

## **ARM Cortex-M3/M4 Hardware Design**

### **Training**

#### **Let MindShare Bring “ARM Cortex-M3/M4 Hardware Design” to Life for You**

This course is designed for those who are designing hardware based around the ARM Cortex-M3/M4 core. Including an introduction to the ARM product range and supporting IP, the course covers the ARMv7-M instruction set and exception handling, Cortex-M3/M4 implementation, power management, memory protection and AMBA on-chip bus architecture. The Cortex-M3/M4 debug architecture is also covered. The course includes a number of worked examples to reinforce the lecture material.

#### **You Will Learn:**

- Overview of ARM product line
- Essentials of the ARM Cortex-M3/M4 architecture
- Memory model
- Core and System Interface architecture
- How to initialize a core and debug

**Course Length:** 3 Days

#### **Target Audience:**

Hardware design engineers who need to understand the issues involved when designing SoC's around the ARM Cortex-M core.

#### **Course Outline:**

- Introduction to ARM
- Cortex-M3/M4 Introduction
- Cortex-M3/M4 Processor Core
- ARMv7-M Exception Handling
- ARMv7-M Assembler Programming
- Cortex-M4 Details (optional)
- AMBA AHB-Lite
- AMBA APB
- Cortex-M3/M4 System Interfaces
- Cortex-M3/M4 Clocks, Resets, Power
- Cortex-M3/M4 Memory Protection
- Sys Tick Timer
- Cortex-M3/M4 Debug and Trace Overview
- Cortex-M3/M4 Debug
- Cortex-M3/M4 Trace
- Cortex-M3/M4 Examples
- Cortex-M3/M4 Implementation
- Cortex-M System Design Kit

#### **Recommended Prerequisites:**

Some knowledge of embedded systems, familiarity with digital logic and hardware/ASIC design issues

#### **Course Materials:**

Students will be provided with an electronic version of the slides used in class.