



Instant Insight
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IBM Sharpens the eServer BladeCenter with another Blade

By AJ Dennis

IBM has introduced the BladeCenter JS20, joining the BladeCenter HS20, a high-performance Intel Xeon blade, as the current blades offered for the eServer BladeCenter. The JS20 blade, with a starting price of \$2,699.00, features a two-way POWER4-based SMP architecture utilizing the PowerPC 970 1.6GHz processor, with SIMD for parallel processing enablement, as well as:

- 512KB ECC L2 cache;
- 512MB–4GB of ECC DDR SDRAM memory in 4 DIMM slots;
- Dual 1GB integrated Ethernet controllers;
- ATA-100 IDE controller for up to two 40GB IDE disk drives (second disk precludes daughter card);
- Daughter card slot for an optional Dual Gigabit Ethernet or Dual 2GB Fibre Channel adapter (if used, only one disk drive position is available);
- Integrated service processor;
- Light Path Diagnostics.

Also announced, Linux is the only 64-bit OS currently supported for the BladeCenter JS20 and is available directly from SuSE Linux (Enterprise Server Version 8 Service Release 3) or from Turbolinux (Enterprise Server Version 8 with 64-bit kernel and 32- and 64-bit application support). In a statement of direction, IBM announced AIX support on the BladeCenter JS20 in the third quarter of 2004 and asserts that all of these operating environments will be supported by IBM's Director and Tivoli Management products in a common management scheme (Q4 2004). IBM is positioning the JS20 as a 64-bit HPC platform, featuring superior floating point performance, enhanced by the additional SIMD instruction set, targeting:

- Linux high performance clusters;
- Financial services;
- Life science/bioinformatics;
- Scientific/technical computing in general.

IBM also announced the eServer BladeCenter for Bioinformatics, focusing on workload balancing, high throughput, and application performance in life science research environments. Widely used applications for sequence analysis, such as BLAST, FASTA, and HMMER, have been ported, optimized, and pre-tested for the IBM eServer BladeCenter JS20.

The eServer BladeCenter, developed in partnership with Intel, is a 7U, rack-mountable blade cage with capacity for fourteen blades. In addition, it features hot-swap capabilities for all blades and for the BladeCenter's redundant power, networking, and management modules. The BladeCenter's service processor interacts with the "on-blade" service capabilities for blade configuration and active monitoring, as well as with the optional IBM Director V4.1 systems management software (available Q1 2004).

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The ultra-dense blade server architecture that was initially focused on lowering power and heat is now, because of the industry's emerging "utility" computing models, a potentially critical component to that computing model's notions of virtualization and of scale-out computing. While HP, Sun, and Dell, as well as a number of boutique blade vendors, all have blade servers and rack cages in which to deploy them, we find IBM's story a bit more fine-grained and credible in their "systems-centric" approach than the blade-centric stories coming from the competition. IBM's approach perhaps reflects their "big iron" highly-managed, virtualized systems understanding, being brought "downstream" to its smaller systems.

IBM has been positioning their Intel XEON-based HS20 as the high performance blade for business-critical applications on Windows and 32-bit Linux and the eServer BladeCenter as a powerful and flexible "standard" chassis that incorporates blades, storage, switches, whatever, into the ultra-dense computing model. Now with the JS20, IBM adds POWER to this computing model, which lends itself well to the "scale-out to scale-up" needs of the HPC community. For example, a single 19", 42U rack, fully decked out, delivers more than one TFLOP of performance supporting any combination of Xenon and Power CPUs to support any mix of computing needs. For those aware of the IBM Blue Gene Supercomputer Project, we believe that system's radically different type of computer architecture called SMASH (simple, multiple, and self-healing) is a computing vision conceptually compatible with what we are seeing develop in the dramatically smaller scale of the eServer BladeCenter. Again, IBM's computing insight and understanding conceptually impact their smaller systems efforts.

In sum, we believe that BladeCenter JS20 brings a proven, industry standard 64-bit processor, POWER4, into the very successful blades domain of Intel or Intel-compatible blades. In delivering such a highly managed, highly redundant, highly integrated SMP/Cluster capable, rackable chassis for the HPC community, IBM is setting the mark for Linux/Windows blade clusters today and perhaps the standard for computing component interconnect and integration of the future.