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Instant Insight
July 13, 2004

Upping the Ante for UNIX and Linux Servers: IBM introduces the eServer p5

By Clay Ryder

IBM today introduced its latest eServer systems, the p5, a new line of UNIX and Linux servers based upon the company's new POWER 5 microprocessor, featuring Micro-Partitioning and IBM's Virtualization Engine technology. The p5 is targeted at a wide range of business and scientific applications, and features new POSIX Realtime Application Programming Interfaces designed to ease porting of applications to the new servers.. IBM stated that the eServer p5 systems are the result of a large-scale, three-year research and development effort that sought to extend the p5 beyond traditional UNIX server capabilities by incorporating mainframe-inspired features to help businesses achieve increased utilization, performance, and flexibility while lowering IT management costs.

Key features of the eServer p5 include:

- *Latest Generation of the Power Architecture — POWER5:* The new POWER5 microprocessor features 276 million transistors per processor, is manufactured with IBM's 0.13-micron copper wiring and SOI (Silicon-on-Insulator) technologies, and integrates multiple microprocessor cores in silicon, as well as elements of memory and task management that have long resided outside the chip.
- *Multiple CPU Solutions:* Each p5 server features between two to sixteen POWER 5 microprocessors per system, with the announced intention of delivering larger systems in the future.
- *Virtualization Engine Micro-Partitioning:* IBM's Virtualization Engine's Micro-Partitioning enables up to ten virtual servers or Micro-Partitions to be run on each microprocessor. This feature allows users to consolidate multiple independent workloads and provide a single console for managing systems, workloads, and provisioning of all types with an integrated set of systems services.
- *Broad Software Support:* More than 1,000 ISVs plan to deliver UNIX and Linux OS-ready p5 solutions to customers. Additionally, IBM offers a portfolio of software offerings spanning its WebSphere, DB2, and Tivoli security, and systems management solutions.
- *Multiple OS Choices:* The eServer p5 can run AIX5L 5.2, AIX 5L 5.3, and Linux (RedHat and SuSE). In addition, IBM's new i5/OS can also run on the p5-570. AIX 5L 5.3 allows clients to measure workload resource usage and utilize dynamic resource allocation of processors, Micro-Partitioning, memory and I/O resources. The new generation of AIX also provides automatic allocation and balancing of resources across multiple Operating Systems images.
- *Backwards Compatibility:* The eServer p5 is binary-compatible with POWER4 based systems.
- *Several Models:* The p5-520 is a two-way, entry level system using a 1.65 GHz POWER5 CPU with up to 32GB of memory running either AIX 5L or Linux. The p5-550 scales up to 4-way, and is equipped with up to 64GB of memory running the 1.65 GHz CPU, running either AIX5L or Linux. The p5-570 scales up to 16-way, with a 1.9 GHz POWER5 CPU, runs AIX5L, Linux or i5/OS. A p5-570 Express model is also available, with 1.5 GHz CPU and up to 256GB of memory.

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Pricing and Availability

The eServer p5-520 system has a starting price of $12,920; the eServer p5-550 has a starting price of $22,100; the eServer p5-570 has a starting price of $25,928; and the eServer p5-570 Express has a starting price of $28,659. All systems will be available globally on August 31 through IBM and its Business Partners.

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Today's announcement is remarkable for several reasons. First, the announcement of IBM's eServer p5 along with the previously announced eServer i5 is the culmination of a three-year adventure IBM embarked upon when it set out to create the next generation of its venerable POWER microprocessor, the POWER 5. Second, this announcement demonstrates IBM's commitment to simplifying its eServer architectures by releasing its second eServer line on the common Squadrons platform shared with the i5 (iSeries). Third, IBM has regained short-term bragging rights of offering the best price/performance solutions for the UNIX and Linux market space. Fourth, the company's Virtualization Engine and its Micro-Partitioning are bringing formerly high end computing and consolidation opportunities to the small and middle tier of the marketplace.

IBM's development of POWER5 was a significant undertaking, representing substantial investments in time, personnel, and other company resources. While developing a new processor is not something that IBM can uniquely claim as its own, when viewed against the competitive backdrop of the past several years, POWER 5 succeeds where competing platforms have come up short. First, POWER5 is backwards compatible with POWER4 and has a roadmap that continues this compatibility forward into POWER6. Unlike the industry standard wannabe Itanium, migrating users and ISVs will not have to port existing applications in order to take advantage of next-generation technology. Secondly, POWER maintains a broad and growing user base both as a processor and as architecture. This is in contrast with Sun's UltraSPARC, which to its credit has never broken binary compatibility. However, as much as Sun may want to, it cannot claim the broad market adoption for SPARC that POWER enjoys. Thus, POWER5 holds a unique position in the market as the true industry standard 64-bit architecture.

The announcement of eServer p5 completes an important step for IBM in its simplification and optimization of its eServer product family as it represents the unification of the underlying platform upon which both the p5 and i5 are built. Recent changes to pricing that unified the cost of underlying hardware, regardless of whether it was called iSeries or pSeries, also bolstered this reality. As with the greater trend in IT, the hardware or box the technology comes in is of less importance that what value the solution can provide the user. Hence, the difference between a p5 and an i5 is effectively just the software stack, allowing each POWER5-based solution to be customized to target the needs of specific constituencies without worrying about underlying hardware.

With today's announcement, the eServer p5 can also claim the bragging rights of having the highest price/performance in this market sector. While this kind of computing supremacy is continuously subject to leapfrogging by the competition, for the moment the blue ribbon is IBM's. For customers who purchase p5 systems, the performance is of course a desirable commodity; the competitive pressure it places on the industry is good for customers as well, as it fosters innovation. As its sheer processing capabilities continue to climb, the p5 has become an increasingly attractive platform for server consolidation applications. This has tangible benefits for users seeking to reduce the complexity, cost, and real estate allocated to their IT infrastructures, as well as Big Blue, who benefits from both new server sales and the potential replacement of its older generations of competitors' and its own servers.

Perhaps the most enticing aspect of the p5 is that IBM's Virtualization Engine and its Micro-Partitioning capabilities are bringing formerly high-end-only computing and consolidation opportunities to the low and middle tier of the marketplace. While there has been much talk in the industry about server consolidation, the available technologies effectively limited consolidation to those businesses with access to large high-end or

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mainframe systems and loads of personnel to manage it or those with small needs that could be addressed by software solutions such as VMWare. But with the announcement of the eServer p5, new classes of customers have access to automated virtualization technology that can provide the basis of a cost-effective consolidation platform. Given the typical UNIX system utilization rates of 10% - 15%, the granularity of partitioning the p5 affords with up to ten virtual servers per CPU, it now possible for several moderate or low utilization servers to be consolidated onto a single p5. This represents a substantial savings in equipment and dedicated management personnel, thus freeing IT resources for more valuable business activities. With the low price points of the p5-520 and p550, many SMBs may now find that consolidation is no longer just for the "big guys" but an opportunity that is within their reach.

Overall, we believe the announcement of the eServer p5 is significant for IBM, its customers, and the marketplace as a whole. While IBM can claim bragging rights about its latest technological achievement, customers, including those in the low and mid-market, can now access technology that was formerly outside the budgets of all but the largest enterprises. The continued improvements in price/performance offered by the p5 are remarkable even in an industry where such improvement is seemingly mundane. Several years back we posited that in the not-too-distant future, there would be only one significant UNIX vendor in the marketplace (Sun); we are happy to see that IBM is clearly stepping up to the competitive plate and that in 2004, a future with more than one significant UNIX vendor appears to be coming to pass. But all things UNIX aside, the value added capabilities of the eServer p5 position it well as a worthy competitor in many sectors of the marketplace, be they UNIX, Linux, LOB applications, technical computing, grid, or most any other where more than capable 64-bit computing is the order of the day.

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