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Chrysler adopts Linux for vehicle crash testing

News Story by [Todd R. Weiss](#)

OCTOBER 21, 2002 (COMPUTERWORLD) - Chrysler Group is using a new Linux cluster computer for crash simulation testing and analysis in an effort to make safer cars and trucks.

In an [announcement](#) today, Chrysler, a unit of Germany-based DaimlerChrysler AG, said the new system is expected to improve simulation performance by 20%, while saving about 40% in costs compared with the Unix-based hardware used previously.

The new system, which has been running at the Chrysler Group Technology Center in Auburn Hills, Mich., since August, was built by IBM using 108 IBM IntelliStation M Pro 6850 workstation PCs -- each equipped with dual 2.2-GHz Intel Xeon processors and Red Hat Linux. The cluster is running modified LS-DYNA crash-testing software from [Livermore Software Technology Group](#) in Livermore, Calif. The software was originally designed for Unix operations.

The system includes 2.6TB of disk space in a TotalStorage FAST500 storage device attached through Gigabit Ethernet.

Mary Beth Halprin, a spokeswoman for Chrysler Group, said the idea of using a Linux cluster for crash simulation testing came from Chrysler IT workers who saw Linux being used in a wider range of applications in many businesses.

"This was one area where they saw different activity going on in other industries and they thought this might work for us," Halprin said.

The crash simulation software tells vehicle engineers what happens to the passengers in a crash and how a vehicle, including interior and exterior materials, reacts to the stresses of impact, she said.

"We try to look at a whole series of factors," Halprin said.

Using Linux and the new supercomputer cluster, some 18 simultaneous impacts can be conducted at once. The new system replaces three previous supercomputer clusters that ran Unix, she said.

The price tag for the deal isn't being released. Cost savings were a major motivator for the project, which was first considered about a year ago.

For years, automakers have used supercomputers costing tens of millions of dollars to do crash simulation testing of their vehicles, according to Chrysler. By the late 1990s, Unix clusters were brought

in to do the work at a lower cost.

This is believed to be the first time a Linux cluster is being used by an automaker for vehicle crash simulation testing, Halprin said. Chrysler said it will consider Linux for other vehicle simulation testing, including computational fluid dynamics, noise vibration and metal forming.

Karen Smith, vice president of Linux strategy at IBM, said the deal shows that IBM is beginning to see Linux used in new applications every day in corporate computing. The cluster signals a marked change in the price/performance curve seen in the past for this kind of analysis, she said.

"This is yet another leap in the curve," Smith said. "We're starting to see increased uses of Linux technology and are leveraging it into other workloads."