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

IBM @server® p5 570 server

@server p5 570 rack system with I/O drawers

Highlights

- ***Building block architecture delivers outstanding performance and flexible scalability***
- ***IBM Virtualization Engine™ and POWER5™ functions help increase systems utilization and productivity***
- ***Capacity on Demand features help cost-effectively manage growth and respond to changing workloads***

The IBM @server® p5 570 mid-range server implements outstanding price/performance, mainframe-inspired reliability and availability features, flexible capacity upgrades and innovative virtualization technologies. Based on POWER5 processors with simultaneous multithreading[1] 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 server delivers power, flexibility, scalability and reliability features for commercial and high performance computing (HPC) applications.

The @server p5 570 is designed to be a cost-effective, flexible server for the on demand environment. Innovative virtualization technologies and Capacity on Demand (CoD) options

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 IBM's most advanced leading-edge technology for enterprise-class performance and flexible adaptation to changing market conditions, the p5-570 server can deliver the key capabilities medium-sized companies need to survive in today's highly competitive world.

Modular building blocks provide flexible scalability

The p5-570 server is packaged as building block modules. Each p5-570 module can support up to four 1.65 or 1.9 GHz 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 multiprocessing (SMP) server. Thus a maximum p5-570 server may consist of 16 processors, 512GB of memory, eight media bays and 24 PCI-X slots, and 24 internal disk bays accommodating up to 7.2TB of disk storage. In addition, up to 20 optional I/O drawers may be attached, significantly adding to the PCI-X and disk bay capacity.

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 and I/O drawers 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 High Availability Cluster Multiprocessing (HACMP™) software designed to provide near continuous availability.

16-way p5-570 system

Virtualization technologies drive utilization and improve productivity

The p5-570 server can utilize logical partitioning (LPAR) technology implemented via IBM Virtualization Engine systems technologies and the operating system (OS). LPAR allows the processors to run separate workloads. p5-570 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 p5-570 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 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 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 help 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

Several types of Capacity on Demand (CoD) are optionally available on the p5-570 server 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 purchase:

- **Capacity Upgrade on Demand (CUoD)** *allows companies to purchase additional permanent processor or memory 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 their 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 or memory to be activated in full day increments as needed.*

Mainframe-inspired RAS helps keep on demand systems available

The @server p5 570 server features mainframe-inspired reliability, availability and serviceability (RAS) which help keep it up and running around the clock. The p5-570 extends the IBM @server pSeries® heritage of world-class RAS to a mid-range 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.

p5-570 at a glance

Standard configurations	Per module/building block	p5-570 (maximum)
Microprocessors	Two or four 64-bit, 1.65 or 1.9 GHz POWER5 in the first module, four processors in all other modules	Two, four, eight, 12 or 16 64-bit 1.65 or 1.9 GHz POWER5
Level 3 (L3) cache	36MB (two processor module) or 72MB (four processor module)	288MB
RAM (memory)	2GB to 128GB[3] 2GB to 16GB[4]	2GB to 512GB[3] 2GB to 64GB[4]
Processor-to-memory bandwidth (peak)	24.9 GBps[3] 49.8 GBps[4]	99.7 GBps[3] 199.8 GBps[4]
L2-to-L3 cache bandwidth (peak)	48.0 GBps[3] 60.8 GBps[4]	192.0 GBps[3] 243.2 GBps[4]
RIO-2 I/O subsystem bandwidth (peak)	9.1 GBps	36.4 GBps
Internal disk bays	Six on a split backplane (3+3)	24 (four split backplanes)
Media bays	Two hot-plug slimline	Eight hot-plug slimline
Adapter slots (PCI-X)	Six hot-plug: five long 64-bit 133 MHz 3.3v; one short 64-bit 133 MHz 3.3v	24 hot-plug: 20 long 64-bit 133 MHz 3.3v four short 64-bit 133MHz 3.3v
Standard features		
I/O adapters	Two 10/100/1000 Ethernet; Two Ultra320 SCSI	Eight 10/100/1000 Ethernet Eight Ultra320 SCSI
Ports (maximum)	Two USB, two HMC, three service processor communication	Eight USB, two HMC, twelve service processor communication
I/O expansion (optional)	Up to eight I/O drawers (combination 7311-D11 and 7311-D20)	Up to 20 I/O drawers (combination 7311-D11 and 7311-D20)
Connectivity support	2 Gigabit Fibre Channel - 12 10 Gigabit Ethernet - 8	2 Gigabit Fibre Channel - 96 10 Gigabit Ethernet - 32
POWER Hypervisor™	LPAR Dynamic LPAR[2] Virtual LAN (Memory to memory inter-partition communication)[1]	
Advanced POWER Virtualization[1] (option)	Micro-Partitioning; shared processor pool; Virtual I/O Server (Shared Internal SCSI Disks; shared FC Adapters; shared gigabit Ethernet Adapters); Partition Load Manager (AIX 5L only)	
Capacity on Demand features (optional)	Processor CUoD Memory CUoD[3] Reserve CoD On/Off Processor CoD On/Off Memory CoD[3] Trial CoD	

p5-570 at a glance

RAS features	Copper and silicon-on-insulator (SOI) microprocessors Selective dynamic firmware updates IBM Chipkill™ ECC, bit-steering memory ECC L2 cache, L3 cache Service processor Hot-plug media bays 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 De-allocation Dynamic deallocation of logical partitions and PCI-X bus slots Extended error handling for PCI-X slots Redundant cooling fans Redundant power supply
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 i5/OS™[5]
Power requirements	200v to 240v AC
System dimensions	Building block: 6.85"H (4U) x 19.0"W x 31.1"D (174.1mm x 483mm x 790mm); weight 63.6 kg (140 lb)*** 7311-D11 I/O drawer: 6.9"H x 17.5"W x 28.0"D (175mm x 445mm x 711mm); weight 39.1 kg (86 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

Flexibility and ease of management

The highly secure p5-570 server can serve as a versatile departmental or regional server for applications running on AIX 5L—the industrial-strength UNIX® operating system from IBM—or Linux. AIX 5L is built on a tradition of reliability, availability, security and open standards for mission-critical applications. The Linux operating system is known for its extensive set of open source applications and ability to rapidly deploy new or customized solutions. Both operating systems may run in micro-partitions simultaneously.

Value Paks deliver price advantage

The p5-570 system offers specially priced, pre-configured Value Paks that are designed to meet the needs of most mission- critical applications and deliver outstanding business value to medium-sized businesses. The Value Paks offer popular, easy to order configurations with significant financial incentives. Additional memory, disk drives or adapters—or displays and external storage—can be easily added to a p5-570 Value Pak without impacting the savings on the original configuration.

@server p5 570: Scalable mid-range server

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

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

For more information

To learn more about the IBM @server p5 570 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

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.

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.

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

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

[3] Using DDR1 266 MHz memory

[4] Using DDR2 533 MHz memory

[5] Available for 1 or 2 processors on 1.65 GHz models

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