Stand 03.07.2024

AURIX™ TC3xx Workshop: 32-Bit Multicore Microcontroller Family (Aurix-2G Second Generation) - Live Online Training

**Ziele -
Ihr Nutzen**

You know the architecture, basic on-chip peripherals and the features (especially related to multicore and safety extensions) of the AURIX™ device family.

You get to apply low-level drivers for this hardware, adapt examples as required and test them with a debugger.

Numerous exercises make this training a practice-oriented software workshop.

YOUR BENEFIT:

Efficient and compact jump-start into the overall topic

Practical tips on multicore and safety

Exercises for download

Teilnehmer

Hardware and software architects, hardware and software developers, test engineers // IMPORTANT NOTE: A valid NDA with the chip vendor is a pre-requirement to attend the Aurix-2G training course.

Voraussetzungen

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

Live Online Training

09.09. – 13.09.2024	3.500,00 €	5 Tage
20.01. – 24.01.2025	3.500,00 €	5 Tage

* Preis je Teilnehmer, in Euro zzgl. USt.

Anmeldecode: LE-AURIX2G

Präsenz-Training - Englisch

Termin	Dauer
24.03. – 28.03.2025	5 Tage

Live-Online - Deutsch

Termin	Dauer
09.09. – 13.09.2024	5 Tage
20.01. – 24.01.2025	5 Tage

Präsenz-Training - Deutsch

Stand 03.07.2024

Termin	Dauer
09.09. – 13.09.2024	5 Tage
11.11. – 15.11.2024	5 Tage
24.03. – 28.03.2025	5 Tage

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Inhalt

Infineon AURIX™ 2G Architecture

- Multicore architectural blocks
- Interconnectivity
- Consequences for software architectures

CPU Subsystem

- Multicore instruction set extensions
- Registers files and context switching
- Memory protection unit (software monitoring)

Internal Connectivity

- Crossbar and peripheral bus
- CPU clustering
- Performance aspects for software

Memory

- Memory map
- Configuration options
- Cache and software handling
- Types
- Hierarchy
- Test

Infineon Low-Level Drivers: Overview

- Configuration structures
- Application programming interface
- Library distribution
- Frameworks and demos

Ports

Exceptions and Handling

- Traps (hardware and software)
- Interrupts (hardware and software)
- Vector tables
- Broadcast software interrupts (core synchronization)
- External interrupts

Direct Memory Access Controller DMA

- Move engines
- Triggering (hardware and software)
- Advanced features (software relaxation)

Timer

- System timer (STM)
- General purpose timer 12 (GPT12)
- Capture compare unit (CCU)
- Watchdog timer (WDT)
- Temporal protection timer (TPS, exception timer)
- Generic timer module (GTM) - overview

Safety and Security

- Safety measures
- Safety management unit (SMU)
- Protection mechanisms

- IO monitoring
- Hardware security module (HSM) - implementation overview

Multicore Aspects

- Startup and boot
- Low power options
- Communication and synchronization
- Intrinsics usage in C/C++
- Tool aspects (compiler, linker)
- Debugging (AMP, SMP)

System Control

- Reset: sources, types and consequences
- Boot: software configuration and modes
- Clocking
- Emergency stop requests

Power Management System (PMS)

- Supply generation options
- Embedded voltage regulators
- Standby and wakeup
- Die temperature sensor

Synchronous and Asynchronous Standard Peripherals

- Micro second channel (MSC)
- Serial peripheral interface (QSPI)
- Inter IC interface (I2C)
- UART (ASCLIN)

Sensor Interfaces

- SENT
- PSI5
- PSI5-S

Analog To Digital Converter

- EVADC
- EDSADC
- Enhanced features offloading software

Automotive Interfaces: Overview

- LIN
- CAN
- FlexRay®

High Speed Serial Link Interface (HSSL)

Ethernet: Overview/Demo

Debug

- Interfaces
- Tracing
- Multicore aspects

Exercises

- Numerous exercises will be conducted on an Infineon AURIX™ board, covering the following aspects: use of low-level drivers, protection mechanisms, interrupt controller, DMA controller, system timer, port, multicore aspects, monitoring, performance measurement etc.

IMPORTANT NOTE: A valid NDA with the chip vendor is a pre-requirement to attend the Aurix-2G training course.

Please note that the Aurix-2G training does not explicitly cover ADAS specific blocks. If required, please contact our service office prior to the training, phone +49 (0)89 450617-71.