Arm Cortex-M33 System Design

Summary:

Arm Cortex-M33 is an ideal component to control secure IoT devices that can achieve Platform Security Architecture (PSA) certification. This course is designed for those who are involved in designing systems based around the Arm Cortex-M33 processor core. Developers designing secure systems will benefit from understanding the features and functionality that underpin the security model. The course includes an introduction to the Arm product range and supporting IP. The course covers the Cortex-M33 core architecture, programmers’ model, instruction set and bus architecture. The CoreSight debug architecture is also covered as it is relevant to the Cortex-M33. This course is intended for hardware design engineers who need to understand the issues involved when designing SoC’s around the Cortex-M33 processor core. It is also intended for software engineers developing for systems designed around the Cortex-M33 core. The software development parts of this course refer to Arm development tools such as Keil MDK-Arm. However, much of this material is relevant to users of 3rd party Arm tools.

Prerequisites:

- Knowledge of programming in C
- Experience of assembler programming is not required but would be beneficial
- Knowledge of embedded systems
- A basic awareness of Arm is useful but not essential

Audience:

- Hardware and software system architects
- Embedded software developers

Length:

4 days

Modules:

- Introduction to Arm
- Cortex-M33 Overview
- Armv8-M Mainline Programmers’ Model
- Armv8-M Assembly Programming
- AMBA AHB 5
- Cortex-M33 Processor Core
- CMSIS Overview
- Armv8-M Mainline Exception Handling
- Cortex-M33 System Interfaces
- Cortex-M33 Clocks, Power and Reset
- SysTick Timer
- Armv8-M Mainline Memory Model
- Armv8-M Mainline Memory Protection
- Armv8-M Synchronization
• Armv8-M Mainline Compiler Hints and Tips
• Armv8-M Mainline Linker Hints and Tips
• Armv8-M Embedded Software Development
• Armv8-M Mainline Security Extension
• Armv8-M Mainline Debug
• Armv8-M DSP Extension
• Armv8-M Floating-point Extension
• Cortex-M33 Configuration (Implementation)