



Smarter systems for a Smarter planet

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IBM Power Systems Announcement Overview



POWER7 technology – greater performance, virtualization without limits, intelligent systems software

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.

IBM announced four new POWER7 systems with technology breakthroughs to dramatically increase computing power to meet the demands of today's new applications. At the same time, the POWER7 systems offer industry-leading return on investment through new pricing, energy savings and virtualization for server consolidation. The new systems deliver up to twice the performance and four-times the virtualization for the same price and same energy usage compared to similar POWER6™ systems. Additionally, the total cost of acquisition and ownership is better than competitive systems.

- IBM Power® 780, a new category of scalable, high-end servers, featuring an advanced modular design with up to 64 POWER7 cores and the new TurboCore™ workload optimizing mode.
- IBM Power 770, a midrange system with up to 64 POWER7 cores, featuring higher performance per core and using up to 70 percent less energy for the same number of cores as the IBM Power 570.
- IBM Power 755, a high-performance computing cluster node with 32 POWER7 cores, Energy Star qualified for exceptional energy efficiency, and optimized for challenging analytic workloads.
- IBM Power 750 Express, an Energy Star qualified business server for mid-market clients.

The company also announced new IBM Systems Director software to manage POWER7 systems, which includes the ability to place servers into pools that can be managed as a single entity.

Announcement Summary

Today, IBM announces four powerful new servers based on innovative IBM POWER7 processor technology, enhanced systems software and proven PowerVM™ virtualization capabilities. These latest additions to the family of IBM Power Systems™ servers are designed to help minimize complexity, improve performance across multiple workloads, automate processes, reduce energy consumption, increase availability and lower total cost of ownership. With eight cores per module, POWER7 processors enable more performance than comparable IBM POWER6 based systems in one fourth of the space¹. But outstanding performance, enhanced virtualization and mainframe-inspired RAS (reliability, availability and serviceability) are only part of the story. Also announced today are IBM Systems Director Express, Standard and Enterprise Editions for Power, V6.1.2 – a comprehensive array of systems management capabilities to enable clients to consolidate and manage UNIX®, IBM i, and Linux® workloads.

IBM Power 780 Server

The IBM Power 780 server is designed for virtualized consolidation of business critical workloads, including large database serving and transaction processing applications. The Power 780 offers clients 16- to 64-core POWER7 processor configurations running at 3.8 GHz or, utilizing the unique TurboCore™ mode, up to 32 POWER7 processor cores at 4.1 GHz. At the user's choice, any Power 780 server can be booted in MaxCore mode at 3.8 GHz or in TurboCore mode, allowing half the processor cores (up to 32 per server) to run at 4.1 GHz with twice the cache. Clients have the ultimate in flexibility, since they can switch between standard throughput optimized mode or TurboCore mode for greater performance per POWER7 processor core.



IBM Power 780

Included at no additional charge with Power 780 systems is a PowerCare services option, which entitles a client to choose one of several high-value technical service offerings from IBM to complement and assist in the deployment of a Power 780 server, whether a new system purchase or a model conversion to a Power 780 server. By leveraging the skills, experiences, and proven methodology of IBM Services professionals, clients can potentially increase the efficiency and quality of their complex datacenter operations. For more details on available PowerCare services options, visit: <http://www.ibm.com/systems/power/support/powercare/>.

IBM Power 770 Server

For clients whose business-critical workloads are somewhat smaller, but still require world-class availability features, efficient use of resources through virtualization capabilities and outstanding flexibility for growth, the IBM Power 770 server is the answer. Two high-performance POWER7 processor options are available on the Power 770. Clients may select 16- to 64-core POWER7 processor configurations running at 3.1 GHz or 12- to 48-core configurations running at 3.5 GHz.

IBM Power 750 Express Server

The IBM Power 750 Express server delivers the performance and energy efficiency of POWER7 technology – coupled with the configuration flexibility of PowerVM virtualization capabilities – in a compact 4U (4 EIA units) rack-mount package. The Power 750 Express is a 1- to 4-socket server using POWER7 6-core and 8-core processor options running at 3.0 GHz, 3.3 GHz or 3.55 GHz. It is an ideal consolidation, medium to large database or virtualized multi-application server for UNIX, IBM i, x86 Linux² and Linux for Power workloads.

IBM Power 755 Server

The IBM Power 755 server is optimized for running highly parallel, computationally intensive workloads and algorithms such as weather and climate modeling, computational chemistry, physics and petroleum reservoir modeling. With 32 POWER7 processor cores running at 3.3 GHz and memory capacity up to 256 GB, this high-performance compute node is designed for organizations that require a scalable system with extreme parallel processing performance and dense packaging. Using optional Enhanced Dual Port 12X Infiniband adapters, clients can create clustered configurations ranging up to 64 Power 755 compute nodes (2,048 processor cores). POWER7 processors support AltiVec™ instruction set and extended VSX (Vector Scalar Extension) SIMD (single instruction multiple data) 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.

POWER7 technology breakthroughs



POWER7 technology provides much more value than just leading-edge processing density with eight cores per module. The performance and energy efficiency of the Power Systems servers introduced today are made possible by innovative POWER7 technologies, including the unique TurboCore mode as described earlier for the Power 780 server. New Intelligent Threads technology enables workload optimization by dynamically selecting the most suitable threading mode – single thread per core, SMT (simultaneous multi-thread) with two threads per core or SMT with four threads per core. As a result, applications can run at their peak performance and server workload capacity is increased.

An optional technology available on all POWER7 processor-based servers is Active Memory™ Expansion, which allows the effective memory capacity of the system to be much larger than the physical memory. Innovative compression/decompression of memory content can allow memory expansion up to 100 percent, allowing a logical partition to do significantly more work with the same physical amount of memory or enabling a server to run more partitions and do more work for the same physical amount of memory. The degree of expansion depends on how compressible the data is and the processing resources available. Active Memory Expansion is available for partitions running AIX® 6.1 Technology Level 4, or later.

Working in conjunction with IBM Systems Director Active Energy Manager software to monitor power usage and thermal conditions, EnergyScale™ technology allows POWER7 processors to operate at a higher frequency for increased performance and, consequently, more performance per watt. Alternatively, if workloads permit, the processor clock frequency can be dramatically reduced to save energy while maintaining required application performance. This hardware and software of this Intelligent Energy environment are designed to provide clients with total operational control of their energy policy.

Virtualization without limits

PowerVM virtualization is an essential element of the Power Systems family of servers, offering clients exciting possibilities for application consolidation, improved resilience and increased system utilization. POWER7 processor-based Power 750 Express, 770 and 780 servers take full advantage of this innovative IBM virtualization solution. All Power Systems servers include firmware that provides dynamic logical partitioning (LPAR) technologies, allowing any LPAR to access the



maximum amount of memory and processor cores available on the server, and Virtual LAN technology for memory-to-memory communication among partitions. For additional workload optimizing capabilities, clients may select one of the optional PowerVM Editions.

Available only on the Power 750 Express server, PowerVM Express Edition provides clients an introduction to more advanced virtualization features at an attractive price. PowerVM Express provides Virtual I/O Server (VIOS) and Integrated Virtualization Manager (IVM) software that allow clients to create up to three partitions on the server, one of which is dedicated to run VIOS and IVM. Clients can share storage devices and communications adapters using VIOS, utilize Shared Dedicated Capacity to help optimize use of processor cycles, and try out the Shared Processor Pool. IVM provides an easy-to-use browser-based interface. A Hardware Management Console (HMC) is not required.

Optional PowerVM Standard Edition includes all the features of Express Edition plus Micro-Partitioning™ and VIOS capabilities, designed to allow increased processor utilization and sharing of disk and optical devices, as well as communications and Fibre Channel adapters. PowerVM Standard Edition also supports Multiple Shared Processor Pools and Shared Dedicated Capacity, features designed to help balance processing power among partitions and optimize use of processor cycles. The PowerVM Enterprise Edition includes all the features of Standard Edition plus Live Partition Mobility³ and PowerVM Active Memory Sharing⁴. Live Partition Mobility allows a partition to be relocated from one server to another without the need to shut down the applications running inside the partition, while Active Memory Sharing offers increased utilization of memory among partitions.

Another key element of the IBM virtualization solution for Power Systems is VMControl™, a virtualization management plug-in for IBM Systems Director that can be used to manage virtualized resources on any POWER7 processor-based server and is available in three editions. VMControl Express Edition provides LPAR lifecycle management capabilities, while VMControl Standard Edition adds the ability to create and store ready-to-run virtual images in a shared repository. VMControl Enterprise Edition includes the capabilities of VMControl Standard Edition, plus the ability to create and manage system pools – collections of virtual images running on multiple servers – as easily as managing a single LPAR.

Additional Detail – Power 770 and 780 Servers

Power 770 and Power 780 servers are designed in an easily expandable 4U rack-mount modular package to accommodate clients' requirements for both rapidly changing resource requirements in an on demand environment and long-term business growth. Each 4U system enclosure accommodates a processor card with two POWER7 processor modules. On the Power 780, each module provides eight 64-bit POWER7 processor cores, with each core having 256 KB of Level 2 (L2) cache and either 4 MB (MaxCore mode) or 8 MB (TurboCore mode) of Level 3 (L3) cache. On the Power 770, each 3.1 GHz processor module provides eight POWER7 cores and each 3.5 GHz module provides six cores, with each core having 256 KB of L2 cache and 4 MB of L3 cache. All processor card options on Power 770 and 780 servers have 16 slots for DDR3 (double data rate 3) Chipkill ECC memory DIMMs, providing memory capacity of up to 512 GB per enclosure or 2 TB⁵ per system, depending on memory speed⁶.

This modular design offers clients the ability to add I/O features easily and cost-effectively as their business needs increase. In addition to processors and memory, each system enclosure provides:

- Six hot-swappable disk drive bays for SFF (Small Form Factor) SAS (Serial Attached SCSI) drive bays, allowing up to 1.8 TB of internal storage
- An optional hot-plug slimline media bay
- Six hot-plug PCI Express (PCIe) 8x I/O adapter slots
- Two GX++ adapter slots for attachment of optional expansion drawers to provide significant additional I/O adapter and disk storage capacity
- An extensive set of integrated I/O controllers
- Redundant hot-plug power supplies and cooling fans

Power 770 and 780 servers offer clients many features designed to allow them to start small and grow with continuous application availability. The innovative Hot-Node Add⁷ capability allows clients to add additional building blocks without powering down the system. In addition, several types of Capacity on Demand (CoD) are optionally available. Clients can install processors or memory and activate them on a 30-day trial (Trial CoD), a day-to-day basis (On/Off CoD) or permanently (Capacity Upgrade on Demand (CUoD)). Utility CoD allows clients to install processors and have them automatically activated as needed on a minute-to-minute basis.

These modular systems are designed for high availability, with an extensive set of RAS capabilities to compliment their processing power, I/O expandability, virtualization technologies and growth-on-demand features. Among the technologies designed to help increase system availability and reduce operational disruptions are:

- Redundant service processor and clock with dynamic failover (for systems larger than one building block)
- Hot-plug, hot-swappable, blind-swap and redundant components
- IBM Chipkill ECC memory with additional DRAM sparing
- First Failure Data Capture mechanisms
- Dynamic deallocation of system components
- Processor Instruction Retry to monitor processor status and, if certain errors are detected, to restart a processor or redirect workloads to alternate processors
- Hot-node Repair⁷ to enable repair and replacement of components with reduced impact to system operations

Power Systems Announcement Overview

For enhanced server availability, the Power 770 and 780 can be clustered with IBM PowerHA™ for disaster recovery or DB2® pureScale™ for continuous database availability.

To provide added value for clients of IBM Power 570 (9117-MMA) servers with POWER6 and POWER6+™ processors, model conversions to POWER7 processor-based Power 770 (9117-MMB) and Power 780 (9179-MHB) servers are available. Model conversions are made up of many individual feature conversions. Selected features, I/O adapters and peripheral devices can be moved to the Power 770 or Power 780 configuration.

The Power 780 server is covered by a 1-year 24x7, same day warranty, and the Power 770 is covered by a standard 1-year, 9x5 next business day warranty. Warranty service upgrades are available.

Support and availability

Both servers are supported by the following operating systems, or later:

- AIX 5.3 with:
 - 5300-11 Technology Level and Service Pack 2, or
 - 5300-10 Technology Level and Service Pack 4 (available May 28, 2010), or
 - 5300-09 Technology Level and Service Pack 7 (available May 28, 2010)
- AIX 6.1 with:
 - 6100-04 Technology Level and Service Pack 3, or
 - 6100-03 Technology Level and Service Pack 5 (available June 25, 2010), or
 - 6100-02 Technology Level and Service Pack 8 (available June 25, 2010)
- IBM i 6.1 with 6.1.1 machine code (available March 16, 2010)
- SUSE Linux Enterprise Server 10 Service Pack 3
- SUSE Linux Enterprise Server 11

If installing Virtual I/O Server (VIOS) software, VIOS 2.1.2.12 with Fix Pack 22.1 and Service Pack 2, or later, is required.

There are unique considerations when running Java™ 1.4.2 on POWER7. For more information refer to the following website: <http://www.ibm.com/developerworks/java/jdk/aix/service.html>

Except as noted below, planned availability for the Power 770 server and all features, including the following MES orderable feature is March 16, 2010:

- Processor Activations (FCs 5459 and 5468)
- Memory Activations (FCs 8212 and 8213)
- COD Billing features (FCs 7642, 7643, 7644, 7645, 7646, 7647, 7648 and 7649)
- Secondary Operating System Partition Specify (FCs 0265, 0266 and 0267)
- All other MES features are planned for availability June 4, 2010

Except as noted below, planned availability for the Power 780 server and all features, including the following MES orderable feature is March 16, 2010:

- Processor Activation (FC 5469)
- Memory Activations (FCs 8212 and 8213)
- COD Billing features (FCs 7633, 7634, 7635 and 7636)
- Secondary Operating System Partition Specify (FCs 0265, 0266 and 0267)

- All other MES features are planned for availability June 4, 2010

Exceptions to the March 16, 2010, availability date for both Power 770 and 780 servers are:

- June 4, 2010 – Model conversions from Power 570 (9117-MMA) servers to Power 770 (9117-MMB) or Power 780 (9179-MHB) servers
- June 18, 2010 – Base Customer Specified Placement feature (FC 8453)
- November 19, 2010 – 128 GB memory feature (FC 5602) and Concurrent maintenance functions (Hot-Node Add, Hot-Node Repair and Memory Upgrade)

Additional Detail – Power 750 Express Server

The 4U rack-mount Power 750 Express server provides four processor card sockets, which offer clients the following range of configuration options:

- One to four 6-core, 3.3 GHz POWER7 processor cards
- One to four 8-core, 3.3 GHz POWER7 processor cards
- One to four 8-core, 3.0 GHz POWER7 processor cards
- Four 8-core, 3.55 GHz POWER7 processor cards (32-core configuration only)

Each processor card provides 256 KB of L2 cache and 4 MB of L3 cache per core and eight slots for DDR3 Chipkill ECC memory DIMMs running at 1,066 MHz. Depending on the number of processor cards and the memory options selected, the Power 750 Express can be configured with 8 GB⁸ to 512 GB of memory. The Power 750 Express backplane provides eight hot-swappable SFF SAS disk drive bays (optionally available as two sets of four bays) for up to 2.4 TB of internal storage. Solid state drives (SSD) are also supported. A slimline DVD-RAM drive is required, and there is a half-high media bay for optional tape or removable drive. The built-in SAS/SATA storage controller includes RAID support, and an optional 175 MB RAID write cache is available to augment drive performance and function. Additional storage can be configured using optional EXP 12S Expansion Drawers with twelve hot-swappable SAS drive bays each.

Hot-swap I/O adapter slots (two PCI-X DDR, three PCIe 8x, one⁹ GX+ and one⁹ GX++) provide extensive configuration flexibility in the Power 750 Express server. In addition, up to four PCIe or eight PCI-X DDR optional expansion drawers are supported. Integrated I/O controllers include three USB ports and a choice of quad-port 10/100/1000 Mbps or dual-port 10 Gbps Ethernet. There are two HMC, two system and two SPCN ports.

In addition to Chipkill ECC memory and hot-swappable I/O components, the Power 750 Express provides redundant hot-swap power supplies and cooling fans, a built-in service processor to detect and report failures and impending failures, Light Path Diagnostics to diagnose hardware problems quickly and easily, First Failure Data Capture, dynamic deallocation of system components and Processor Instruction Retry.

The Power 750 Express server is covered by a standard 1-year, 9x5 next business day warranty. Warranty service upgrades are available.

Support and availability

The Power 750 Express is supported by the following operating systems, or later:

- AIX 6.1 with:
 - 6100-04 Technology Level and Service Pack 2, or

- 6100-03 Technology Level and Service Pack 5 (available June 25, 2010), or
- 6100-02 Technology Level and Service Pack 8 (available June 25, 2010)
- AIX 5.3 with:
 - 5300-11 Technology Level and Service Pack 2, (available March 16, 2010), or
 - 5300-10 Technology Level and Service Pack 4 (available May 28, 2010), or
 - 5300-09 Technology Level and Service Pack 7 (available May 28, 2010)
- IBM i 6.1 with 6.1.1 machine code (available March 16, 2010)
- SUSE Linux Enterprise Server 10 Service Pack 3
- SUSE Linux Enterprise Server 11

If installing Virtual I/O Server (VIOS) software, VIOS 2.1.2.12 with Fix Pack 22.1 and Service Pack 2, or later, is required.

There are unique considerations when running Java 1.4.2 on POWER7. For more information refer to the following website: <http://www.ibm.com/developerworks/java/jdk/aix/service.html>

Planned availability for the Power 750 Express server is February 19, 2010, with the following exceptions:

- March 16, 2010 – 8 GB memory feature (FC 4526)

Additional Detail – Power 755 Compute Node

The Power 755 server is a four-socket, 4U rack-mount server available only with 32 POWER7 processor cores running at 3.3 GHz. This compute node is designed to provide extremely high parallel processing performance and the capability of being integrated into scalable systems of up to 64 nodes. It provides eight hot-swappable SFF SAS disk drive bays for up to 2.4 TB of internal storage, but does not offer a split backplane or RAID support. Solid state drives (SSD) are supported, and a slimline DVD-RAM drive is provided. Additional storage may be configured with optional EXP 12S SAS Drawers.

There are two PCI-X DDR, three PCIe 8x and one⁹ GX++ hot-swap I/O adapter slots. Optional PCIe and PCI-X DDR I/O expansion drawers are not supported. Integrated I/O ports are equivalent to those on the Power 750 Express server except that RAID is not available on the integrated SAS/SATA controller. The Power 755 provides the same broad array of capabilities described earlier for the Power 750 Express to deliver leading-edge application availability. The Power 755 is covered by a standard 1-year, 9x5 next business day warranty, and warranty service upgrades are available.

Support and availability

The Power 755 is supported by the following operating systems, or later:

- AIX 6.1 with:
 - 6100-04 Technology Level and Service Pack 2, or
 - 6100-03 Technology Level and Service Pack 5 (available June 25, 2010), or
 - 6100-02 Technology Level and Service Pack 8 (available June 25, 2010)
- AIX 5.3 with:
 - 5300-11 Technology Level and Service Pack 2, (available March 16, 2010), or
 - 5300-10 Technology Level and Service Pack 4 (available May 28, 2010), or
 - 5300-09 Technology Level and Service Pack 7 (available May 28, 2010)

- SUSE Linux Enterprise Server 10 Service Pack 3
- SUSE Linux Enterprise Server 11

Planned availability for the Power 755 server is February 19, 2010, with the following exceptions:

- March 16, 2010 – 8 GB memory feature (FC 4526)

IBM Systems Director for Power Editions

IBM Systems Director Editions for Power V6.1.2 offer clients a choice among three integrated sets of tools to help their IT organizations address the challenges associated with managing both physical and virtual server infrastructures. These Systems Director tools are designed to reduce operational complexity, improve the efficiency of IT staff and systems and control costs while meeting business requirements for service delivery. The Express, Standard and Enterprise Editions make it easier and more cost-effective for clients to purchase the capabilities appropriate to their requirements, rather than buying individual plug-in features separately.

The Express Edition provides a single point of management for all IBM system resources, including servers and storage. Power Systems servers being managed may run AIX, IBM i or Linux operating environments. Systems Director performs a wide range of management functions, such as monitoring systems in real time, identifying the root cause of problematic systems, identifying systems that require an update and executing the installation process. Included in the Express Edition is IBM Systems Director VMControl Express Edition for Power V2.2, which provides a single graphical user interface for managing the lifecycle of virtual resources. The IBM Systems Director Express Edition can also monitor and collect hardware problem information and send it to IBM support.

IBM Systems Director for Power Standard Edition provides all the components of the Express Edition plus features that monitor and manage the energy usage in data centers. As described earlier, Systems Director Standard Edition works with POWER7 processors to help clients implement their energy policies. Standard Edition also includes Systems Director VMControl Standard Edition, which enables creation and storage of ready-to-run virtual images in a shared repository, as well as features that enable clients to discover, monitor, manage and troubleshoot supported network devices.

IBM Systems Director for Power Enterprise Edition delivers all the elements of the Standard Edition plus VMControl Enterprise Edition, which enables the creation and management of system pools. A system pool is a collection of virtualized system resources (servers, storage or network) that can be managed as a single entity with the simplicity of managing a single system. Included in Systems Director Enterprise Edition are IBM Tivoli® systems management products which provide additional capabilities, such as collection of historical status information, root-cause analysis, performance monitoring and status monitoring of applications and middleware. IBM Systems Director Enterprise Edition Installation Launchpad is included to help clients install and configure the Tivoli components.

The management server for IBM Systems Director for Power Editions requires one of the following operating systems to manage AIX, IBM i or Linux server endpoints:

- AIX V5.3 or AIX V6.1

- Novell SUSE Linux Enterprise Server 9 or Server 10 for POWER
- Red Hat Enterprise Linux AS 4 or AS5 for POWER

Planned availability for IBM Systems Director Editions for Power V6.1.2 is March 5, 2010.

Rational Developer for Power

Today's announcements include IBM Rational® Developer for Power V7.5 and Rational Team Concert for Power V2.0. Rational Developer for Power provides a proven set of software development tools for Power Systems servers, including POWER7 systems. Rational Team Concert for Power is a collaborative, software management tool for the integration of developer activities regardless of client. Both Rational Developer for Power and Rational Team Concert for Power are available immediately for the IBM i operating system, and IBM has provided a Statement of Direction to support AIX workloads on both these products in the future.

IBM AIX Enterprise Edition V6.1.1

AIX Enterprise Edition has been enhanced to include IBM Systems Director for Power Enterprise Edition as a component. The AIX 6 operating system is available in two editions. The Standard Edition includes only the AIX operating system, expansion pack and other commonly used software such as an internet browser. The Enterprise Edition includes all the features of the Standard Edition and additional management software designed to help improve availability, enhance operational efficiency and measure resource usage in a virtualized environment.

AIX Enterprise Edition V6.1.1 includes:

- AIX Standard Edition Version 6 at Technology Level 4, or later
- IBM PowerVM Workload Partitions Manager V2.1
- IBM Systems Director for Power Enterprise Edition V6.1.2

The inclusion of Systems Director Enterprise Edition as part of the AIX Enterprise Edition V6.1.1 brings significant new platform management capabilities compared to previous releases of AIX Enterprise Edition. Existing AIX Enterprise Edition V6.1 clients will be able to upgrade to AIX Enterprise Edition V6.1.1 at no additional charge. Planned availability is March 5, 2010.

IBM i 6.1.1 Editions for POWER7

IBM i 6.1.1, the latest release of the IBM i operating system, supports the Power 750, Power 770 and Power 780 servers announced today. IBM i 6.1.1 provides rich capabilities for storage consolidation with IBM System Storage™ solutions, virtualization with IBM PowerVM, new infrastructure deployments with IBM BladeCenter®, enhanced performance for IBM WebSphere® and Java applications, management via IBM Systems Director, and high availability solutions with IBM PowerHA.

IBM i Standard Edition provides the wide range of functions available with IBM i, including DB2 for i. IBM i Standard Edition processor entitlements are available per processor core on the new POWER7 processor-based Power 750, 770, and 780 servers.

IBM i Enterprise Edition is the combination of IBM i Standard Edition and the Enterprise Enablement hardware feature that enables 5250 processing on the server. Each Enterprise Enablement feature ordered provides one processor core's worth of 5250 transaction capability on

the server. The number of Enterprise Enablement features ordered does not have to match the number of IBM i Standard Edition processor core entitlements on the system. IBM i Standard Edition processor entitlements are available per processor core on the Power 750, Power 770, and Power 780.

IBM i Application Server Express Edition processor entitlements provide for the wide range of functions available with IBM i except for restrictions on the use of the DB2 for i database. This option can result in a more cost-effective environment for running applications such as WebSphere Application Server, Lotus® Domino®, Lotus Sametime®, PHP and other applications that do not access DB2 for i within the same partition. The IBM i partition with the Application Server processor entitlements must reside in its own partition. The server running the IBM i Application Server Express Edition must also have at least one processor core entitlement of IBM i Standard Edition or Enterprise Edition. The IBM i Application Server Express Edition processor entitlements are available per processor core on the Power 750, Power 770, and Power 780 servers.

Availability for IBM i 6.1.1 for POWER7 processor-based servers is March 16, 2010.

IBM Scale Out Network Attached Storage (SONAS)

Also announced today is IBM Scale Out Network Attached Storage (SONAS), a multi-petabyte global offering which supports extreme scalability for storage infrastructures that require high performance and high availability. Designed to support unified management and access to data anywhere in the world, IBM SONAS combines extreme scale-out capability with automated data placement and very fast access to file-based data. Clients can rapidly expand storage infrastructure by 100's of terabytes up to multiple petabytes at a time with minimal effort and can independently scale their storage infrastructure's capacity and performance for the most demanding environments. IBM SONAS supports quick file access and backup for cloud storage requirements and beyond. It uses a single global namespace view of the information to provide global access around the world, reducing complexity and improving productivity.

Planned availability for the IBM SONAS offering is March 12, 2010.

IBM Systems Lab Services

To help clients optimize the utilization of IBM server solutions, including the POWER7 processor-based systems introduced today, IBM Systems Lab Services for One Day will be available March 5, 2010. This offering includes up to eight person hours of on-site or remote assistance by highly skilled technical professionals. For details on the available service offerings, please refer to this Web site: <http://www.ibm.com/systems/services/labservices/>

IBM Statements of Direction

IBM is committed to enhancing its clients' investments in IBM Power System servers and related software. Based on this commitment, IBM plans to provide the following future enhancements.

- IBM plans to deliver a new high-end server in 2010 with up to 256 IBM POWER7 processor cores, offering unprecedented IBM Power Systems scalability combined with massive bandwidth, to enable enterprises to more effectively deploy and consolidate large-scale applications and infrastructure.
The POWER7 high-end server 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 IBM 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.
As previously stated in July 2009, IBM also plans to provide an upgrade path from the current IBM Power 595 server with 12X I/O to the new POWER7 high-end server. Enterprises with multiple systems leveraging PowerVM Live Partition Mobility may use this function to maintain application availability during the upgrade process.
- IBM plans to provide upgrade paths in 2010 from the POWER6 Power 520 2 and 4-core servers to next generation POWER7 processor-based entry servers.
- IBM plans for PowerVM to support up to 320 logical partitions on the Power 750 server and up to 640 logical partitions on the Power 770 and 780 servers. For future POWER7 systems, IBM plans for PowerVM to support up to 1,000 logical partitions per server.
- IBM is working with Red Hat on POWER7 support. Red Hat plans to support the Power 750, 755, 770, and 780 models in an upcoming release targeted for availability during the 1st half of 2010. For additional questions on the availability of this release, please contact Red Hat.
- IBM plans for PowerVM Lx86 to support POWER7 systems in 2Q 2010.
- IBM plans to add C/C++ and COBOL development tools for AIX to the IBM Rational Developer for Power family in the future, extending the benefits of having an integrated Eclipse development environment to teams developing C/C++ and COBOL applications for AIX.

All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only. Any reliance on these Statements of Direction is at the relying party's sole risk and will not create liability or obligation for IBM.

The information on new products is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information on the new product is for informational purposes only and may not be incorporated into any contract. The information on the new product is not a commitment, promise, or legal obligation to deliver any material, code or functionality. The development, release, and timing of any features or functionality described for our products remains at our sole discretion.

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Footnotes

1 – Comparison between a single 4U node IBM Power 780 server with 16 POWER7 processor cores running at 3.8 GHz with rPerf of 195.45 and a four-node (4U each) IBM Power 570 server with 16 POWER6+ processor cores running at 5.0 GHz with rPerf of 141.21. rPerf (Relative Performance) is an IBM estimate of commercial processing performance relative to other IBM UNIX® systems.

2 – IBM plans for PowerVM Lx86 to support POWER7 systems in 2Q 2010.

3 – Live Partition Mobility is not supported on IBM i 6.1.

4 – Active Memory Sharing requires AIX 6.1 TL3, IBM i 6.1, or SUSE Linux Enterprise Server 11 for Power, or later.

5 – The 128 GB (4 x 32 GB) option which enables 2 TB of memory on Power 770 and Power 780 servers is planned for availability November 19, 2010.

6 – Maximum DDR3 memory on Power 770 and Power 780 servers is 1 TB at 1066 MHz and 2 TB at 800 MHz.

7 – Hot-Node Add, Hot-Node Repair and Memory Upgrade are planned for availability November 19, 2010.

8 – The 8 GB (2 x 4 GB) memory option on the Power 750 Express and Power 755 servers is planned for availability March 16, 2010.

9 – Each GX+ and GX++ slot shares space with a PCIe slot. GX++ adapter or second GX+ adapter requires 2 or more processor cards. Contact IBM or an IBM Business Partner for specific configuration restrictions.

Photographs show engineering and design models. Changes may be incorporated in production models.

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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.

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

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The IBM Power Systems home page on the Internet can be found at <http://www.ibm.com/systems/p/>.

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IBM Corporation
Marketing Communications
Systems and Technology Group
Route 100
Somers, New York 10589

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