

Adams: still going strong

One of the longest established virtual tools in the marketplace, and for many still the vehicle dynamics simulation environment of choice, MSC Software's MD Adams/Car package is continuing to evolve. A Quantitative Ride Index has been introduced in MD Adams R3 for quantifying ride quality and assessing vibration impact on occupants, and there's also a new Road Builder for analytical roads and a consolidation of suspension test rigs. On a more general level, MSC is also working to speed up the sim solve times, particularly for the C++ solver.

"It's a double-edged sword," explains Michael Collingridge, director of Adams development at MSC Software. "C++ is slower than FORTRAN when compiled – there's a lot more overhead, especially in the function execution time. But the compilers are advancing for C++, and we hope to provide things like analytical derivatives and SMP (symmetric multiprocessing) methods that we can implement very efficiently in the C++ solver to take advantage of shared memory parallelization. The cluster environment is supported by both C++ and FORTRAN compilers, but because of the way we've structured the C++ solver, we can easily adapt it to these other environments a lot better than FORTRAN."

An example of the progress being made is available in R3, where parallel processing support for Adams/Tire results in faster run times on multi-CPU machines when using SMP with Adams/Solver (C++).

In the past few years Adams has attracted many rivals to its vehicle dynamics simulation tool,



particularly providers of real-time simulation capability. One company looking to work with Adams rather than against it is VI-grade, which has won business with Audi and Ferrari.

"We have an interface to Adams/Car, but you can also run our multibody solver independently in real time," offers Diego Minen, VI-grade's technical director. "The advantage we have over others is that we are able to close the loop with offline design in Adams/Car. You transfer the model into VI-CarRealTime to get a faster simulation, then using all the accessory files you can go back to the Adams/Car level with the results and perform different types of maneuver using the same property files."

VI-grade recently introduced VI-CarRealTime 12.5, in which predefined events make it simpler to run the vehicle through common maneuvers. It's also signed a new partnership agreement with Ansible Motion, which designs and manufactures high-end motion platforms for motorsport driving simulators.