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Cutting the wait for weight optimization

OK Engineering cuts engineering optimization time by 75 percent with Intel® Xeon® processor-based clusters

o.k. engineering gmbh

"All of our services depend on high-performance IT. By using the Intel® Xeon® processor E5 product family, our internal measurements showed we could cut compute times by 75 percent, enabling us to offer new optimization services to our automotive clients."

Frieder Geiselhart
Dipl Ing. (FH)
OK Engineering

COMPANY

For 12 years, OK Engineering has offered computer-aided design and engineering services to the automotive industry. The small but specialized company works with some of the world's leading automotive vendors and uses software such as LS-Dyna*, Abaqus*, or NASTRAN*, depending on customer requirements. The modeling work it carries out using these applications is highly compute-intensive.

CHALLENGE

OK Engineering has a computing environment made up of workstations and a small, five-year-old cluster with 12 single-core processors. The cluster is used mainly to run LS-DYNA and ABAQUS with 12 cores in parallel. The company would like to be able to offer automatic optimization with LS-Opt*, but run times of 16 to 18 hours per calculation make it impractical to carry out this optimization work, including shape optimization, weight optimization and modeling of contraction variants.

SOLUTION

OK Engineering carried out a proof of concept to see how a cluster based on the Intel® Xeon® processor E5 product family could enable it to carry out more sophisticated engineering simulations more quickly, including running LS-Opt. It ran LS-Opt on a Fujitsu PRIMERGY* BX400 S1 Blade Server, which incorporates the Intel Xeon processor E5 product family. It features eight compute nodes with two sockets each and eight cores per socket, a total of 128 cores.

BENEFITS

Using the new cluster, OK Engineering was able to carry out a weight optimization on a roll bar. Based on OK Engineering's results, the calculation time of 16 to 18 hours was cut by 75 percent to four hours, making it practical to use LS-Opt for the first time. The faster performance creates opportunities for OK Engineering to broaden the range of services it offers to include optimization, as well as to accelerate the delivery of its existing services.

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