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## Highlights

- Optimized for running highly parallel computationally intensive workloads and algorithms such as weather and climate modeling, computational chemistry, physics and petroleum reservoir modeling
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# IBM Power 755 server

*High performance compute node for scalable clusters using InfiniBand architecture interconnect products.*

The Power® 755 server is a four-socket, 4U rack-mounted server that offers 32 POWER7™ processor cores running at a frequency of 3.6 GHz. A maximum of 64 GB of memory is allowed on each processor card, making for a system maximum of 256 GB of memory in the four-processor card system. The IBM Power 755 compute node is designed for organizations that require a scalable system with extreme parallel processing performance and dense packaging.

Ideal workloads for Power 755 include high performance computing (HPC) applications such as weather and climate modeling, computational chemistry, physics and petroleum reservoir modeling that require highly intense computations where the workload is aligned with parallel processing methodologies. *The Power 755 supports Altivec™ instruction set and extended VSX SIMD, acceleration, which can execute up to eight single-precision or double-precision floating point operations per clock cycle per core to improve fine-grained parallelism and accelerate data processing.* Using 12X InfiniBand adapters up to 64<sup>1</sup> Power 755 nodes, each with 32 cores, can be clustered together providing up to 2,048 POWER7 cores. The IBM High Performance Computing software stack provides the necessary development tools, libraries, and system management software necessary to manage a Power 755 server cluster running AIX® 6.1.

The Power 755 is an ENERGY STAR®-qualified server designed with features to help clients become more energy efficient. The leadership performance of the IBM Power 755 translates into outstanding performance per watt and IBM Systems Director Active Energy Manager™ exploits EnergyScale™ technology enabling advanced energy management features to help clients achieve the most efficient computing environment for their systems.



## Leadership POWER7 performance

The leadership performance of the POWER7 processor makes it possible for applications to run faster and reduce the number of required server nodes reducing infrastructure costs. *Support for AltiVec instruction set and extended VSX SIMD acceleration can execute up to eight single-precision or double-precision floating point operations per clock cycle per core to improve fine-grained parallelism and accelerate data processing.*

## Outstanding compute density

The IBM Power 755 offers tremendous processing power in a dense 4U node to meet the most demanding HPC application requirements by supporting 32 POWER7 processor cores and 256 GB of memory.

## Innovative Technologies

POWER7 introduces new innovative technologies that provide the flexibility to satisfy the most demanding processing environments potentially delivering business advantages and higher client satisfaction.

POWER7 processor technology maximizes performance based on client workloads and computing needs. Power Systems™ 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 755 server can deliver up to 128 simultaneous compute threads.

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



Power 755 rack-mount server

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.

## Enhanced Energy efficiency with ENERGY STAR

POWER7 delivers the first RISC-based ENERGY STAR-qualified servers designed 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 755 translates into outstanding performance per watt and IBM Systems Director Active Energy Manager exploits EnergyScale technology enabling advanced energy management features to further improve energy efficiency.

Feature	Benefits
<b>Leadership POWER7 performance</b>	<ul style="list-style-type: none"> <li>• High frequency processors provide the ability to solve problems faster or tackle even larger, increasingly complex challenges</li> <li>• Support for AltiVec SIMD acceleration</li> <li>• Ability to inject more variables into equations to improve modelling accuracy</li> <li>• Do more work with fewer nodes and benefit from infrastructure cost savings from a reduction in the number of servers and software licenses</li> </ul>
<b>Outstanding compute density</b>	<ul style="list-style-type: none"> <li>• 32 cores of POWER7 performance in a 4U rack-optimized node</li> </ul>
<b>Frequency boost</b>	<ul style="list-style-type: none"> <li>• Maximize performance to better utilize data center assets</li> </ul>
<b>ENERGY STAR-compliant</b>	<ul style="list-style-type: none"> <li>• Use less energy and reduce greenhouse gas emissions</li> </ul>
<b>IBM Systems Director Active Energy Manager with EnergyScale Technology</b>	<ul style="list-style-type: none"> <li>• Dramatically and dynamically improve energy efficiency and lower energy costs with innovative energy management capabilities</li> <li>• Enables business to continue operations when energy is limited</li> </ul>

**Power 755 at a glance**

Configuration options	
Processor modules	8-core 3.6 GHz POWER7 processors with AltiVec SIMD acceleration
Sockets	4 <sup>2</sup>
Level 2 (L2) cache	256 KB per core
Level 3 (L3) cache	4 MB per core
Memory	128 GB to 256 GB of 1066 MHz DDR3
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	One slimline for DVD-RAM
PCI Adapter slots	Two PCI-X 2.0; Three PCI Express 8x
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
Other integrated ports	Three USB, two HMC, two system ports
GX slots (12X)	One <sup>3</sup>

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**Power 755 at a glance**

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<p><b>Expansion features</b> (optional)</p> <p>High-performance PCI adapters</p> <p>Other PCI adapters supported include</p>	<p>8 Gigabit Fibre Channel, 10 Gigabit Ethernet, 10 Gigabit Fibre Channel over Ethernet</p> <p>SAS, SCSI, WAN/Async, USB, Crypto, iSCSI</p>
<p><b>RAS features</b></p>	<p>IBM Chipkill ECC detection and correction</p> <p>Processor Instruction Retry</p> <p>Alternate Processor Recovery</p> <p>Service processor with fault monitoring</p> <p>Hot-plug disk bays</p> <p>Hot-plug and redundant power supplies and cooling fans</p> <p>Dynamic component Deallocation</p>
<p><b>Operating systems</b><sup>4</sup></p>	<p>AIX</p> <p>Linux® for POWER®</p>
<p><b>Power requirements</b></p>	<p>200 V to 240 V ac, single phase</p>
<p><b>System dimensions</b></p>	<p>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)<sup>5</sup></p>
<p><b>Warranty</b> (limited)</p>	<p>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.</p>



## For more information

To learn more about the IBM Power 755 server, please contact your IBM marketing representative or IBM Business Partner, or visit the following Web sites:

- [ibm.com/systems/power/](http://ibm.com/systems/power/)
- <http://www-03.ibm.com/systems/power/software/aix/>
- <http://www-03.ibm.com/systems/power/software/>



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April 2011  
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When referring to storage capacity, total TB equals total GB divided by 1,000; accessible capacity may be less.

- <sup>1</sup> Capability to create a cluster of up to 64 nodes is planned to be available in March, 2010. Clusters larger than 64 nodes will be considered for support on a case-by-case basis.
- <sup>2</sup> All four sockets must be populated
- <sup>3</sup> Shares space with and replaces one PCI Express 8x slot
- <sup>4</sup> See facts and features document for detailed OS level support
- <sup>5</sup> Weight will vary when disks, adapters and peripherals are added

