

As of 20.04.2024

# SPC56XX: 32-Bit Single-Core Power Architecture® - Face-to-Face Training

#### Objectives

You know the Power Architecture with the SOC implementation of STMicroelectronics, the on-chip peripherals (basic and special peripheral modules) and features of the SPC56x family. You are able to program low-level drivers for this hardware and test them with a debugger. Moreover, you can generate routines for DMA, interrupts and exceptions.

## Participants

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

#### Requirements

Knowledge of ANSI-C as well as experience with programming a microcontroller architecture. Knowledge of DSP is an advantage.

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## Content

## STMicroelectronics SPC56x Architecture: Overview

# Power Architecture (e200z0h) Overview

- CPU, pipeline, register sets
- Memory model
- Memory units: SRAM, flash memory

#### **Overview: Instruction Set**

#### **On-chip Bus Systems**

- Multi-layer AHB crossbar switch XBAR
- Peripheral bridge, peripheral bus

Interrupt and Exception Handling: Vector Table and Service Routines

- Interrupt controller INTC

#### **Direct Memory Access Controller DMA**

#### SPC56x On-chip Peripherals:

#### **Timer Modules**

- Software watchdog timer module SWT
- System timer module STM
- Periodic interrupt timer PIT
- Real-time clock module RTC
- FlexPWM unit
- Enhanced timer eTimer
- Enhanced modular IO subsystem eMIOS

#### Cross Triggering Unit CTU

## **Analog-Digital Signal Processing**

- 10 bit /12 bit analog-digital converter ADC

## **Communication Interfaces**

- Deserial / serial peripheral interface DSPI
- Enhanced serial communication interface eSCI / LINFlex

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- FlexCAN
- Safety port

CRC Module

#### System Integration Unit Lite SIUL

#### Fault Collection Unit FCU

## System Configuration

- Reset configuration, monitoring and generation
- Clock generation: FMPLL, internal oscillator
- External interrupts
- GPIO (pin definition and port functions)
- External multiplexing (e.g. ADC, DSPIs)
- Start-up process
- Boot assist module BAM

#### **Power Management Controller PMC**

#### **Debug Interfaces**

- JTAG controller JTAG, Nexus2+ interface

#### Exercises

- Exercises are performed with an SPC56x starter kit, focusing on the aspects interrupt controller, DMA controller, basic peripheral modules.

# FACE-TO-FACE TRAINING

#### Price \* Duration

5 davs

Training code: E-SPC56XX

\* Price per attendee, in Euro plus VAT

# Coaching

Our coaching services offer a major advantage: our specialists introduce their expertise and experience directly in your solution process, thus contributing to the success of your projects.

We will be happy to provide you with further information or submit a quotation tailored to your requirements.