



Highlights

- For large-scale server consolidation to increase flexibility and lower operational and energy cost
 - For enterprises requiring the highest levels of RAS for their mission-critical applications
 - For data centers supporting the largest UNIX® and IBM i transaction processing and database applications
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IBM Power 795 server

Extraordinary scale, capacity and bandwidth for the most demanding enterprise applications

The IBM Power® 795 server is designed for enterprises to support large-scale transaction processing and database applications within a highly virtualized system infrastructure, enabling new levels of workload consolidation, resource utilization and efficiency. As the most powerful member of the IBM Power Systems™ family, this server provides exceptional performance, massive scalability and bandwidth to efficiently and concurrently support a full range of complex, mission-critical applications.

Equipped with up to 256 POWER7® processors the Power 795 server can scale rapidly and seamlessly to address the changing needs of today's business climate. Equipped with industry-leading PowerVM™ virtualization, EnergyScale™ technology and affordable Capacity on Demand (CoD) options, the Power 795 helps enterprises increase their productivity and effectively consolidate multiple UNIX, IBM i and Linux® workloads onto a single system.

Extensive mainframe-inspired reliability, availability and serviceability (RAS) features in the Power 795 help ensure that mission-critical applications run reliably around the clock. IBM clients with installed Power 595 systems may leverage their current investment in Power technology by upgrading their POWER6® system to a Power 795 to increase capacity and improve performance.

With extensive scalability, a fundamentally reliable design and expansive growth potential, the Power 795 server provides a solid foundation on which to deploy the most important applications in today's large enterprise data centers.



Feature	Benefits
Exceptional POWER7 performance	<ul style="list-style-type: none"> • Improve response time, transaction processing efficiency and user productivity • Infrastructure cost savings from a reduction in the number of servers and software costs
Extraordinary scalability and capacity	<ul style="list-style-type: none"> • Deliver data faster for the needs of large-scale transaction processing and memory-intensive applications • Realize new levels of efficiency in operations from consolidating multiple workloads on fewer systems and enable new applications without adding new servers • High-density 24-inch system frame enables the most efficient, large scale consolidation and maximum growth • Offer flexibility and built-in redundancy so the system can grow with your business
Mission-critical reliability	<ul style="list-style-type: none"> • Designed to provide the highest levels of Power architecture reliability, availability and serviceability for 24x7 access to enterprise applications • Increases IT productivity by avoiding costly downtime and recovery • Can enable monitoring, detection and resolution of issues without disruption
Enterprise-class PowerVM virtualization	<ul style="list-style-type: none"> • Improves system efficiency to lower operational expense • Provides flexibility to rapidly respond to changing business requirements, including reallocation of system resources without rebooting affected partitions • Provides the ability to transparently share processing power and memory between partitions and to handle unexpected workload peaks by sharing resources • Enables energy savings and maintains application availability
Flexibility with Capacity on Demand	<ul style="list-style-type: none"> • Enables seamless growth by allowing standby processors and memory to be permanently added to meet long term workload growth • Provides temporary access to additional processors and memory to respond rapidly to changing business requirements
EnergyScale innovation	<ul style="list-style-type: none"> • Helps lower data center energy costs without sacrificing performance or business flexibility • Enables management to understand power and cooling usage and better predict peak requirements
Broad business application support	<ul style="list-style-type: none"> • Provides the flexibility to select the right operating system and the right applications to meet needs • Enables enterprises to consolidate applications onto a more scalable, cost-effective system

Exceptional POWER7 performance

The Power 795 server capitalizes on IBM's latest generation POWER7 processor technology to deliver dramatic improvements in price/performance, scalability, energy savings and virtualization for server consolidation. The improved performance of each POWER7 core also enables clients to deliver more processing power with fewer processors, resulting in lower per-core software licensing costs.

POWER7 processors feature Intelligent Threads technology, which further enables workload optimization by dynamically switching between threading modes. Each application can be run in the most suitable threading mode - either single thread per core, simultaneous multithread (SMT) with two threads per core, or SMT with four threads per core. As a result, applications can run at their peak performance and systems can increase their workload capacity.

One innovative new feature offered on the Power 795 is the ability to switch between its standard MaxCore mode, optimized for throughput, and its unique TurboCore mode, where performance per core is boosted with access to both additional cache and additional clock speed. Based on the user's configuration option, a Power 795 system can boot in MaxCore mode, enabling up to 256 processor cores running at 4 GHz or in TurboCore mode, enabling up to 128 processor cores running at 4.25 GHz with twice the cache per core, providing increased flexibility to optimize the system to an enterprise's specific application processing demands.

Also new with POWER7 is the ability of the processor to run at a higher frequency if environmental conditions permit, resulting in increased performance; or alternatively run at a lower frequency if user settings permit, resulting in greater energy efficiency. Operating in concert with IBM Systems Director Active Energy Manager™, these Intelligent Energy features enables customization for maximum performance, maximum energy savings or a mixture of both.

Extraordinary scalability and capacity

The Power 795 server is designed to grow with a business by offering extraordinary scalability and configuration flexibility. Processor books, memory, I/O drawers, adapters and disk bays can be easily added to realize the potential power and capacity of the system. The Power 795 server can scale up to an eight-book configuration of 192 or 256 cores by adding additional processor "books." Each book contains four six-core or eight-core Single Chip Modules (SCMs), 32 memory DIMM slots, four I/O ports and two service processors. Dual service processor packaging per book helps improve reliability and availability by reacting to error conditions quickly and effectively.



Power 795 server

A Power 795 system offers tremendous memory capacity and bandwidth, supporting up to 8 TB of enhanced DDR3 memory. Active Memory™ Expansion is a new POWER7 technology, which allows the effective memory capacity of the system to be much larger than the true physical memory. Innovative compression/decompression of memory content can allow memory expansion up to 100 percent. This can allow a partition to do significantly more work with the same physical amount of memory or a server to run more partitions and do more work for the same physical amount of memory. Active Memory Expansion is available for partitions running AIX® 6.1 or later.

Up to three I/O drawers may be installed in the initial system frame, each drawer providing 20 PCIe adapter slots and up to 26 SAS hot-swap Small Form Factor disk bays. To provide ample room for growth and capacity, expansion frames are available to support up to 29 additional I/O drawers.

Mission-critical application availability

The Power 795 server includes many innovative RAS features as a fundamental part of its design to help keep the system up and running around the clock. Built upon the successful systems design of the Power 595, the Power 795 utilizes hot-swappable and redundant power and cooling components; sophisticated redundant service processors integrated into each processor book; two system clocks that are both active and support dynamic failover; IBM Chipkill ECC memory with additional DRAM sparing; First Failure Data Capture mechanisms to log and help prevent the recurrence of intermittent failures that diagnostics cannot reproduce; and dynamic de-allocation of system components, including processors and PCI bus slots, to help reallocate resources when an impending failure is detected so applications can continue to run unimpeded. All of these functions help to increase system availability and allow more work to be processed with less potential for disruption.

In addition, Processor Instruction Retry provides for the continuous monitoring of processor status with the capability to restart a processor if certain errors are detected. And if required, workloads can even be redirected to alternate processors, all without disruption to application execution.

Power 795 logical partitions are designed to be isolated 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, simplifying overall systems administration and

helping to balance workloads and enhance availability. In addition, IBM System Storage® and PowerHA™ offerings deliver a range of high-availability options, including mirroring in a clustered server environment for near-continuous system availability.

Enterprise-class PowerVM virtualization

IBM PowerVM is the family of Power technologies, capabilities and offerings that deliver secure, industry-leading virtualization. It includes base components provided with Power Systems firmware, and optional components—PowerVM Editions—designed to pool resources and optimize their use across application environments and operating systems to deliver the power and flexibility to address multiple system requirements in a single machine.

PowerVM Standard Edition includes capabilities such as Micro-Partitioning™, Virtual I/O Server, Multiple Shared Processor Pools and Shared Dedicated Capacity, which are designed to allow businesses to increase system utilization while helping to ensure applications continue to get the resources they need. VIOS allows for the sharing of disk and optical devices as well as communications and Fibre Channel adapters to help drive down complexity and systems/administrative expenses.

Multiple Shared Processor Pools allows for the automatic non-disruptive balancing of processing power between partitions assigned to shared pools, resulting in increased throughput. It also provides the ability to cap the processor core resources used by a group of partitions to potentially reduce processor-based software licensing costs. Shared Dedicated Capacity allows for the “donation” of spare CPU cycles from dedicated processor partitions to a Shared Processor Pool. The dedicated partition maintains absolute priority for dedicated CPU cycles. Enabling this feature may help to increase system utilization, without compromising the computing power for critical workloads in a dedicated processor

PowerVM Enterprise Edition includes all the features of Standard Edition plus Live Partition Mobility (LPM) and Active Memory Sharing. Live Partition Mobility supports the movement of a running AIX or Linux partition from one physical server to another compatible server without application downtime, helping avoid application interruption for planned system maintenance, provisioning, and workload management. Active Memory Sharing enables the sharing of a pool of physical memory among logical partitions on a single server, helping to increase memory utilization and drive down system costs. The memory is dynamically allocated amongst the partitions as needed, to optimize the overall physical memory usage in the pool

Flexibility with Capacity on Demand

Providing additional capacity to a Power 795 system could not be easier: standby processors and memory may be activated in granular increments through Capacity on Demand (CoD) options.

Several types of Capacity on Demand (CoD) are available. Clients can activate processors (in one processor increments) or memory (in one GB increments) on a day-to-day basis (On/Off CoD), a 30-day trial (Trial CoD), or permanently (Capacity Upgrade on Demand (CUoD)). Additionally, Utility CoD allows clients to install processors and activate them on a minute-to-minute basis. The modular architecture of the Power 795 and its Capacity on Demand offerings enable enterprises to best accommodate growth while maintaining application availability.

EnergyScale innovation

As the price of energy increases and resources become limited, energy efficiency through better utilization has become increasing vital.

The Power 795 server utilizes an enhanced airflow design and dynamic, deeply integrated power and thermal monitoring. IBM Systems Director Active Energy Manager software exploits EnergyScale technology by monitoring power/thermal utilization and conserving energy through enablement of power management features for improved system utilization and energy efficiency.

Broad application support

The Power 795 is designed to manage growth, complexity and risk by giving clients the flexibility to run the AIX, IBM i, and Linux operating systems concurrently, via logical partitions. AIX, IBM's industrial-strength UNIX environment, is built on a tradition of reliability, availability, security and open standards for business-critical applications.

The IBM i operating system is a highly scalable and virus resistant architecture with a proven reputation for integration, simplicity and exceptional business resiliency. It integrates a trusted combination of relational database, security, web services, networking and management capabilities and provides a broad and highly stable database and middleware foundation for efficiently deploying business processing applications.

The Red Hat and Novell/SUSE Linux operating systems may be ordered from IBM and select Linux distributors and include many open source applications, tools and utilities. By utilizing the PowerVM Editions feature PowerVM Lx86 running on a Linux for Power distribution, the Power 795 system offers the flexibility and performance to consolidate x86 servers running a mix of web, LAMP (Linux, Apache, MySQL and PHP/Perl/Python) and database workloads, helping clients to better manage growth without adding complexity.

Power 795 server at a glance	
Processor cores (maximum)	192 POWER7 3.72 GHz processors 256 POWER7 4.00 GHz processors 128 POWER7 4.25 GHz processors (TurboCore)
Processor books	Up to eight
Sockets	Up to 32
Level 2 (L2) cache	256 KB L2 cache per core
Level 3 (L3) cache	4 MB L3 cache per core (eDRAM) or 8 MB L3 cache per core (eDRAM)
RAM (memory)	32 DIMMs per processor book Up to 8 TB of 1066 MHz DDR3
PCIe I/O drawers	24": 1 – 32
Internal disk bays	26 SAS Small Form Factor bays in each 24" PCIe I/O drawer Up to 832 maximum per system in 24" drawers Up to 2,220 bays in 19" drawers
Adapter slots	20 PCIe in each 24" I/O drawer 640 maximum per system
I/O ports	4 GX++ adapter ports per processor book, 32 per system
Hardware Management Console ports	Two pairs via redundant Ethernet hubs
POWER Hypervisor™	LPAR, Dynamic LPAR, Virtual LAN
PowerVM Standard Edition (optional)	Micro-Partitioning with up to 10 micro-partitions per processor (254 maximum); Multiple Shared Processor Pools; Virtual I/O Server; Shared Dedicated Capacity; PowerVM Lx86
PowerVM Enterprise Edition¹ (optional)	PowerVM Standard Edition plus Live Partition Mobility and Active Memory Sharing

Power 795 server at a glance

RAS features	<p>Processor Instruction Retry Alternate Processor Recovery Selective dynamic firmware updates IBM Chipkill ECC, bit-steering memory ECC L2 cache, L3 cache Redundant service processors with automatic failover Redundant system clocks with dynamic failover Hot-swappable disk bays Hot-plug/blind-swap PCI slots Hot-add I/O drawers Hot-plug power supplies and cooling fans Dynamic Processor Deallocation Dynamic deallocation of logical partitions and PCI bus slots Extended error handling on PCI slots Redundant power supplies and cooling fans Battery backup and redundant battery backup (optional)</p>
Capacity on Demand features (optional)	<p>Processor CUoD (in increments of one processor) Memory CUoD (in increments of 1 GB) On/Off Processor CoD On/Off Memory CoD Trial CoD Utility CoD</p>
Operating systems	<p>AIX, IBM i, and Linux for Power²</p>
High availability	<p>PowerHA family</p>
Power requirements	<p>200 V to 240 V; 380 V to 415 V; 480 V ac; 550 V dc</p>
System dimensions	<p>One frame (slimline doors): 79.3"H x 30.5"W x 58.5"D (201.4 cm x 77.5 cm x 148.6 cm); weight: 2,551 lb (1157.2 kg)³ One frame (acoustic doors): 79.3"H x 30.5"W x 71.1"D (201.4 cm x 77.5 cm x 180.6 cm); weight: 2,577 lb (1,168.9 kg)³</p>
Warranty (limited)	<p>24x7, same day response for one year; on-site (varies by country). Warranty service upgrades and maintenance are available.</p>

For more information

To learn more about the IBM Power 795 server, please contact your IBM marketing representative or IBM Business Partner, or visit the following websites:

- ibm.com/systems/power/
- ibm.com/systems/power/software/aix
- ibm.com/systems/power/software/i
- ibm.com/linux/power
- ibm.com/common/ssi



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

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.



Please Recycle

- ¹ Live Partition Mobility not supported on IBM i
- ² See Facts and Features for specific supported operating system levels
- ³ Weight will vary when disks, adapters, additional frames, and other peripherals are installed.

