

More value, easier to use, and more performance for the on demand world



IBM System p5 510 and 510Q Express Servers



IBM System p5 510 or 510Q Express rack-mount servers

Highlights

- **Up to 4-core scalability with unique Quad-Core Module technology**
- **Choose from thousands of AIX 5L™ and Linux® operating system applications**
- **Easy to buy, install and manage with a 3-year warranty**

The System p5™ 510 and 510Q Express servers provide availability, flexibility and security features designed for reliable application serving in a compact 2U package. Fueled by IBM's most advanced POWER5™ 64-bit technology with simultaneous multithreading¹, these 19-inch rack-mount servers deliver up to 4-core scalability and outstanding price/performance.

The System p5 510Q Express platform is designed to meet the rigors of transaction-intensive and analytical applications. Using IBM's latest Quad-Core Module (QCM) technology with four 1.5 or 1.65 GHz IBM POWER5+™ processors, the p5-510Q Express delivers outstanding price/performance and high system throughput and is ideally suited for infrastructure application consolidation, compute-intensive business intelligence (BI) as well as scientific and engineering analytical applications.

The System p5 510 Express platform is a 1- or 2-core database server with a 1.9 or 2.1 GHz POWER5+ dual-core module. It can function as an entry-level application server for businesses of all sizes. The performance, reliability and affordability features of the p5-510 Express can make it a strategic platform for e-commerce application serving and compute-intensive business applications.

Virtualization improves productivity

The p5-510 and p5-510Q Express servers utilize logical partitioning (LPAR) technology implemented via optional IBM Virtualization Engine™ systems technologies and the operating system (OS). LPAR allows the processors to run separate workloads in different partitions on the same server, thereby helping lower costs. Partitions are shielded from each other to provide a high level of data security and increased application availability. Dynamic LPAR allows clients to dynamically allocate many system resources to application partitions without rebooting, enhancing availability.

These servers optionally offer Advanced POWER™ Virtualization, including Micro-Partitioning™ technology and Virtual I/O Server (VIOS), which can result in increased 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 workloads. Micro-partitions can be defined as small as 1/10th of a processor and be changed in increments as small as 1/100th of a processor. Using the Integrated Virtualization Manager (IVM) included with VIOS, companies can cost-effectively consolidate multiple partitions onto a single server. With its intuitive browser-based interface, IVM is easy to use and helps reduce the time and effort required to manage virtual devices and partitions.

Flexibility, reliability, security features

The System p5 510 and 510Q Express servers are designed to give clients the flexibility to run the AIX 5L and Linux operating systems concurrently in micro-partitions. AIX 5L, IBM's industrial-strength UNIX® OS, is built on a tradition of reliability, availability, security and open standards for business-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. Linux distributions from Red Hat and SUSE Linux are supported.

The 510 and 510Q Express servers include many of the same RAS features as larger IBM System p5 systems, helping keep the system up and running around the clock. They extend IBM's world-class RAS capabilities to an entry system by including a sophisticated service processor; hot-plug, hot-swappable and redundant components; Chipkill™ ECC and bit-steering memory; and dynamic deallocation of system components. The resulting increase in system availability allows more work to be processed.

Security is no longer just desirable; it is an absolute requirement. The 510 and 510Q Express servers can ease the worry associated with providing a secure operating environment. The systems are designed to prevent applications running in logical partitions from violating the security and privacy policies across partitions. They also come with enhanced network filtering for better network security and intrusion detection.

Linux delivers freedom of choice

The 510 and 510Q Express servers are tuned not only for the AIX 5L OS but also for the Linux OS. They take advantage of inherent performance-enhancing characteristics of IBM Power Architecture™ technology, including improved memory and data access. In addition, for even greater uptime and scalability, the Linux kernel leverages the performance features of POWER5+ processors—including support of large SMPs and RAS capabilities such as First Failure Data Capture (FFDC) and hardware diagnostics. Linux also exploits the optional hardware-based Virtualization Engine capabilities such as Micro-Partitioning technology, VIOS and more—all designed to help improve utilization and lower operational costs.

Express offerings deliver price advantage and are easy to buy

The 510 and 510Q Express platforms are available in specially priced packages—Express Editions—designed to deliver outstanding business value to smaller and mid-sized businesses and departments of large enterprises while

meeting the needs of many mission-critical applications. The System p5 510 Express, AIX 5L Edition and the System p5 510 Express, OpenPower™ Edition include popular, easy to order configurations with financial incentives on the hardware as well as the ability to order a discounted AIX 5L or Linux OS. Additional memory, disk drives or adapters—or displays and external storage—can be easily added to the package without impacting the original savings.

Easy to manage

The cost of managing and deploying systems can be a key decision criterion for many companies. IBM and IBM Business Partners can work with a client every step of the way—from acquisition, to design, to turnkey installation and migration and even to running the systems.

The automated management tools of the 510 and 510Q Express servers are designed to free the system operator from repetitive activities and potential disruptions, making it easier to manage. Features are provided for both UNIX



IBM p5-510Q Express rack-mount drawer

and Linux environments to simplify the management of IT infrastructures and to help cut costs and improve application performance. Proven technology like VIOS allows the sharing of expensive disk drives, communications and Fibre Channel adapters to help drive down complexity and systems/administrative expense. This, coupled with the powerful POWER5+ processors, helps reduce complexity and costs (fewer processors, less electrical power, lower cooling requirements, less rack space). IBM Director is available for the p5-510 or p5-510Q Express server—allowing seamless management integration with the rest of an IBM infrastructure.

Infrastructure and industry-specific offerings

IBM has committed resources and performed integration testing to develop relevant industry-specific solutions with outstanding performance and technological innovations. System p5 Express servers, middleware platforms, business partner and open source applications, and services are being combined to help clients quickly, easily, safely and cost effectively solve pressing problems. With support across the entire System p5 family including the p5-510 and p5-510Q Express, these Integrated Offerings recommend common starter configurations to cover a range of user requirements and provide blueprints on how to design, set-up, install and deploy an optimal infrastructure for common IT and industry-specific tasks.

Clients needing highly available and powerful storage to support their System p5 Express servers can realize benefits derived from using IBM System Storage™ and TotalStorage® solutions. IBM conducts comprehensive testing in System Storage laboratories under stress environments, including clustered configurations, to help ensure combined server and storage systems solutions have high reliability, interoperability and streamlined, efficient implementation. With an IBM TotalStorage, System Storage and System p5 510 or 510Q Express server solution, you can be assured your IT environment will meet today's and tomorrow's demanding needs.

System p5 510 and 510Q Express: Big value in a small package

Ask your IBM representative or IBM Business Partner about the System p5 510 and 510Q Express servers for application serving requirements. Solutions for the 510 and 510Q Express span thousands of AIX 5L and Linux applications used in a wide range of industries including education, government, transportation, construction, wholesale and retail distribution, light manufacturing, services and professional groups. As a part of the IBM Express Portfolio™ of offerings, these systems are easy to buy, install and manage. Choose the Express configuration that is right for your business needs and take advantage of special IBM financing.

System p5 510 and 510Q Express at a glance

Standard configurations

Microprocessors	p5-510 Express: One or two 64-bit 1.9 or 2.1 GHz POWER5+ processors p5-510Q Express: Four 64-bit 1.5 or 1.65 GHz POWER5+ processors
Level 2 (L2) cache	1.9MB per processor pair
Level 3 (L3) cache	36MB per processor pair
RAM (memory)	1GB to 32GB of DDR2 SDRAM running at 528 MHz
Internal disk storage	Up to 1.2TB
Processor-to-memory bandwidth (peak)	21.1 GBps
L2 to L3 cache bandwidth (peak)	p5-510 Express: 33.6 GBps; p5-510Q Express: 52.8 GBps
I/O bandwidth (peak)	p5-510 Express: 5.6 GBps; p5-510Q Express: 4.4 GBps
Internal SCSI disk bays	Four (10K or 15K rpm disks)
Media bays	One slimline for optical device
PCI-X adapter slots	Three (1 – 133 MHz; 2 – 266 MHz (DDR))

Standard features

I/O ports	Dual channel Ultra320 SCSI controller (internal and external ports; optional RAID daughter card) Dual ported Ethernet 10/100/1000 Mbps controller Two USB, two HMC, two system
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Expansion features (optional)

Connectivity support	4 Gigabit Fibre Channel; 10 Gigabit Ethernet
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Virtualization Engine system technologies

POWER Hypervisor	Dynamic LPAR Virtual LAN ¹
Advanced POWER Virtualization ¹ (optional)	Micro-Partitioning; Shared processor pool; VIOS with IVM; Partition Load Manager (AIX 5L only)

Operating systems

AIX 5L Edition: AIX 5L V5.2 or later
OpenPower Edition: SUSE Linux Enterprise Server 9 for POWER (SLES 9) or later;
Red Hat Enterprise Linux AS 4 for POWER (RHEL AS 4) or later

Power requirements

100v to 127v or 200v to 240v AC

System dimensions

Rack drawer: 3.5"H (2U) x 19.0"W x 27.0"D (89mm x 483mm x 686mm);
weight: 37.0 lb (16.8 kg)²

Warranty

8 A.M. to 5 P.M., next-business-day for three years (limited) at no additional cost; on-site for selected components; CRU (customer replaceable unit) for all other units (varies by country).
Warranty service upgrades and maintenance are available.

For more information

To learn more about the System p5 510 and 510Q Express servers, please contact your IBM representative or IBM Business Partner, or visit the following Web sites:

- ibm.com/systems/p/
- ibm.com/servers/aix
- ibm.com/linux/power
- ibm.com/systems/p/solutions
- ibm.com/common/ssi
- www.express-portfolio.com/ibm



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July 2006
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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 check: ibm.com/systems/p/software/whitepapers/linux_overview.html and ibm.com/systems/p/hardware/factsfeatures.html.

¹ Not supported on AIX 5L V5.2

² Weight will vary when disks, adapters and peripherals are installed