AGENDA

Embedded Multi-Core Conference
EMCC
20.-22.06.2017, Munich, Germany

What you will expect:

- Learn from leading specialists how to successfully migrate from single- to multi-core technology
- Find out from OEMs and suppliers how to integrate a new technology into the development process
- Gain valuable insights on how to manage the new complexity and challenges like real-time requirements, safety and compatibility to existing software architectures
- Share your experience with the attending partners and experts to master the new challenges and set new goals for you and your company

Companies you will meet:

- BMW Group
- Continental AG
- Denso Automotive
- Elektrobit Automotive

- Infineon Technologies AG
- iSYSTEM AG
- Kernkonzept GmbH
- Robert Bosch GmbH

- Timing-Architects Embedded Systems GmbH
- TRW Automotive Lucas Varity GmbH
- And many more

Keynote Speakers:

Keynote Day 1:
Automotive Megatrends – Just a Hype?
20th of June, 9:15 – 10:00
by Prof. Dr. Dr. Dr. h.c. Franz-Josef Radermacher – University of Ulm and Research Institute FAW/n Ulm

Keynote Day 2:
Neuromorphic Computing – Disruptive Technology for Automotive Applications
21st of June, 8:30 – 9:15
by Dr. Mario Porrmann – Center of Excellence Cognitive Interaction Technology Bielefeld University

In collaboration of

TA Timing Architects   EB Elektrobit   i SYSTEM   infineon

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Conference Day 1 – Tuesday 20th of June 2017*

☕	08:30	**Registration and welcome coffee**
💬	09:00	**Welcoming and opening remarks of the EMCC 2017** **by Erol Simsek, CEO, iSYSTEM AG**
👤	09:15	**Keynote speech: Automotive megatrends – just a hype?** **by Prof. Dr. Dr. Dr. h.c. Franz Josef Radermacher, University of Ulm and Research Institute FAW/n Ulm** ▪ Hypes drive science, technology, economy, and humans ▪ Reality and responsibility of artificial intelligence ▪ Engineers and technology change the world
☕	10:00	**Networking morning coffee and exhibition**

Session 1: System architecture
(Ariane Maack, Timing-Architects Embedded Systems GmbH)

👤	10:45	**The importance of hardware models in developing applications for MSoCs** **by Stefan Kuntz, Continental AG** ▪ The challenges with multi-core SoCs ▪ The role of hardware models ▪ A seamless and integrated approach
👤	11:30	**L4Re Microhypervisor: Towards a dynamic service architecture for automotive applications** **by Dr. Michael Hohmuth, Kernkonzept GmbH** ▪ Trends in automotive software applications: Dynamic service provisioning, ECU consolidation, highly complex applications (e.g., autonomous driving) ▪ Safety and security requirements ▪ Why future automotive applications need flexible and dynamic systems, not static partitioning ▪ Automotive hypervisors: Challenges and solutions
👤	12:15	**Insights in an automotive central computing cluster** **by Rudi Grave, Elektrobit Automotive** ▪ Introduction into central computing cluster requirements ▪ Presentation of architecture safety integrity approaches including hypervisor and multiple operating systems ▪ Debugging, logging, and tracing mechanisms
☕	13:00	**Networking luncheon and exhibition**

Session 2: System development (Rudi Grave, Elektrobit Automotive)

👤	14:30	**Software architecture patterns for parallel software** **by Prof. Peter Sommerlad, FHO HSR Hochschule für Technik Rapperswil** ▪ How can you partition software, so that such current or future parallel hardware is optimally employed? ▪ Applicable design patterns for practically relevant problems and corresponding proved solutions ▪ A brief glimpse on how to avoid accidentally sequencing code execution on parallel hardware or even worse stepping into "Undefined Behavior"

👤	15:15	**The future of Heterogeneous and Parallel Programming for Self-Driving Cars** **by Michael Wong, ISO C++ Standard**
☕	16:00	**Networking afternoon coffee and exhibition**
👤	16:15	**AUTOSAR adaptive platform and classic platform multi-core improvements** **by Rinat Asmus, BMW Group as function of AUTOSAR spokesperson** ▪ Autonomous driving: The AUTOSAR adaptive SW platform ▪ AUTOSAR classic platform: multi core-improvements
💬	17:00	**Closing remarks** **by Erol Simsek, CEO, iSYSTEM AG**
📍	17:30	**Evening event: Meeting point**
🏛	18:00	**Evening event: BMW World** We take you out to an informal evening in the futuristic „BMW World" to enjoy first class dinner and network with all participants in a relaxing atmosphere.

Conference Day 2 – Wednesday 21st of June 2017*

☕	08:45	**Morning coffee**
💬	09:10	**Short welcoming and overview of the day** **by Prof. Dr. Martin Hobelsberger,** **University of Applied Sciences Munich**
👤	09:15	**Keynote speech: Neuromorphic computing – Disruptive technology for automotive applications** **by Dr. Mario Porrmann, Center of Excellence Cognitive Interaction Technology Bielefeld University** ▪ Artifical neural networks – from simple perceptrons to deep learning ▪ Hardware platforms for neuromorphic computing – from multi-cores to massively parallel architectures ▪ Application areas and future directions of self-learning systems

Session 3: Continuous integration & qualification
(Prof. Dr. Martin Hobelsberger, University of Applied Sciences Munich)

👤	10:00	**ARTI (AUTOSAR Run-Time Interface) – the future of AUTOSAR OS-aware debugging and tracing** **by Armin Stingl, iSYSTEM AG** ▪ What and who is ARTI? ▪ Challenges for debug, trace and profiling within the world of AUTOSAR ▪ What's the status of ARTI? ▪ The impact on software development tools
☕	10:45	**Networking morning coffee and exhibition**
👤	11:15	**Large scale distributed integration in multi-core software development** **by Dr. Joachim Fox, TRW Automotive Lucas Variety GmbH** ▪ Continuous integration ▪ Partitioning/Freedom for interference
☕	12:00	**Networking luncheon and exhibition**

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Session 4: System architecture II (Jens Harnisch, Infineon Technologies AG)

👤	13:30	**SW distribution based on context-aware interoperability** **by Dr. Jochen Härdtlein, Robert Bosch GmbH** • Tool-supported distribution (for real-time SW) • (Extended SW specification for) Context aware interoperability • Multi-/Many-core
👤	14:15	**Multi-core – Continuity across generations** **by Christian Feldmann, Infineon Technologies AG** • Hardware architecture options to resolve limits of scalability • How to ensure scalability of software for multiple generations of multi-core systems
☕	15:00	**Networking afternoon coffee and exhibition**

👤	15:30	**Pulling the trigger: practical considerations when applying the time-triggered approach to embedded multi-core systems** **by Dr. Eugene Yip, Timing-Architects Embedded System GmbH** • Comparing the event-triggered and time-triggered concepts • Challenges in applying the time-triggered approach to embedded multi-core systems • Evaluating time-triggered systems with the TA Tool Suite
👤	16:15	**Energy-aware Parallelization of AUTOSAR Legacy Applications** **by Dr. Sebastian Kehr, Denso Automotive** • Migration Methods • Exploiting the AURIX's energy-saving potential • Practical experiences
💬	17:00	**Closing remarks** **by Prof. Dr. Martin Hobelsberger,** **University of Applied Sciences Munich**
	18:00	**Evening Event: Bavarian beergarden** We take you out to an informal networking gettogether to one of Munich's most beautiful beergardens. Enjoy this bavarian tradition of „Brotzeit und Bier".

Workshop Day – Thursday 22nd of June 2017

- Learn about synchronous tracing of multiple ECUs
- Gain insights on how to do analysis of inter-ECU event chains and on demonstrations of new hardware and software features
- Discuss best-practices learned from various multi-core projects

👤	09:00	**Multi-core software design and verification** by Felix Martin, Timing-Architects Embedded Systems GmbH • From multi-core to multi-ECU: automatic data flow analysis and timing verification of multiple ECUs and the intermediate network • Modelling and simulation of multi-ECU systems and the intermediate network • Optimization of the ECU configuration for a multi-ECU system
☕	10:30	**Networking morning coffee**
👤	10:45	**Multi-core in an AUTOSAR environment** by Rudi Grave, Elektrobit Automotive • Basic software (BSW) distribution • Partitioning • Global time synchronization between ECUs
☕	12:15	**Networking luncheon**

👤	13:15	**Using trace for timing measurements on a multi-ECU system including OS, runnables and network** by Armin Stingl, iSYSTEM AG • Advanced AUTOSAR profiling including OS, runnables and RTE ports • Correlated trace of software and CAN bus • Synchronization of software traces from multiple ECUs by means of common network trace
☕	14:45	**Networking afternoon coffee**
👤	15:00- 16:30	**Programming close to hardware for best performance** by Jens Harnisch, Infineon Technologies AG • Migrating from AURIX 1G to AURIX 2G • Considerations for performance measurement

Contact:

Come and meet the experts on multi-core development!

If you have further question, do not hesitated to contact us.

We are happy to answer your questions and also finalize your booking.

Your EMCC Team

Email: info@multicore-conference.com

Register: www.multicore-conference.com