Cortex-M85 Software Development

Course Description

Cortex-M85 Software development is a 4 days ARM official course.
The course goes into great depth and provides all necessary know-how to develop software for SoC based on Cortex-M85 processor.

The course covers the Cortex-M85 architecture (Armv8.1-M), processor core, processor bus interfaces and what should be connected to, programmer's model, instruction set overview, NVIC & exception handling, memory model, caches management, memory protection unit (MPU), MVE & floating point, external coprocessors, RAS extension for functional safety, debug & trace, and security.

At the end of the course the participant will receive a certificate from ARM.

Course Duration
4 days

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Goals

1. Become familiar with ARMv8.1-M architecture

2. Become familiar with Cortex-M85 architecture

3. Become familiar with ARMv8.1-M instruction set

4. Be able to handle interrupts and various exceptions with NVIC, IWIC, and EWIC

5. Be able to configure and use the MPU

6. Understand the memory model in v8.1-M architecture

7. Manage caches

8. Become familiar with external coprocessors to accelerate performance

9. Use debug components in your SoC

10. Become familiar with DSP and FP instructions

11. Design a secured system with TrustZone for ARMv8-M

12. Use the MVE engine to enhance performance with vectorization

Target Audience

Software engineers that would like developing SoC based on Cortex-M85 microcontroller.

Prerequisites

- Experience in developing embedded software
- C language

Course Material

- ARM official course book
- Labs handbook

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Agenda

Main Topics:

- Cortex-M85 Overview
- ARMv8-M Mainline Programmer's Model
- Cortex-M85 Processor Core "Deep Dive" (including all bus interfaces)
- ARMv8-M Mainline ISA Overview
- ARMv8-M Mainline Exception Handling
- ARMv8-M Mainline Memory Model
- Armv8-M Mainline Memory Protection
- Armv8-M External Coprocessors
- ARMv8-M Synchronization
- ARMv8-M Mainline Debug & Trace
- ARMv8-M Mainline DSP Extension
- ARMv8-M Mainline Floating-Point Extension
- ARMV8.1-M PMU (Performance Monitoring Unit)
- ARMV8.1-M Mainline Security Extension
- ARMv8.1-M MVE (M-Profile Vector Extension)
- ARMv8.1-M RAS extension for functional safety

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