

MICROSAR Multi-core Course

Agenda VectorAcademy

Delivery Format:	This Course is offered in Classroom or Remote Format
Duration:	Classroom: 2 day Remote: 12 hours
Target Group:	ECU developers, Software Architects
Prerequisites:	Participation in "AUTOSAR Classic Platform Basic Course" or a good knowledge about AUTOSAR Classic Platform
Goal:	Obtain an overview on the usage of Multi-core processors in an AUTOSAR based ECU, get insight into the configuration of the MICROSAR basic software and learn how to achieve an optimized multi-core processor configuration.

1. Theory about Multi-core and Concurrency

- > Motivation to use multi-core ECUs
- > Law of Amdahl and Gustafson (theory and speed-up)
- > Parallel environment and the arising side-effect

2. AUTOSAR Multi-core Concepts

- > General AUTOSAR concepts applied to multi-core
- > Feature of operating system (OS) and RTE for multi-core
- > MICROSAR optimizations for OS and RTE

3. AUTOSAR Multi-core Exercise

- > Extend SW design for multi-core
- > BSW integration for multi-core with synchronized start up sequence
- > Discussion of fundamental MICROSAR multi-core concepts

4. Multi-core Basic Software Integration

- > Start-up and shut-down phase in multi-core
- > MICROASR BswSplit feature
- > BSW proxies and satellite modules in MICROSAR

5. System Design Patterns for Multi-core Applications

- > The multi-core cookbook – software design recommendations
- > Design patterns for parallelization
- > Evaluation of application design supported by tools