

Success Brief

Performance

Intel® Xeon® processor
5500 series

Technology Consulting



Motoring ahead

Alyotech turns to Intel® Xeon® processor 5500 series to deliver insightful design improvements

Alyotech France, part of the global Alyotech Group, provides a wide range of technical consultancy services to manufacturing and engineering clients such as automotive supplier Faurecia and jet engine maker SNECMA. Alyotech uses specialised 3-D software to simulate impacts, which aids in the design process. These simulations can range from vehicle crashes to jet engines ingesting birds during flight or the impact of an aircraft on nuclear containers. While the simulation applications improve design insight to make component development more efficient, they also use huge amounts of processing power. But as the simulation models become more precise, concomitantly growing in complexity and potentially offering billions of calculations an hour, Alyotech needed to improve its knowledge of its computing platform. This was necessary in order to add the processing power required to maximise the potential of the applications and offer clients the best possible service.

“The intelligent performance of the Intel® Xeon® processor 5500 series has made a significant difference to the services we offer our customers.”

Julien Lacambre,
Technical Expert for LS-DYNA
Simulation, Alyotech

- **Ensure customers receive high levels of service.** Alyotech uses memory-intensive software to run 3-D crash simulation software for its clients, but the existing computing platform was struggling to cope with the workloads.
- **Test Intel® Xeon® processor 5500 series for performance.** Alyotech benchmarked the new processor, developed on 45nm Hi-k next generation Intel® Core™ Microarchitecture, and increased performance by 65 percent over the previous generation of Intel® Xeon® processors.
- **Performance increase provides far more detailed design rendering.** Alyotech introduced Dell* servers powered by the Intel Xeon processor 5500 series to improve insight into the effect of crashes on customers' vehicle designs.

Alyotech initially used the Intel® Xeon® processor 5100 series to power a Dell server with two cores per socket running the 3-D simulation software. It then upgraded to Intel® Xeon® processor 5400 series with four cores per socket. This provided a 45 percent performance increase for the crash simulation software. However, as the software, particularly LS-DYNA* and ANSYS*, was developed further, the simulations became far more complex. To harness this greater potential, Alyotech needed more processing power.

The enhanced software and more detailed models offered enormous benefits for Alyotech clients and their design processes. For example, simulated impacts could be far more detailed, providing greater insight into the design process. These results could also be used in more complex ways to inform future design processes, making them more efficient and cost effective. However, Alyotech's computing platform did not deliver the required processing muscle and lacked memory to deal with the enormous amounts of information the improved software generated.

Results from simulated impacts deliver greater insight into the design process

Julien Lacambre, technical expert for LS-DYNA simulation at Alyotech, said: "These applications require a lot of processing power, such as high memory capacity, to make them run at their best, and this is what we were missing from our computing platform."

As a result, Alyotech decided to test the Intel® Xeon® processor 5500 series developed on the 45nm Hi-k next generation Intel® Core™ Microarchitecture. Apart from considerable performance improvements, it features Intel® QuickPath Technology, a new scalable, shared-memory architecture. This integrates a memory controller into each microprocessor and connects processors and other components with a new high-speed interconnect, providing the data bandwidth to keep each core running at capacity.

Fuel injection

Alyotech ran a series of tests to compare the processing muscle of Intel® Xeon® processor 5500 series to that of the Intel Xeon processor 5400 series. Running the LS-DYNA simulation software, the Intel Xeon processor 5500 series improved performance by 65 percent.¹

Consequently, Alyotech introduced a Dell* server powered by two Intel Xeon processors 5500 series, providing a total of eight cores. The software was running on Microsoft Windows Server 2003 operating system. The results were immediately apparent—including faster, more complex design insight, which enabled the company to begin creating new, useful solutions for its clients.

Spotlight: Alyotech

- The French-Canadian Alyotech Group was formed in 2005 following a series of acquisitions by its major shareholders. It offers technological consulting services across four main territories: France, Canada, Benelux, and the Netherlands.
- Its main areas of expertise are technical and scientific computing; design, calculation and numerical simulation; electronics and embedded systems; information and communication systems, and telecommunications. The technology consultancy services are generally delivered in the area of research and development, where there is a marked trend for outsourcing on the part of the clients.
- The company aims to expand its offerings in both Europe and North America to take advantage of the lack of presence of similar organisations.



Lacambre, adds, "We are running very technical and complex workloads and the power of the Intel Xeon processor 5500 series provides much more detailed results so that we can now better inform our clients about the consequences and safety issues that a crash may have for their model of car."

Alyotech is using its new hardware platform to show clients the benefits of its design and engineering services and to improve service for customers. It also aims to introduce two more servers, each powered by the Intel Xeon processor 5500 series, providing a total of three servers and six processors.* It also plans to upgrade the operating system to Microsoft Windows Server 2008.

Lacambre, says, "We haven't attempted an ROI as yet because the work we do is very difficult to quantify. There are many elements to be considered, and at the moment we don't have sufficient data. However, that said, the 3-D simulation applications clearly run a lot faster. This translates into better and more detailed results for our customers, which, in turn, translates into better business for Alyotech."

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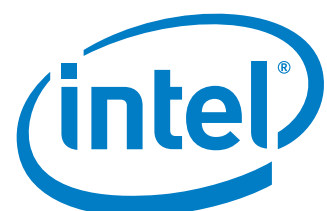
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