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:

- AUDI AG
- AVL Software and Functions GmbH
- Continental Automotive GmbH
- Denso Automotive GmbH
- Elektrobit GmbH
- Hyundai Motor Company
- Infineon Technologies AG
- iSYSTEM AG
- NVIDIA GmbH
- Robert Bosch GmbH
- Timing-Architects Embedded Systems GmbH
- Valeo Schalter und Sensoren GmbH
- Volkswagen AG
- and many more...

Keynote Speakers:

**Keynote Day 1:**

**Safety concepts for road vehicles with system controllers**

28th of June, 9:15

by Prof. Dr. Frank Tränkle, Dr. Stefan Schwarzkopf and Hans Leo Ross, Hochschule Heilbronn

**Keynote Day 2:**

**Hardware and software mechanism for thermal and power management in modern multi-core systems**

29th of June, 8:30

by Prof. Avi Mendelson, Technion – Israel Institute of Technology

In collaboration of
Embedded Multi-Core Conference, 28.-30.06.2016, Rilano Hotel Munich, Germany

AGENDA

Conference Day 1 – Tuesday 28th of June 2016

08:30 Registration and welcome coffee
09:00 Welcoming and opening remarks of the EMCC 2016
09:15 Keynote: Safety concepts for road vehicles with system controllers by Prof. Dr. Frank Tränkle, Dr. Stefan Schwarzkopf and Hans Leo Ross, Hochschule Heilbronn
  - Functional safety architectures for system controllers
  - Safety and real-time requirements
  - Asymmetric multi-processing AMP with Linux RT-Preempt Patch
  - AMP with CAN and UDP/IP on ARM multi-cores

10:00 World Café and networking opportunity

Session 1: Migration and Distribution (Session Chair: Armin Stingl, iSYSTEM)

10:45 Software development in collaboratively engineered systems – Development from single-core, multi-core, many-core to distributed Hardware by Christos Ebert, AUDI AG and Torsten Flämig, Volkswagen AG
  - Hardware topologies
  - Model based distributed software development
  - Validation of real time requirements
  - Conclusion

11:30 Distributing automotive real-time systems by Dr. Jochen Härdtlein, Robert Bosch GmbH
  - Challenges in distributed multi-core real-time systems
  - Analysis of typical software failure classes in a distributed real-time environment regarding the new challenges arising with multi-/many-core technologies
  - Provide fundamental mechanisms for ensuring a correctly working distributed real-time system

12:15 DSP multi-core applications by Hamid Afrasiabi, Valeo Schalter und Sensoren GmbH
  - Today’s challenges for Digital Signal Processing applications
  - Dynamic behavior of a single Processing Unit (PU) software
  - Dynamic behavior of a three PU software
  - Load balancing and cache coherency for exchanged data between PUs

13:00 Networking luncheon and exhibition

Session 2: Multi-core systems and design (Session Chair: Alexander Much, Elektrobit)

14:30 Self-Driving Car Super Computer by Joachim Langenwalter, NVIDIA GmbH
  - How the auto industry is being transformed by deep learning and supercomputing in the car
  - Introduction of the world’s first AI supercomputer designed for autonomous vehicles: NVIDIA DRIVE PX 2
  - “Under the hood” details of what makes it an AI supercomputer, a development platform and a reference platform for autonomous cars

15:15 From safe driving to safer autonomous driving by Dr. Albrecht Mayer, Infineon Technologies AG
  - From fail safe to fail operational systems
  - Software, safety, security and other pains
  - The end of Moore’s Law
  - What does this all mean for the multi-core microcontroller?

16:00 Networking afternoon coffee and exhibition

16:15 Transition into a new era of automotive software engineering by Dr. Michael Deubzer, Timing-Architects Embedded Systems GmbH
  - Evolutional vs. Disruptive Technology Transitions
  - Software Design – From Top-Down to Bottom-Up and Back
  - Model-based Integration Concepts & Extracting the Benefit of AUTOSAR
  - Multicore 2Gen – From ECU Design to System Design

17:00 Closing remarks of the session chairman (Alexander Much, Elektrobit)

18:00 Evening Event: Meeting point

18:30 Evening Event: Allianz Arena
  We take you out to an informal evening in the famous FC Bayern Munich Allianz Arena to enjoy a tour through the arena and a networking dinner in the VIP area.

Conference Day 2 – Wednesday 29th of June 2016

08:00 Morning coffee

08:25 Short welcoming and overview of the day by the session chairman (Prof. Dr. Martin Hobelsberger, University of Applied Sciences Munich)

08:30 Keynote: Hardware and software mechanisms for thermal and power management in modern multi-core systems by Prof. Avi Mendelson, Technion – Israel Institute of Technology
  - General purpose of multi-core, embedded systems and hard-real-time multi-core systems
  - Motivation & implementation details of current software and hardware related mechanisms
  - Discussion: how differ such mechanisms from general purpose and embedded systems
  - Discussion: current research and advanced development “hot topics”

Session 3: Migration and Distribution II (Session Chair: Prof. Dr. Martin Hobelsberger, University of Applied Sciences Munich)

09:15 Migration to multi-core technology for innovative powertrain solutions – the challenges by Dr. Bärbel Steininger, AVL Software and Functions GmbH
  - Overview of different requirements resulting from the change to multi-core platforms
  - Migration of legacy applications (e.g. engine control unit, hybrid control unit, battery management system) to multi-core platforms
  - Optimization and validation of migrated legacy applications to multi-core platforms
### Workshop Day – Thursday 30th of June 2016:

- **Learn about advanced concepts aimed to optimize and validate the timing behavior of multi-core applications.** This covers various system aspects such as operating system, software components, and communication.
- **Gain insights in an efficient configuration of an AUTOSAR OS and runtime environment (RTE).**
- **Discuss best-practices learned from various multi-core projects.**

#### Session 4: Software and methodology (Session Chair: Jens Harnisch, Infineon)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Presenter(s)</th>
<th>Details</th>
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<tbody>
<tr>
<td>10:00</td>
<td>Networking morning coffee and exhibition</td>
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<tr>
<td>10:30</td>
<td>Methods for migration of automotive control application to multi-core</td>
<td>by Dr. Bert Böddeker and Sebastian Kehr, Denso Automotive</td>
<td>Overview of migration methods</td>
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<td>Selection and combination of methods</td>
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<td>11:15</td>
<td>Applying AUTOSAR in a powertrain dynamic architecture using multi-core ECUs</td>
<td>by Rudolf Sieber, Continental Automotive GmbH</td>
<td>Implementation of AUTOSAR in hard real-time multicoresystem in the power train domain</td>
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<td>Seamless integration of AUTOSAR components with non-AUTOSAR software</td>
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<td>Optimization of RTE resource consumption</td>
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<td>12:00</td>
<td>Networking luncheon and exhibition</td>
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<td>13:00</td>
<td>AUTOSAR meets new Use Cases – The Adaptive Platform</td>
<td>by Stefan Rathgeber, AUTOSAR spokesperson and Head of AUTOSAR Center</td>
<td>Use Cases motivating Adaptive AUTOSAR</td>
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<td>Continental Automotive GmbH</td>
<td>Key Features of Adaptive AUTOSAR</td>
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<td>PSE 51 POSIX Operating System – The new possibilities and challenges</td>
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<td>14:00</td>
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<tr>
<td>14:15</td>
<td>The future of OS-aware tracing and debugging of automotive multi-core systems</td>
<td>by Armin Stingl, iSYSTEM AG and Peter Gliwa, Gliwa GmbH</td>
<td>Status and current challenges</td>
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<td>What possibilities do standards such as ORTI offer today?</td>
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<td>How should OS-aware tracing and debugging look like tomorrow?</td>
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<tr>
<td>15:00</td>
<td>Networking afternoon coffee and exhibition</td>
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<td>15:30</td>
<td>Efficient communication and synchronization in multi-core systems</td>
<td>by Dr. Moritz Neukirchner, Electrotbit GmbH</td>
<td>Concurrency and scheduling dependencies on multi-cores</td>
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<td>Concurrent communication for dependency reduction</td>
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<td>Increasing parallelism in AUTOSAR systems</td>
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<td>16:15</td>
<td>Panel Discussion with company representatives of Continental AG, Hyundai Motor</td>
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<td>Group, Robert Bosch GmbH and more ...</td>
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<td>17:00</td>
<td>Closing remarks of the session chairman (Jens Harnisch, Infineon)</td>
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<td>18:15</td>
<td>Evening Event: Bavarian Beer Garden</td>
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<td>We take you out to an informal networking get together to one of Munich’s most beautiful beer gardens.</td>
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Come and meet the experts on multi-core development!
If you have further questions, do not hesitate to contact us.
We are happy to answer your questions and also finalize your booking.

Contact Your EMCC Team:
Email: info@multicore-conference.com
Register: www.multicore-conference.com