

Embedded Linux

Corporate Training Content:

1. Overview of Embedded Linux

- Introduction to Embedded Linux
- ARM Processor Basics & Families
- ARM Board Details and Schematic Overview
- ARM Board Boot Process
- Host PC Setup for eLinux Development
- Toolchain & Its components

2. Board Bringup

- Explain About Practice Board
- Flashing pre compiled images on Board
 - SDcard Boot
 - NAND | NOR Boot
 - NFS Boot
- Setting up TFTP and Running Application on Board

3. Compilation Process

- U-boot Compilation
- Linux Kernel Compilation

4. U-Boot Porting

- Introduction to Bootloader
- Bootloader Source Directory Architecture
- Bootloader Source Code flow
- Flashing Bootloader on ARM Based Hardware
- Patching Bootloader

5. Customizing Bootloader

- Modify Bootloader for new feature
- Add New Command in U-boot

- Add Heartbeat GPIO Driver
- Modifying Bootloader to support new device
- Booting with Customized u-boot Console

Project: Upgrade U-boot Version to 2019 to 2020

6. Linux Kernel

- Introduction to Linux Kernel
- Kernel Source Directory Architecture
- Kernel Source Code flow
- Type of kernel images (vmlinux, Image, zImage, ulmage)

7. Device Tree, Pinmux and datasheet

- Introduction to Device Tree (dts, dtsi, dtb)
- Introduction to Platform device, platform driver and Platform data
- Device tree Structure
- How to analyze datasheets
- How to do Pinmux for different Pins
- Create New Device Nodes For,
 - GPIO
 - I2C
 - SPI
 - UART etc.,
- Create New Board Device tree files

8. Customizing Kernel

- How to customize and compile for ARM Hardware
- How to modify the Kernel code
- How to Add new driver (Static & Dynamic)
 - GPIO (LED | Switch)
 - I2C
 - SPI

Project: Upgrade Linux kernel to 5.0 to 5.2