



IS2 - Memory cards

This 1-day course provides an overview of all memory card standards

Objectives

- This workshop provides an overview of all memory card standards.
- It starts with a detailed description of NAND flash.
- Then the following standards are studied: SmartMedia, MultiMediaCard, Secure Digital and Memory Stick.
- In order to provide implementation examples, a Memory Stick host controller and a Secure Digital host controller are studied, they are integrated by Freescale in i.MX31 SoC.

A more detailed course description is available on request at info@ac6-training.com

Prerequisites

- Experience of a 32-bit processor or DSP is mandatory

Plan

NAND FLASH

- NAND flash hardware interface, multiplexed command, address and data bus
- Memory mapping, block, page and column
- Page read transaction
- Page program transaction
- Block erase timing diagram
- Using the redundant section to implement an ECC code

SMART MEDIA CARDS

- Technical details: max storage capacity, read and write bandwidth, operating voltage
- Logical structure vs physical structure
- Master Boot Record
- Partition Boot Record
- FAT content

MULTIMEDIA CARDS

- Mechanical formats: MMC, RS-MMC, MMCplus, MMCmicro
- Jedec specification (v4.4)
- Bus protocol
- Broadcast vs addressed commands

- Card states
- Partition management, boot areas
- Card identification process
- Power class selection
- Accesses to the Replay Protected Memory Block

SECURE DIGITAL CARDS

- Memory vs I/O cards
- Mechanical formats: SD, miniSD, microSD, SDHC, miniSDHC, microSDHC
- Technical details
- DRM, SDMI
- SPI interface
- Host Controller example

MEMORY STICK

- Technical details
- Layer structure
- Serial interface / parallel interface
- Transfer Protocol Command
- Host Controller example

COMPATIBILITY BETWEEN MEMORY CARDS

- Write protection
- Mechanical compatibility, direct or through an adapter

Renseignements pratiques

Duration : 1 days
Cost : 700 € HT

