

MICROSAR Multicore

Agenda VectorAcademy

Duration:	1 day
Target Group:	ECU developers
Prerequisites:	Participation in the Training Program "AUTOSAR4 in Practice" or a good AUTOSAR knowledge
Goal:	Obtain an overview on the usage of Multicore processors in an AUTOSAR based ECU. Get insight into the configuration of the MICROSAR basic software. Learn how to achieve an optimized multicore processor configuration

1 | Introduction into the mathematics of multicore processing

- > Basics of parallel processing
- > Important rules: Amdahl's law, Gustafson's law, Hill and Marty
- > Which rules apply for automotive use cases

2 | Deadlocks and their prevention

- > Conditions under which deadlocks could occur
- > Prevention of deadlocks
- > Elements in AUTOSAR which can prevent deadlocks

3 | Use cases for multicore processors

- > Migration onto a multicore processor system
- > General recommendations
- > Design Patterns
- > BSW Module clustering

4 | AUTOSAR multicore processor concept

- > Requirements for multicore processor BSW
- > AUTOSAR multicore processor operating system
- > Cross core communication over RTE
- > Sender-Receiver communication
- > Multicore processor configuration
- > BSW use cases

5 | Design and Optimization

- > The Timing Architects
- > Design, Simulation, Optimization of a multicore processor configuration