Driving forward with HPC

Auto manufacturer uses Intel® Xeon® processor E5 family to develop its high-performance computing (HPC) resources

Company

The BMW Group is one of the most successful manufacturers of automobiles and motorcycles in the world with its BMW, MINI, Husqvarna Motorcycles and Rolls-Royce brands. As a global company, the BMW Group operates 25 production and assembly facilities in 14 countries and has a global sales network in more than 140 countries. In 2011, the BMW Group sold about 1.67 million cars and more than 113,000 motorcycles worldwide. The profit before tax for the financial year 2010 was euro 4.8 billion on revenues amounting to euro 60.5 billion. At 31 December 2010, the BMW Group had a workforce of approximately 95,500 employees. IT is central to the company's operations, particularly the use of high-performance computing (HPC) in all elements of vehicle design and production.

Challenge

The company uses high-performance computing elementary cells for all aspects of vehicle design. It has nine of these cells, or clusters, each with approximately 134 nodes. Each node has two processors. The cells run a range of HPC software including CFX*, Dassault Systeme's Abaqus* and Exa Powerflow*. BMW wanted to add new capacity to its cells to cover the increased use of simulation in all of its design departments.

Solution

BMW was interested to evaluate the performance of the Intel® Xeon® processor E5 family in a very early stage of development to see whether it could be a candidate for the next cluster extension. Eighteen months before the processor came to the marketplace, the company was providing feedback to Intel about how it performs executing the specific BMW workload.

Benefits

Using a 2.2Ghz version of the Intel Xeon processor E5, it assessed the execution speed for Dassault Systeme's Abaqus* 6.10-PF3 software. Results indicated that the Intel Xeon processor E5 would provide performance improvement over the Intel Xeon processor 5600 series. As a result, the company chose to use the 2.6Ghz Intel Xeon processor E5-2670 to develop three new HPC elementary cells consisting of at least 128 nodes in each cluster. In turn, these clusters are expected to accelerate research and development of products and designs.

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