

# Armv8-R Workshop: 32-Bit Cortex® Microcontroller Core for Real-Time Applications in Automobiles, the Industry and Embedded Systems - Live Online Training

### Objectives

You know the architecture, features and advantages of the Armv8-R (real-time) core architecture.

You learn how to choose and make efficient use of the right microcontrollers with the respective cores.

You can write software in C and Assembler and utilize safety and security mechanisms - the perfect start for designing Cortex® v8-R based systems.

### YOUR BENEFIT:

Efficient and compact jump-start into the overall topic

Practical tips on multicore, safety and security

Exercises on USB stick or as download

Extensive training documentation helps you apply and reproduce what you learned.

### **Participants**

Hardware and software architects, hardware and software developers, test engineers

### Requirements

ANSI-C knowledge; experience in microcontroller/microprocessor system programming and architecture

# Live-Online-Training

\* Price per attendee, in Euro plus VAT

Training code: LE-ARMV8R

### Face-To-Face - English

Duration 4 days

# Live Online - German

Duration 4 days

# Face-To-Face - German

**Date Duration** 02.07. – 05.07.20244 days



As of 20.05.2024

### 17.12. - 20.12.20244 days

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# Content

**Overview Arm®v8 Real Time Profile** 

**Cortex® R52 Processor Architecture** 

**Instruction Sets** 

Synchronization and Barriers

- Exclusive monitors

### Writing C for Arm

### **Exceptions and Handling**

- Exception levels
- Interrupts and aborts
- Interrupt controller architectures
- Routing and trapping
- Nesting and returning

### Timer

- Generic timer
- Performance monitor unit

### Internal Connectivity and Memory

- Bus interfaces
- Tightly coupled memory and caches
- Performance aspects

### **Memory Protection Unit**

- Purpose and use cases
- Regions and attributes

### Safety Aspects

- Register protection
- Indirect memory access
- Dual core lockstep
- ECC
- Error reporting

# **Debug and Tracing**

- Virtualization
- Use cases
- Hypervisor
- Temporal and spatial separation
- Identification
- Asynchronous stimuli

### Exercises

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