IBM System p Family – Highlights

IBM System p Virtualization

The Advanced POWER™ Virtualization (APV) feature, standard on selected IBM System p™ servers and optionally available on others, allows businesses to increase system utilization while helping to ensure that applications get required resources in a non-disruptive fashion. As a by-product, multiple independent AIX 5L™ and Linux® operating environments may be run simultaneously on the same system. Consolidating applications can help reduce complexity and lower operational costs. Micro-Partitioning™ technology allows the system to be fine tuned with logical partitions (virtual servers) as small as 1/10th of a processor, helping improve system resource utilization. The easy-to-use, Web-based Integrated Virtualization Manager (IVM), available on Express models, allows the cost-effective consolidation of multiple partitions on a single server by helping reduce the time and effort required to manage virtual devices and partitions. The need to purchase a Hardware Management Console (HMC) is eliminated when IVM is used. The p570 will offer Live Partition Mobility (Statement of Direction) designed to allow live partitions to be moved from one system to another.

Express Editions

Specially priced Express Editions (AIX 5L Edition and OpenPower® Edition) are available for System p Express servers. These easy to order, pre-configured packages provide financial incentives on the hardware as well as the ability to order a discounted AIX 5L or Linux OS license. Additional memory, disk drives, adapters, displays and external storage can be easily added without impacting the original savings. Express Editions deliver outstanding business value and help companies customize systems quickly.

IBM POWER5+ and POWER6 Processors

Innovative technology such as simultaneous multithreading virtualization and the cache memory subsystem have helped propel IBM POWER5™+ and POWER6™ processor-based systems to achieve performance leadership in a broad spectrum of industry and application benchmarks. See **ibm.com**/systems/p/benchmarks.

AIX 5L OS

The AIX 5L OS, an industrial-strength UNIX® environment, is tuned for applica-tion performance and delivers mainframe-inspired reliability, availability and serviceability (RAS) features, enhancements to Java™ technology, Linux com-patibility, Web performance and scalability for managing complex clusters. Over 8000 AIX 5L applications are supported on the System p family.

Linux OS

By supporting the open source Linux OS, the System p family offers cost-saving opportunities. The Linux OS provides the freedom to use the right applications for organizations' needs. Over 2700 Linux applications are supported on the System p family. IBM is firmly committed to superior Linux service and support.

Capacity on Demand

IBM's innovative, optionally available Capacity on Demand (CoD) features for processors and memory help selected System p servers to meet changing resource and workload requirements in an on demand environment. With CoD, it is easy to respond transparently to either temporary spikes in demand or long-term increases in workloads. On the p5-570 server, Processor/Memory CUoD, Trial Processor CoD, On/Off Processor/Memory CoD and Reserve Processor CoD are available. These capabilities along with Capacity BackUp are also avail-able on the p5-590 and p5-595 servers. The p570 offers Processor/Memory CUoD, Trial Processor CoD, On/Off Processor/Memory CoD and Utility CoD.

RAS

The System p family of servers are among the most resilient UNIX and Linux systems IBM offers. They feature world-class, mainframe-inspired reliability, avail-ability and serviceability capabilities including a sophisticated service processor; hot-plug, hot-swappable and redundant components; Chipkill™ ECC and bit-steering memory; and dynamic deallocation and recovery of failing system com-ponents. Servers with POWER6 processors include additional unique RAS characteristics.

IBM System p Family
Quick Reference
May 2007

BUILT ON

Power™

	p5-505 and 505Q Express	p5-510 and 510Q Express	p5-520 and 520Q Express	p5-550 and 550Q Express	p5-560Q Express*	p5-570	p570	p5-575	p5-590	p5-595
System package	1U, 19" rack	2U, 19" rack	4U, 19" rack/deskside	4U, 19" rack/deskside	4U, 19" rack	4U, 19" rack	4U, 19" rack	2U, 24" system frame	42U, 24" system frame	42U, 24" system frame
Microprocessors	POWER5+	POWER5+	POWER5+	POWER5+	POWER5+	POWER5+	POWER6	POWER5+	POWER5+	POWER5+
# of processors (GHz)	1 (1.9), 2 (1.9, 2.1), 4 (1.65)	1, 2 (2.1), 4 (1.65)	1, 2 (2.1), 4 (1.65)	2, 4 (1.9, 2.1), 4, 8 (1.65)	4, 8, 16* (1.5, 1.8)	2, 4, 8, 12, 16 (1.9, 2.2)	2, 4, 8, 12, 16 (3.5, 4.2, 4.7)	8 (2.2), 16 (1.9)	8 to 32 (2.1)	16 to 64 (2.1, 2.3)
Min/max. memory (GB)	1 – 32	1 – 32	1 – 32	1 – 64	2 – 128	2 – 512	2 – 768	2 – 256	8 – 1024	8 – 2048
Maximum internal disk bays/storage (TB)	2/0.6	4/1.2	8/2.4	8/2.4	12/3.6	24/7.2	24/7.2	2/0.6	-	-
Maximum PCI slots (MHz)	2 PCI-X (266)	3 PCI-X (133, 266)	6 PCI-X (66, 133, 266)	5 PCI-X (133, 266)	12 PCI-X (133)	24 PCI-X (133)	16 PCIe; 8 PCI-X (266)	2 PCI-X (133)	-	-
Max. opt. I/O drawers	-	-	4	8	8**	20	32	1	8 (1 standard)	12 (1 standard)
Max. disk bays/storage with I/O drawers	-	-	56/16.8	104/31.2	108/32.4**	264/79.2	264/79.2	18/2.9	128/18.7	192/28.1
Maximum PCI slots with I/O drawers	-	-	34 PCI-X	59 PCI-X	68 PCI-X**	163 PCI-X	16 PCIe; 196 PCI-X	24 PCI-X	160 PCI-X	240 PCI-X
Advanced POWER Virtualization	<td colspan="10">• IBM Micro-Partitioning, Shared processor pool, Virtual I/O Server (with IVM on p5-505/505Q, 510/510Q, 520/520Q, 550/550Q, 560Q Express only), Virtual LAN, Live Partition Mobility (SOD - p570 only)—APV functions optional on all systems except standard on p5-590, 595 • Partition Load Manager for IBM AIX 5L V5.2 and V5.3 (included with APV on System p5 servers; not available on p570)</td>
Micro-Partitioning	<td colspan="10">Up to 10 micro-partitions per processor except p5-550Q which has 40 maximum (maximum for any system is 254)</td>
RAS capabilities	<td colspan="10">• Dynamic firmware updates • Service processor with fault monitoring • Redundant service processor with automatic failover (option on p5-570, standard on p5-590, 595 and p570 (SOD)) • Redundant system clocks (16-core p5-560Q, 570, 590, 595 and p570 only) • First Failure Data Capture • IBM Chipkill ECC bit-steering memory • ECC L2 and L3 cache • Dynamic deallocation of processors (2-core and above) • Dynamic deallocation of PCI-X slots with extended error handling • Hot-plug PCI-X slots—servers and I/O drawers (except p5-505, 510) • Blind-swap PCI-X slots (p5-560Q, 570, 575 and p570) • Blind-swap PCI-X slots—I/O drawers • Hot-swappable disk bays (servers and I/O drawers) • Hot-add I/O drawers (requires HMC) • Redundant hot-plug cooling (except p5-575) • Processor Instruction Retry (p570 only) • Hot-node add (SOD; p570 only) • Cold-node repair (SOD; p570 only)</td>
Redundant hot-plug power	<td colspan="4">Optional</td>	<td colspan="3">Standard</td>	<td colspan="3">Standard in system frame</td>
CoD options	-	-	-	-	-	Yes	Via RPQ	<td colspan="3">Yes</td>
OS support	<td colspan="10">AIX 5L V5.2 and above, SUSE Linux Enterprise Server 9 for POWER (SLES 9) and above, Red Hat Enterprise Linux 4 for POWER (RHEL 4) and above***</td>
Warranty	<td colspan="5">3-year</td>	<td colspan="5">1-year</td>
AIX 5L V5.3 rPerf	4.10 – 20.25	6.63 – 20.25	6.63 – 20.25	11.12 – 38.34	18.75 – 75.58	12.27 – 95.96	15.85 – 134.35	66.4 – 111.4****	55.74 – 202.88	108.13 – 393.55

* 16-core is not an Express system
** Optional I/O drawers available only on 1.8 GHz systems
*** p570 Linux support requires RHEL 4.5 (starting in the third quarter of 2007) or SLES 10 SP 1
**** These values are LINPACK measurements
System images are not to scale.

IBM System p: Scale-up, scale-out, scale within. The choice is yours.