IBM dévoile ses nouveaux systèmes à base de POWER7

Unprecedented Scale for Emerging Industry Business Models, from Smart Electrical Grids to Real-time Analytics

New York - 08 févr. 2010: IBM (IBM) today announced new POWER7™ systems designed to manage the most demanding emerging applications, ranging from smart electrical grids to real-time analytics for financial markets. The new systems incorporate a number of industry-unique technologies for the specialized demands of new applications and services that rely on processing an enormous number of concurrent transactions and data while analyzing that information in real time.

In addition, the new systems enable clients to manage current applications and services at less cost with technology breakthroughs in virtualization, energy savings, more cost-efficient use of memory, and better price performance.

IBM's new POWER7 systems, which build on the company's 12-point revenue share gains since 2004 in the $14 billion UNIX market (1), can manage millions of transactions in real time and analyze the associated volumes of data typical of emerging applications. A smart electrical grid requires per-the-minute data to deliver electricity where it is needed most, in real time, while helping customers monitor their energy consumption in real time to avoid or reduce usage during the most expensive peaks each day. A major U.S. utility moving to a smart grid pilot is moving from processing less than one million meter reads per day in a traditional grid, to more than 85 million reads per day in a smart grid. The utility needs to collect, analyze, and present all that information to its nearly five million customers in real time versus the overnight batch processing of a traditional electrical grid which delivers monthly billing statements.

For example, eMeter, a leading maker of software that runs e-grids, uses IBM Power Systems™ to process the extreme amount of data that comes in from millions of smart meters while analyzing that information on the fly. In Canada, operators of Ontario's grid -- the Independent Electricity System Operator (IESO) -- which provides centralized metering services for more than 90 utility companies within Ontario Province, uses eMeter software on IBM Power Systems to process hourly power consumption data from all residential customers and plans soon to move to 15-minute data for large commercial users across the province in the near future.

"*eMeter ran a successful benchmark on IBM POWER6 systems for more than 20 million smart meters -- more than four-times scale of any other utilities industry benchmark,*" said **Scott Smith, client business manager, eMeter**. "*We know that there are already markets in the world that are scaling significantly. Combining eMeter and IBM's POWER7 we are confident we can hit much higher numbers to meet their needs.*"

POWER7 systems can also offer industry-leading return on investment though dramatic improvements in price/performance, energy savings and virtualization for server consolidation. The new systems can deliver four times the performance and four times the virtualization capability for the same price -- and are three to four times more energy efficient.(2) Additionally, the total cost of acquisition and ownership can be better than competitive systems. For instance, the new IBM Power 750 Express currently delivers 71 percent better price for performance than Sun SPARC Enterprise T5440 server and more than 280 percent better than Sun SPARC Enterprise M5000 and M4000 servers. And the IBM Power 750 Express delivers more than 400 percent better price for performance than the HP Integrity rx7640 or the rx6600 servers.(3)

Four New Power Systems

The new systems and management software include:

·   IBM Power® 780, a new category of scalable, high-end servers, featuring an advanced modular design with up to 64 POWER7 "cores," or CPUs, and the new TurboCore™ workload optimizing mode. TurboCore can deliver up to two-times the performance per core of POWER6 processor-based systems, (2) providing excellent ROI for applications with high per-core performance requirements, such as managing and analyzing transactions from a smart electrical grid.

·   IBM Power 770, a modular enterprise system with up to 64 POWER7 cores, featuring higher performance per core than POWER6 processors (2) and using up to 70 percent less energy for the same number of cores as the IBM Power 570. (2)

·   IBM Power 755, a high-performance computing cluster node with 32 POWER7 cores, Energy Star qualified for energy efficiency, and optimized for the most challenging analytic workloads.

·   IBM Power 750 Express, an Energy Star qualified business server for mid-market clients offering four times the processing capacity of its predecessor, the IBM Power 550 Express (2), in the same energy envelope and 10 times the performance of a comparable HP Integrity rx6600 (4). The Power 750 is three times more energy efficient than the Sun SPARC Enterprise T5440, Sun's self-proclaimed "Coolthreads" server (4).

·   IBM Systems Director Express, Standard and Enterprise Editions, which offer new and greatly simplified packaging of management software for the new systems and include the advanced virtualization management capabilities of VMControl. VMControl allows a "systems pool" of multiple Power servers to be managed as one entity, which can enable reductions in management cost and complexity.

The Power 750 Express and 755 planned volume ship date is February 19 and the Power 770 and 780 planned volume availability is March 16. The IBM Systems Director Editions, supporting both POWER7 and POWER6 models, planned availability is March 5.

Systems Optimized for Workload Performance and Maximum ROI

IBM has vastly increased the parallel processing capabilities of POWER7 systems -- integrated across hardware and software -- a key requirement for managing millions of concurrent transactions. As expected, the new Power Systems continue the history of IBM industry-leading transaction processing speed, optimized for database workloads, and also deliver a leap forward to "throughput" computing, optimized for running massive Internet workloads.

These two computing methods, combined with superior analytics capabilities, are ideal for emerging business models where large amounts of data from sensors in electric grids, roads, or the supply chain, for example, can be connected to pools of POWER7 systems optimized for Internet workloads, then analyzed with analytics systems. The three modes -- massive parallel processing, "throughput" computing, and analytics capabilities -- are all integrated and managed consistently with IBM Systems Director software. The overall system can then manage other systems, storage and networking not only on POWER6 and POWER7 systems but also on IBM mainframes and x86-based System x servers -- providing a complete management framework including the advanced virtualization management of VMControl.

IBM also dramatically increased the parallel processing capabilities of its middleware software, such as WebSphere®, DB2®, InfoSphere Warehouse and Cognos for managing Internet, data, transactions, and analytics to support POWER7 systems -- with no need for clients or application providers to rewrite existing applications to exploit POWER7 advanced technologies.

Innovative, Workload-Optimized Features

To manage the demands of emerging applications, and better manage traditional applications, the new POWER7 systems -- comprised of innovative and integrated hardware and software -- are designed with workload-optimizing technologies, such as:

Faster cores and more throughput to manage massively parallel transactions: POWER7 systems use more "cores," or CPUs, and add more "threads," or virtual "cores", which are resources that manage computational tasks, per chip: Each new POWER7 processor or "chip" can now run 32 simultaneous tasks – with eight cores

and four threads per core -- quadruple the maximum number of cores of POWER6 systems and eight-times the number of threads per chip as POWER6 (2). IBM Power Systems then automatically engage those cores and threads in various modes depending upon the workload to maximize overall performance.

TurboCore mode, which is highly optimized for database or other transaction-oriented workloads, does this by running with four cores active and putting most of the resources from all eight cores on the chip behind just the four active cores giving them more cache memory and memory bandwidth, and allowing the clock speed to be increased, driving significant per core performance gains. TurboCore mode can maximize the ROI from software by potentially reducing software costs in half for those applications that are licensed per core, while increasing per core performance from that software. Select models will support TurboCore mode, such as the Power 780 being announced today.

When not in TurboCore mode, all POWER7 processors are in MaxCoreTM mode with up to 8-cores per socket and 4-threads per core – 32 threads total. With eight times the simultaneous threads executing per "chip", POWER7 is well suited for Internet-based workloads with many tasks coming in simultaneously that benefit from being run in parallel. For example, an energy company presenting smart meter data to its clients on the Web might connect a system pool of POWER7 servers to its Internet-connected meters.

POWER7 technology features "Intelligent Threads" that can dynamically vary based on workload demand. With more threads, POWER7 can deliver more total capacity as more tasks are accomplished in parallel, such as monitoring the energy usage of millions of households by the minute in a smart grid. With fewer threads, those workloads that need very fast individual processing -- such as real-time analytics or database transactions -- can get the performance they need for maximum benefit. Intelligent Threads work on all POWER7 processors and can effectively increase capacity and total performance gains.

For workloads that require large amounts of memory, or in virtualized environments where more memory is very beneficial, clients can utilize a new POWER7 technology, Active Memory Expansion™, a unique capability that uses memory compression technology to make the physical memory on the system appear to the application as if it were up to twice as large as it actually is. Active Memory Expansion technology dynamically adjusts the amount of compressed memory based on a workload's memory needs, transparently compressing more data to be placed into memory and thus expanding the memory capacity of POWER7 systems. For example, without installing any more physical memory, using Active Memory Expansion, the system can be configured such that an SAP application thinks there is 50 percent more physical memory on the system than is actually installed. IBM estimates up to a 65 percent increase in transactions or users could be handled by the same server previously constrained by memory capacity.(5)

IBM's WebSphere Application Server and DB2 database have been designed to exploit the capabilities of POWER7 systems with no need to rewrite existing applications. For example, WebSphere will be able to exploit all 32 threads available in a single 8-core POWER7 microprocessor, resulting in performance gains of nearly 73 percent (6) over competitive application servers on Nehalem. Performance for DB2 software for managing

enormous amounts of transaction-driven data, has also been increased to match the new capabilities of POWER7, further improving the scalability advantage of DB2 pureScale on POWER over Oracle RAC on Nehalem. Lotus Domino running on POWER7 supports 40,000 users at 40 percent of the cost of Microsoft Exchange on Nehalem (7). According to IBM Business Partner Oxford International, a leading provider of enterprise modernization solutions, new IBM Rational application development and management software for POWER7 is providing improvements of up to 30 percent in team productivity in all aspects of the development process.

IBM's POWER7 systems are designed to make dramatically better use of energy.   Unique Intelligent Energy technology allows customers to power on and off various parts of the system or to dynamically increase or decrease processor clock speeds based on thermal conditions and system utilization, on a single server or across a pool of multiple servers. POWER7 energy management technologies are integrated from its processor, to firmware, PowerVM virtualization, operating system support, and up to IBM Active Energy Manager software, included in the new IBM Systems Director Standard and Enterprise Editions. As a result, the system dynamically balances between energy usage and performance and systems utilization based on policy. The result is improved performance per watt -- more than two-times better than similar Intel x86-based systems, four times better than Sun SPARC servers and eight times better than similar HP Itanium-based servers. (4)

POWER7 systems feature industry-leading virtualization -- supporting 1,000 virtual servers or "partitions" on a single system -- over four times as many as on POWER6 systems -- to help reduce costs by consolidating systems and enabling clients to drive to 90 percent utilization using IBM PowerVM virtualization software (8). In effect, this enables a single bigger server to do the work of up to a thousand smaller servers while dynamically load balancing across them all, which can increase ROI, performance and utilization of the virtualized servers.

IBM Global Financing, the lending and leasing arm of IBM can help new and existing Power Systems users step up to the new POWER7 technology with flexible financing offerings that include the upgrade, take-out and disposal of existing leased and owned servers regardless of manufacturer. For more information, visit: http://www.ibm.com/financing/us/lifecycle/manage/migration/index.

About IBM Power Systems

IBM Power Systems run on the AIX, Linux and IBM i operating systems. For more information about IBM Power Systems visit: http://www-03.ibm.com/systems/power/

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(1) Source: IDC Worldwide Quarterly Server Tracker

(2) Power System comparisons of performance and energy between POWER7-processor based systems and POWER6-processor based systems can be found at www.ibm.com/systems/power

(3) Leading price for performance.

The SPECint_rate2006 results can be found at www.spec.org. Competitive benchmark results stated above reflect results published on www.spec.org as of February 2, 2010. The comparison presented above is based on the best performing 4-socket RISC/EPIC servers currently shipping by IBM, HP and Sun respectively. SPECint_rate2006 results are: IBM Power 750 Express with 4 chips and 32 cores and four threads per core with a result of 1,010 peak. Sun SPARC Enterprise T5440 with 4 chips and 32 cores and eight threads per core with a result of 360 peak. Sun SPARC Enterprise M5000 with 8 chips and 32 cores and 2 threads per core with a result of 296 peak. Sun SPARC Enterprise M4000 with 4 chips and 16 cores and 2 threads per core with a result of 152 peak. HP Integrity rx7640 with 8 chips and 16 cores and one thread per core with a result of 201 peak. HP Integrity rx6600 with 4 chips and 8 cores and one thread per core with a result of 102.

Prices for all systems configured similarly with processor type and number used for the SPECint_rate benchmark and with 4 GB or memory per processor core. Prices were estimated from vendor websites and are based on US List prices obtained on February 7, 2010.

Prices for Sun systems were estimated from Oracle Sun Shop website for Sun SPARC Enterprise servers: Sun SPARC Enterprise T5440 with 4 chips and 32 cores at 1.6GHz (32-cores total) with 128GB of memory. Sun SPARC Enterprise M5000 with eight 2.53 GHz SPARC64 VII Quad-Core Processors (32-cores total) and 128 GB of memory. Sun SPARC Enterprise M4000 with four 2.53 GHz SPARC64 VII Quad-Core Processors (16 cores total) and 64 GB of memory.

http://www.oracle.com/us/products/servers-storage/servers/sparc-enterprise/index.html

Prices for HP systems above were estimated from HP website for HP Integrity servers and the online HP Configurator: HP Integrity rx6600 with four dual core 1.6GHz/24MB Itanium processors (8 cores total) and 32 GB of memory. HP Integrity rx7640 with eight dual core 1.6 GHz/18MB Itanium processors (32-core total) and 128 GB of memory.

http://h30099.www3.hp.com/eGlue/eco/begin.do

IBM prices for the Power 750 were based four 8-core 3.3 GHz POWER7 processor chips (32-cores total) with 128

GB of memory. Pricing and can be found on the IBM website at www.ibm.com/systems/power.

(4) Competitive comparisons for performance reflect results published as of February 4, 2010. The results are based on SPECint_rate2006 and can be found at www.spec.org. (link resides outside ibm.com). POWER7 results to be submitted to SPEC by February 8, 2010.

SPEC® and the benchmark names SPECrate®, SPECint®, and SPECjbb® are registered trademarks of the Standard Performance Evaluation Corporation. For the latest SPEC benchmark results,
visit http://www.spec.org (link resides outside of ibm.com)
Energy Efficiency is measured by performance per WATT. Using SPECint_rate2006 as the measure for performance and the Maximum power usage from the HP QuickSpecs and Sun Site Planning Guides and IBM Announcement letters as the measure of energy usage.
A summary of these results can also be found at
 http://www.ibm.com/systems/power/hardware/notices/20100209_annc.html

(5) Testing by IBM with a sample SAP ERP workload found up to a 65 percent increase in additional transactions/users could be handled by the same server which had previously been constrained by a limited memory configuration.

(6) Based on IBM internal studies. Results for a single JVM.

(7) based on sizing from http://h20338.www2.hp.com/ActiveAnswers/us/en/sizers/microsoft-exchange-server-2010.html

(8) All POWER7 systems support up to 10 virtual images per processor core, so the new Power 770 or 780 systems with up to 64-cores can support up to 640 virtual severs per system. The 1,000 virtual servers is in reference to the statement of direction also announced today that IBM plans to deliver a new high-end server in 2010 with up to 256 POWER7 processor cores, supporting 1000 virtual images, and is expected to dramatically improve high-end performance per-watt and performance per-square-foot, as it is designed to operate within the same physical footprint and energy envelope of the current 64-core Power 595 server. Additionally, the POWER7 high-end server is being enabled to support optional high-voltage DC power inputs to further increase its energy efficiency.