

MPC56XX: 32-Bit Power Architecture® - Face-to-Face Training

Objectives

You know the Power Architecture with the SOC implementation of NXP (Freescale), the on-chip peripherals (basic and special peripheral modules) and features of the MPC56x 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

NXP (Freescsale) MPC56x 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

MPC56x 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

- 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 MPC56x starter kit, focusing on the aspects interrupt controller, DMA controller, basic peripheral modules.

FACE-TO-FACE TRAINING**Price * Duration**

- 5 days

Training code: E-MPC56XX

* Price per attendee, in Euro plus VAT

Face-To-Face - German**Duration**

5 days

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.