

Open Invited Track on:
Mixed Criticality Control Systems

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Abstract:
The complexity of industrial embedded systems is increasing continuously. Companies try to keep a leading position by offering additional functionalities and services. Systems are to be composed of multiple sensor, actuation and computation subsystems running in a coordinated way on a distributed platform. Due to the increment in processor power, it is possible to allocate a large number of functions in the same platform. This gives rise to mixed-criticality systems when subsystems with different criticality levels coexist in the same hardware platform.

The aim of this open session is to contribute to the most challenging research and application topics related to mixed criticality control systems. Issues such as requirements, software architecture, services, middleware, temporal constraints, real-time scheduling, communications and applications can be considered.

IFAC technical committee(s) for evaluation:
TC 3.1: Computer control systems
TC 3.2: Computational intelligence in control
TC 3.3: Telematics: control via communication networks

Detailed description

This open invited track is focused (but not limited) to the following subjects:

- Control task system model for MCS on singlecore and multicore
- Software architectures to support MCS
- Real-time Scheduling schemes and analyses for MCS
- Execution environments and services to support MCS
- Control techniques parallelization
- Communications protocols and mechanisms
- Control applications