

Lab 3: Write Protection

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CSSLAB 65603

Goals

- Write Protection
 - a feature that prevents data from being written
- This can be issued by
 - the user (to protect important information)
 - firmware automatically (to protect the NAND chip from overwriting).
- Write protection is typically implemented through:
 - hardware-based write protection switches or locks
 - **software-based** write protection that can be configured through the SSD's firmware.

Requirement

- Send command through UART(Lab 1)
 - protectEnable
 - protectDisable
- Send read / write command through SCSI (Lab 2)
- When write protection is on (protectEnable)
 - the SCSI write command should NOT change the data inside SSD NAND chip
 - Send warning message
- When write protection is off (protectDisable)
 - the SCSI write command can write data normally

Hint

- Modify "`uart_cmd_channel.c`" and "`main.c`" in Lab 1
 - "`main.c`" is in the same folder as "`uart_cmd_channel.c`"
 - check DMA read / write parts in the while loop of main function
- You should follow the loading procedure from Lab 1 every time you modify the firmware

Demo

- Write with protectEnable (60%)
 1. In widows CMD(Lab 2), send SCSI read command to check the original data
 2. In virtual_machine(Lab 1), send "protectEnable" through UART to block writing
 3. In widows CMD, send SCSI write command
 4. In widows CMD, send SCSI read command again to check if the data are the same
- Print the warning message(10%)
 - " Write failed, please turn off write protection"

Demo Cont.

- Write with protectDisable(30%)
 1. In widows CMD, send SCSI read command to check the original data
 2. In virtual_machine, send "protectDisable" through UART
 3. In widows CMD, send SCSI write command
 4. In widows CMD, send SCSI read command to check if the data are changed

Grading

- Please come to CSSLAB(CSIE 65603) for the offline demo:
 - Write with protectEnable _____ 60%
 - Print warning message _____ 10%
 - Write with protectDisable _____ 30%
- Please mail me days before the appointment
 - I'll mail you back for the exact time
 - Available time : Friday 16:00 ~ 18:00
 - due time : 12/20(五)
 - You can join the discord group for discussion: <https://discord.gg/GxNUyzxkZr>
- Remember to submit *.c code in a .zip file to moodle