MSC Nastran 2012 Delivers Significantly Expanded Simulation of Real World Behaviors

Industry Leading MSC Nastran now gives users access to nonlinear simulation together with improved capabilities for advanced analysis, and significant performance and power

SANTA ANA, CA--(Marketwire – November 3rd, 2011) – MSC Software Corporation, the leader in multidiscipline simulation solutions that accelerate product innovation, today announced its new release of MSC Nastran 2012. This powerful release consolidates MSC Nastran and MD Nastran into a single solution for all MD and MSC Nastran customers. This simplifies the product offering and provides customers a single MSC Nastran platform for the future.

MSC Nastran customers will see significant enhancements in the 2012 release:

NONLINEAR SIMULATION

Simulate Implicit Nonlinear

Through an optional module, users can simulate nonlinear problems including geometric nonlinearity, material nonlinearity, and contact nonlinearity. Nonlinear convergence robustness has been enhanced with a new adaptive stepping procedure.

Perform Explicit Simulations

MSC Nastran 2012 also makes available a module that enables engineers to solve explicit nonlinear problems. These capabilities are primarily focused in the areas of performance for impact, fluid-structure interaction (FSI) applications, multi-physics, enhanced material models and robustness. Simulation times are greatly reduced for FSI analyses like drop testing of fluid filled plastic bottles, fuel tank sloshing, airbags, and occupant safety.

CAPABILITY IMPROVEMENTS

Easier 3D Linear Contact

Users can now access linear contact modeling which supports 3D touching contact modeling in linear statics and glued contact for linear statics, normal modes, and dynamics (transient, frequency, and buckling). This provides significant modeling efficiencies when working with assemblies.

Improved Results for Composites

Lamina stresses, lamina strains, failure indices, and strength ratios have been enabled for frequency response, transient response, and random vibration simulations. This is important for composite structures since failure occurs at the ply level.

Optimize your Designs

Control surface positions can now be selected as a designed quantity in MSC Nastran 2012 as a feature of MSC Nastran Optimization. In terms of applications, the use of control surfaces to redistribute the loading on an aircraft so as to lessen a critical loading is a practice that has been deployed on a number of air vehicles.

Simplify Aeroelasticity Calculations

The MSC Nastran 2012 release simplifies aeroelastic modeling. MSC Nastran 2012 will automatically determine the aerodynamic and structural grids that are within your defined depth and add them to the relevant splines, which is a significant benefit when used in conjunction with CFD.

Enhanced Acoustic Analysis

Several enhancements are made to MSC Nastran's acoustic analysis capabilities to help users achieve higher efficiency. These include an efficient single-step approach for interior/exterior acoustic studies, efficient participation factor analysis through parallelization, panel participation factor analysis extended to structural domain response, a new function to compute and output element sensitivity for acoustic responses and a new function to compute particle acceleration on wetted surface. Frequency dependent Trim Component and Pressure load matrices from Actran can now be included in Noise Vibration Harshness (NVH) system models.

PERFORMANCE AND POWER

High Performance Computing for Higher Productivity

Automated Component Modal Synthesis (ACMS) improvements enable automotive NVH analyses to utilize every available processor in a multi-core system (or a cluster of such systems) to improve engineering productivity, **showing as much as 2 to 3 times performance gains** over the 2010 release as well as scaling to more sockets and cores. Other performance enhancements include: improvements to unsymmetric matrix solution; a new Implicitly Restarted Arnoldi Method (IRAM) for

complex eigenvalue solution that **has shown up to 2 orders of magnitude** improvement; and the ability to utilize a system's NVIDIA CUDA enabled Graphic Processing Units (GPU), which has shown **overall performance improvement of up to 5 times**. These enhancements provide critical tools for customers doing rotor dynamics, exterior acoustics, and related nonlinear applications.

For more details about the MSC Nastran 2012 release, visit www.nastran.mscsoftware.com and view the MSC Nastran 2012 video. To learn more, register for the upcoming "What's New in MSC Nastran 2012" Webcast at: http://www.mscsoftware.com/webinar/Nastran2012.

The MSC Nastran 2012 release will be available for customers to download later in November. MSC Nastran capabilities are supported in both Patran and SimXpert.

About MSC Software

MSC Software is one of the ten original software companies and the worldwide leader in multidiscipline simulation. As a trusted partner, MSC Software helps companies improve quality, save time and reduce costs associated with design and test of manufactured products. Academic institutions, researchers, and students employ MSC technology to expand individual knowledge as well as expand the horizon of simulation. MSC Software employs 1,000 professionals in 20 countries. For additional information about MSC Software's products and services, please visit: www.mscsoftware.com.

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