SEMI GAAC Automotive Forum

B. Weiss
Vice President Global Business Development
SEMI, Milpitas, United States

Biography

As Vice President of Business Development and Product Management, Bettina Weiss supports the diverse product needs of association members, as well as assesses strategic emerging opportunities for member company engagement in the extended global manufacturing supply chain.

Weiss joined SEMI in 1996 and held a variety of positions in SEMI's International Standards department, including department lead, until 2008. From 2008 to 2012 she had global responsibility for SEMI's Photovoltaic/Solar Business Unit which then expanded into a broader business development role including the integration of SEMI Strategic Association Partners FlexTech and MEMS & Sensors Industry Group. In addition, since 2017, Weiss has been responsible for developing strategy and global implementation plans of SEMI's Smart Transportation vertical platform, with its current emphasis on the automotive electronics supply chain.

Prior to joining SEMI, Weiss worked in sales and marketing positions at Metron Semiconductor and Varian Semiconductor in Munich, Germany. She holds a BA from the International School for Applied Languages in Munich, Germany, and is a certified translator for Anglo-American Law and Economics.

Rethinking car software and electronics architecture

O. Burkacky
Partner
McKinsey & Company, Munich, Germany

Abstract

The most important parts of cars are shifting from mechanical to digital, heralding big changes in the industry's competitive stakes.

While the path forward for both technologies and business models remains uncertain, I will share ten hypotheses regarding tomorrow's automotive electrical or electronic architecture and its implications.

Biography

- Based in McKinsey & Company's Munich office since 2007
- He is part of Digital McKinsey
- He leads McKinsey's Embedded Software initiative and Software Service Line in Europe
- He is also a member of the Advanced Industries Practice, specifically automotive and semiconductor industry with focus on product development

Driving automotive Innovation – comprehensive design

B. Huhnke
Vice President Automotive Strategy
SYNOPSYS, Mountain View, United States

Abstract
What an exciting time we live in: self-driving cars, fully electric and always connected to the internet to provide the user a seamless transportation experience. Many announcements around the mobile phone on wheels have been made. Some of the most exciting innovations happening in our cars: cars are becoming our co-pilots as intelligent technologies make them safe and secure, more comfortable, and more autonomous. And with full connectivity the car becomes the new gold mine, a big data collector processing real time traffic data and millions of miles per day.
To enable smart, connected and autonomous vehicles, the car's electronic architecture, its supporting soft and hardware design and release processes must be adjusted. Any failure in the field results in very high cost and liability to the car manufacturer. Requirements for a robust, comprehensive design of a fault tolerant system must be newly formulated. A holistic view of the system failure rate along the supply chain, lifecycle of automotive development and production is necessary. Consequently, robustness, safety, and security of self driving systems must be significantly increased and be monitored continuously.
Robust design begins in the early phase of car concepts. Automotive IP centers of excellence have been created, to ensure automotive compliant intellectual property for faster, smarter, low-energy chips reducing risk and development time. Automotive SoC design is meeting the highest safety integrity levels (ASIL) providing ADAS IP as design basis for the new advanced driver assistants architecture. By providing a simulation platform based on the processor models, early virtual prototyping, emulation, and functional verification from modelling to test bench deployment becomes possible. Software experts will be required to ensure fault tolerant, highly reliable, functionally safe and secure software along the automotive lifecycle.

Biography
Dr. Burkhard Huhnke is the Vice President of Automotive Strategy at Synopsys. He joined Synopsys earlier this year. Prior to Synopsys, he was SVP of Product Innovation & E-Mobility at VW, based in Silicon Valley. He was responsible for synchronizing VW's innovation activities and alliances to identify new concept ideas, business models and partners in the US and had end-to-end ownership of the electric vehicle platform in North America. Prior to that, he held several positions both in the US and Germany, including Senior GM, Electronics System Integration and Whole Vehicle Integration. Dr. Huhnke studied electrical engineering, at the University of Braunschweig. His dissertation about optical distance measurement was awarded with the International Measurement Prize.
Dr. Huhnke serves as Research Fellow the Hult Business School in San Francisco, and is a member of the Board of Advisors at the College of Engineering at University of Tennessee Knoxville and at the College of Engineering and Computer Science at University of Tennessee Chattanooga.

Revolution of Automotive Architectures through IT and Network Infrastructure Concepts

S. Singer
Fellow & Director, EMEA CAS Automotive
NXP, FAE, Muenchen, Germany

Abstract

The Automotive Industry is seeing more dramatic changes in the next few years than in previous decades combined. Vehicles are becoming always connected and part of the internet. Drive trains evolve from combustion engines to mixtures of hybrid and electric vehicles with new challenges (e.g. for reach). Most dramatic is the change to more and more assisted driving up to future level 3-5 automated vehicles.
All of those factors result in the development, that existing E/E architectures are not capable of supporting those requirements. Instead of small evolutionary changes some more dramatic departure is required. While the new functions demand new solutions, many of the existing functions in a vehicle (e.g. body comfort functions, …) do not require new features and therefore a new architecture, that allows the reuse of many legacy ECUs without changes can have a huge economic benefit.
The presentation will show how concepts from IT and Network Infrastructure Solutions can be brought into Automotive while taking automotive specific requirements (e.g. startup times, thermal management) into consideration. The presentation will touch on several of the attributes and consequences, e.g. of different functions into one box (Virtualization, Isolation, Validation) and Communication schemes for such an architecture.
Additionally we need to consider, that cars are an attractive Target for Hackers. In highly networked cars we need to be concerned about protecting privacy, increasing safety and preventing unauthorized access. Connected vehicles create a multi dimensional challenge to address vehicle safety (Zero accidents by human error), security (Zero accidents by system hacks), functional safety and also device reliability. Another topic is, that such a new architecture requires rethinking of conventional wisdom for functional safety.

Biography

Stefan Singer is a Technical Fellow at NXP Semiconductors in Munich, Germany. He leads the European Automotive Field Applications Team and has held a number of positions at Motorola Semiconductor, Freescale and NXP in the US and Germany. Stefan holds a Dipl.-Ing. degree from the Technical University in Munich.
Due to his personal background in communication, networking and Automotive he has passion for automotive networking architectures (especially Ethernet) and Computing.