Shorten your development cycle through the usage of high performance computers and tools for automatic post-processing via the internet

Andreas Finkel, Michael Sattler

T-Systems International GmbH, michael.sattler@t-systems.com , Leinfelden-Echterdingen, Germany

Abstract:

The use of massive parallel computers as clusters with linux operating systems increases significantly in crash analysis. This way the use of low-priced computers and a standardized, automatically performed post-processing, will shorten the development cycle.

Simulations in crash analysis using LS-Dyna are performed using low-priced HPC (High Performance Computing) computers via the internet (http://www.hpcPortal.de).
The quickest possible validation of the results can be received using MIDAS which performs an automatic standard evaluation. This validation is performed on the computers of the hpcPortal. This way, MIDAS generates pre-defined XY-plots, views, tables, animations, etc. and reduces the amount of data dramatically.
With the Viewer of MIDAS, additionally, it is possible to view the current results – this is performed online on the hpcPortal. No data have to be transferred to the customer's computer. A subsequent download of both the reduced results and the original results of LS-Dyna is possible of course.
In addition with MIDAS it is possible to compare current results with previous results (other load cases, design variants, etc.).
Thus MIDAS software is hardware-independent, it optionally can be installed on the customer's computer.

The advantages of this procedure are

-   no costs for maintenance of hard- and software.
-   access to up-to-date hard- and software.
-   all resources are charged according to actual use.
-   automatic and hardware-independent evaluation.
-   optional evalution on customer's computer possible.
-   the comparison of lots of different loading cases is graphically possible.
-   generation of different types of documents.

This presentation will show a short overview upon the procedure. Then an online demonstration will be performed which shows the access to hpcPortal, the start of an simulation using LS-Dyna on a cluster and the subsequent and automatic validation using MIDAS.

Keywords:

Crash analysis, LS-Dyna, High Perfomance Computing, MIDAS