



**Multi-Core Safe and
Software-intensive
Systems
Improvement Community**



CALL FOR PAPERS

**4th FORMUS³IC - Workshop
20th May 2019, Copenhagen, Denmark**

in conjunction with ARCS 2019, Architecture of Computing Systems, May 20th– 23th, 2019

Automotive and avionic industry demands more and more processor performance to satisfy the requests of their consumers. Semiconductor manufactures are forced to move to multi and many-core embedded processors to provide this compute power. However, embedded legacy software and certificate constraints hinder the distribution of safe, reliable, and secure software for many/multi-core systems. On the other side, this development cannot be reversed anymore.

The FORMUS³IC research community is in its core a consortium from academia and industry funded from Bavarian Research Foundation that pursues to find answers for the challenges arising by using multi-/many-core processors in future automotive and avionics tasks. The community intends to expand its orientation more and more to the international community and invites researchers working on challenges for automotive and avionic applications using heterogeneous architectures to join. To face these challenges a holistic approach is addressed containing software requirements specification, e.g. given in adaptive AUTOSAR or EAST-ADL, safety and security aspects for embedded heterogeneous architectures, sensor fusion applications, performance modelling and parallel design patterns using embedded CPUs, special cores, embedded GPUs and FPGAs to provide both performance and low energy consumption. Papers addressing the following and other related topics to multi-/many-core challenges for automotive and avionics are welcome:

- Software and Hardware Architectures for ADAS
- Functional Safety, IT-Security and Verification
- Architecture Modelling and Time Simulation
- Performance Engineering Methods for Embedded Automotive and Avionics Software
- Virtual Design Platforms for Automotive and Avionics
- Parallel Design Patterns and Parallelization Techniques
- New Techniques for Safety, Security and Task Scheduling
- WCET analysis and tools for WCET estimation
- NoCs and Communication Architectures for Safety-critical Systems
- Parallel Embedded Programming
- Real-Time Operating Systems for Automotive and Avionics
- Data Processing based Fusion of Multi-sensory Information like Radar, Ultra-sonic and Visual Information
- Determination of non-functional Properties like Energy Consumption and Response Time during Design Time
- Heterogeneous GPU / Multi-core Microcontroller Architectures for Embedded Vision and Signal Processing

Information for Authors: Accepted papers will be published by VDE and will be made accessible via IEEE Xplore. Full paper contributions (8 pages) in IEEE conference style are expected.

Please submit your full papers to EasyChair, Link: <https://easychair.org/conferences/?conf=formusic2019>

Time schedule: Submission deadline: **15th January 2019** Notification: **11th February 2019**
Camera-ready version: **1st March 2019**

General Chairs Dietmar Fey, FAU Erlangen, DE and Jürgen Mottok, LaS³, ZD.B, OTH Regensburg, DE

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