ANCIT

Bootloaders for HPCs and Integration with AUTOSAR Applications (32 Hrs)

Bootloaders for HPCs and Integration with AUTOSAR Applications Course Agenda from ANCIT

Delivery Format : This Course is offered in Classroom or Online Format

Duration : 32 Hours (4 Days)

Target Group : Automotive software developers, embedded engineers, and AUTOSAR professionals with a basic understanding of embedded systems and CAN protocol

Prerequisites : Basic knowledge of embedded systems, C programming, CAN protocol, and familiarity with AUTOSAR architecture and debugging tools (e.g., JTAG). Basic Linux command-line skills are preferred.

Outcome : Participants will gain expertise in designing, configuring, and integrating bootloaders with AUTOSAR applications on the NXP S32G274 board, including secure boot and FOTA implementation. They will also learn strategies for addressing integration challenges and migrating bootloaders to other platforms.

Day 1: Introduction to Bootloaders and CAN Protocol

- Fundamentals of bootloaders and their role in embedded systems.
- Overview of CAN protocol: basics, frame structure, and message transmission.
- UDS services relevant to bootloaders (e.g., diagnostics and flashing).
- Setting up the development environment for S32G274.

Day 2: Configuring the Bootloader on the S32G274 Board

- Bootloader setup for the NXP S32G274 board.
- Memory layout and application loading mechanisms.
- Comparison: AUTOSAR vs. Non-AUTOSAR application loading

Day 3: Bootloader Integration with AUTOSAR Applications

- Integrating bootloaders with AUTOSAR applications.
- Discussion on the possible challenges that will be faced and how it can be addressed. How to Handle Memory Map Issues
- Introduction to FOTA (Firmware Over-the-Air).

Day 4: Advanced Topics and Migration

- Secure Boot and HSM (Hardware Security Module) integration.
- Migrating bootloaders to other hardware platforms.
- Final discussion on lessons learned and best practices

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