IBM Power 750 Express server

High performance, energy-efficient platform for server consolidation, multiapplication and database serving

Highlights

- For consolidation of UNIX®, IBM i and x86 Linux workloads and virtualized application servers
- For medium to large database servers

The IBM Power® 750 Express™ server delivers the outstanding performance of the POWER7™ processor. The performance, capacity, energy efficiency and virtualization capabilities of the Power 750 Express make it an ideal consolidation, database or multiapplication server.

As a consolidation or highly virtualized multiapplication server, the Power 750 Express offers tremendous configuration flexibility to meet the most demanding capacity and growth requirements. Utilize the full capability of the system by leveraging industrial-strength PowerVM™ virtualization for AIX®, IBM i, and Linux®. PowerVM offers the capability to dynamically adjust system resources based on workload demands so that each partition gets the resources it needs. Active Memory™ Expansion is a new POWER7 technology which enables the effective maximum memory capacity to be much larger than the true physical memory. Innovative compression/decompression of memory content can enable memory expansion up to 100 percent. This can enable a partition to do significantly more work or enable a server to run more partitions with the same physical amount of memory.

For database servers, the leadership performance of the POWER7 processor makes it possible for applications to run faster with fewer processors, resulting in lower per core software licensing costs. The POWER7 processor contains innovative technologies that maximize

performance based on client workloads and computing needs. **Intelligent Threads** technology enables workload optimization by selecting the most suitable threading mode: Single Thread (per core) or Simultaneous Multi Thread-2 or 4 modes. Consequently, **Intelligent Threads** technology can provide improved application performance. The Power 750 server can deliver up to 128 simultaneous compute threads. In addition, POWER7 processors can maximize cache access to cores, improving performance, using **Intelligent Cache** technology. These capabilities are designed to satisfy even the most demanding processing environments and can deliver business advantages and higher client satisfaction.

The Power 750 Express is a one- to four-socket server that supports up to 32 cores with outstanding energy efficiency and diagnostic features in a 4U (EIA Units) package. The Power 750 is an ENERGY STAR®-qualified server designed with features to help clients become more energy efficient. IBM Systems Director Active Energy Manager™ exploits EnergyScale™ technology, enabling **Intelligent Energy** management features to dramatically and dynamically conserve power. These **Intelligent Energy** features enable the POWER7 processor to operate at a higher frequency if environmental conditions permit, for increased performance and performance per watt; or alternatively operate at a reduced frequency if user settings permit, for significant energy savings. The Power 750 also implements Light Path diagnostics, which provide an obvious and intuitive means to positively identify failing components.

Come see why so many clients are moving to IBM Power Systems™. Whether you need a reliable and efficient server consolidation platform or a high performing multiapplication or database server, the Power 750 Express server is an ENERGY STAR-qualified server that can fulfill your requirements while using technology that provides innovation that sets your business apart from the competition. The Power 750 Express offers outstanding performance, industrial strength PowerVM virtualization and a choice of AIX, IBM i or Linux operating systems.

Power 750 Express rack-mount server

Leadership POWER7 performance

The leadership performance of the POWER7 processor makes it possible for applications to run faster with fewer processors, resulting in lower per core software licensing costs. In addition, a single system can now run more applications and reduce the number of required servers lowering infrastructure costs.

PowerVM Virtualization

The IBM Power 750 Express offers tremendous configuration flexibility to meet the most demanding capacity and growth requirements by supporting up to 32 POWER7 processor cores and 512 GB of memory. Take advantage of this scalability and capacity by leveraging our industrial strength PowerVM technology to fully utilize the capability of the Power. PowerVM allows any individual LPAR to access the maximum amount of memory and CPU cores that are available on the server. PowerVM offers this capability to dynamically adjust system resources to partitions based on workload demands, enabling a dynamic infrastructure that dramatically reduces server sprawl via massive consolidation of applications and servers. In addition, optional components, in PowerVM Editions, are designed to provide advanced virtualization technologies resulting in efficiencies in resource utilization and cost savings.

Innovative Technologies

The introduction of POWER7 servers includes several new innovative technologies that provide the flexibility to maximize performance based on client workloads and computing needs potentially delivering business advantages and higher client satisfaction.

Active Memory Expansion enables the effective maximum memory capacity to be much larger than the true physical memory. Innovative compression/decompression of memory content can enable memory expansion up to 100 percent. A server with a maximum of 512 GB can effectively be expanded up to 1 TB. This can enhance virtualization and server consolidation by enabling a partition to do significantly more work or enabling a server to run more partitions with the same physical amount of memory.

POWER7 **Intelligent Threads** technology enables workload optimization by selecting the most suitable threading mode: Single Thread (per core) or Simultaneous Multi Thread-2 or 4 modes. Consequently, **Intelligent Threads** technology can provide improved application performance. In addition, POWER7 processors can maximize cache access to cores, improving performance, using **Intelligent Cache** technology.

EnergyScale Technology offers **Intelligent Energy** management features, which can dramatically and dynamically conserve power and further improve energy efficiency. These **Intelligent Energy** features enable the POWER7 processor to operate at a higher frequency if environmental conditions permit, for increased performance and performance per watt; or alternatively operate at a reduced frequency if user settings permit, for significant energy savings.

Delivering on RAS and Diagnostics

The Power 750 Express is designed with capabilities to deliver leading edge application availability and allow more work to be processed with less operational disruption. RAS capabilities include recovery from intermittent errors or failover to redundant components, detection and reporting of failures and impending failures, and self-healing hardware that automatically initiates actions to effect error correction, repair or component replacement. In addition, the Processor Instruction Retry feature provides for the continuous monitoring of processor status with the capability to restart a processor if certain errors are detected. If required, workloads can be redirected to alternate processors, all without disruption to application execution. The Power 750 Express implements Light Path diagnostics, which provide an obvious and intuitive means to positively identify failing components. This allows system engineers and administrators to easily and quickly diagnose hardware problems. Hardware failures that may have taken hours to locate and diagnose can now be detected in minutes, avoiding or significantly reducing costly downtime. IBM Systems Director “Call-home” capability enables proactive service that may result in higher system availability and performance.

Enhanced Energy efficiency with ENERGY STAR

POWER7 delivers the first RISC-based ENERGY STAR-qualified servers designed with features to help clients become more energy efficient. ENERGY STAR-qualified products use less energy and reduce greenhouse gas emissions by meeting strict energy-efficiency guidelines.

The leadership performance of the IBM Power 750 Express translates into outstanding performance per watt. Combine this leadership performance with PowerVM Editions to virtualize your infrastructure and improve server utilization and energy efficiency. Supported by the AIX, IBM i and Linux operating systems, PowerVM Editions provide an innovative set of comprehensive systems technologies and services designed to enable you to easily aggregate and manage virtualized resources.

IBM Systems Director Active Energy Manager exploits EnergyScale technology enabling advanced energy management features to dramatically and dynamically conserve power and improve energy efficiency.

Feature	Benefits
Leadership POWER7 performance	• Access data faster and improve response time • Do more work with fewer servers and benefit from infrastructure cost savings from a reduction in the number of servers and software licenses
PowerVM Virtualization	• Easily add workloads as your business grows • Utilize the full capability of the system to reduce infrastructure costs by consolidating workloads running the AIX, IBM i or Linux operating • Provides ability to handle unexpected workload peaks by sharing resources
Active Memory Expansion	• Enables more work to be done with existing server resources
RAS Features	• Keep applications up and running so you can focus on growing your business
Light Path Diagnostics	• Easily and quickly diagnose hardware problems
ENERGY STAR- compliant	• Use less energy and reduce greenhouse gas emissions
IBM Systems Director Active Energy Manager with EnergyScale Technology	• Dramatically and dynamically improve energy efficiency and lower energy costs with innovative energy management capabilities • Enables business to continue operations when energy is limited

Power 750 Express at a glance

Configuration options	
POWER7 processor modules – one per processor card	6-core 3.3 GHz or 8-core 3.0 GHz or 8-core 3.3 GHz or 8-core 3.55 GHz[1]
Sockets	1 to 4
Level 2 (L2) cache	256 KB per core
Level 3 (L3) cache	4 MB per core
Memory	8 GB[2] to 512 GB of RDIMM DDR3 Active Memory Expansion
Solid State Drives (SSD)	Up to eight SFF drives
Disk drives	Up to eight SFF SAS drives
Disk capacity	Up to 2.4 TB
Media bays	Slimline for DVD-RAM Half height for tape drive or removable disk
PCI Adapter slots	Two PCI-X 2.0; Three PCI Express 8x
Standard I/O adapters	
Integrated Virtual Ethernet	Four Ethernet 10/100/1000 Mbps ports (or) Two 10 Gigabit Ethernet ports
Integrated SAS controller	One controller for SAS DASD/SSD and DVD-RAM Optional protected 175MB cache
Other integrated ports	Three USB, two HMC, two system ports, two SPCN
GX slots(12X)	Two[3]

Power 750 Express at a glance

Expansion features (optional)	
I/O expansion	Up to 4 PCIe 12X I/O drawers Up to 8 PCI-X DDR 12X I/O drawers
High performance PCI adapters	8 Gigabit Fibre Channel; 10 Gigabit Ethernet, 10 Gigabit Fibre Channel over Ethernet
Other PCI adapters supported include	SAS, SCSI, WAN/Async, USB, Crypto, iSCSI
PowerVM technologies	
POWER Hypervisor™	LPAR, Dynamic LPAR, Virtual LAN (Memory-to-memory interpartition communication)
PowerVM Standard Edition (optional)	PowerVM Express Edition plus Micro-Partitioning™ with up to 10 micropartitions per processor; Multiple Shared Processor Pools; Shared Dedicated Capacity; PowerVM Lx86
PowerVM Enterprise Edition[2] (optional)	PowerVM Standard Edition plus Live Partition Mobility (LPM) and Active Memory Sharing (AMS)
RAS features	IBM Chipkill ECC detection and correction Processor Instruction Retry Alternate Processor Recovery Service processor with fault monitoring Hot-plug disk bays Hot-plug and redundant power supplies and cooling fans Dynamic component Deallocation
Operating systems[4]	AIX IBM i Linux for POWER®
High availability	IBM PowerHA™ family
Power requirements	200 V to 240 V ac, single phase
System dimensions	Rack Drawer: 6.9"H x 17.3"W x 28.7"D (175 mm x 440 mm x 730 mm); weight: 120.0 lb (54.4 kg)[5]
Warranty (limited)	9 hours per day, Monday through Friday (excluding holidays), next business day for one year 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 IBM Power 750 Express server, please contact your IBM marketing representative or IBM Business Partner, or visit the following Web sites:

- **ibm.com**/systems/power/
- http://www-03.ibm.com/systems/power/software/i/
- http://www-03.ibm.com/systems/power/software/aix/
- http://www-03.ibm.com/systems/power/software/

This equipment is subject to FCC rules. It will comply with the appropriate FCC rules before final delivery to the buyer.

Information concerning non-IBM products was obtained from the suppliers of these products or other public sources. Questions on the capabilities of the non-IBM products should be addressed with the suppliers.

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. Buyers should consult other sources of information, including system benchmarks, to evaluate the performance of a system they are considering buying.

When referring to storage capacity, total TB equals total GB divided by 1000; accessible capacity may be less.

[1] 32-core configuration only

[2] Available in April 2010

[3] Each shares space with and replaces one PCI Express 8x slot. Available configuration options are dependent on the number of processor cores and other factors. Contact IBM or your IBM Business Partner for specific configuration restrictions.

[4] See facts and figures document for detailed OS level support.

[5] Weight will vary when disks, adapters and peripherals are added.

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