IBM Sells 60 Teraflops Power6-Linux Super in Holland

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Server maker IBM has spent more than a decade taking on the supercomputer market, and has become one of the big dogs, if not the big dog, when it comes to building different styles of high performance computer clusters. Last week, the company announced its first big Power6-based Power 575 supercomputer running Linux, nicknamed Huygens after the famous Dutch scientist, which was sold to SARA Computing and Networking, the national supercomputing network built and managed by the national government in The Netherlands.

The Huygens machine is comprised of 3,328 of IBM's 4.7 GHz Power6 processors, which will deliver a peak performance of 60 teraflops when it is fully constructed and operational in August. The Power 575 server on which the Huygens cluster is based crams 16 processor cores into a 2U form factor, and can do this because the Power 575 is a water-cooled box instead of air-cooled like most other machines today. (And like vector supercomputers and mainframes used to be one and two decades ago because their electronics ran so hot.) The Huygens cluster will be made up of 208 of these Power 575 machines, and will have an aggregate of 15 TB of main memory and 972 TB of disk capacity. Huygens will be part of a pan-European supercomputer grid called DEISA, which links together 11 supercomputer centers across the European Union so they can share each other's capacity.

The financial details for the acquisition of the Huygens cluster were not announced. IBM did not say which Linux that SARA was choosing for deployment on the Power 575, either, but the options come down to Red Hat Enterprise Linux and Novell SUSE Linux Enterprise Server--unless the Dutch facility wants to roll its own Linux from open source code. (Perhaps they could call such a Linux "Dutch Masters"! Anyway . . .)

The largest AIX-based Power 575 cluster that IBM has talked about to date was sold to the National Center for Atmospheric Research, the major weather center for the United States that also does a lot of climate modeling, back in May. Back then, NCAR took delivery of a 76 teraflops cluster of Power 575s, more than tripling the capacity of the AIX-based super currently installed at the center. That cluster, nicknamed Bluefire, has 4,096 of the 4.7 GHz Power6 cores, but only 12 terabytes of main memory and only 150 terabytes of disk capacity (housed in IBM's DS4800 disk arrays). It has more processing oomph than Huygens, but a little less memory per node and a lot less disk capacity.

In a separate announcement, IBM and its partners in the creation of the Cell multicore processor, Sony and Toshiba, announced last week the creation of a Center of Competence at Georgia Tech. The center will become a focal point for the creation and tuning of software, tools, and applications created to take advantage of the Cell processors as either the main processors in a supercomputer cluster or as adjunct processors in hybrid machines. IBM has already sold hybrid mainframe-Cell and Opteron-Cell machines, and wants to see more of this kind of thing. To that end, Georgia Tech is getting its hands on a small cluster of 14 QS20 blade servers, which are fine for software development. The QS20 blades have two Cell chips each running at 3.2 GHz and delivers 410 gigaflops of number crunching power. David Bader, a computer science researcher at Georgia Tech, is heading up the Cell HPC software development efforts.

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