ARM11 MPCore Hardware Design

Summary:
This course is designed for those who are designing hardware based around the ARM11 MPCore multiprocessor. Including an introduction to the ARM product range and supporting IP, the course covers the ARM core range and AMBA/AXI on-chip bus architecture. Symmetric multi-processing, MSEI protocol, ARM debug architecture, real-time trace solution and simulation models are also covered. The course includes a number of worked examples to reinforce the lecture material.

Prerequisites:
- Some knowledge of embedded systems
- Familiarity with digital logic and hardware/ASIC design issues
- A basic awareness of ARM is useful but not essential

Audience:
Hardware design engineers who need to understand the issues involved when designing SoC's around the ARM11 MPCore multiprocessor.

Length:
4 days

Modules:
- The ARM Architecture
- ARM v6 Memory Types
- Memory Management and Protection
- ARMv6 VSMA Context Switching
- Instruction Sets
- Exception Handling
- ARM CPU Architectures
- Memory Sub-Systems
- Introduction to SMP & MESI
- Introduction to IEM
- AXI Protocol
- AXI Interconnection Architectures
- APB
- NIC301
- AMBA Designer
- ARM11 MPCore Overview
- MP11 Processor Core
- MP11 L1 Sub-Systems
- ARM11 MPCore Sub-systems
- ARM11 MPCore L2 Interfaces
- ARM11 MPCore Configuration
- ARM11 MPCore Implementation
- ARM11 MPCore Clocks, Resets & Power Management
- MP11 Memory Management
- ARM11 MPCore Interrupts
- ARM11 MPCore Multi-processor Synchronization
- ARM11 MPCore Initialization
- L2C-310 Level 2 Cache Controller
- DMA-330 AXI DMA Controller
- Introduction to CoreSight
- ARM11 MPCore Invasive Debug
- ARM11 Non-Invasive Debug
- ARM11 MPCore Integration