

Vehicle Dynamics Expo 2008

NEW TECHNOLOGIES, A NEW VENUE, AND EVEN MORE SATISFIED VISITORS AND EXHIBITORS THAN EVER. VEHICLE DYNAMICS EXPO 2008 WAS A GREAT SUCCESS

"We're very happy with the visitors we've had, both existing and potential new customers. Our new airspring concept has been well received"

Matej Košir, development manager, Veyance Technologies



Vehicle Dynamics Expo 2008 took place on May 6-8 at its new home, the bright, spacious Messe halls adjacent to Stuttgart Airport, and proved to be the best event yet, with more visitors than ever before.

The new location made a big impression with exhibitors such as sales and marketing director at Globe Motors, Eduardo Aguiar: "I'm thrilled with the new hall," he enthused. "It's wonderfully convenient, and almost makes it a new exhibition."

In total, more than 11,000 decision makers and engineers passed through the halls containing Vehicle Dynamics Expo and its sister events of Automotive Testing Expo, Crash Test Expo, Engine Expo and European Automotive Components Expo over the three days. In addition to meeting the exhibitors, visitors could enjoy 38 free-of-charge presentations in the Vehicle Dynamics Expo Open

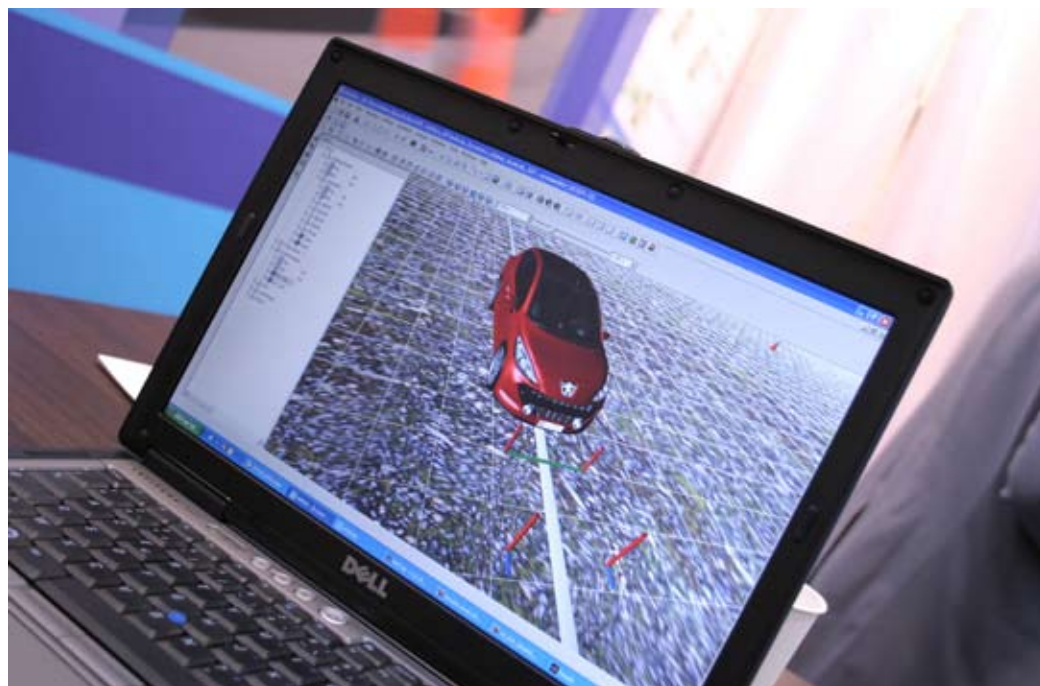
Technology Forum, which were fully subscribed on all three days. Indeed, Day 2's dynamics workshop, which was run by Lotus Engineering (see page 4), was packed.

One of many new product launches at Vehicle Dynamics Expo came from LMS, which debuted its extended solution for vehicle handling simulation. For early concept stages there are 1D simulation tools in the form of Imagine.Lab Vehicle Dynamics. As more design details are fixed, 3D models can be developed with Virtual.Lab Vehicle Motion. An interface between the two makes it possible to build high-fidelity models of sensors, actuators and active control systems in 1D, and seamlessly interface these with 3D mechanical models in Virtual.Lab Vehicle Motion. And with the Imagine.Lab Vehicle Dynamics Control solution, designers and engineers can simulate vehicles, sensors, actuators and the control strategy in a single platform, from

which data can be exported into real-time targets for HIL validation.

Continental AG showed its latest generation closed-loop air-suspension system, the cost of which has been reduced by 25% over its predecessor. Andreas Rohde, Conti's director of suspension systems, was at the Tier 1's expo booth to talk to customers in person. He explained that, aside from rising volumes, the savings have been achieved through a combination of measures involving all system components, including the relocation of ECU production to Manila, Philippines, a new design of airspring gaiter that allows a cheaper material to be used with no performance sacrifice, and the standardization of parts across different compressor units. Now in production on the Hyundai Genesis, the latest closed-loop technology will become available on the Porsche Panamera and Porsche Cayenne/Volkswagen Touareg platform in 2009.

LMS'S EXTENDED SOLUTION FOR DYNAMICS MODELING DEBUTED



CONTINENTAL AG HAS REDUCED THE COST OF ITS CLOSED-LOOP AIR-SUSPENSION SYSTEM BY 25%

Fludicon reported strong interest at Vehicle Dynamics Expo in its RheOil electrorheological fluid for potential application in automotive dampers. The technology uses an electric field around the damper piston to change the viscosity of the fluid, thereby offering a wide field of



ARVINMERITOR ANNOUNCEMENT

Mid-way through Day 1 of Vehicle Dynamics Expo, ArvinMeritor made a major announcement concerning the future of its Light Vehicle Systems (LVS) business. By late 2008, LVS will be spun-off to shareholders as a separate company, under the name Arvin Innovation. At the show, Ed Frutig, vice-president and general manager, chassis systems, commented, "It's pretty much a clean break between Light Vehicle and Commercial Vehicle, with the exception of shock absorbers, which Arvin Innovation will make for both light and commercial vehicles."

“We’ve had some good, engineering-based questions from both OEMs and supplier companies”

Thomas Führer, senior manager of innovation products, Robert Bosch

damping characteristics. The results of tests on a military vehicle have shown no problems with temperature, nor with the redispersion of particles. Fludicon is now searching for a partner to put the technology into series production.

VI-grade showed a new version of its VI-CarRealTime tool for chassis controls development. An extension to ADAMS Car that makes the vehicle model available in a real-time domain for controller strategies to be tested, the technology was also the subject of a presentation by Matteo Lanzavecchia of Ferrari in the free-to-attend Open Technology Forum.

Tenneco’s Continuously Controlled Electronic Suspension (CES) has recently been fitted to cars such as the Ford Mondeo and Volkswagen Passat CC. Speaking at Vehicle Dynamics Expo, Sandro Paparelli, vice-president of OE sales and program management, said that the firm plans to continue

SANDRO PAPARELLI, TENNECO’S VICE-PRESIDENT OF OE SALES AND PROGRAM MANAGEMENT



RECENT FITMENTS FOR TENNECO’S CES INCLUDE THE VOLKSWAGEN PASSAT CC



expanding the share of business taken by its advanced engineering products – such as CES, the Kinetic interconnected system, and Kinetic H2 CES that integrates both – toward a target of 25% of revenue by 2011. Paparelli said, “Our Kinetic H2 CES system is going on a high-end car from 2011, and we have another development contract for it. Sporty SUVs are the next segment we want to target with it because it really adds value over a simple anti-roll system. Meanwhile, our objective with CES is to make the cost so attractive that you can put it on C- and even B-segment cars.”

There were plenty more products,

services and announcements for visitors to investigate. Robert Bosch showed the MM5.8 yaw-rate sensor currently under development ahead of its planned market introduction in 2010. Half the size of the previous model but with the same accuracy and response time, its reduced dimensions allow a smaller connector



ROBERT BOSCH’S NEW MM5.8 YAW-RATE SENSOR

to be used and the unit to be more easily integrated into vehicles. Also previewed on Bosch’s stand was ESP 9, production of which will begin in late 2009. Featuring a new generation of microcontrollers, the scaleable system incorporates up to three integrated pressure sensors for accurate control even at low pressures. Acceleration and yaw-rate sensors – until now available in a separate sensor cluster – can

also be integrated into the ESP unit for the first time.

Enjoying the world debut of its pilot version at Vehicle Dynamics Expo was Maplesoft’s new MapleSim package – indeed, worldwide user-testing began on Day 3 of the show, ahead of the product’s full launch in September. With ESC legislation driving demand for good modeling tools, MapleSim has been designed to provide engineers with a simpler way of developing dynamic system models, and connecting electrical systems, controls, and mechanical systems. Under the hood, MapleSim uses Maple for equation derivation, simplification and simulation, as well as optimized-code generation for model deployment. By the time the product is fully released, users will also be able to take code from a MapleSim model and export it into LabView/RT or Simulink/RTW for real-time execution. For mathematical analysis and component creation from equations there is also tight integration with Maple version 12, which was itself launched on Day 1 of the show.

New at Vibracoustic was a silicone engine mount that has none of the temperature issues that can arise



SYNAPTIC DAMPING CONTROL (SDC)

New suspension technology was the order of the day at Magneti Marelli. In addition to its prototype U-link rear suspension, the Italian company’s stand featured Synaptic Damping Control (SDC), which will make its production debut in 2009 on the Lancia Delta and Alfa Romeo Mi.To. Michele Spina, product development and innovation director for SDC, explained that, as a relative latecomer to the adaptive damping market, Magneti Marelli will be competing aggressively on price and targeting B- and C-segment applications: “We think there will be a dramatic increase in the market for these products in the future,” he said. SDC dampers will be made in Poland, with valves supplied by Öhlins Racing. Long term, capturing non-Fiat Group customers will help Magneti Marelli achieve its target of 10-15% of the adaptive damping market.



LOTUS ENGINEERING'S DYNAMICS WORKSHOP

A highlight of the morning's activities on Day 2 of Vehicle Dynamics Expo was Lotus Engineering's dynamics workshop. Lotus had decided on a very interactive workshop format with full participation from the attendees. Four groups of participants, each led by a member of the Lotus Dynamics CAE team, undertook to design the basic chassis layout and suspension for a fictional MPV using Lotus's SHARK and RAVEN dynamics analysis tools. When the teams presented their results back to the other groups at the conclusion of the workshop, four different configurations had been proposed: rear engine with double-wishbones up front and rear struts; rear engine with struts all round; front engine with struts all round; and front engine with front double-wishbones and a z-axle at the rear! This was not unexpected by the Lotus engineers as it outlines the degree of variability in any new concept, and why this approach is so effective.

The team leaders were very pleased with the way participants committed to the task and the level of input and interaction. Paul Harvey, head of chassis engineering at Lotus felt that, "The informality of the workshop format appeared to work well. We expected the vehicle level approach to be both thought-provoking and inclusive. If the demand is there, we look forward to more sessions of this type in the future."

LEFT: OPEN TECHNOLOGY FORUM WAS AS POPULAR AS EVER, WITH SPEAKERS FROM THE LIKES OF FERRARI AND GENERAL MOTORS



EXPO-IN-BRIEF

Dow Hyperlast's Tony Boardman reported improved international exposure for Autothane as a result of the company's takeover by Dow in 2007. Negotiations are currently under way with three potential extra licensees to process the bushing material in Japan and Brazil.

with natural rubber. It is now in production for BMW.

The company also has some electrically adaptive mounts under development for introduction to the market around 2010. With these mounts it is possible to eliminate fuel-consuming balancer shafts from the engine itself. Further to this adaptive system, Vibracoustic also has customer-proven active linear absorbers in its development portfolio.

Representatives of Ahle Springs were at the show to meet OEM-development engineers, vice-presidents and other decision makers. The firm, which is based in Lindlar, Germany, and specializes in the supply of progressive springs, received enquiries about new application fields, including some from Japan.

Lotus Engineering displayed a front corner with forged-aluminum wishbones from the forthcoming Eagle sports car. The firm's Versatile Vehicle Architecture will underpin Eagle, to be unveiled in July.

FTE is making its newly installed brake-test dynamometer available for hire by third parties. The company,



AMONG THE EXHIBITORS WAS AHLE, WHICH HAS MINIBLOC SPRINGS IN ITS PRODUCT LINE-UP

based in Ebern, Germany, is hoping to attract a mix of brake-system suppliers, friction-material and fluid producers, and clutch suppliers.

Drawing the crowds as ever at the Expo was Cruden's Hexatech ride-and-handling simulator. Work is progressing in Amsterdam's Steigereiland district on a new, dedicated office and workshop complex for the company, ahead of its scheduled opening in mid-2009.

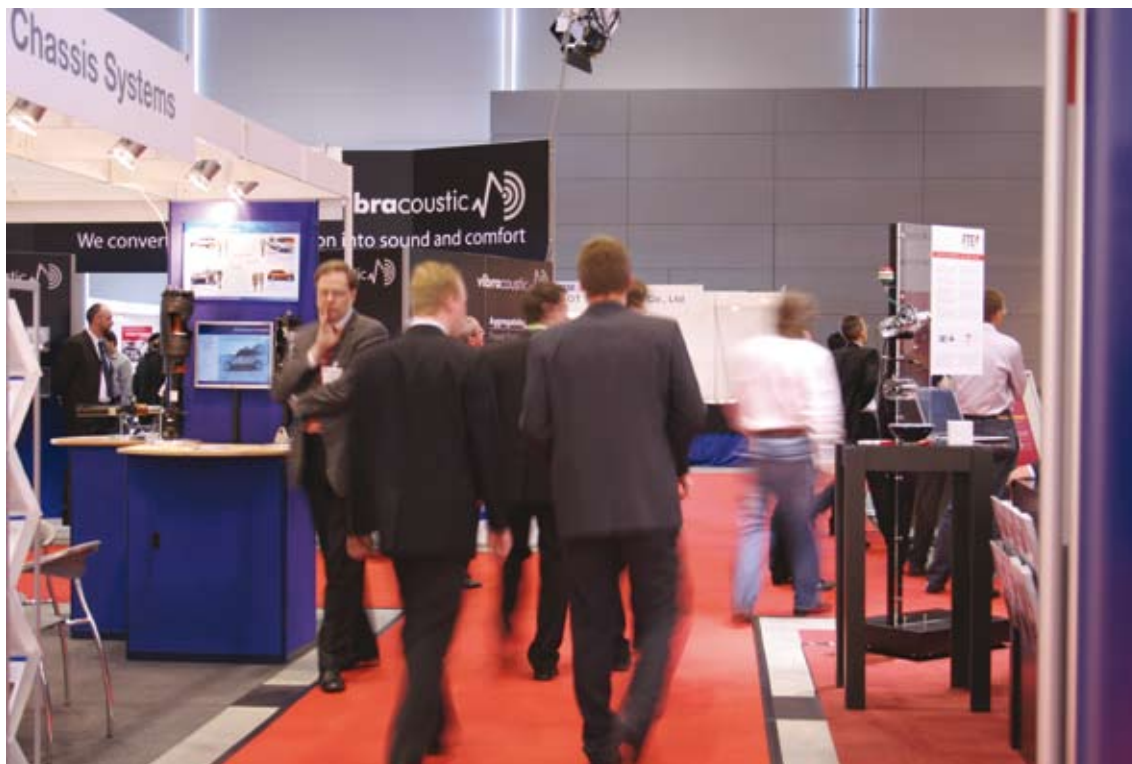
With HyperWorks 9.0, Altair is extending its patented on-demand, unit-based business model to

"The Lotus Engineering workshop was a fun way of seeing how the software tools work"

Andy Kitson, vice-director of chassis, SAIC Motor UK

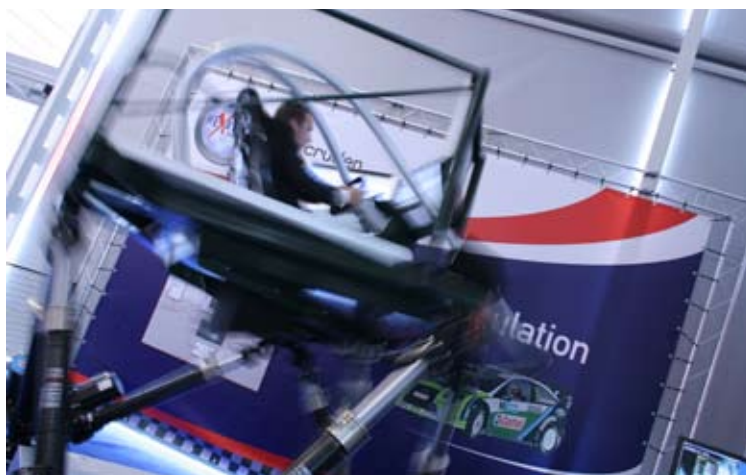
“We had contact here with lots of potential partners. It’s a good base from which to begin further discussions”

Michael Kautz, senior vice-president of sales and marketing, Fludicon




“I’m on the lookout for companies that produce innovative sensing products. It’s important for us to know what innovations are important in Europe and can be brought to Russia”

Ninel Chernyshenko, project manager of R&D, Mercedes-Benz Russia



ALCON'S OEM SALES MANAGER, JONATHAN EDWARDS DISCUSSED THE FIRM'S NEW FACILITIES

chassis-systems services, Danisi has branched out into motorsport by producing a spaceframe racer for off-road events. Company boss Giacomo Danisi is expecting OEMs from developing markets to become involved in Dakar-style rallying, as it offers good marketing visibility for a reasonable budget. In the meantime, two have been sold to Mitsubishi in Italy, and two more to private buyers.

Finally, Globe Motors appears well placed to take advantage of the surge in demand for EPS systems. Eduardo Aguiar said that its in-house stack-production division, Electrowind, enables the company to produce high torque levels from compact designs. 



RIGHT: ALCON'S LATEST OE CALIPER, AN AUDI RS6 UNIT DEVELOPED FROM AN EXISTING PRODUCT FOR THE BENTLEY CONTINENTAL GT, WAS ON DISPLAY AT THE EXPO

third-party software applications. HyperWorks uses a subscription-based software licensing model, where software licenses float across the enterprise, and customers can use floating licenses to access a broad suite of applications. With the HyperWorks Partner Solution Program, Altair is extending its platform from 28 internally developed solutions, to 43. Customers may utilize their existing HyperWorks software licenses to operate all applications, increasing flexibility and the value of their investment at no incremental cost.

Elsewhere, Tesis showed its latest DYNA4 simulation framework. DYNA4 provides a library of component models that can be easily selected at the click of a mouse. The user's own models can be integrated, too.

Applications range from model based design to SIL and HIL testing.

In the braking arena, Alcon's niche OEM business continues to expand, now forming around 40% of the motorsport-rooted company's activities. As a result the UK firm is investing in a new production cell and extended R&D facilities, to be ready by the end of the second quarter of 2008. Lightweight-aluminum calipers for electric vehicles could be a growth area for the future, according to OEM sales manager, Jonathan Edwards.

A supplier of prototyping and

