for better self-healing capabilities.

Value Paks deliver price advantage

The p5-550 server offers specially priced, pre-configured Value Paks that are designed to meet the needs of many mission-critical applications and deliver outstanding business value to small and medium-sized business and departments of large enterprises. The Value Paks offer popular, easy to order configurations with financial incentives. Additional memory, disk drives or adapters—or displays and external storage—can be easily added to the p5-550 Value Pak without impacting the savings on the original configuration.

@server p5 550: Scalable entry server

The combination of flexible expansion and outstanding reliability/availability features and advanced virtualization technologies make the p5-550 server an outstanding choice for retail, wholesale distribution, financial services, public sector, industrial and communications environments. With a choice of deskside or rack-mount form-factors, this server is designed to be easy to install, integrate and manage. Based on these qualities, the p5-550 is designed to give small- to medium-sized businesses enterprise-class on demand computing without compromising availability, performance or security—at an affordable cost.

The IBM @server p5 550 server sets a standard for up to 4-way entry UNIX and Linux environment systems.

@server p5 550 deskside system

p5-550 at a glance

Standard configurations	
Microprocessors	2-way or 4-way 1.65 GHz POWER5 processors
Level 2 (L2) cache	1.9MB (2-way); 3.8MB (4-way)
Level 3 (L3) cache	36MB (2-way); 72MB (4-way)
RAM (memory)	1GB to 64GB of 266 MHz DDR1 SDRAM
Internal disk storage	31.2TB (with optional I/O drawers)
Processor-to-memory bandwidth (peak)	20.6 GBps
L2-to-L3 cache bandwidth (peak)	52.8 GBps
RIO-2 I/O subsystem bandwidth (peak)	8.8 GBps
Internal SCSI disk bays	Four standard and four optional (73.4/146.8/300GB 10K rpm or 36.4GB/73.4GB 15K rpm disks)
Media bays	Two slimline and one standard
Adapter slots	Five 3.3v PCI-X (four long, one short), 64-bit/133 MHz
Standard features	
I/O ports	Dual channel Ultra320 SCSI controller (internal only; RAID optional) Two Ethernet 10/100/1000 ports Two USB, two HMC, two service processor communication ports
I/O expansion	Up to eight 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 Virtualization[1] (option)	Micro-Partitioning Shared processor pool Virtual I/O Server Partition Load Manager (AIX 5L only)
Capacity on Demand features (optional)	Processor CUoD Reserve CoD On/Off CoD for processors Trial CoD for processors

p5-550 at a glance

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 Hot-swappable disk bays 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 ECC error handling for PCI-X slots Redundant cooling fans Redundant power supply (optional)
Operating systems	AIX 5L Version 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; 200v to 240v AC
System dimensions	Deskside: 21.1"H x 7.9"W x 30.7"D (533mm x 201mm x 779mm); weight 41.4 kg (91 lb)* Rack drawer: 7.0"H x 17.2"W x 28.8"D (178mm x 437mm x 731mm); weight 41.4 kg (91 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 other peripherals are installed.

For more information

To learn more about the IBM @server p5 550 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

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

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.

[1] Not supported on AIX 5L V5.2

[2] Available with AIX 5L and SLES 9 operating systems

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