GIC

Summary

GIC stands for Generic Interrupt Controller and is used to manage and deliver interrupts within a system.

At the end of this course, delegates will be able to:

- Understand what interrupt types are defined in the GIC architecture and their intended use
- Understand interrupt prioritization / handling within a GIC implementation
- Define basic programming steps for a GIC implementation
- Understand the GIC distributed sub-components and how they are connected
- Configure and integrate an Arm GIC implementation (GIC-500, GIC-600, GIC-600AE, GIC-625 or GIC-700) based on system/application requirements
- Interpret transactions being issued by the Arm GIC of choice (GIC-500, GIC-600, GIC-600AE, GIC-625 or GIC-700) in the system

Prerequisites

- A basic knowledge of some Arm architecture concepts (e.g. exceptions, Exception Level, virtualisation)
- A basic knowledge of the AXI/ACE protocol. If necessary, the class can be extended to cover these protocols
- System integration knowledge

Audience

Engineers who work on a SOC project and take charge of an Arm GIC configuration and integration. Also, engineers who oversee Arm GIC bring-up or full-SOC verification.

Versions:

This class is available in the following alternative variations:

- GICv3 and GIC-500
- GICv3 and GIC-600
- GICv3 and GIC-600AE
- GICv3 and GIC-625
- GICv4 and GIC-700

Length:

Depending on the selected version, duration is between 4 hours and 6 hours

Modules:

GIC architecture and SW programming

- GIC architecture evolution
- GIC operation
- Programming the GIC
- Interrupt virtualization

GIC HW (GIC-500, GIC-600, GIC-600AE, GIC-625 or GIC-700)

- Topology
- Description of each sub-component and their functionality
- Power Management
- MSIs and ITS
- Multi-chip support (if supported by the GIC of choice)

GIC-600AE Safety Mechanisms (if choosing GIC-600AE)

- Overview of the different Safety Mechanisms
- Integration aspects