



**USER CONFERENCE** Paderborn  
09-11. November 2010

Embedded Success **dSPACE**

Herzlich Willkommen  
... dSPACE Anwender

# Open Dialogs

The hottest application trends presented at the 6th dSPACE German User Conference







From November 9 to 11, 2010, dSPACE welcomed nearly 200 visitors to the dSPACE user conference at the new company headquarters in Paderborn. Experts from the automotive field presented their current development projects and described how dSPACE systems are being used to ensure their success.

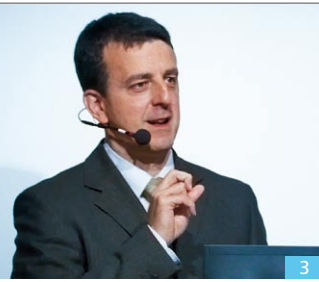




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Two major challenges are currently being discussed in the car industry: the automotive electronics of the future and electromobility. The first two conference days opened with keynote speeches on these topics by Dr. Willibert Schleuter and Prof. Dr. Willi Diez. The conference then revolved around guest lectures given by major OEMs, suppliers and engineering service providers from the vehicle industry. The speakers described how they were using dSPACE products to make decisive progress in their projects.

### Green Success – Electromobility and Hybrid Drives

The presentations of current development projects on alternative drives attracted intense interest. Various companies covered the entire range of energy efficiency techniques, from battery management systems to optimized combustion processes.

### Test and Quality Assurance in ECU Development

The speakers on the topic of testing described their experience with the

automated testing of components and ECU networks, and presented processes and methods for verifying software maturity efficiently and reliably.

### dSPACE Products Used for Driver Assistance Systems

Another topic was the development and production start of driver assistance systems, including the challenges of testing them. The demand for personal comfort, the vision of accident-free traffic in today's aging society, and the



desire to reduce fuel consumption with vehicles that look ahead and communicate with each other were identified as being vital factors.



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## AUTOSAR – Moving Towards a Worldwide Standard

Current software development projects show that AUTOSAR is on its way to worldwide implementation. The papers in this field reported on preparations for AUTOSAR in projects and the benefits promised by AUTOSAR-compliant development, as well as the challenges still to be met.

## Developing Safety-Critical Applications

One major issue in software development is how to handle safety-



relevant systems. Examples of innovative steering and braking systems demonstrated their growing importance.

### Speakers:

1. Dr. Brem-Kumar Saravanan, SB LiMotive Germany GmbH
2. Jakob Andert, FEV Motorentechnik GmbH / RWTH Aachen
3. Gianni Padroni, Schaeffler Technologies GmbH & Co.KG
4. Dr. Moritz Schulé, Daimler AG
5. Erich Scheiben, ABB Switzerland Ltd.
6. Knut Schwarz, Lemförder Electronic GmbH
7. Martin Fischer, Daimler AG
8. Ralf Belke, Audi Electronics Venture GmbH
9. Andreas Kern, Audi Electronics Venture GmbH
10. Christian Röss, Ford Forschungszentrum Aachen GmbH
11. Matthias Kohlweyer, Daimler AG
12. Dr. Karsten Schmidt, Audi Electronics Venture GmbH
13. Dr. Werner Bauer-Kugelmann, Audi Electronics Venture GmbH
14. Gisela Josko, Delphi Deutschland GmbH
15. Matthias Sendzik, Volkswagen AG
16. Christian Köglspinger, LSP Innovative Automotive Systems GmbH
17. Bernd Radgen, Continental Automotive GmbH

### Networking

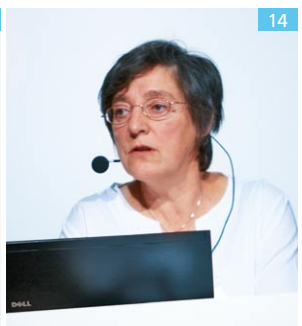
The conference provided plenty of opportunity for informal contact. Product innovations and development trends were the topic of numerous conversations. For the first time, the dSPACE User Conference was held at the new company headquarters in Paderborn, Germany, giving participants an inside view of the development world at dSPACE. Advanced seminars on selected topics were on the schedule for the third day of the conference.

We at dSPACE extend our sincere thanks to all of the speakers and participants for their fascinating topics and thought-provoking conversations throughout the user conference. ■



## Shift into Gear and Step on the Gas

An evening racing event with Formula Student on an automobile association test track rounded off the first day of the conference. Bringing their latest race cars, Paderborn's UPBracing team and the Green Team Stuttgart showed the visitors exactly what they're made of. Despite the rainy weather, some guests jumped at the opportunity to get behind the wheel and experience the thrills of the race track for themselves.





## Interview

with Dr. Willibert Schleuter,  
former head of electrics/electronics  
development at Audi and module  
manager at the VW Group



## The Future Challenges for Automobile Electronics

*Dr. Schleuter, what megatrends will decide the innovations of the future?*

Several areas are shaping developments. One is drivetrain electrification in various forms. Systems for accident-free driving, and networking vehicles with one another and with the infrastructure, are other important issues. These are not only changing our way of driving, but also opening up new opportunities.

Another trend is the further individualization of vehicles. There will basically be more vehicle derivatives made up of different components. As globalization progresses, this will also lead to a shift in development tasks.

*The balancing act between complexity and development time is getting tougher. What sort of development times will engineers have to face?*

Development times strongly depend on the complexity of the systems under development. However, automobile manufacturers wanting to introduce new systems are coming under increasing pressure. Anything that is not ready in time for market launch is difficult to market later, which means that systems stay too expensive for too long.

*What are the magic screws for adjusting processes to increasing complexity and development speeds?*

The competence and efficiency of people are decisive. In Germany, our natural resources are what we have in our minds. We'll become more efficient if we succeed in networking our activities. We can do it, but we need the courage to build confidence in closer cooperation. In the long run, the successful companies will be the ones who work together in network clusters, each contributing different skills to large-scale tasks that they could not solve or bring to market maturity on their own. One enormously important task for everyone is to increase the proportion of women in engineering professions.

*What new feature in the vehicles of the future are you looking forward to the most?*

Traffic sign recognition! If you drive a lot and use a headset to phone, you're a much more relaxed driver if you have constant information on speed limits.

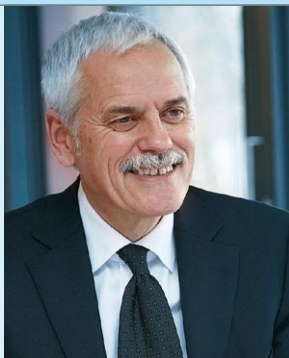
One future task that will bring great economic benefits is to improve traffic jam reporting via Car2Car, to give all road users the information they need. This will make driving more efficient, which will benefit everyone, whether they're directly affected by road congestion or not. The plans for traffic jam detection and reporting systems are already on the table, we just have to take them one step further.

*Thank you for talking with us, Dr. Schleuter.*

**“In Germany, our natural resources are what we have in our minds. We'll become more efficient if we succeed in networking our activities.”**

*Dr. Willibert Schleuter*





## Interview

with Prof. Dr. Willi Diez,  
Director of the German Institute  
for Automobile Economics (IFA)



## Electromobility – The Road to the Future or a Dead End?

*What is the state of play on electric cars, Prof. Diez?*

Right now, we're seeing a lot of hype. Everyone is expecting to be able to drive an electric vehicle tomorrow, or at least the day after. But we have to remember that the range and costs of these vehicles still pose extreme challenges. Automotive manufacturers are still working on developing real-world solutions.

**“If you master battery technology, you will master the industry.”**

*Prof. Dr. Willi Diez*

*What role is battery technology playing?*

It's the key technology. Batteries are to an electric vehicle what a combustion engine is to a conventional vehicle. Powerful, high-capacity batteries determine the vehicle's range and speed. And we mustn't forget current consumers such as the lights, climate control and numerous comfort functions – without powerful batteries, electric vehicles are not fit for general use.

*What factors determine the viability of fossil-fuel and electric drive systems?*

There are two basic cost factors, the purchase price and the running costs, which are essentially consumption costs.

At the moment, electric cars cost € 15,000 to € 18,000 more to buy than comparable combustion engine vehicles. Mainly because of the expensive battery. But with regard to energy consumption, electric cars are extremely cost-efficient. Right now, it takes about € 2 to drive approximately 100 km.

*And what will this look like in a few years?*

That's difficult to forecast. The batteries will certainly be cheaper. Unfortunately, though, the price of electricity is likely to increase. Environmentally aware motorists who want to use an electric car want to do so with a clear conscience. To do that, they need to use energy from regenerative sources, which in the foreseeable future will be much more expensive than electricity from coal-fired or atomic power plants. So initially, there are two conflicting trends. But in the

long run, the costs of vehicles with combustion engines and ones with electric motors will converge.

*How can electromobility contribute to reducing CO<sub>2</sub> emissions?*

How much CO<sub>2</sub> is reduced depends on the energy mix. Electricity from coal-fired plants does not bring any advantages. The electricity must come from CO<sub>2</sub>-free sources. Atomic energy is controversial in Germany, so we will need a larger supply of regenerative energy sources.

*What potential does drivetrain electrification have for the global industry?*

It's the second revolution in automotive technology. Completely new vehicles are needed, with completely new concepts and materials. If you master battery technology, you will master the industry.

*Would you drive such a car?*

I'd love to, as a second car, at the price of a second car. When the leasing rate is € 199, I'll be the first customer.

*Thank you for talking to us, Prof. Diez.*