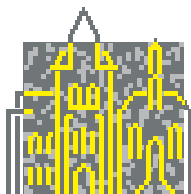


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## **Software Intensive Embedded Systems – with Special Emphasis on Automotive**

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Gesellschafter:

- Gesellschaft für Informatik e.V. – Bonn
- TH Darmstadt
- Universität Frankfurt
- Universität Kaiserslautern
- Universität Karlsruhe
- Universität Stuttgart
- Universität Trier
- Universität des Saarlandes

## Summary

In a modern car a network of up to 80 electronic control units (ECUs) realises several hundred functions that range from power train control, active and passive safety systems, body electronics and driver assistance to infotainment applications. High demands on quality, reliability, the increasing complexity, and the rapidly growing number of interactions between subsystems, as well as time-to-market and cost constraints lead to challenging requirements for new processes, methods and tools. The automotive area is a particular interesting field for the application of design processes and methods being developed for software-intensive embedded systems. The seminar covered a wide range of topics (see below). As aspects from such a wide field are relevant for the development of software-intensive embedded systems for a mass market, the intensive interdisciplinary exchange of ideas between experts from electrical and mechanical engineering and computer science is the most promising approach to progress.

The seminar had a dense program of presentations followed by active discussions. Topics were:

- design and development processes
- tool support (framework and chains)
- software integration (technical and legal)
- software layer techniques (middleware)
- performance analysis (timing constraints)
- modelling, analysis, and validation methods
- diagnosis and test
- model based software and system design
- model driven architecture
- model checking and verification
- requirements on safety critical and embedded systems
- programmable networks

The seminar provided a good overview of the international activities in industry and universities in (automotive) embedded software design. As a result, the participants could establish contacts and coordinate their activities. Finally the necessity for further meetings was affirmed. Only by an intensive knowledge exchange it is possible to master the increasing challenges.

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