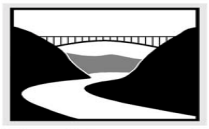

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A Plethora of 64-bit Platforms for Linux (and Windows)

In recent months there have been announcements of new 64-bit systems, primarily aimed at Linux and Windows. In February 2004, Intel announced that it would release a Xeon processor with 64-bit extensions, Nocona. At that time, Dell, HP, and IBM announced that they would release systems based on Nocona when the chips became available. On July 13, Karl Freund (VP, Marketing) announced IBM's new POWER5 (p5) server technology for AIX and Linux along with some very impressive benchmark results. For the past year, IBM has been pushing POWER as its 64-bit Linux play so we should expect to see some good pricing and performance numbers for Linux on POWER5 down the road.

Today, Sun announced the new Opteron-based two- and four-way Sun Fire V40z, to go along with its current one- and two-way Sun Fire V20z Opteron servers. Additionally, Sun announced some industry-leading x86 four-way benchmarks and some competitive pricing for the Sun Fire V20z and Sun Fire V40z. The Opteron servers from Sun can run Linux, Solaris, and Windows. I won't go into the pricing for the new Sun Fire V40z in detail; it is readily available on Sun's Web site. However, a Sun Fire V40z with two model 844 (1.8GHz Opteron) processors, 2GB memory, a 73GB hard drive, 2 x 10/100/1000 Ethernet ports, and Lights Out Management (LOM) is priced at $8,495. The same configuration, but with two model 848 (2.2GHz) Opteron processors is priced at $12,495.

The rundown for 64-bit systems from Dell, HP, IBM, and Sun that can run Linux is as follows:

- Dell --- PowerEdge 3250 (two-way) Itanium 2, potentially Nocona
- HP --- DL585 (up to four-way) Opteron, a variety of Itanium 2 servers from one-way to much larger, and potentially Nocona
- IBM --- several POWER4 and POWER5-based servers, e325 (Opteron), x382, x450, and x455 (Itanium 2), and potentially Nocona
- Sun --- Sun Fire V20z (one- and two-way) Opteron, Sun Fire V40z (two- and four-way) Opteron

I don't want to get into a lot of details on pricing for some of the four vendors offerings, but the following systems give you some idea of the cost of 64-bit servers for Linux. The systems below all have four processors and generally have three-year warranties. The prices are taken from the vendors' Web sites.

IBM does not have a four-way Opteron server --- the e325 is only two-way, the x382 is a two-way Itanium server, and I could not find a customizer or any pricing for the x450 (a four-way Itanium 2) on the IBM Web site. As a result, I have no pricing for four-way Linux-based IBM servers beyond POWER4+-based pSeries servers, which I decided not to include. The pricing for Linux-based POWER5 servers announced on July 13 is not yet available.

- **HP rx4640** --- 4 x 1.5GHZ (Itanium 2), 4GB memory, 36GB disk --- **$54,125** (with 8GB --- **$57,810**)

- **HP DL585** --- 4 x 2.4GHz (Model 850 Opteron), 4GB memory, 36GB disk --- **$23,145** (with 8GB --- **$26,344**)

- **Dell PowerEdge 3250** --- 2 x 1.5GHz (Itanium 2), 4GB memory, 36GB disk --- **$17,999** (Dell does not sell a four-way Itanium-based server)

- **Sun Fire V40z** --- 4 x 2.2GHz (Model 848 Opteron), 8GB memory, 2 x73GB disk --- **$22,995** (with 4 x 2.4, Model 850 Opteron processors --- **$27,995**)

- **Dell PowerEdge 6600** --- 4 x 3.0GHz (32-bit Xeon), 4GB memory, 36GB disk --- **$23,826** (with 8GB memory --- **$26,070**)

I included the four-way 32-bit Xeon system from Dell just for price comparison with the 64-bit systems. I should point out that the Sun Fire V40z comes with 2 x 10/100/1000 Ethernet ports.

As you can see, this is going to be buyers' market for those users who think that they need 64-bits for Linux and/or Windows. We will see some very competitive pricing from Dell, HP, IBM, and Sun as they try to establish dominance in the 64-bit Linux (and Windows) market place. The cost of Itanium 2 systems is generally higher than the Opteron systems. As a result, expect to see Itanium 2 used in 16-, 32-, and 64-way servers where the cost of processors is small when compared to the overall system cost. We should expect Nocona systems to be priced comparable to the Opteron systems. I would expect to see some announcements of new systems with competitive pricing at LinuxWorld in San Francisco next week, especially around Nocona.

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