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.
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.
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.

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.

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.

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 Schulte, Daimler AG
5. Erich Scheiben, ABB Switzerland Ltd.
6. Kurt Schwarz, Lemförder Electronic GmbH
7. Martin Fischer, Daimler AG
8. Ralf Belke, Audi Electronics Venture GmbH
9. Andreas Kern, Audi Electronics Venture 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 Sandzik, Volkswagen AG
17. Bernd Radgen, Continental Automotive GmbH
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 develop-
ments. 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 individu-
alization of vehicles. There will basi-
cally be more vehicle derivates made
up of different components. As glo-
balization progresses, this will also
lead to a shift in development tasks.

The balancing act between complex-
ity 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 com-
ing under increasing pressure. Any-
thing 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 propor-
tion 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 traf-
ic jam reporting via Car2Car, to give
all road users the information they
need. This will make driving more
efficient, which will benefit every-
one, whether they’re directly affected
by road congestion or not. The plans
for traffic jam detection and report-
ing 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 CO₂ emissions?
How much CO₂ is reduced depends on the energy mix. Electricity from coal-fired plants does not bring any advantages. The electricity must come from CO₂-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.