FFT Delivers Easier, Faster Vibro-Acoustic Analysis and New Transient Aero-Acoustic Simulations

NEWPORT BEACH, CA—(Business Wire – October 12, 2016) – Free Field Technologies (FFT), an MSC Software company, announced today the release of Actran 17. The new release provides superior performance in acoustic, vibro-acoustic and aero-acoustic simulations that will help engineers all over the world address their noise related design challenges faster. Actran 17 provides developers with a highly reliable, customizable tool that is robust and efficient for a broad range of industries including automotive, aerospace, electronics and consumer products.

Release Highlights:

Transient aero-acoustic simulations are now possible thanks to the extension of the time domain solver capabilities, which include aero-acoustic sources. This opens the possibility to analyze the noise generated aerodynamically from transient phenomena such as when machinery is turned on or during a ramp-up.

The **SNGR** technology, which synthesizes aero-acoustic noise sources from steady RANS CFD simulations, now supports different type of parallelisms with a linear speed up of the computational performance. Tests have shown that a model involving about 2.5 million of CFD cells for the noise source generation ran 4 times faster on a 4-core system compared to a single core.

The **mesh adaptivity** now features two new capabilities, which are adaptive structural surfaces and adaptive equivalent-fluid materials such as porous materials. With this technology, the solver automatically generates optimal meshes for vibro-acoustic simulations allowing a drastic reduction of the computational time when compared to typical acoustic simulations. Enhancements of the adaptive fluid components are also delivered to further improve the computational performances. As an example, a car firewall transmission loss analysis performed up to 4000 Hz. It ran 7 times faster than a standard analysis where only the finest mesh is used over the whole frequency range.

Vibro-acoustic analyses are now easier and faster than ever with new features and improvements such as:

- Mumps solver performance improvements allowing about 50% computational time speed-up;
- Support of Nastran OP2 files with multiple local coordinate systems
- Synthesis of TBL excitation through plane waves.

Moreover, a new wizard dedicated to the pre-processing of **space applications** subject to intense acoustic loads is now available. This wizard allows setting up this kind of analyses in only a few minutes.

A new **energetic post-processing utility** dedicated to large structural models is now available and features spatial and/or frequency averaging of energetic response indicators. This enables easier investigation of large/high frequency applications, such as a car body-in-blue, where high modal densities are present.

“Actran 17 delivers a valuable set of new features to the industry,” said Benoît Van den Nieuwenhof, CTO at FFT. “The enhancement of the time-domain solver with aero-acoustic capabilities opens the door to transient aero-acoustic analyses. In Actran, it is now possible to not only compute the noise generated by turbulent flows, but also from CFD simulations of transient phenomena. With this release, our team has also packaged helpful and easy-to-use tools for vibro-acoustic analyses such as the energetic post processing utility, a new wizard for space applications and new mesh adaptivity features.”

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