

Introduction to the Jasmine OpenSSD Platform

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- Project Overview
- OpenSSD Platform
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- Appendix. Software Setup for Linux

Schedule

Date	Title
3/15 (Th)	Intro. to the Jasmine OpenSSD Platform
3/22 (Th)	Dummy FTL
3/29 (Th)	Tutorial FTL
4/5 (Th)	Greedy FTL
4/12 (Th)	Reliability Issues
5/3 (Th)	Project #1 Presentation
5/14 (M)	Project #2 Proposal (1)
5/17 (Th)	Project #2 Proposal (2)
6/7 (Th)	Project #2 Progress Report
6/25 (M)	Project #2 Presentation

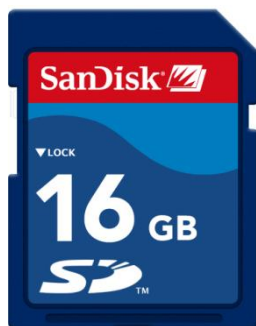
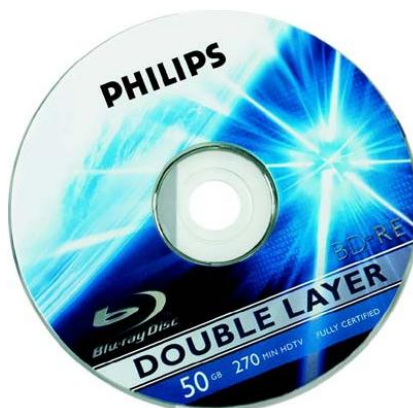
Project Overview

- **Project #1. Log Block FTL**
 - “A Space-efficient Flash Translation Layer for CompactFlash Systems,” 2002
 - Implement on OpenSSD Platform

- **Project #2. Term Project**
 - Implement other FTLs
 - Performance, Reliability
 - ...

Jasmine OpenSSD Platform

Storage Device



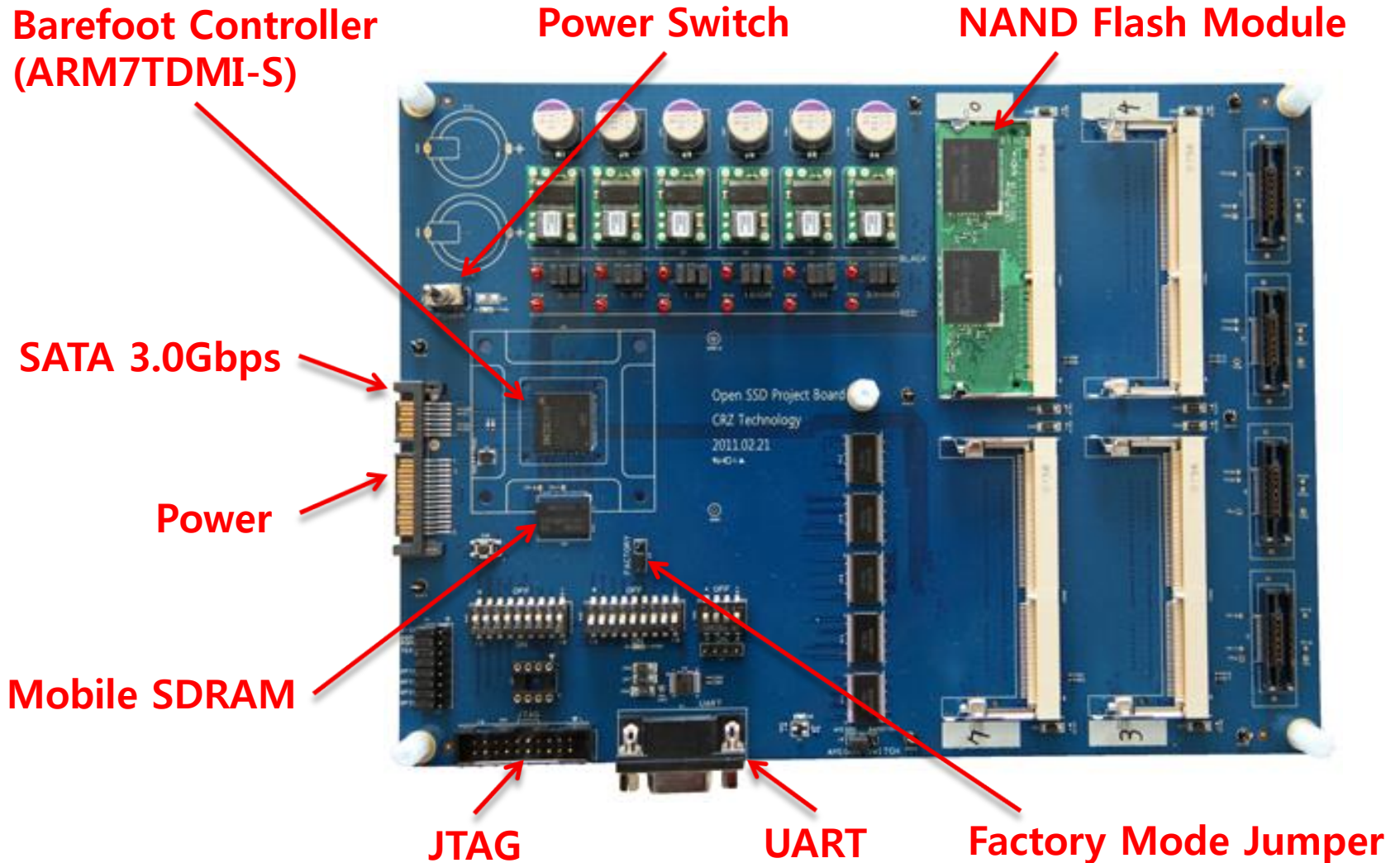
HDD vs SSD



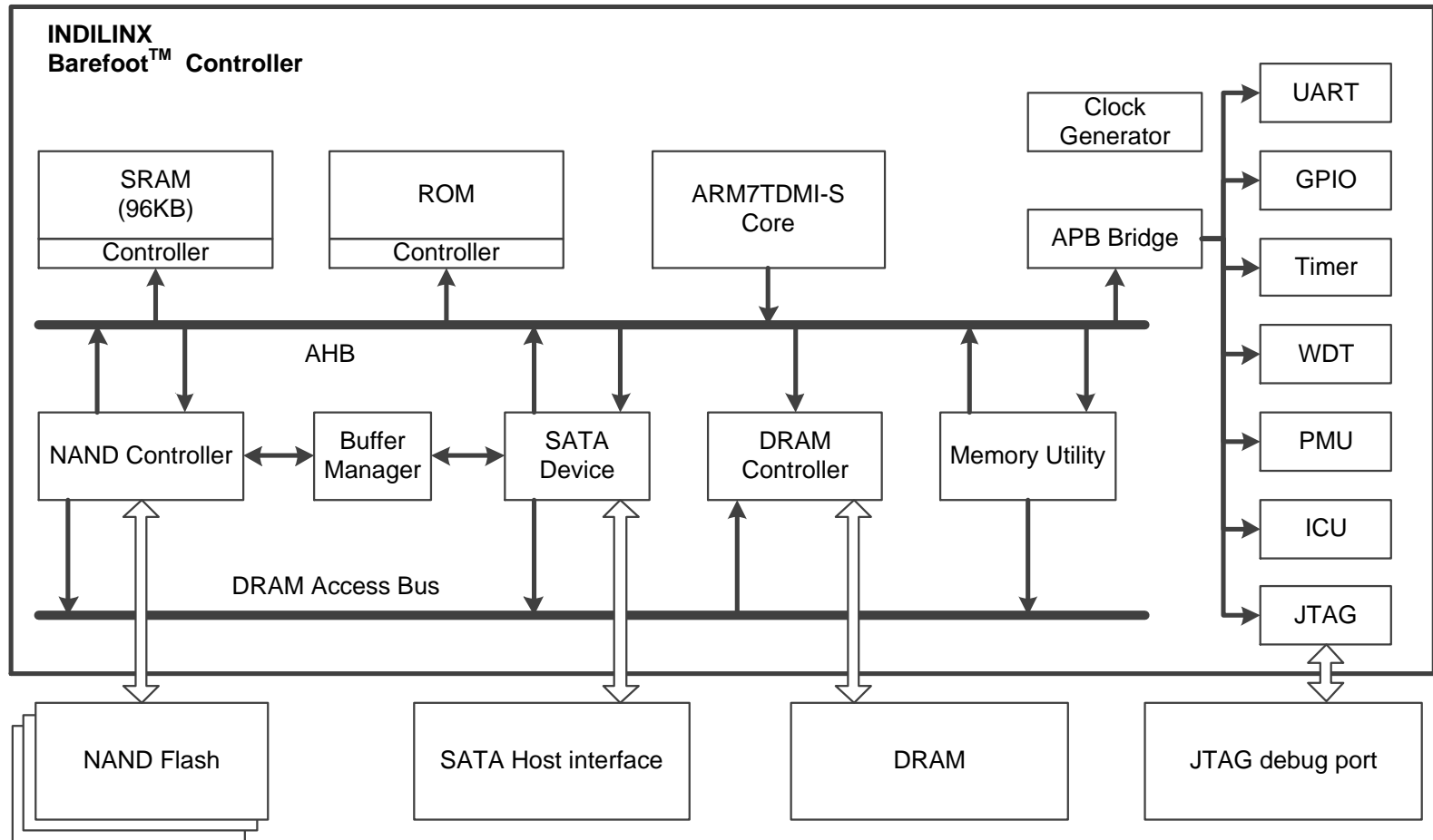
The OpenSSD Project

- It is an initiative to promote research and education on the recent SSD technology
- Providing OpenSSD platforms on which open source SSD firmware can be developed

Indilinx Jasmine Platform



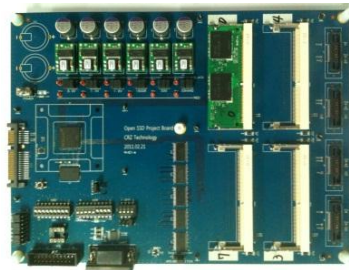
Hardware Architecture



Development Guide

Development Environment

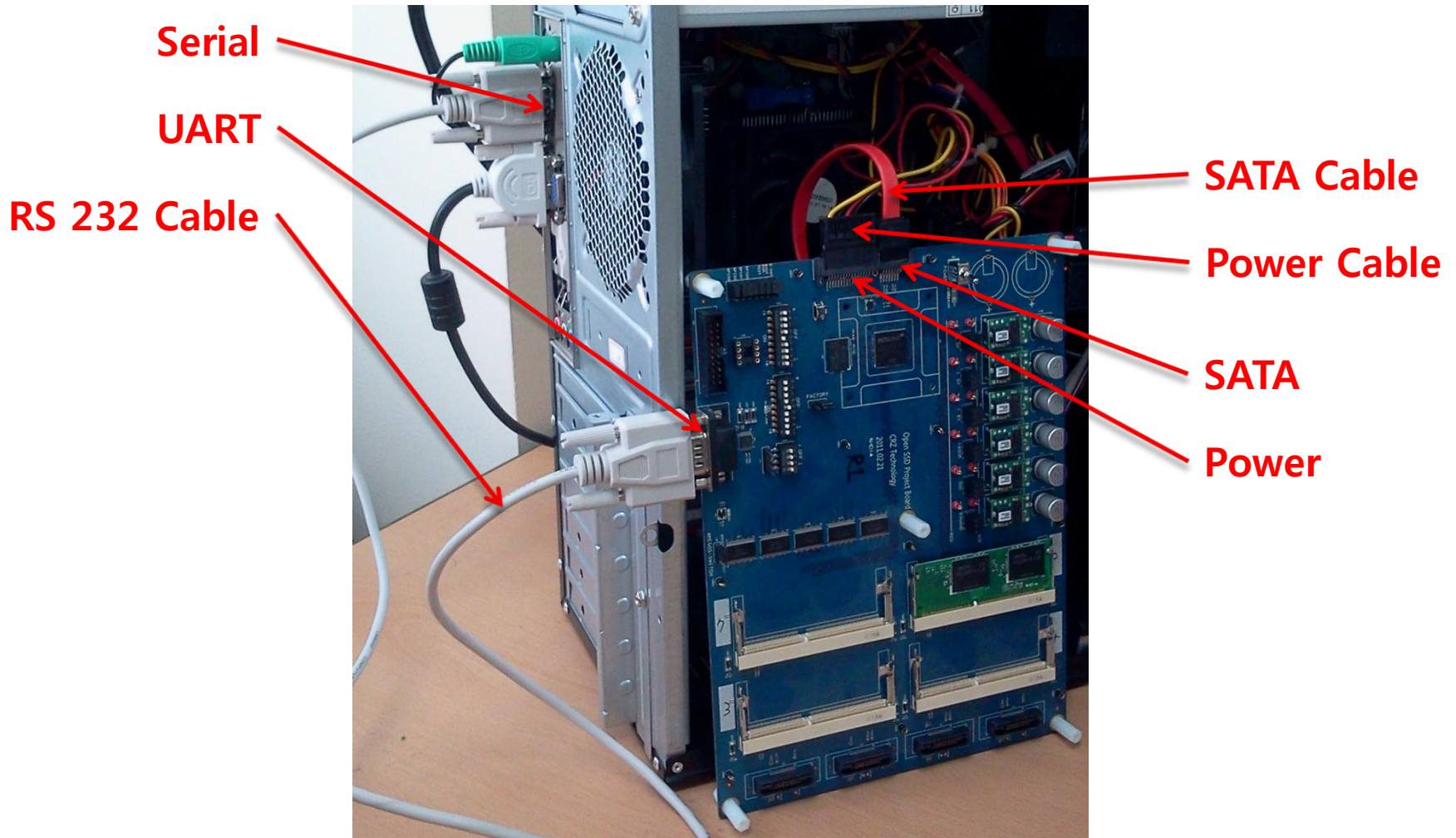
- Hardware Requirement



- Software Requirement

- Code Sourcery G++ Lite Edition for ARM EABI
- MS Visual Studio 2010
- MS Visual Studio Express Free Edition 2010
- Jasmine OpenSSD Firmware

Hardware Setup



Software Setup

- Code Sourcery G++ Lite Edition for ARM EABI
 - To build firmware binary (firmware.bin)
- MS Visual Studio 2010 & MS Visual Studio Express Free Edition 2010
 - To build the firmware installer (install.exe)
- Hyper Terminal
 - To debug firmware with serial communication
 - BAUD_115200/8/N/1/X

Firmware & Installer

- Download Jasmine Firmware
 - <http://www.openssd-project.org>
- Build firmware
 - > cd ./build_gnu
 - > build.bat
- Build the firmware installer
 - Open & build ./installer/installer.sln
 - Move ./installer/install.exe to ./build_gnu

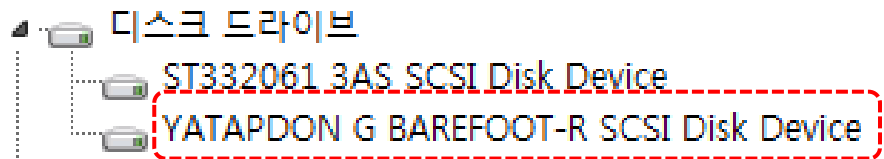
Install Firmware

- Power-up Jasmine board as '*Factory Mode*'



Factory Mode

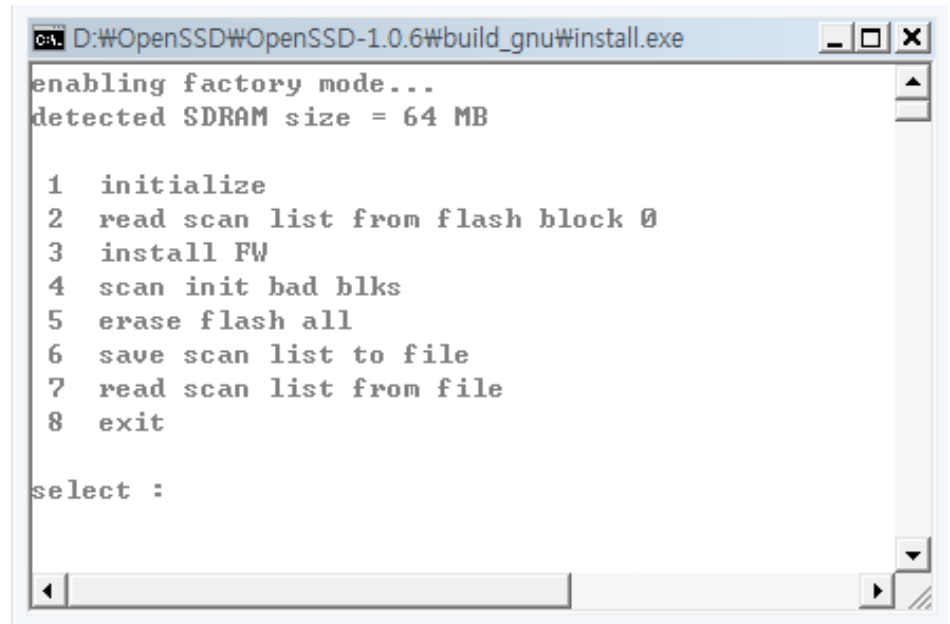
Device Manager



- Run installer
 - > `cd ./build_gnu`
 - > `install.exe`

Install Firmware

- Install for the first time
 - 1 -> 2 -> 6 -> 3
- Re-install
 - 1 -> 2 -> 3



```
D:\#OpenSSD#OpenSSD-1.0.6#build_gnu#install.exe
enabling factory mode...
detected SDRAM size = 64 MB

1 initialize
2 read scan list from flash block 0
3 install FW
4 scan init bad blks
5 erase flash all
6 save scan list to file
7 read scan list from file
8 exit

select :
```

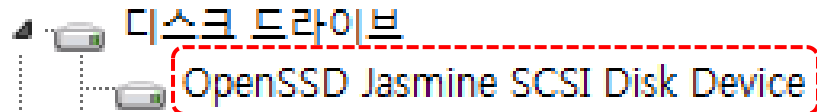
Run Firmware

- Power-down Jasmine board
- Power-up Jasmine board as '*Normal Mode*'



Normal Mode
(Default)

Device Manager



- Now, Jasmine is ready to process SATA command

Technical Resource

- Download resources from OpenSSD Wiki
 - <http://www.openssd-project.org>
 - Technical Reference Manual
 - FTL Developer's Guide
 - Jasmine Firmware

Contact TA

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Any Questions?

Software Setup for Linux

- Code Sourcery G++ Lite Edition for ARM EABI (Linux)
 - To build firmware binary (firmware.bin)
- Patch for Linux Installer
 - Download 'linux.patch' file from below article
 - OpenSSD Wiki > Forum > Jasmine OpenSSD Platform > Jasmine Hacks > installer linux port

Software Setup for Linux

- Download Jasmine Firmware
 - <http://www.openssd-project.org>
- Build firmware
 - > `cd ./build_gnu`
 - > `make`
- Build the firmware installer
 - > `patch -p1 < ./linux.patch`
 - > `cd ./installer`
 - > `make`
 - Move `./installer/installer` to `./build_gnu`

Software Setup for Linux

- Power-up Jasmine board as '*Factory Mode*'



Factory Mode

- Run installer
 - > `cd ./build_gnu`
 - > `sudo ./installer`