



Simpact Engineering is a high quality Computer Aided Engineering (CAE) consultancy. Their core business activity is the design, development and engineering of bespoke safety solutions which offer protection from impact loading. In particular, Simpack specialise in finite element analysis (FEA) which is an essential tool for new product innovation and development. Simpack's background is in the design and development of protective structures and restraint systems for the worldwide automotive industry. Over the past decade, Simpack have developed a formidable reputation with a diverse client base in the Aerospace, Rail Transportation, Marine and Defence sectors.

www.simpact.co.uk

SIMPACT USES enCORE SERVICE FOR VEHICLE CRASH SIMULATION

Business Impact Summary

Challenge:

Simpact Engineering, a specialist in CAE and impact analysis, based in Warwick, UK, needed flexible and cost-effective access to a modern HPC cluster in order to meet the demanding time scales of a design project with a major automotive manufacturer.

Solution:

After running a series of LS-DYNA3D benchmark tests on the enCORE service, Simpack selected the service due to the excellent performance of the cluster and its cost-effectiveness.

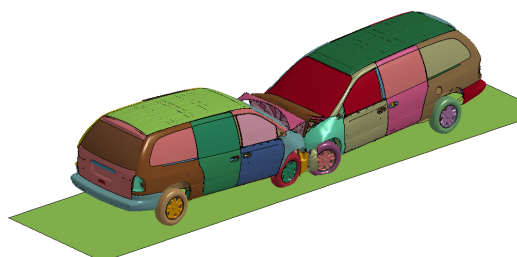
Result:

Simpact's LS-DYNA 3D models delivered optimum performance on 128 CPU cores, and the challenging project timescales were met using the enCORE service in this configuration.

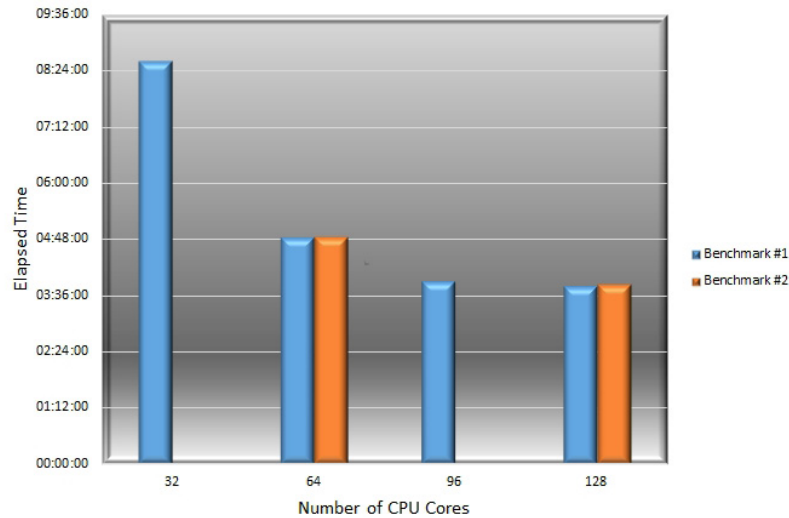
Commercial and technical challenges drive demand for high performance computing

Market forces and strong competition are forcing companies to bring products to market more quickly and to reduce development costs to an absolute minimum. This is particularly evident in advanced engineering, where the demand for greater fidelity within ever more complex computational models is continually growing. The results of this are growing

challenges in terms of affordable software and the need to access appropriate compute power required to deliver the desired quality of results within acceptable timescales.



LS-DYNA enCORE Benchmarking



“With the use of the enCORE hardware we are now able to run large models in less than half the elapsed time. This has had a significant impact on our product development process”

Tim Williams, joint founder and Director, Simpact

Warwick-based CAE consultancy Simpact are specialists in the computational simulation of impacts, and one of their areas of expertise is automotive safety .

Applications such as LS-DYNA have transformed this aspect of vehicle design, largely removing the extremely costly and time consuming process of physical vehicle impact testing during the design process.

For a recent automotive project, Simpact needed to run complex LS-DYNA simulations using large models consisting of around 10 million elements. To achieve this within acceptable timescales, they required access to a HPC cluster, so they turned to OCF to evaluate the enCORE service.

Tim Williams, joint founder and Director of Simpact said, “To date, we have been able to run up to 24CPU of LS-DYNA in our Warwick office. With the use of the enCORE hardware we are now able to run large models in less than half the elapsed time. This has had a significant impact on our product development process”.

Simpact’s CAE engineers found it easy to work with the IT specialists at OCF for the integration of their office based LS-DYNA licence. Customer confidentiality is key for Simpact and they were reassured by the security measures OCF have in place. Dirk Landheer, joint founder and Director of Simpact, commented, “OCF allowed us to rapidly upscale our CPU capacity. This makes it possible for specialist SMEs such as Simpact to meet the demand from large OEMs where previously this was the domain of only a handful of international companies.”



OCF plc,
5 Rotunda Business Centre,
Thornccliffe Park, Chapeltown,
Sheffield, S35 2PG
T: 0114 257 2200 E: info@ocf.co.uk
W: www.ocf.co.uk

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