NandCardWriter User Guide

V1.0

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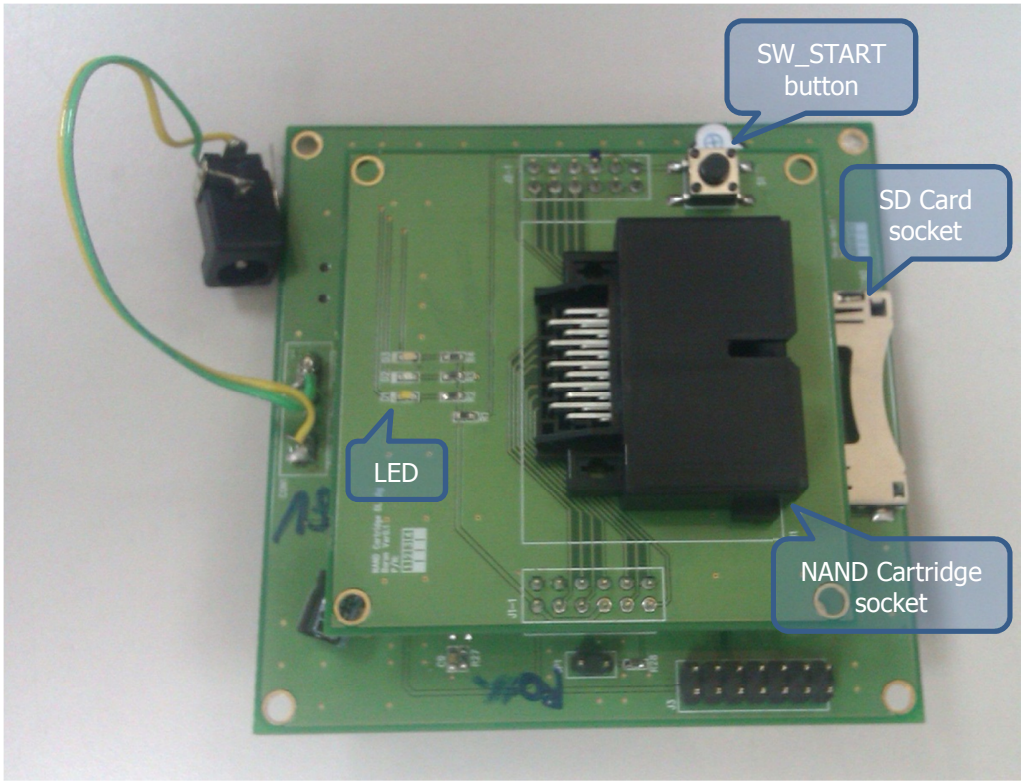
1. Introduction

1.1. NandCardWriter Introduction

NandCardWriter is a Non-OS utility tool that executes on special NAND writer PCB board with FA95 as CPU. NandCardWriter read the configuration and disk image file from SD card 0 and then write the disk image into NAND cartridge on CS0 interface. After program, the target NAND cartridge can be access by FA95 platform as external NAND card.



W55FA series have two boot flows – one is Normal mode; the other is Recovery mode. For FA95, the boot flows are as below:

- Normal mode boot flow is SD card 0 boot → SPI boot → NAND 0 boot → NAND 1 boot → SD card 1 boot → SD card 2 boot → USB boot
- Recovery mode boot flow is USB boot.

NandCardWriter utilizes the character of Normal mode to load code of **NandCardWriter.bin** from SD card 0. When NandCardWriter.bin program executes, it will read the NandCardWriter.ini file from SD card 0 then program the target NAND flash on CS0 according the INI file setting. This document will guide you how to prepare the SD card 0 and modify INI file.

2. Operation

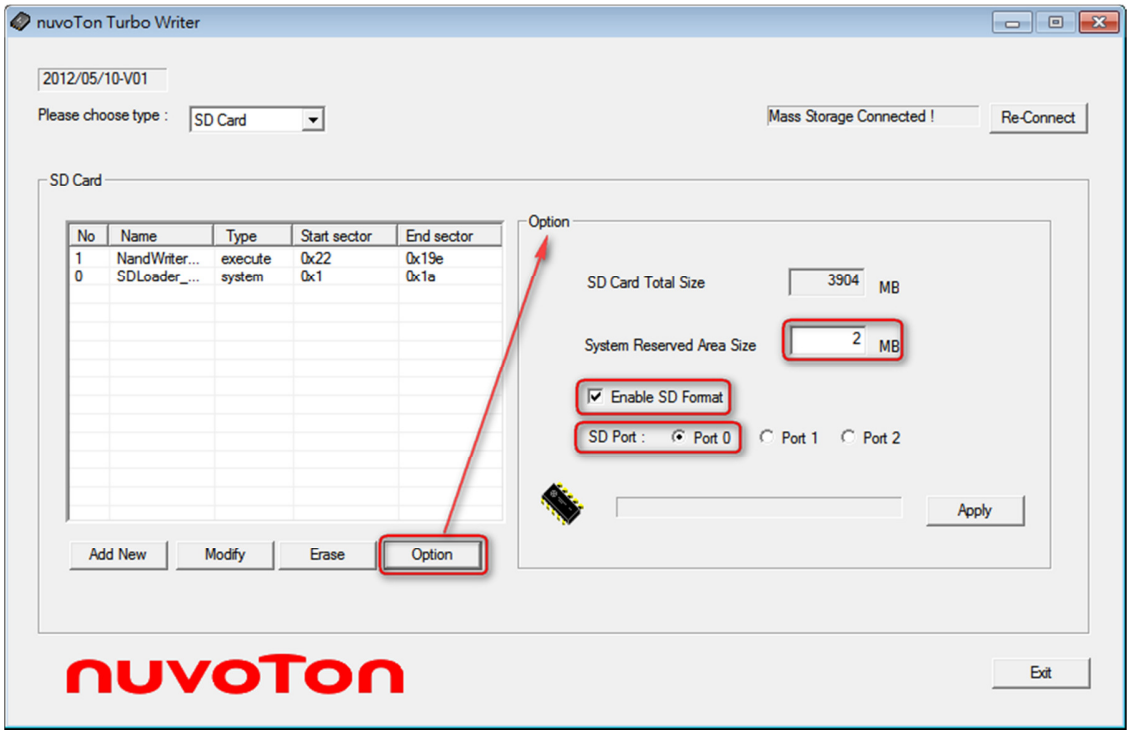
2.1. SD Card

The SD card must reserve some space to store the SDLoader.bin and NandCardWriter.bin before usage. The procedure is as below step:

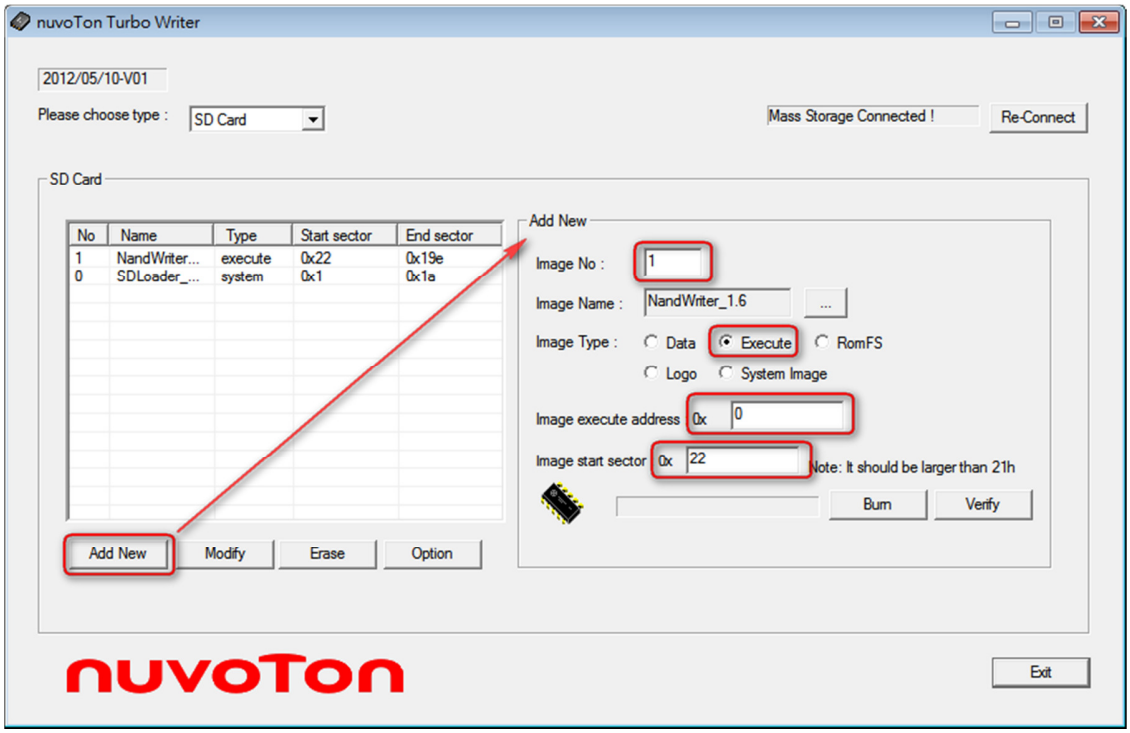
- Launch TurboWriter in recovery mode and set the System Reserved Area Size if this SD card does not do it before
- Burn the SDLoader.bin as system image
- Burn the NandCardWriter.bin as execute image with "Image execute address" 0

These two files are burned in system reserved area and unable to read from card reader.

Table 2-1 System Reserved Area Size



Please note to check the "**Enable SD Format**" option to format SD card. If you format SD card under Windows system, it does not reserve System Reserved Area Size on SD card and cannot as booting SD card in FA95 system.



Put this SD card to another card reader and copy NandCardWriter.ini and related files that are burn to NAND flash to this SD card.

This SD card content structure is as below figure. The root directory contains the NandCardWriter.ini (must) and NANDCARD folder. The files in NANDCARD folder are copied to root folder of partition NANDCARD. It also provides some option in NandCardWriter.ini for user. Please check the INI File section.

```
SD Root
    ├─ NandCardWriter.ini (MUST)
    └─ NANDCARD
        ├─ ─ ─ File1
        ├─ ─ ─ File2
        │   ├ ─
```

2.2. INI File

The INI file means **NandCardWriter.ini** file that provides the user a flexible way to do a restricted modification without modifying the source code of NandCardWriter.bin.

The NandCardWriter.ini file provides some sections as below:

```
[NANDCARD FAT FILE]
// -1 to skip NANDCARD copy, 0 to use DiskImage without MBR,
// 1 to Use FAT file, 2 to use DiskImage with MBR
-1
```

Due to its limited parsing ability of NandCardWriter.bin, there are some constraints in NandCardWriter.ini as below:

- No space is allowed to precede the option for each line.
- Only "//" comment is allowed at the beginning of each line
- String in "[ ]" is not allowed to changed.

Regarding the copy for Nandcard, it provides 4 options for it.

- Option "-1": Skip to check the Nandcard folder.
- Option "0": NandCardWriter copy file **content.bin** on Nandcard folder in SD card through GNAND to Nandcard partition. It gets the best performance but it need to prepare the disk image by **NRomMaker** tool or Linux
- Option "1": NandCardWriter copy those files on Nandcard folder in SD card through FAT to Nandcard partition.
- Option "2": Like option "0" but the disk image must include partition table (MBR, Master Boot Record).

2.3. Operation

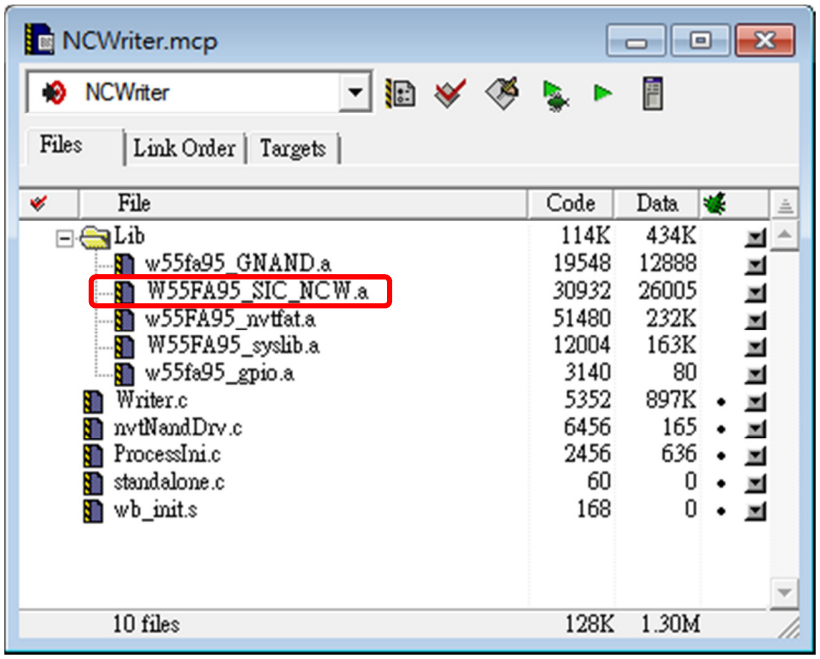
When the SD card is prepared successfully and booting from Normal mode, it will show the Nand cartridge burning status by LED and buzzer.

The operation progress should be

Step	Ready LED (White)	Fail LED (Red)	Pass LED (Blue)	Buzzer	Memo
Power on	ON	ON	ON	Beep	Keep 1 second
Ready	ON	OFF	OFF	Mute	
Press SW_START button	Blinking (200ms)	OFF	OFF	OFF	Begin to write NAND flash
If NAND write fail	ON	ON	OFF	Beep 200ms – Mute 100ms	Keep beep till press SW_START button
If NAND write pass	ON	OFF	ON	Beep 300ms	

2.4. Modification

If the modification of NandCardWriter.ini cannot meet customer's request, it will need to open NandCardWriter project to modify the source code. This project file bases on ARM Developer Suite V1.2. If user does not have such environment, it will need user to do necessary modification for the new environment.



Please note that NandCardWriter MUST link a special SIC driver library "**W55FA95_SIC_NCW.a**" since it need some special configuration for NAND driver. You can got it from new SIC driver project after 20120820.

3. Revision History

Version	Date	Description
V1.0	Aug, 2012	● Created

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