Innovative, modular, scalable, mid-range systems designed for the on demand world

IBM @server p5 570 servers

IBM @server p5 570 in rack con I/O drawer

Highlights

- ***Building-block architecture delivers outstanding performance and flexible scalability***
- ***IBM Virtualization Engine and Power Architecture™ capabilities facilitate highly efficient systems utilization***
- ***Flexible Capacity on Demand features help cost-effectively manage growth and respond to changing workloads***

The IBM @server® p5 570 mid-range system implements outstanding price/performance, mainframe-inspired reliability and availability features, flexible capacity upgrades and innovative IBM Virtualization Engine™ systems technologies. Based on IBM POWER5™ processors with simultaneous multi-threading and a unique scalable, building block packaging, the p5-570 is well-suited for server consolidation projects, database and application serving, e-commerce and departmental or regional server deployments. The rack-mount p5-570 delivers power, flexibility, scalability and reliability features for commercial and high performance computing (HPC) applications.

The IBM @server p5 570 is a cost-effective, flexible server for the on demand environment. IBM's innovative Virtualization Engine systems technologies and Capacity on Demand (CoD) optional features help increase the responsiveness of the server to variable computing demands. These features also help increase the systems utilization of processors and system components allowing businesses to meet their computing requirements with a smaller system. By combining the most advanced IBM leading-edge technology for enterprise-class performance and flexible adaptation to changing market conditions, the p5-570 delivers the key capabilities companies need to survive in today's highly competitive on demand environment.

Modular building-blocks provides flexible scalability

The p5-570 is packaged as building-block modules. Each p5-570 module can support up to four processors along with memory, media, disks, I/O adapters, power and cooling to create a balanced, high-performance rack-mount system. Building-block modules are connected by a unique cabling system at full bus speed. Up to four modules can be integrated into a 19" rack as a single symmetric multiprocessor (SMP) server. Clients can cost-effectively build systems sized specifically for their processing needs by providing the infrastructure, such as power, room cooling and rack space, to support the number of modules required. Because the building-block architecture enables clients to scale-out not only processing power, but also memory, internal storage and I/O capacity, p5-570 servers can provide tremendous capacity and flexibility for seamless application growth as computing demands increase.

In addition, as many as 64 p5-570 systems may be included in a single HPC cluster. For the ultimate in IBM server availability, the p5-570 can be clustered with HACMP™ software designed to provide near continuous availability.

IBM Virtualization Engine technologies drive utilization and improve productivity

The *@*server p5 570 server features breakthrough technologies for a UNIX® or Linux® mid-range system. IBM Virtualization Engine systems technologies are optionally available and include innovations like Micro-Partitioning™ which allows businesses to increase system utilization while helping to ensure applications continue to get the resources they need. IBM Micro-Partitioning technology helps lower costs by allowing the system to be finely tuned to consolidate multiple independent AIX 5L™ and Linux workloads. Virtual servers as small as 1/10th of a processor can be defined in increments as small as 1/100th of a processor. Dynamic logical partitioning helps assign system resources (processors, memory and I/O) for faster non-disruptive response to changing workload requirements.

Optional innovations like virtual I/O allow the sharing of expensive disk drives, communications adapters and Fibre Channel-attached disks and help 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.

Growth on demand

Several types of Capacity on Demand (CoD) are optionally available on 1.65 GHz and 1.9 GHz p5-570 systems to help meet changing resource requirements in an on demand environment by using resources installed on the system but not activated at the time of the original systems purchase:

- **Capacity Upgrade on Demand (CUoD)** *allows companies to purchase additional permanent processor or memory capacity to be activated when the resource is 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 their server.*
- **Reserve CoD** *allows companies to purchase processor features in prepaid blocks of 30 processor days and 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 or memory to be activated in full day increments as needed.*

Mainframe-inspired RAS helps keep on demand systems available

The @server p5 570 system features mainframe-inspired reliability, availability and serviceability features which help keep it up and running around the clock. The p5-570 extends the pSeries heritage of world-class RAS to a mid-range system by introducing concurrent firmware updates, in which applications remain operational while IBM system firmware is updated for most operations; and finer-grained L2 cache deallocation, improved L3 cache line deletes and ECC cache for better self-healing capabilities.

IBM @server p5 570 the new standard in mid-range UNIX and Linux servers

The combination of flexible expansion through a building-block architecture, outstanding reliability/availability features, the convenience of Capacity on Demand options and advanced virtualization technologies make the p5-570 system an outstanding choice for financial services, insurance, health care, media and entertainment, transportation, industrial companies, distributors, public sector, retail and communications. Based on these qualities, the p5-570 is designed to give enterprise-class on demand computing without compromising availability, performance or security for businesses of all sizes.

Preconfigured Value Paks for p5-570 servers provide special savings in an easy to order package. The Value Paks have cost savings from standard prices for an outstanding value in a wide variety of configurations.

The IBM @server p5 570 sets a new standard for mid-range UNIX and Linux servers.

16-way p5-570 system

p5-570 at a glance

Available configurations	Per module	p5-570 Express	p5-570 with 1.65 or 1.9 GHz processors
Microprocessors	2 or 4 64-bit 1.5 GHz, 1.65 GHz or 1.9 GHz POWER5 in the first module; 4 processors in all other modules	2, 4 or 8 64-bit 1.5 GHz POWER5	2, 4, 8, 12 or 16 64-bit 1.65 or 1.9 GHz POWER5
Level 3 (L3) cache (maximum)	36MB (2 processor module) or 72MB (4 processor module)	144MB	288MB
Shared system memory (minimum/ maximum)	2GB/128GB[1] 2GB/16GB[2]	2GB/256GB[1]	2GB/512GB[1] 2GB/64GB[2]
Processor-to-memory bandwidth (maximum)	25.5GB/sec.[1] 51.1GB/sec.[2]	51.0GB/sec.[1]	102.1GB/sec.[1] 204.6GB/sec.[2]
L2-to-L3 cache bandwidth (maximum)	48.0GB/sec.[1] 60.8GB/sec.[2]	96.0GB/sec.[1]	192.0GB/sec.[1] 243.2GB/sec.[2]
Internal disk bays (maximum)	6 on a split backplane (3+3)	12 (2 split backplanes)	24 (4 split backplanes)
Media bays (maximum)	Two hot-plug slimline media bays	Four hot-plug slimline media bays	Eight hot-plug slimline media bays
Adapter slots (PCI-X)	Six hot-plug blind-swap: Five long 64-bit 133 MHz 3.3v; One short 64-bit 133 MHz 3.3v	12 hot-plug blind-swap: 10 long 64-bit 133 MHz 3.3v; Two short 64-bit 133 MHz 3.3v	24 hot-plug blind-swap: 20 long 64-bit 133 MHz 3.3v; Four short 64-bit 133 MHz 3.3v
Standard features			
I/O adapters	Two 10/100/1000 Ethernet; Two Ultra320 SCSI	Four 10/100/1000 Ethernet; Four Ultra320 SCSI	Eight 10/100/1000 Ethernet; Eight Ultra320 SCSI
Ports (maximum)	3 USB, 3 Serial, 2 HMC	6 USB, 6 Serial, 2 HMC	12 USB, 12 Serial, 2 HMC
I/O expansion (optional)	Up to 8 Remote I/O Drawers (combination 7311-D11 and 7311-D20)	Up to 12 Remote I/O Drawers (combination 7311-D11 and 7311-D20)	Up to 20 Remote I/O Drawers (combination 7311-D11 and 7311-D20)
Connectivity support	2 Gigabit Fibre Channel - 12; 10 Gigabit Ethernet - 8	2 Gigabit Fibre Channel - 24; 10 Gigabit Ethernet - 16	2 Gigabit Fibre Channel - 96; 10 Gigabit Ethernet - 32
Logical partitioning support	Dynamic LPAR		
IBM Virtualization Engine systems technologies (optional)	Micro-Partitioning: Virtual LAN (Memory to memory inter-partition communication) Virtual I/O (Shared Internal SCSI Disks; Shared FC Adapters; Shared Gigabit Ethernet Adapters)		

p5-570 at a glance

Capacity on Demand features (optional)	Processor CUoD Memory CUoD[1] Reserve CoD On/Off Processor CoD On/Off Memory CoD[1] Trial CoD	NA	Processor CUoD Memory CUoD[1] Reserve CoD On/Off Processor CoD On/Off Memory CoD[1] Trial CoD
RAS features	Copper and silicon-on-insulator (SOI) microprocessors Concurrent firmware updates 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 7311-D11 I/O drawers Hot-plug power supplies and cooling fans Dynamic Processor Deallocation Dynamic deallocation of logical partitions and PCI bus slots Redundant cooling fans Optional redundant power supply		
Operating systems	AIX 5L™ Versions 5.2/5.3 SUSE LINUX Enterprise Server 9 (SLES 9) Red Hat Enterprise Linux 3 i5/OS™*		
Power requirements	200v to 240v AC		
System dimensions	6.85"H (4U) x 19.0"W x 31.1"D – 174.1mm x 483mm x 790mm per building block		
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 units) for all other units (varies by country). Warranty upgrades and maintenance are available.		

[1] Using DDR1 266 MHz memory

[2] Using DDR2 533 MHz memory

* IBM plans to extend the capabilities of the IBM **@server** p5 product line by introducing support for the i5/OS operating system. This support is planned for selected **@server** p5 570 and future high-end **@server** p5 models. i5/OS support will provide additional flexibility for large-scale server consolidation where AIX 5L and/or Linux is the primary operating system. i5/OS support is planned to be limited to one processor on select p5-570 servers and up to two processors on future high-end **@server** p5 systems. This capability is planned to be available in the first half of 2005.

For more information

To learn more about the IBM @server p5 570 system, please contact your IBM marketing representative, IBM Business Partner or visit the following Web sites:

ibm.com/eserver/pseries

ibm.com/common/ssi

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Many of the IBM @server p5 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.

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