



# Expo news

**Event:** Automotive Testing North America 2009  
**Venue:** The Rock Financial Showplace, Detroit, MI, USA  
**Date:** October 27-29, 2009

➤ The success of Automotive Testing Expo North America 2009 (October 27, 28, 29, 2009) showed that it really is 'business as usual' in the development sector.

The Rock Financial Showplace in Novi, Michigan, was brimming with new technology and services for automotive development engineers, with huge interest being shown by visitors looking to improve their development processes in terms of time, cost, and quality. Visitors included the usual strong presence from the local Big Three – Ford, GM, and Chrysler – as well as the US operations of giants such as Toyota, and an impressive number of international visitors.

## Facility reveal

Representatives at the MGA Research stand were excited to inform visitors about their latest facilities in the USA: one is the recently announced facility in Greer, South Carolina, and the other is in Manassas, Virginia, which is so new that it is still awaiting equipment.

"We have opened the 12,000ft<sup>2</sup> facility in Manassas because, as well as the work we do for NHTSA, we are moving more into military and aerospace – the local presence of military in

Virginia means there is a need for an independent supplier in that region," explained MGA's business development manager, Paul Sapiano.

"The building is complete at the moment, but we don't know what test equipment we need there – we will fit the equipment according to the needs of the region," he continued.

Anyone wishing to test in Manassas should contact Sapiano so that he can source the appropriate equipment.

### Automated test driver system on show



SEA Limited exhibited its automated test driver (ATD), a portable computer-controlled system that provides full steering, throttle, braking control, and GPS path-following capabilities for all ground vehicles. The ATD has all the functionality of SEA's automated steering controller (ASC), plus the ability to do vehicle speed and acceleration control. The path-following feature provides a means for doing closed-loop driving maneuvers more accurately than a human driver. The ATD also provides autonomous vehicle capabilities.

"The best interest at the expo has been from heavy-truck manufacturers wanting to test lane-departure systems and ESC systems," said Andrew Minister from SEA. Minister also revealed that the company has just been awarded a US government contract to build a suspension-measuring K&C machine for heavy military vehicles.

## HIL testing news

The big news at National Instruments was the launch of VeriStand, an open configuration-based software environment for creating real-time testing applications such as HIL and controlled environmental tests. All of the common functionalities of a real-time test system are implemented and optimized inside NI VeriStand in a ready-to-use format, making it possible for real-time test system developers to complete their test application development more efficiently.

NI VeriStand helps developers configure a multicore-ready, real-time engine capable of supporting third-party I/O interfaces including data-acquisition and field-programmable gate array-based I/O interfaces as well as triggerable data-logging



and stimulus-generation tasks.

"One of the challenges with Labview is that to get started on a complex application such as HIL takes time, as Labview is a tool engineers can use to build their applications," explained National Instruments' Jared Aho at the show. "You can go to Home Depot and buy a hammer and nails, but to build a fence you have to do the labor yourself. Labview is similar – we give you the

engineering tools but you have to do the labor yourself. VeriStand really simplifies the process of getting someone up and running for real-time testing applications, be it wind tunnel tests, HIL sims, or model-in-the-loop simulations.

"With an open platform based on Labview and VeriStand, and an open platform like PXI, it's a very cost- and time-competitive solution compared with traditional solutions."

### Ignition coil simulation tool released

There's a new tool available from D2T that enables complete control of the first parameter of combustion – the spark. Following the launch of this new technology at the expo, engineers will no longer need to try various coil configurations looking for the spark they want; instead, they can define the spark without hardware.

The Smart Coil ignition coil emulator is the next tool to further improve combustion results. Any ignition coil can be represented using this tool by defining the spark level, form, duration, and the number of sparks per plug. Smart Coil also monitors and

measures critical ignition parameters such as spark current, voltage, arc duration, and energy, while displaying the spark form. All of this is accomplished without any additional sensors on the engine. Spark-strategy development and research are no longer limited to physical component definitions.

"This is the next step in combustion analysis," stated D2T's William Guilbert, speaking at the show. "If you're into sparks, it gives you a lot of options. But unlike a regular coil it has no charge time. This is the big launch."

## Alternative fuel and vehicle performance center announced

Westest announced that it is currently constructing an innovative alternative fuel and vehicle performance center in Manitoba, Canada, scheduled to open in February 2010.

A central feature

is a state-of-the-art chassis dynamometer that will simulate on-road vehicle operations in a controlled laboratory environment, and allow year-round use, with full air-temperature control.

The facility, when complete, will also

extend Westest's alternative fuel evaluation and research strengths.

The facility can be used to validate design iterations with precise, repeatable results.

The ability to provide performance and durability testing

capabilities at early stages in the research and development cycle will speed up commercialization and provide competitive advantages for component and original-equipment manufacturers.



## Steering robot launch



Anthony Best Dynamics (ABD) has expanded the company's range of steering robots with the launch of the new SR60 Torus model, designed to decrease test setup time, aid vehicle operation, and enhance the safety of vehicle-handling tests.

The SR60 Torus combines a large-diameter hollow center with the ability to clamp the unit to an existing steering wheel, keeping the steering wheel airbag in place. This design avoids the need to remove the original steering wheel or disable the airbag, reducing setup time. Safety is increased as the airbag can now deploy through the center of the wheel without the robot motor

becoming detached from the steering wheel. The Torus design also removes the problem of sensor deactivation that can occur when the standard steering wheel is removed from some vehicles, and enables the driver to have access to the controls mounted on the steering wheel.

The SR60 Torus motor uses a direct-drive continuous-rotation brushless motor with low-friction bearing, and the system requires no gears or clutches. The vehicle can be driven manually between tests, using the integrated steering rim.

The SR60 Torus steering robot can also be used with ABD's 'path following' option, which

uses a GPS-corrected motion pack to give real-time feedback on vehicle position and heading, and hence enables the robot to control the vehicle to follow a pre-defined path.

ABD's technical director, Stephen Needs explained, "When you fit a robot over a standard steering wheel, for safety you have to disable the airbag. That's all very well if it's your car, but if you're benchmarking, when you re-enable the airbag it usually creates a fault code. There is also a concern that when you disable a bag, some controllers in some cars will reprogram the way the car behaves, so you're not testing it in the way it should be tested."

### Takeover news at Expo

Following Kistler's takeover of MSC Automotive GmbH at the beginning of January 2009 and Corrsys-Datron Sensorsysteme GmbH at the end of April, the acquisition of KT Automotive, announced at the expo, makes Kistler a leading provider of complete measurement solutions for the automotive industry.

This third addition to the group within 10 months shows that Kistler is rapidly progressing its strategy of using acquisitions to strengthen the Group's competitive position in the vehicle safety testing market.

Rolf Sonderegger, Kistler Group's CEO, travelled to the



expo in order to make the formal announcement. He said, "KT Automotive is one of our dependable long-term partners. Joining forces now enables us to control the entire crash test measurement chain from sensor through to data evaluation as a one-stop shop for measuring systems."

### ECU test tool revealed

There was a lot of interest at Vector CANtech's stand, due to its Option CANoe.XCP launch. This product, which was developed for CANoe, enables direct access to internal ECU values via the standardized ASAM calibration protocols XCP and CCP. These parameter values are used by test engineers and application developers in their testing and analysis tasks. CANoe assumes the role of XCP Master here, communicating with multiple slaves in parallel.

"This is our latest and greatest tool," explained CANtech's John Simion. "One of the reasons you buy CANoe is for its automated testing capability, and this is an extension to that. A number of customers were testing vehicle networks in vehicles with various ECUs, in an automated lights-out environment. What they wanted was to add real and simulated loads to ECUs to further test them, so we developed a system to do that.

"It's very modular, and all the control is done through CANoe. You simply buy the number and type of boards you need to support your testing needs on an ECU. Each board has four channels, though some denser boards are available. You can simulate broken wires for switches, and all kinds of tests. It's very easy to set up. You no longer need an engineer sitting at a test station, running these tests manually, inputting info, verifying the results, and moving on."

## Rugged logging system launch

Race Technology chose the expo as a launch pad for its Video4 pro, a state-of-the-art, solid-state, combined video and data-logging system. It features four video inputs and one video output. The Video4 pro overlays high-quality graphics and records the video – along with synchronized data – onto a removable flash memory card. The video can then be viewed on

a PC, using a standalone player, or used to automatically generate a DVD. It also enables users to load the data and the video directly into an analysis package.

"Our motorsport experience has shown the high value of tightly integrating video into data acquisition," stated Race Technology's director and chief software engineer, Dr Andrew Durrant.



## Ford's track news



One man full of good news was Kevin Halsted from Ford's Michigan Proving Ground, who announced, "We just completed a major renovation to our high-speed track, and it is now one of the top high-speed tracks in the USA.

"We have a five-mile oval that's five lanes wide. The track opened in 1956, and for many years when we resurfaced it we just put a cap on it, but this time we tore it down, reset the foundations, and repaved it from scratch. We spent in excess of US\$20

million on the rebuild. Now it's a state-of-the-art facility that we believe is unmatched by our competitors. We have also completed a lot of other small projects in renovations over the past 12 months, which have cost more than US\$50 million. We updated our shake and rattle facility, put in a corrosion chamber, and we have resurfaced 127 lane-miles of track, not including the high-speed track. We see the next few years ramping up with a lot of testing, including Ford work and external client work."

The track is ready to receive external customers on a confidential basis.

### Modeling and simulation advances

Maplesoft announced several new products that will help engineers to better manage the complexity of engineering modeling and simulation problems. MapleSim, the solution for physical modeling, together with a collection of new toolboxes, enables fast model development, advanced analysis, and the creation of complex multidomain models. In the rapidly transforming world of engineering, physical modeling is evolving as a fundamental and critical engineering process in response to the increasing complexity of emerging design challenges.

"This expanded solution is a critical part of Maplesoft's mission to empower the engineering community with all the necessary pieces to tackle emerging and increasingly complex design challenges," said Jim Cooper, president and CEO of Maplesoft. "Physical modeling is certainly driving the designs of tomorrow. These products provide better integrated toolchains and powerful tools to gain maximum benefit from physical modeling quickly. Expert modelers can do more, faster, and traditional techniques can easily be modernized."

## CRASHTEST EXPO NORTH AMERICA 2009

### Low price, high performance

Photron announced the launch of the Fastcam SA4, the latest in its line of megapixel high-speed cameras. Building on the Emmy-winning success of the Ultima APX and best-selling Ultima APX-RS motion analysis cameras, the Fastcam SA4 provides the convenience of the square 1K X 1K pixel format to 3,600fps, and reduced resolution to 500K fps, all with the convenience of a 1µs global electronic shutter, independent of the frame rate selected.

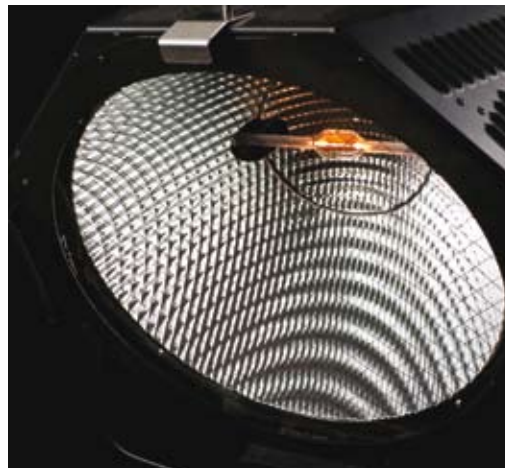


## Lighting launch

One of the brightest launches at Crash Test Expo North America 2009 came from ARRI Lighting, where Ryan Fletcher introduced visitors to its latest product, seen for the first time at the show: the ARRI Industrial 40/25 lamphead.

"We're a leading motion picture equipment provider of cameras, lighting, high-speed lasers, and film scanners. We decided it would be advantageous to develop a light specifically for the crash test market so we came up with the ARRI Industrial 40/25 lamphead, which is a 4kW lamphead and a double-ended HMI lamp," stated Fletcher.

"It is an innovative reflector design based around a lensless system. This means that you get a good, homogenous light field without needing lenses so you don't lose



efficiency. The light gives you a very rectangular light field, which helps for stacking in arrays.

"With round lights you have to deal with overlapping multiple circles, and it's hard to get homogeneity. The other advantage is the asymmetric reflector. The brightest part of a car is usually the closest point to the lamphead, but with an asymmetrical reflector it redistributes light for up and down and side-to-side homogeneity. Some facilities, such as VW in Wolfsburg, don't have

much room, so the lights are closer to the car. In this case a 60° reflector is useful as it spreads the light out further. This lamp also costs less than movie lamps (about two-thirds of the cost), and you need fewer of them.

"We've had a lot of interest at the show. What's been interesting is having people come by from facilities we have worked on worldwide. There is a lot of interest in this fixture. The trick is to work out who is doing installations and getting to the right people."