Designing with NXP i.MX8M Mini SoC

Course Description

Designing with NXP i.MX8M Mini SoC is a 1-day introduction to the latest NXP application processor family.

The course starts by overviewing the i.MX8M Family and its Target applications, Device architecture (Quad/Dual/Dual-Lite), and family roadmap (i.MX8/8X).
The course continuous with introduction to i.MX8M Mini video & graphics capabilities, as well as audio capabilities, Cortex-A53, Cortex-M4, boot sequence, memory system (L1 cache, L2 cache, OCRAM, ROM, DDR controller, NAND/NOR, SD/eMMC.
The course then introduces the connectivity in i.MX8M such as PCIe, USB, and other general-purpose connectivity (SPI, i2C, UART, PWM, GPT, Ethernet and GPIO).
Clock, PLL, power architecture, as well as debug and security are also introduced.

The training continuous with an overview of Variscite SoM: DART-MX8-MINI.
Yocto project for the SoM is covered and hands-on labs provides the participant a way to experience with this new platform running applications and building Yocto project from source code, as well as debugging the system with Eclipse.

Course Duration

1 day

Goals

1. Become familiar with i.MX8M Mini architecture
2. Become familiar with Heterogenous ARM cores: Cortex-A53 and Cortex-M4
3. Choose the right i.MX8M Mini device for your project

4. Become familiar with i.MX8M Mini multimedia, graphics and audio capabilities
5. Become familiar with clock, reset, power management and debug strategy
6. Become familiar with i.MX8 Mini memory architecture and capabilities
7. Become familiar with i.MX8M Mini Boot process including secure boot
8. Become familiar with i.MX8M Mini hardware SoM
9. Use Yocto project to run applications and build your Linux Kernel from source code, and debug the project

Target Audience

Software engineers that would like developing software and BSP for platforms based on i.MX8M Mini SoC

Prerequisites

- Computer architecture background
- ARM architecture is an advantage but not mandatory
- Experience in developing embedded systems
- C/C++ knowledge