Ingenic®

USBCloner The Burn tool documentation

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Ingenic®
USBCloner The Burn tool documentation

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Catalog

1 Overview

USBCloner is a new programming tool ingenic code architecture developed based on the programming tool, this document describes the driver installation process, USBCloner burning tool burn step and burn operation notices, please use USBCloner to view this document before burning tools, to avoid unnecessary problems.

1.1 Operating environment support

USBCloner supportted the systems as follows：

1) Windows XP、Win7 and above version（32bit,64bit);

2) Ubuntu12.04 and above version（32bit，64bit).

1.2 The composition of burn tool

Burn tool consists of two parts:

1) cloner.exe : the burn tool user interface (The program can be run directly by the user).

2) core.exe : the core of the burn tool.

1.3 The burn tool package

There are two versions for different platform :

1) cloner-x.x.x(version number)-windows_release.zip

2) cloner-x.x.x(version number)-ubuntu_release.tar.gz

1.4 Special instructions on line use

After the technician has configured the parameter, in order to prevent the production line worker misoperation, may in the configs catalogue "platform.cfg" in "lock" the value is set to 1. At this point only the path of the file can be configured, and the others are locked, which can effectively prevent misoperation. If you just burn the package file, you can set the value of "lock" in the "platform.cfg" in the configs directory to 2. At this point, you can only select the package file, which can improve efficiency and prevent misoperation。

For configuration parameter methods, refer to the third chapter.

2 Install the driver

USBCloner has Linux and Windows versions. There is no need to install drivers under Linux using USBCloner. Therefore, this section takes Windows XP as an example to introduce the drive installation steps on the Windows host. Note that the first installation drivers and update drivers are slightly different.

The USBCloner driver requires no Microsoft signature authentication.

Note:when installing the drive under windows, be sure to install it in accordance with the documentation instructions, otherwise it might fail to install. When you install a drive in a win8 system, you first need to configure the system to disable the driver mandatory signature . Specific steps can be found on the Internet.

2.1 The first time you are using the tools

The board to enter the recording mode (development board is most long press Boot button, and click the Reset key), then if you connect to the PC development board, will pop up the hardware installation wizard, select "no", click "next", as shown in Figure 2-1.

Figure 2-1: Installation wizard

Select Install from the list or the specified location, and click next, as shown in Figure 2-2 below：

Figure 2-2: Installation wizard

- **Select drive file. Choose "don't search, I want to choose the driver I want to install", and click "next", as shown in Figure 2-2**

Figure 2-3: selection of installation methods

- **Select "install from disk" and click OK, as shown in Figure 2-4**

Figure 2-4 selecting disk installation

- **And then in the manufacturers to copy files from "choose" Browse ", then download the burn tool to unzip the cloner-win32-driver directory, choose to install the INF file drive, click OK to exit, as shown in Figure 2-5：**

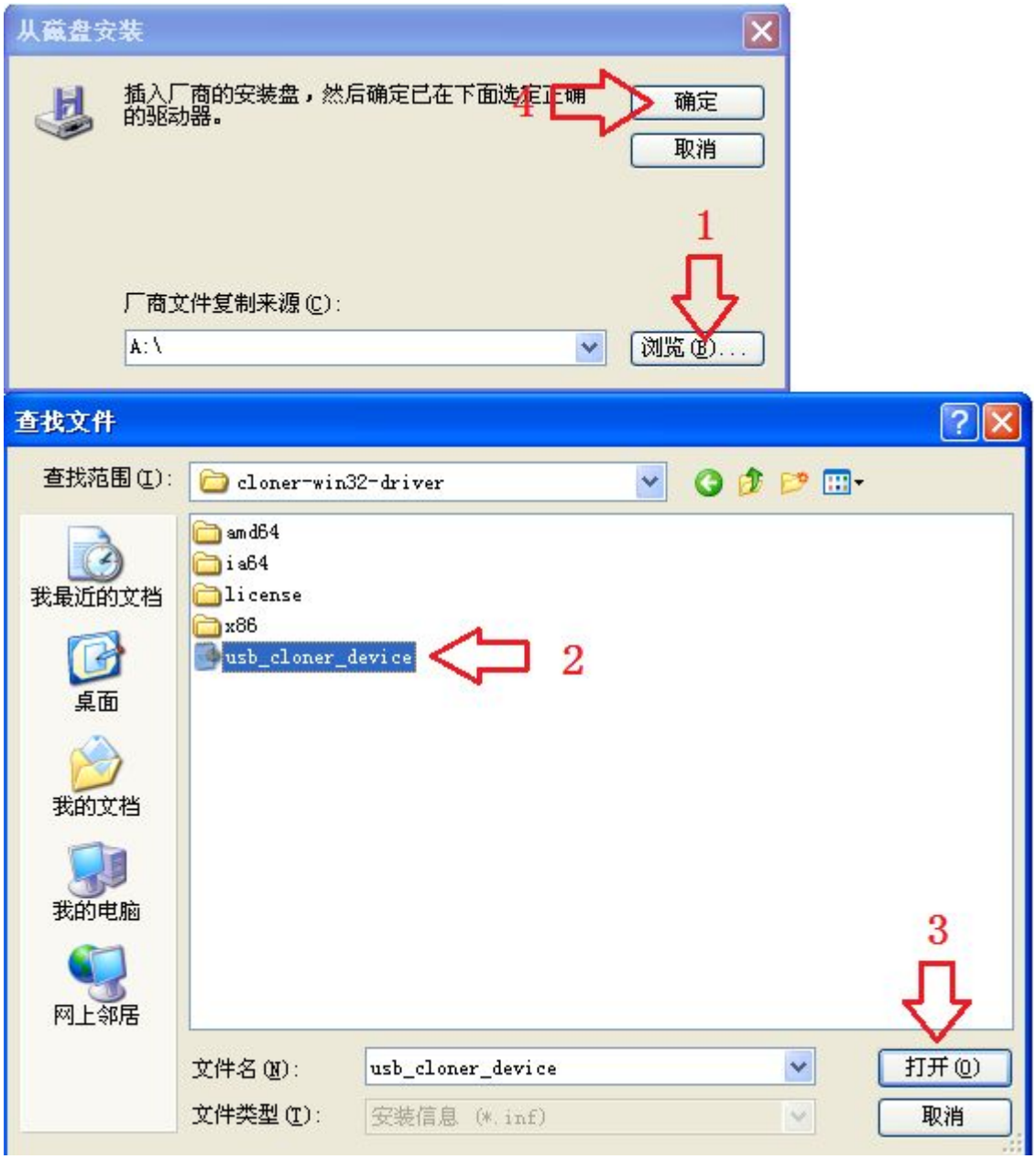


Figure 2-5 select drive file

- **Click "next" until "finished", as shown in Figure 2-6.**

Figure 2-6 drive installation complete

2.2 Once the ingenic USBBurnTool programming tool to replace them with Ingenic USBCloner burning tool

If the user previously used burning tools old, so before using the need to manually update the driver, need to right-click "my computer", "management", "device manager", the computer will pop up all the equipment. Select "Usb Boot Device" under "Ingenic Usb Boot Class", right click the mouse, and select update driver, as shown in Figure 2-7：

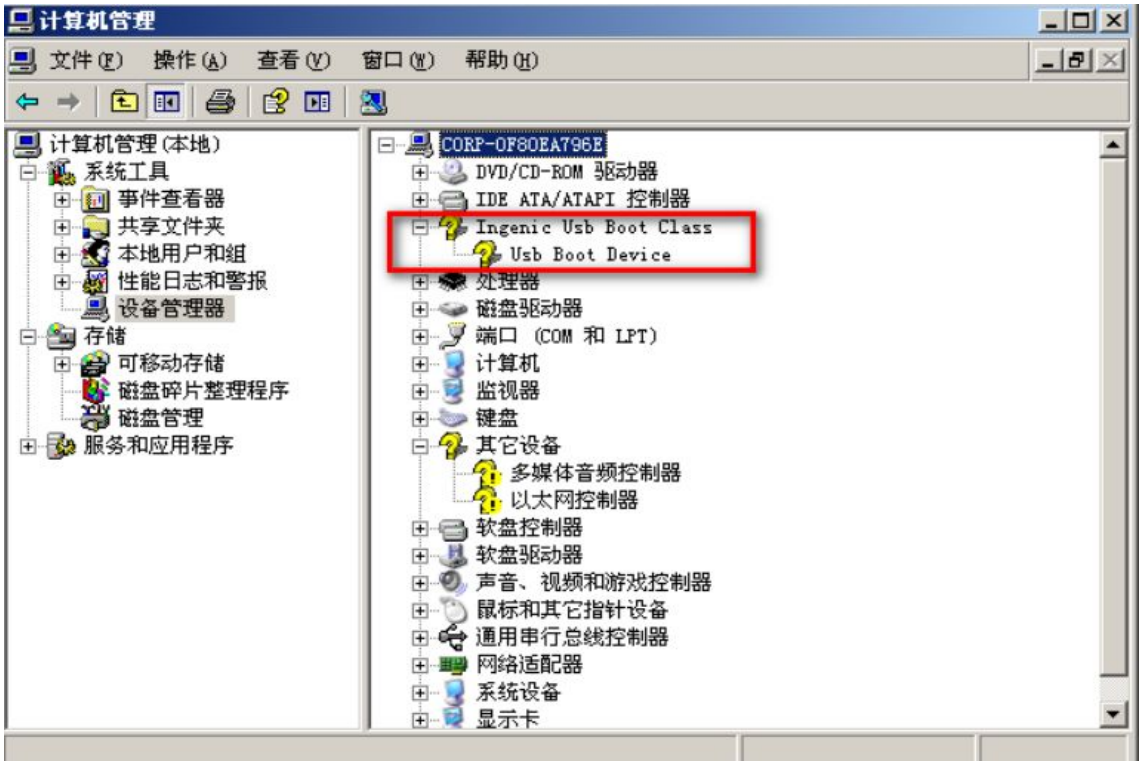


Figure 2-7 The USBBurnTool burn tool driver

- **The update drive process is the same as in the 2.1 section. Refer to figure 2-1~2-6, the device manager after the installation is successful, as shown in Figure 2-8.**

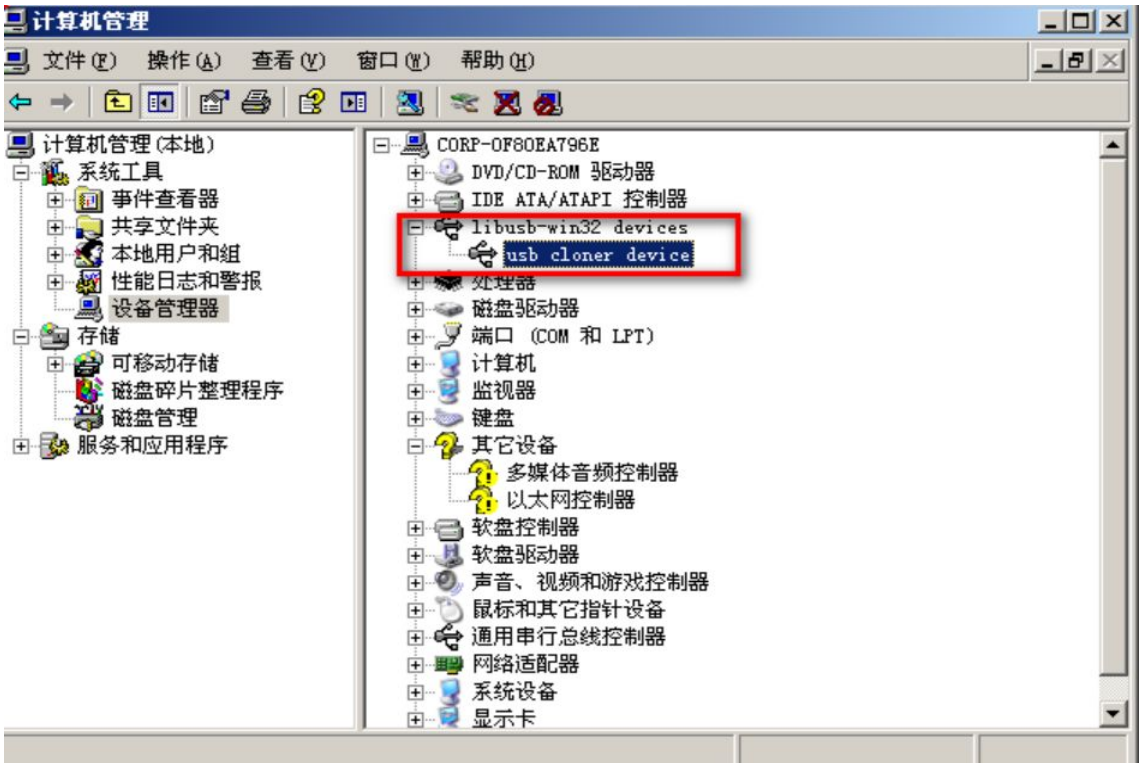


Figure 2-8 The USBCloner burn tool driver

3 Operation instructions

3.1 Start burning tools under Windows

Double click the cloner.exe application under the burn tools directory, and when you start, the effect is shown in Figure 3-1.

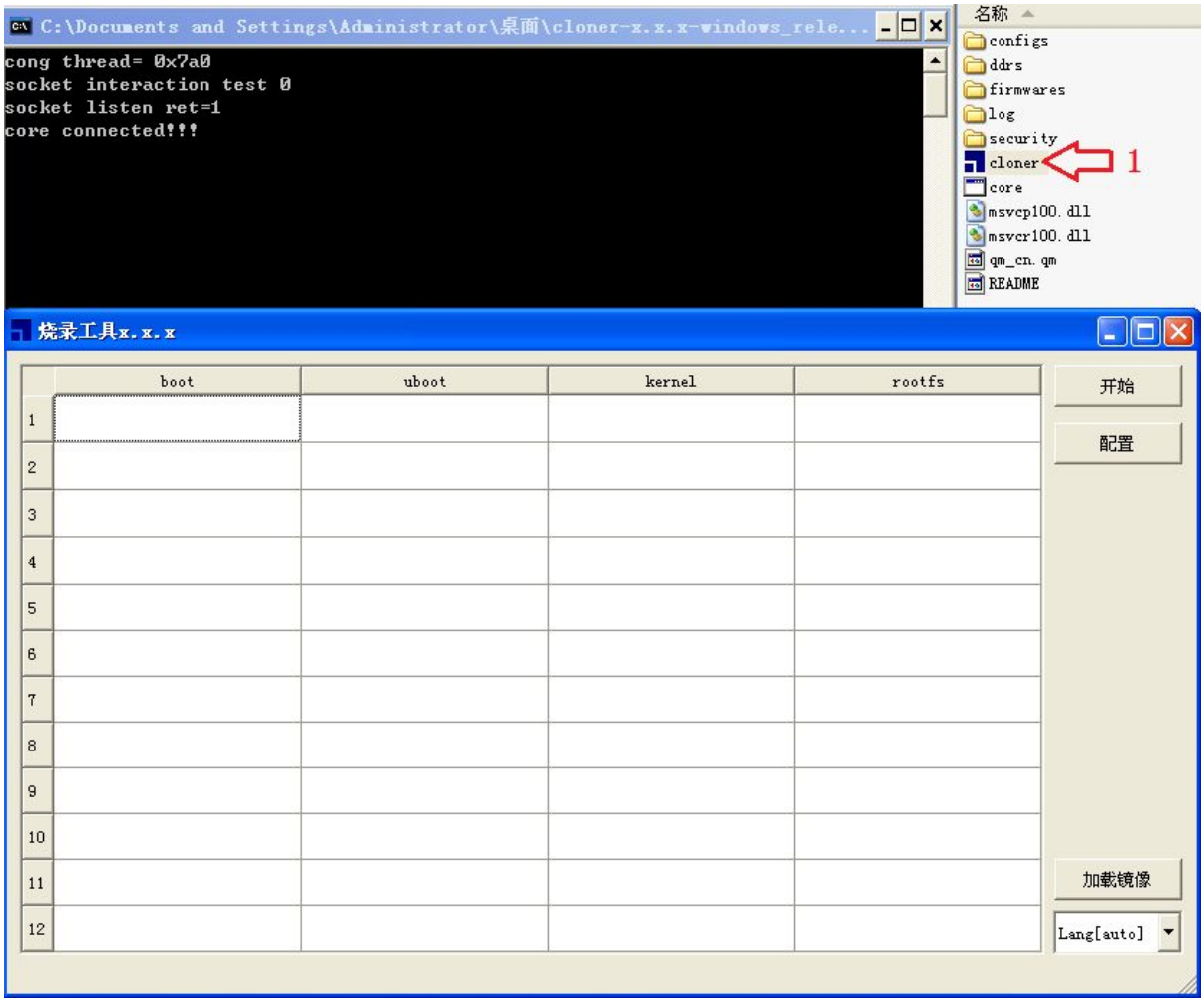


Figure 3-1

3.2 Main interface

After you open the USBCloner burn tool, the interface is shown in Figure 3-2.

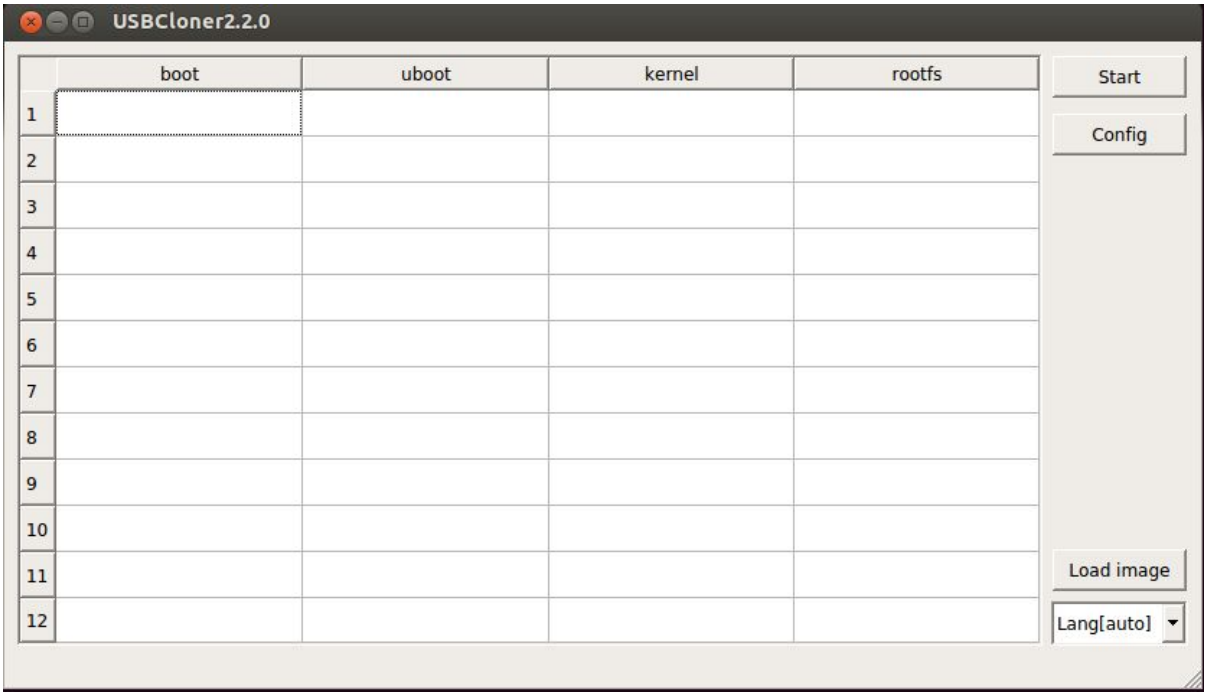


Figure 3-2: the main interface of the burn tool

In the main interface, the main display is the name and version number of the USBCloner burn tool, the burn file progress list, and its start configuration button.

"Start"--click the start button to enter the burn, and wait for the board to enter the burn mode.

"Config"--sets the options for burning tools.

"Load image" --choose to load pre packaged burn images.

"Lang[auto]"--Burn tool language selection, adaptive system language and optional, currently support Chinese, english. A part similar to the red area shows the current burning progress of each part of the burn。

3.3 Configuration interface

3.3.1 Information

If you need to reconfigure some of the options, click the configure button on the main interface, as shown in Figure 3-3.

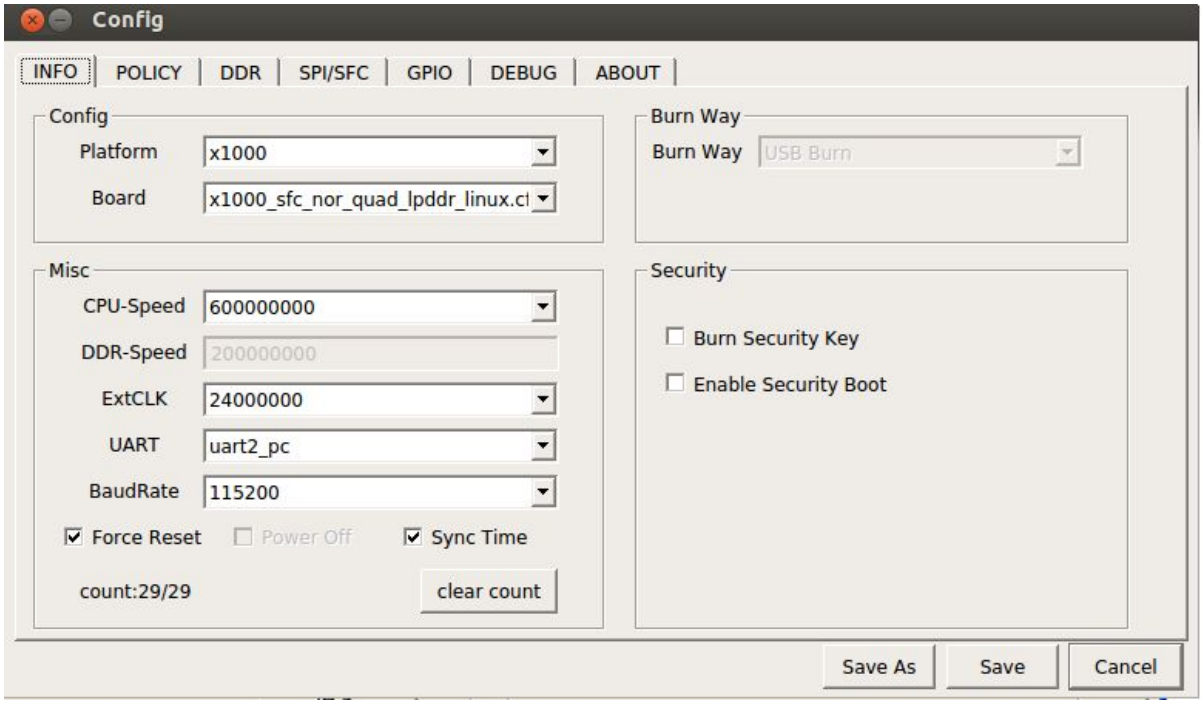


Figure 3-3: configuration interface

Function description：

Configure group boxes——Select the type of chip supported and the board level configuration type supported by the current board

Other group boxes——Set the CPU frequency, DDR frequency, external clock, serial number, baud rate, and after the completion of the call, whether to forcibly restart, turn off the power and synchronize the time, and will display the statistics before burning

Burn mode group box——Default USB burn mode

Security group box——burn KEY to EFUSE， activation EFUSE SECURITY BOOT MODE position。

3.3.2 POLICY

Click the policy tab, and select the burn image file, as shown in Figure 3-4。

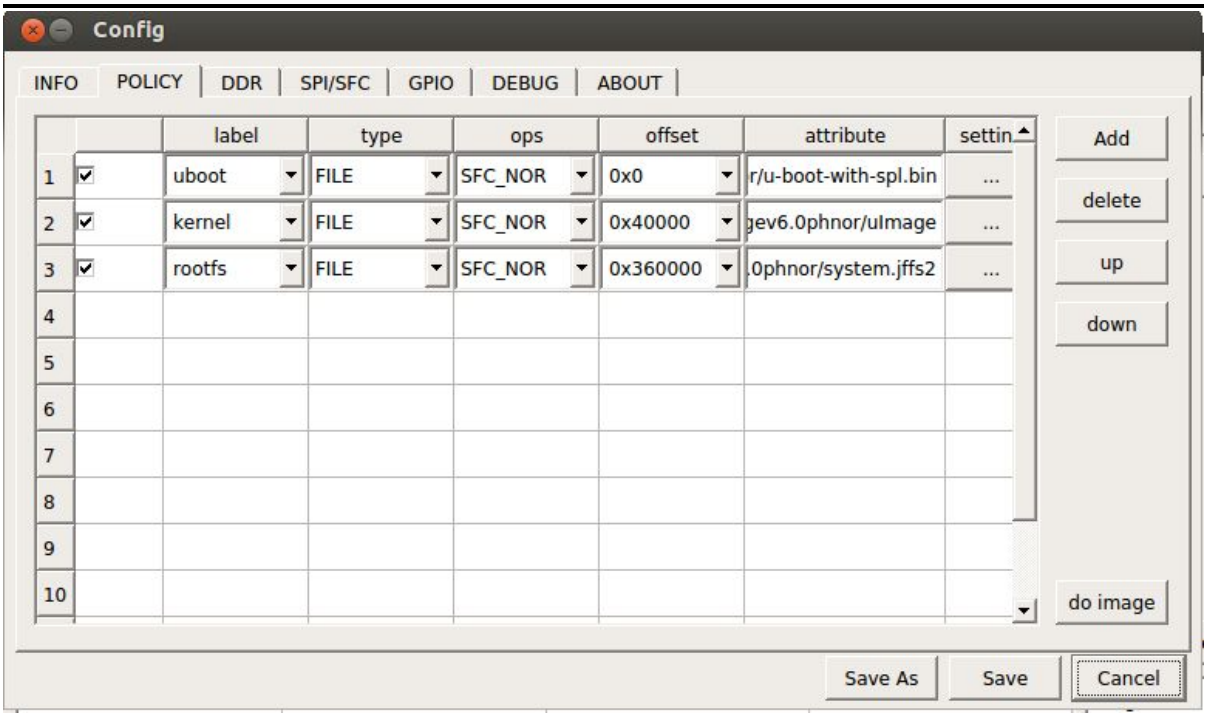


Figure 3-4 select the burning file interface

The policy tab is designed to edit the image file you want to burn, including adding, deleting, and modifying.

Function description：

Add——Add burn file

delete——Deletes the currently selected configuration file

up、down——Select the corresponding burn file to adjust its location

do image——Burn all current configurations as a burn pack file

Changes are to modify the properties of each file, including name, type, options, offset, attributes, and settings

check box——Select whether the current file is burned

Name——Name that is displayed when the column is associated with the progress bar when it is burned

type——Select burn mode

as：

“FILE”——Burn file

“INPUT”——User input

“OEM_NP_OTP”——Retain

“I2C”——Configure the I2C register value in the policy

“EPD”——Firmware matching (reserved)

“SNDIVICE”——Read the sequence number from the sn_device.cfg file sequentially

“SN_ADD”——Configure the start sequence number in the policy and burn the +1

“MAC_ADD”——Configure the start MAC address in the policy and burn the +1

“MACDEVICE”——Read the MAC address sequentially from the mac_device.cfg file

“SCANNER GUN”——Scan gun input

“NONE”——Retain

option——Select the settings that correspond to the current media you **want to burn**

如：

"MEMORY"——Writes content to offset in memory

"NAND_RAW"——Follow-up development

"NAND_OOB"——Follow-up development

"NAND_IMAGE”——Using Zone Administration for NAND

"MMC0"——Use the msc0 controller for SD card burning

"MMC1"——Use the msc1 controller for SD card burning

"MMC2"——Use the msc2 controller for SD card burning

"I2C"——Burn to EPROM and other storage media via I2C

"EFUSE”—-EFUSE burn

"REGISTER"——REGISTER burn

"SPI"——The SPI bus is used between the media that represents the burned storage

"SFC"——The SFC bus is used between the media that represents the burned storage

"MTD_RAW"——Managing raw using MTD

"MTD_UBI"——Managing UBI using MTD

deviation——The address or partition of the burning position in the corresponding medium must be aligned by WORD size

attribute——The result of setting up, for example, the path of the mirror selected when the file is burned

Set up——The corresponding settings box can be ejected according to different policy types

3.3.3 SPI/SFC

If the burn medium is NAND, then select the SPI/SFC tab and configure the erase and partition information as needed, as shown in figure 3-5. Under the Nand tab, there are also five small tabs, "Nand information", "ZoneManager", "erase", "MTD", and "nand_function_pin"。

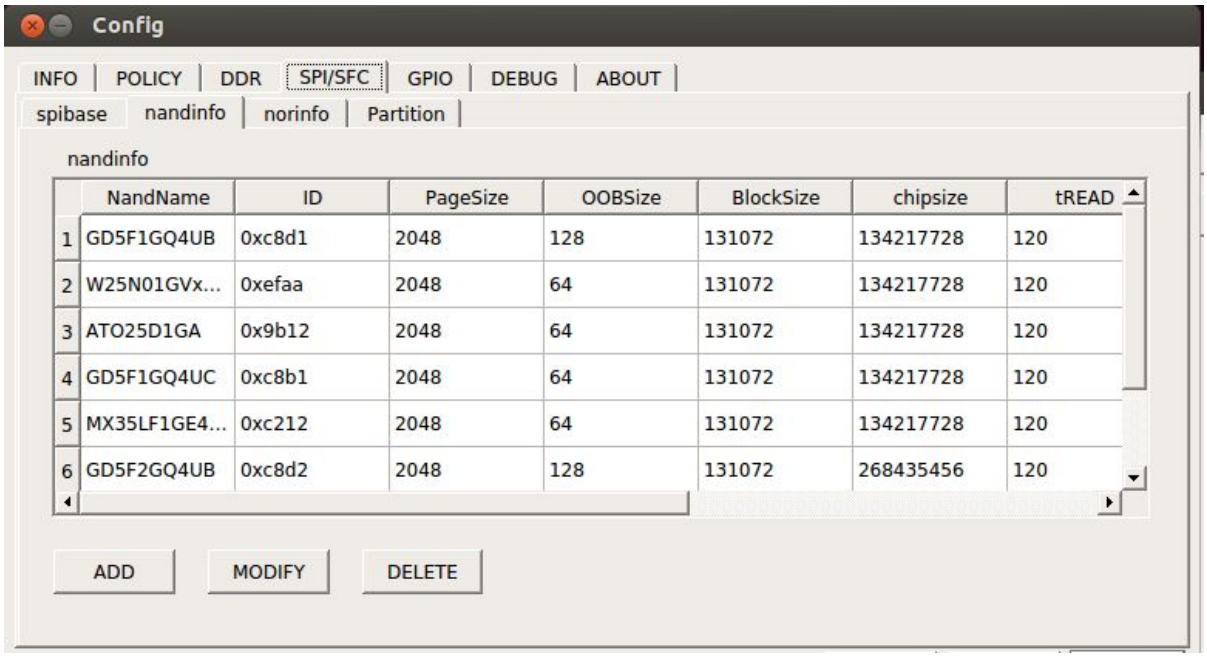


Figure 3-5 NAND INFO

3.3.3.1 Nand INFO

Among them, the "Nand information" tab shows several common Nand parameters, several common Nand information such as name, ID, etc.. In this tab, you can show all all existing several NAND information, can also query according to the keyword query and display some out of several NAND information, a parameter can also add new NAND or delete one not to use NAND style or modify a NAND.

You can perform the following actions on the NAND information：

“ADD”——Click to add new NAND information, as shown in Figure 3-6

“DELETE”——Deletes the currently selected NAND information

“MODIFY”——Modify the NAND information in the current, as shown in Figure 3-6

Among them, the relevant parameters of NAND find NAND related manual, modify.

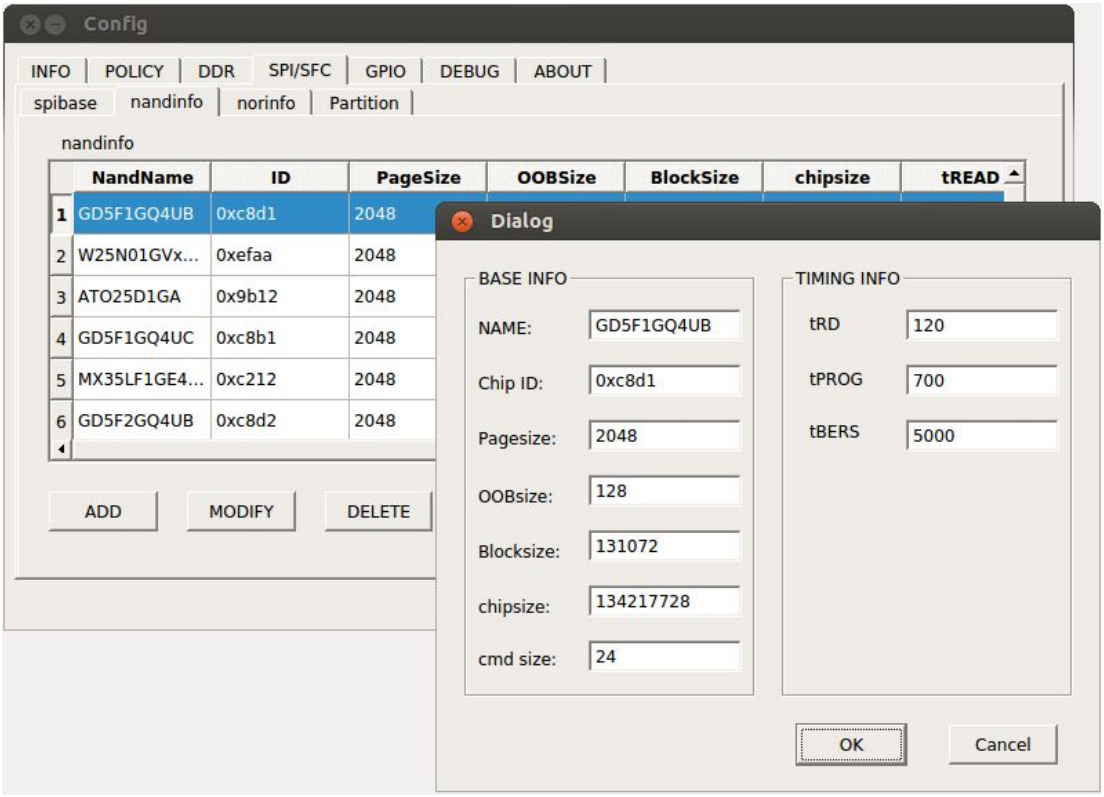


Figure 3-6 sets up the NAND information

3.3.3.2 ZoneManager

The elements contained under the ZoneManager tab include the total capacity of the section NAND (in units of MB), and the partition management table, as shown in Figure 3-7.

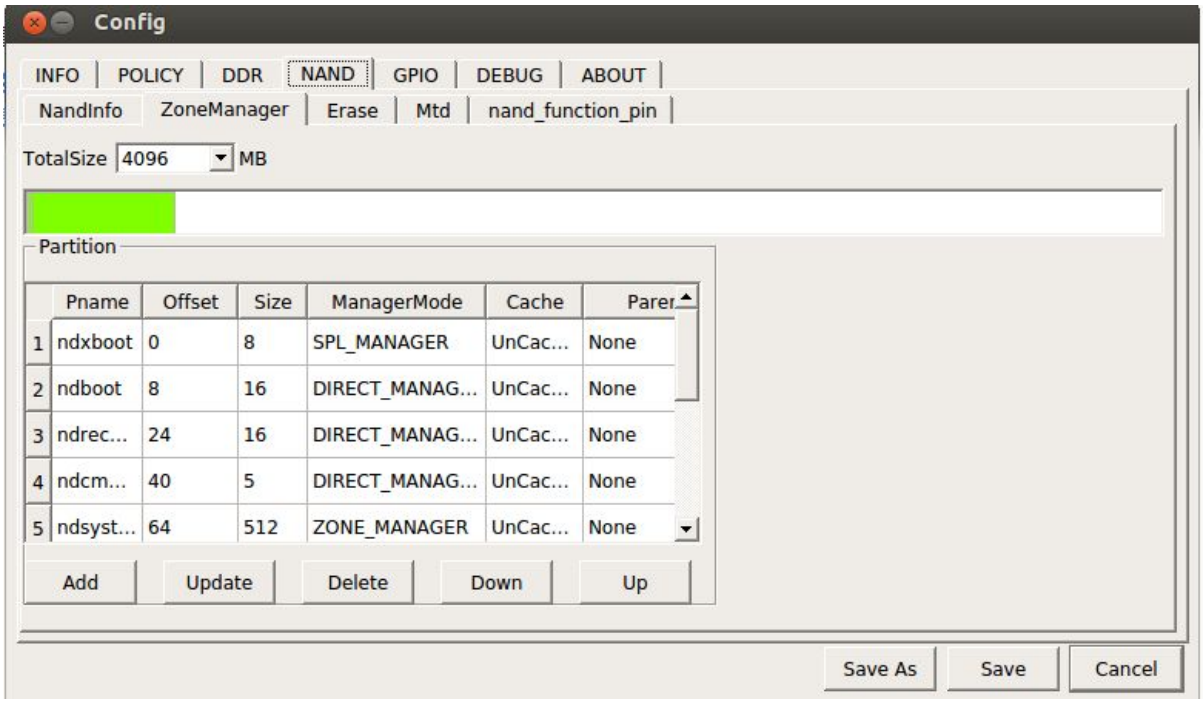


Figure 3-7 zongmanager partition interface

Setting instructions：

“TotalSize”—— e capacity of this section NAND

partition：

“Add”——Add a new partition, as shown in Figure 3-8

“Update”——Modify the currently selected partition information, as shown in Figure 3-8

“Delete”——Deletes the currently selected partition

“Up”、“Down”——Adjust the current selected partition location

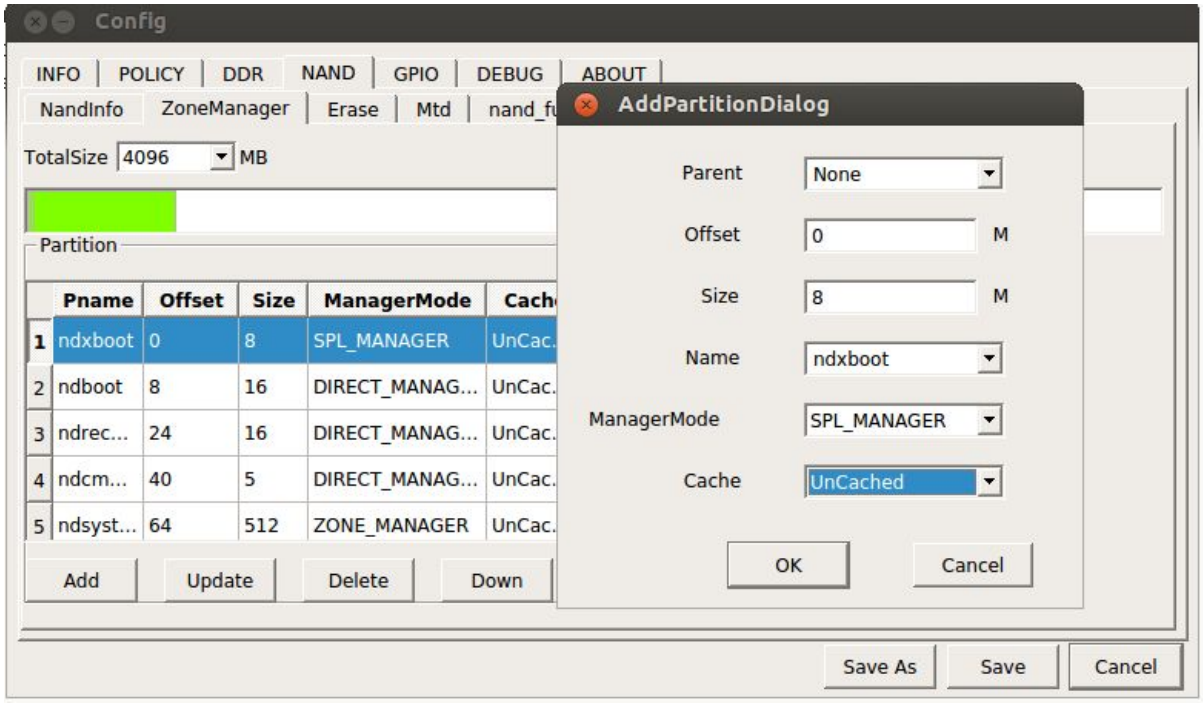


Figure 3-8 partition information settings

Add partition parameters：

“Parent”——Select the subarea to which the current partition depends. If you choose None, you represent the current partition as the primary partition

“Offset”——The actual offset of the primary partition or the relative offset of the subarea

“Size”——Set partition size

“Name”——Sets the partition name, which you can choose to have or fill in by yourself

“ManagerMode”——The optional management method when the parent node selects the None setting for the primary partition;

“DIRECT_MANAGER”

“SPL_MANAGER”

“ZONE_MANAGER”

“Cache”——When the parent node selects the None settings for the primary partition, select the cache type of "Cached" or "UnCached".

3.3.3.3 Erase

Under the erase tab, the erase mode and the partition options that are available are available. As shown in Figure 3-9

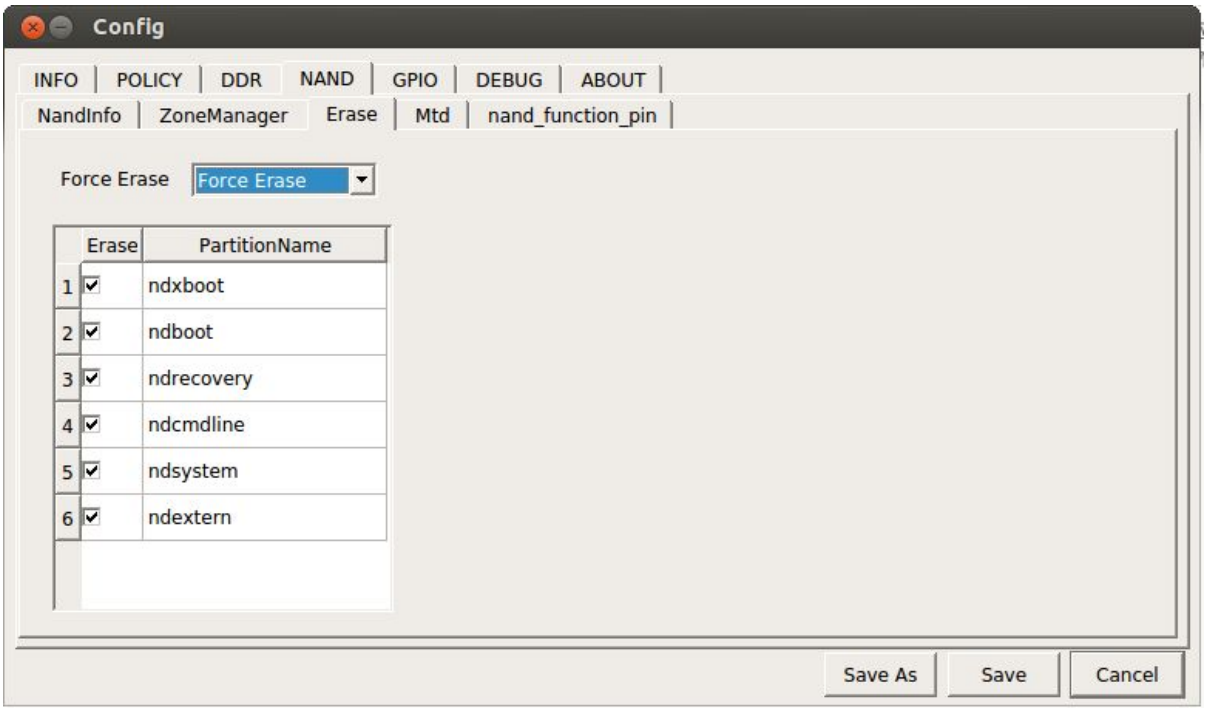


Figure 3-9 configuring NAND erase

Erase mode selection: divided into four kinds：

“None”

“Normal erase”

“Force Erase”

“Factory Erase”

Generally choose not to rub or wipe all mandatory (NAND developers may use the factory and erase erase routine), when choosing compulsory full wipe, the check box below the partition

table is bright, you can configure the. This is in order to upgrade the system may want to leave a partition, if you do not want to wipe one of the partitions, you can remove the hook to save.

3.3.3.4 MTD

The Mtd tab contains the partition partition table of the MTD, and the MTD erase modes are: None, Force, Erase, and Factory Erase, as shown in Figure 3-10.

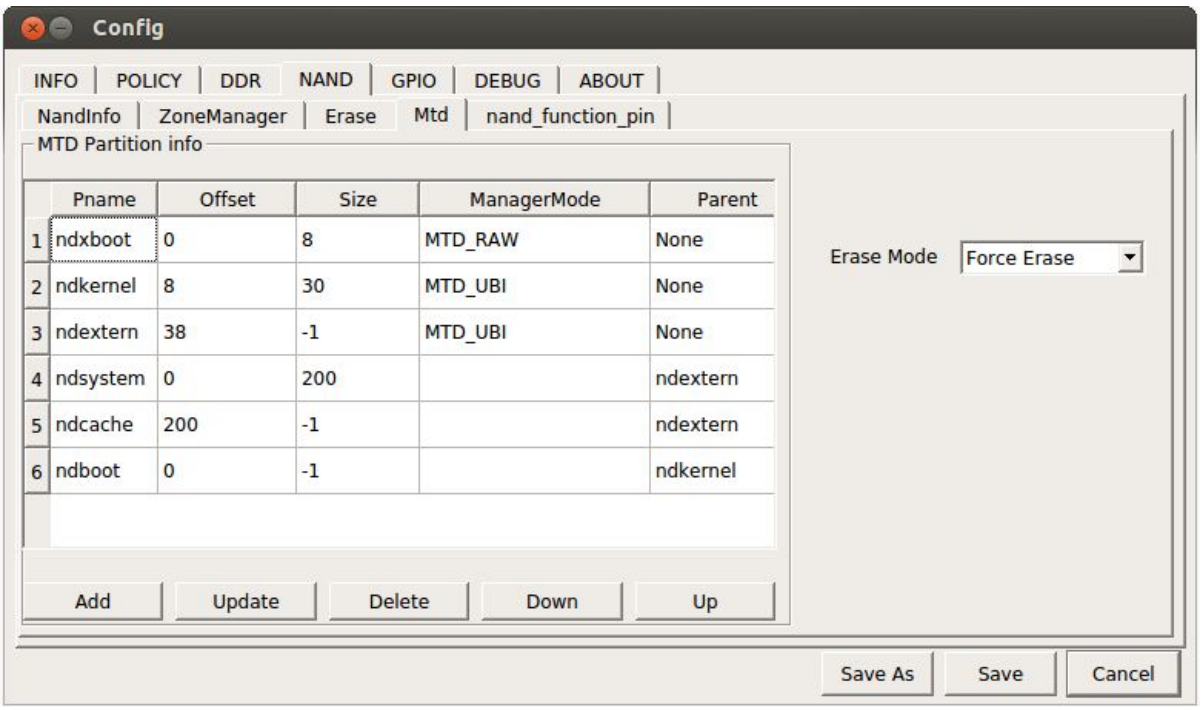


Figure 3-10 MTD partition table

Setting instructions：

“Add”——Add new partition information

“Update”——Modify the currently selected partition information

“Delete”——Deletes the currently selected partition

“Up”、“Down”——Adjust the location of the current selected partition

“Save”——Click save the partition table of the current MTD

“Erase Mode”——Select erase mode

Recommendation: when partitioning, the last UBI volume in each partition uses the -1 representation.

"-1" represents all the remaining space after the current offset.

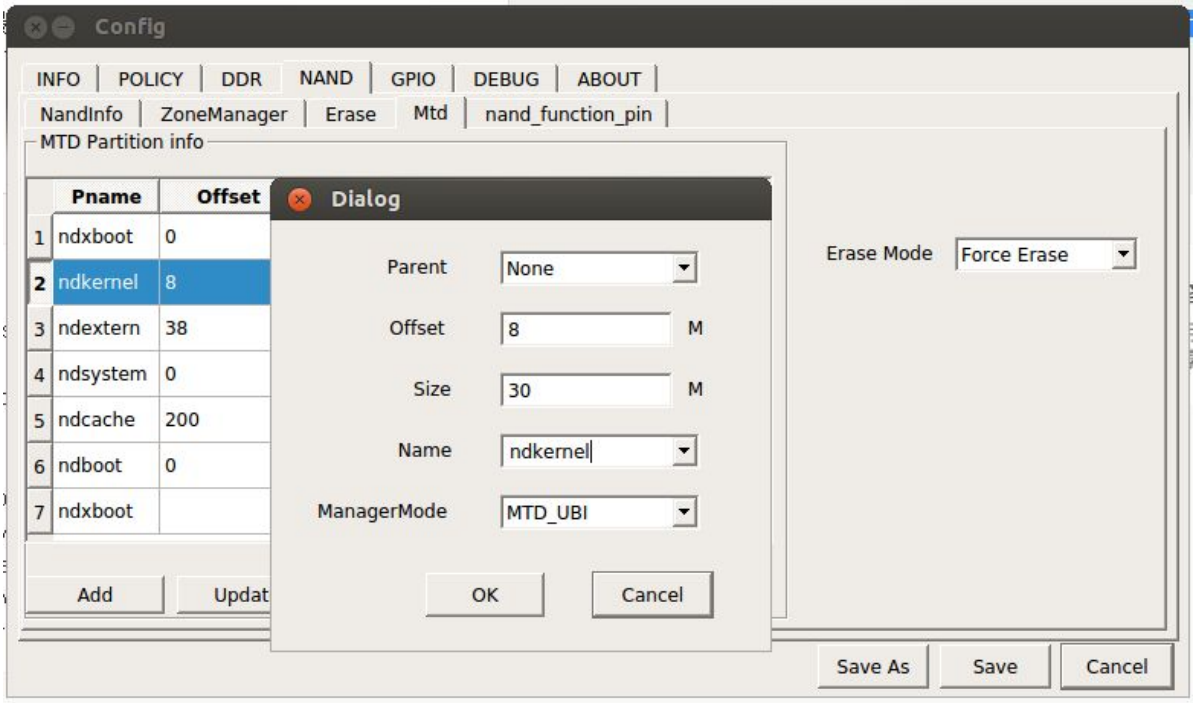


图 3-11 添加分区信息

Explain：

“Parent”——Select the primary partition that the current partition depends on. If None is selected, the current partition is the primary partition

“Offset”——The actual offset of the primary partition or the relative offset of the subarea

“Size”——Set partition size

“Name”——Sets the partition name, which you can choose to have or fill in by yourself

“ManagerMode”——If the parent node selects the None setting, the primary partition is either MTD_RAW or MTD_UBI”

3.3.3.5 Nand_function_pin

Set the drive capability of the corresponding pin on the NAND chip as shown in Figure 3-12

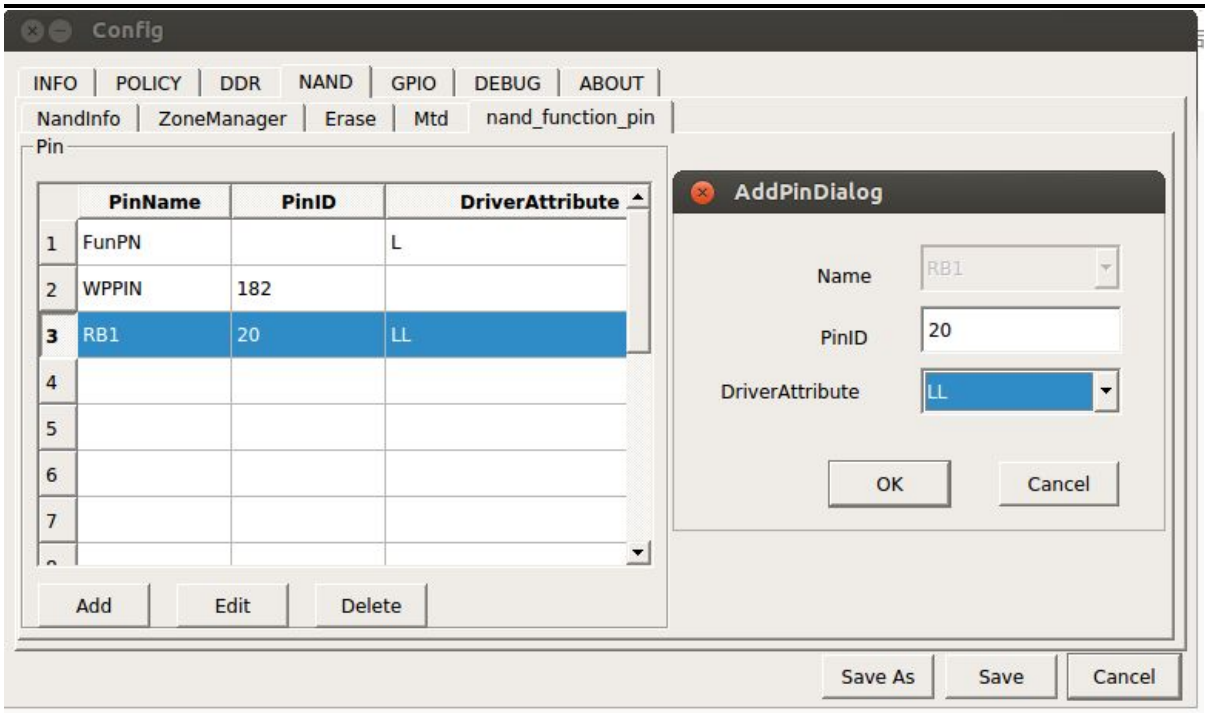


Figure 3-12 Nand function pin setting

Explain：

“Edit”——Modify the selected pin settings

“Delete”——Removes the current selection of pin settings

“Add”——Add new pin settings

notes：L——Represents a low level

H——Represents a high level

HH 、 H 、 L 、 LL Corresponding 0~3， The NAND RB pin has four driving capabilities,Specific settings refer to the NAND chip

-1——Indicates that the current function pin is not used

3.3.4 SD/MMC

If the recording medium is MMC, then select the "SD/MMC" tab, according to their needs, before burning is erased, whether the card is configured before burning, as shown in figure 3-13.

Notice that when you select the part to erase. You need to add erase interval information to the table under the current interface, and the start address and the end address format must be filled out in strict accordance with the 16 Decimal system, otherwise the save will not succeed.

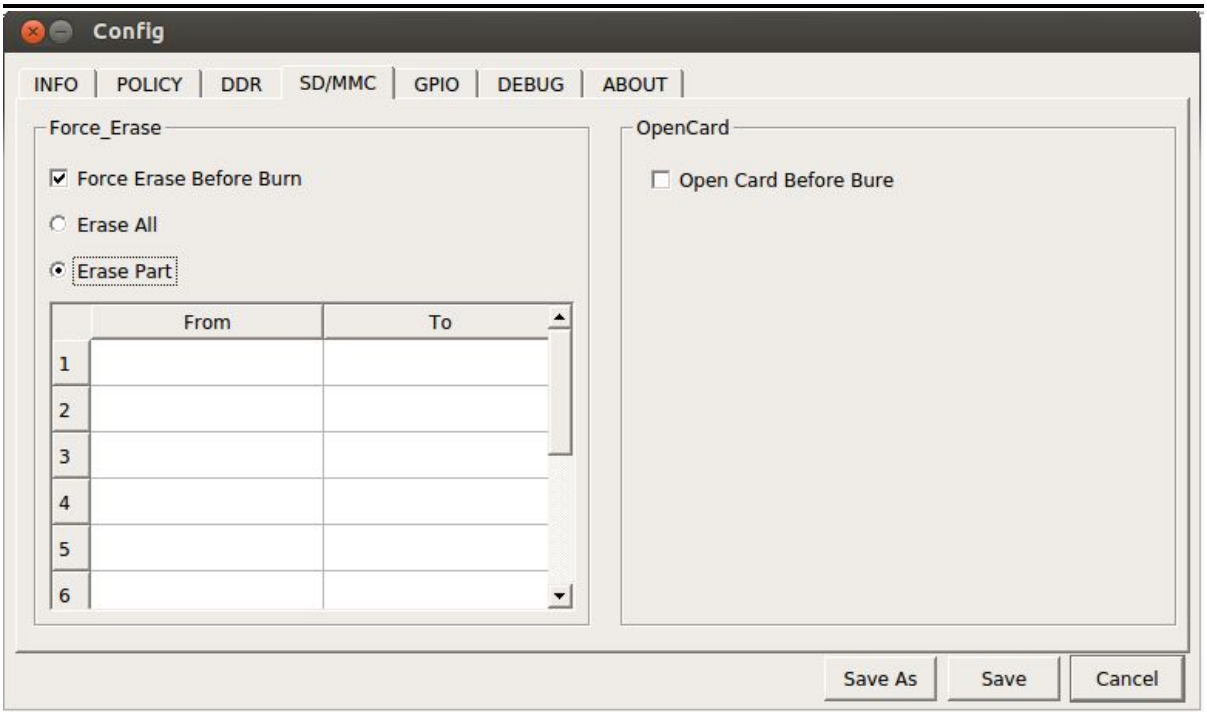


Figure 3-13 MMC configuration interface

3.3.5 DDR

If you need to re select the DDR type, click the DDR tab on the configuration screen. Select the DDR type and configuration file according to your own circumstances, as shown in figure 3-14.

If you modify the DDR type, click the DDR check box to make changes (such as change from DDR3 to LPDDR), change the DDR model, and click the DDR type check box to modify it. According to their use of the type of DDR, banks, and buswidth chip.

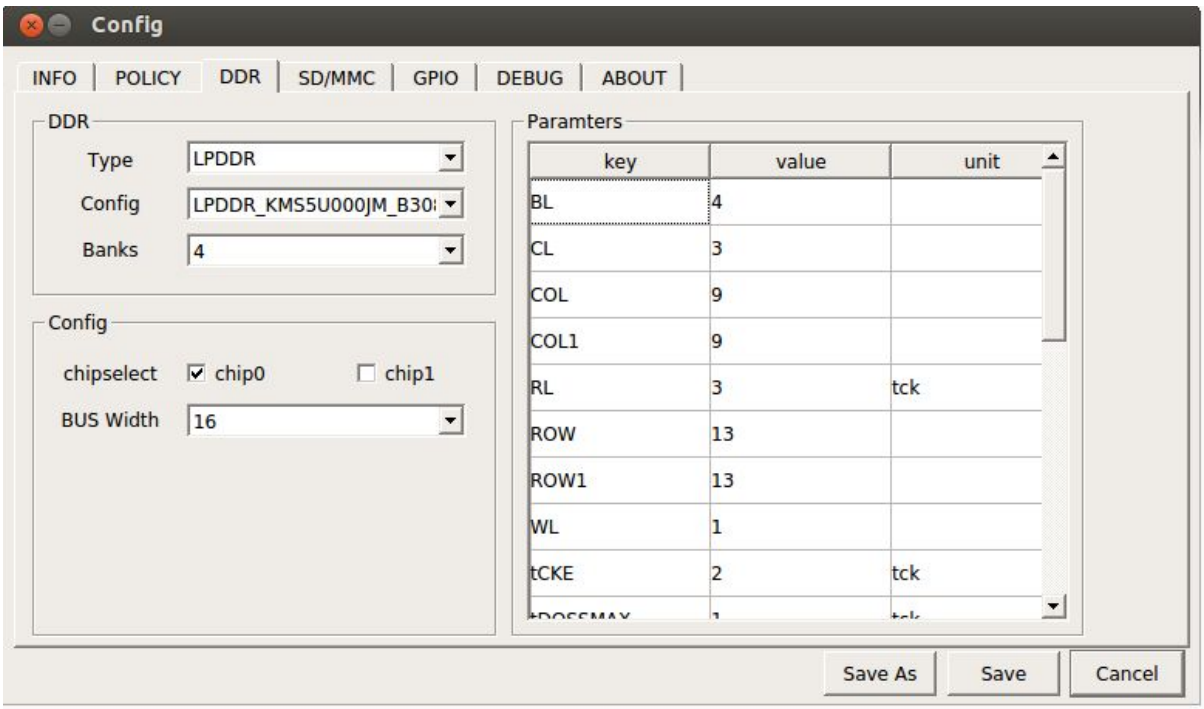


Figure 3-14 DDR configuration interface

3.3.6 GPIO

If you need to reconfigure GPIO, click the GPIO tab on the configuration screen. According to their own needs, configure GPIO related parameters, such as their burning is mmc0, then the mmc0 hook, as shown in Figure 3-15.

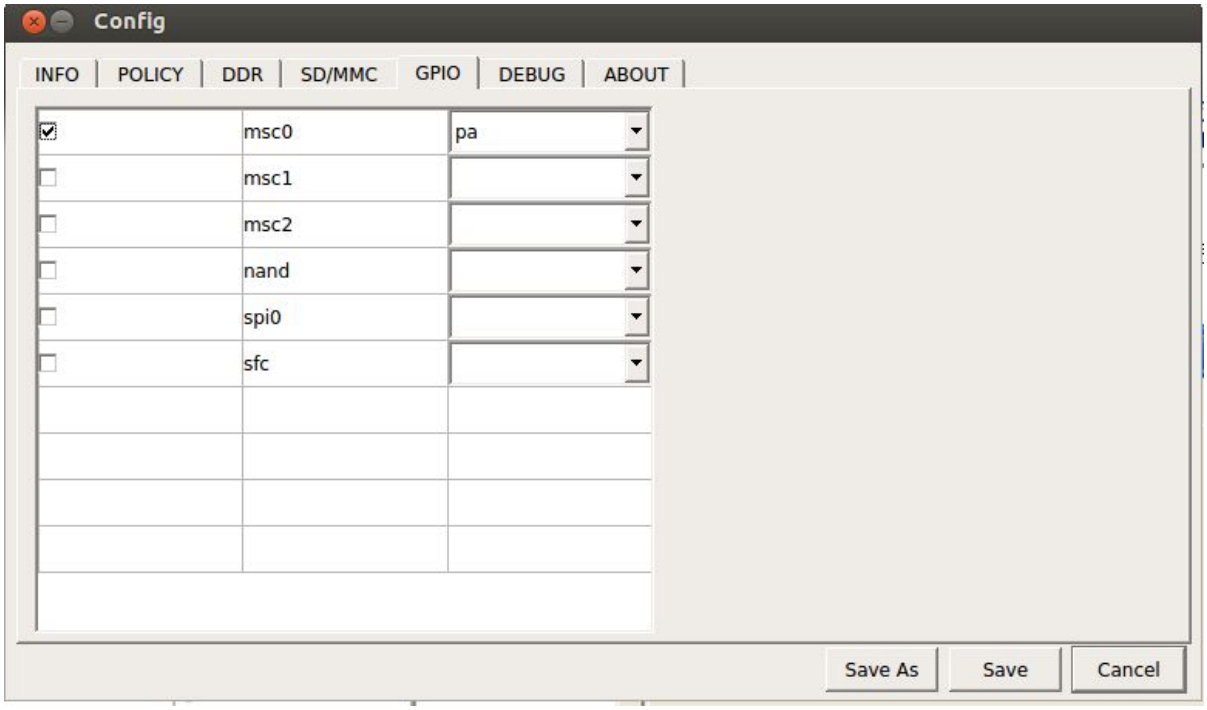


Figure 3-15 GPIO configuration interface

3.3.7 SPI/SFC

The burn tool support for SPI and SFC burning, according to the demand rate, whether to use the SFC SSI configuration four line mode, whether all erase the storage medium, in the SPI/SFC tab also contains four small tab "basic information", "information NAND", "nor", and "partition", configure the interface as shown in Figure 3-16. Shown.

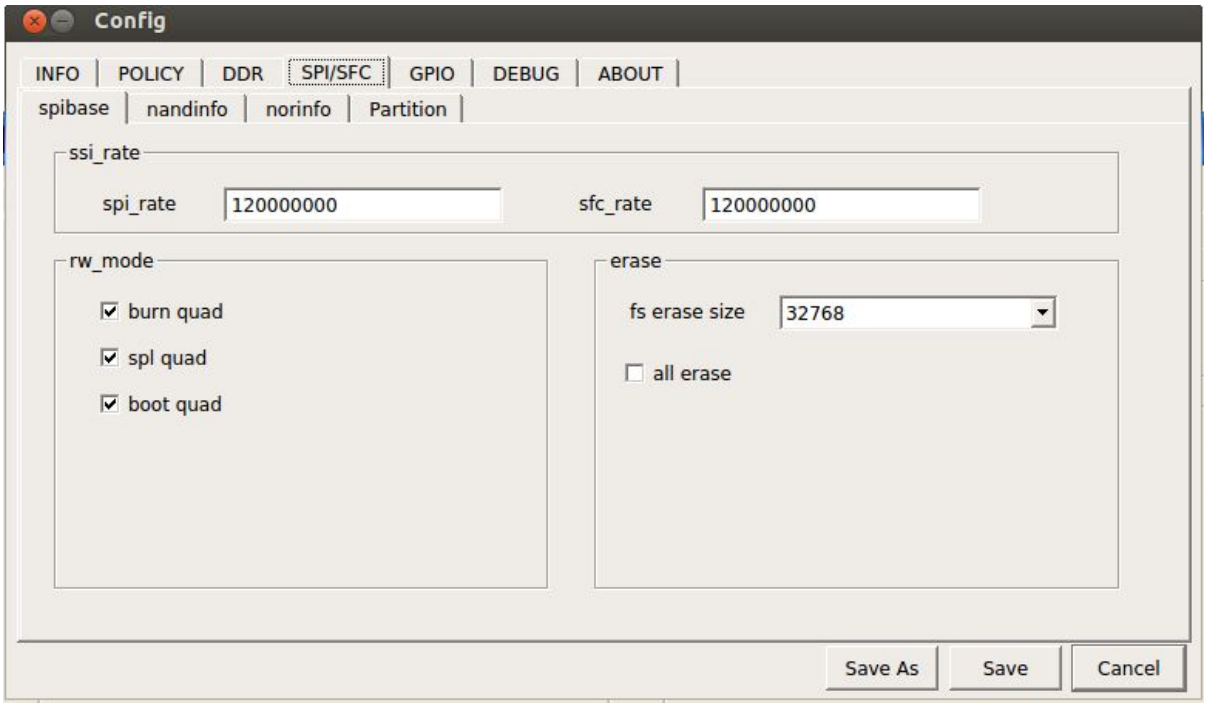


Figure 3-16 SPI/SFC configuration interface

"burn quad" ——Burning, use the four line read-write mode to write the mirror to the storage medium

"SPL quad"——The SPL stage loads the u-boot mirror file using the four line read / write mode (reserved)

"boot quad" ——When you start, u-boot and kernel load the mirrored file using four line read-write mode

When configuring the spi/sfc, you only need to configure whether to wipe all of them, and the file system erase block size (default 32KBytes), and other parameters can be used by default. The rate defaults to 120000000. If you want to speed up, please consult the developer.

3.3.7.1 SFC Nand info

Several supported NAND information displayed under the SFC Nand information tab enables you to add, modify, or delete NAND information as needed. As shown in Figure 3-17。

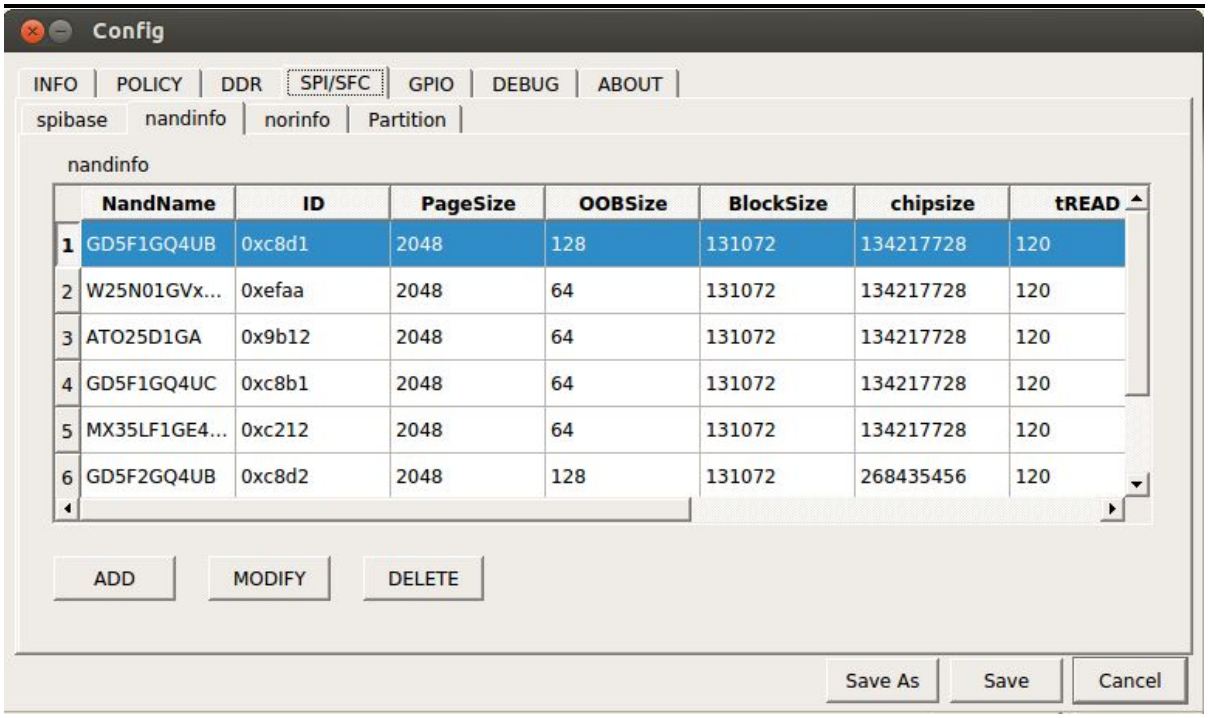


Figure 3-17 NAND information

Consult the relevant chip manual when adding or modifying NAND information. As shown in Figure 3-18

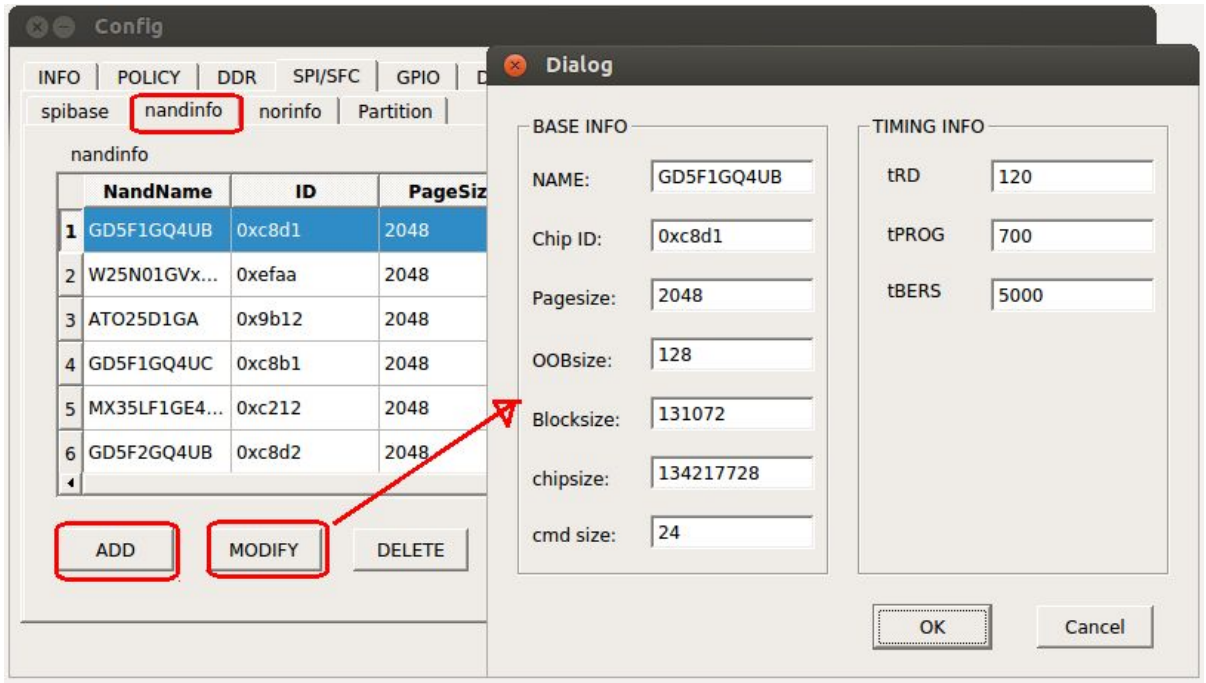


Figure 3-18 adding or modifying NAND information

3.3.7.2 SFC Nor

“Nor 信息”选项卡下显示的几款支持的 Nor 信息，可以添加、修改或删除，如图 3-19。

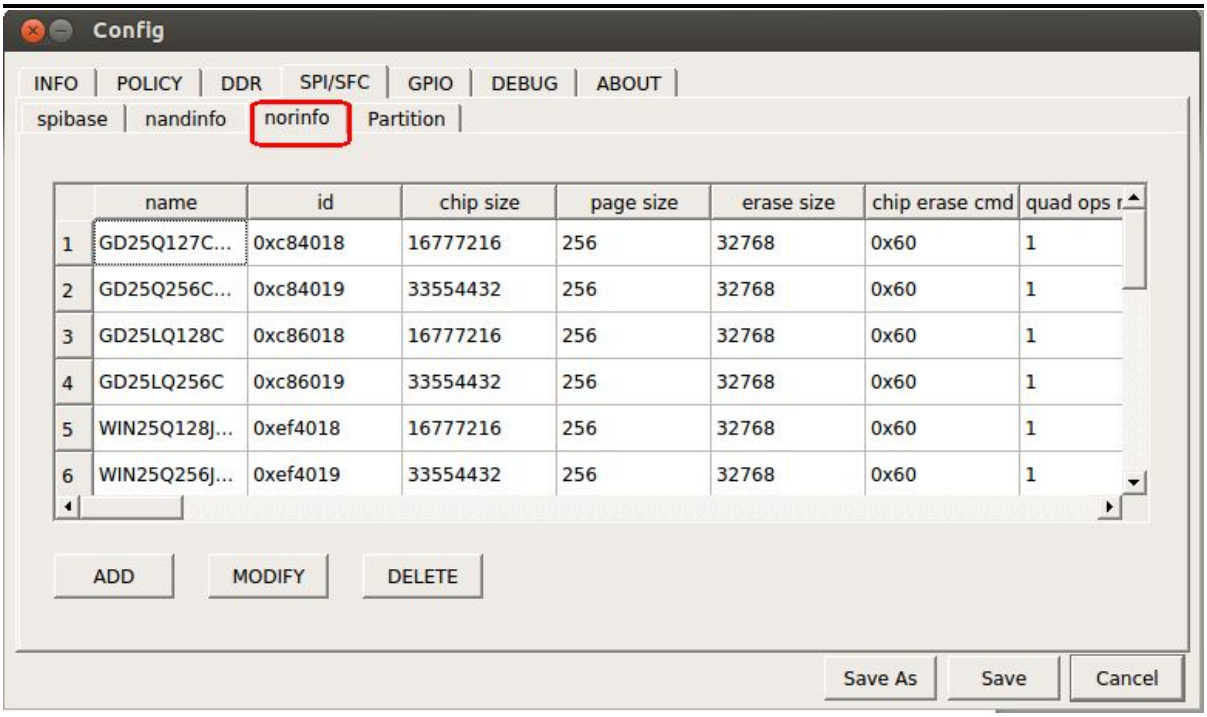


Figure 3-19 nor information

Consult the relevant chip manual when adding or modifying nor information. As shown in Figure 3-20.

Please refer to the parameter instructions in the Nor information interface《sfc nor 参数配置说明文档.pdf》

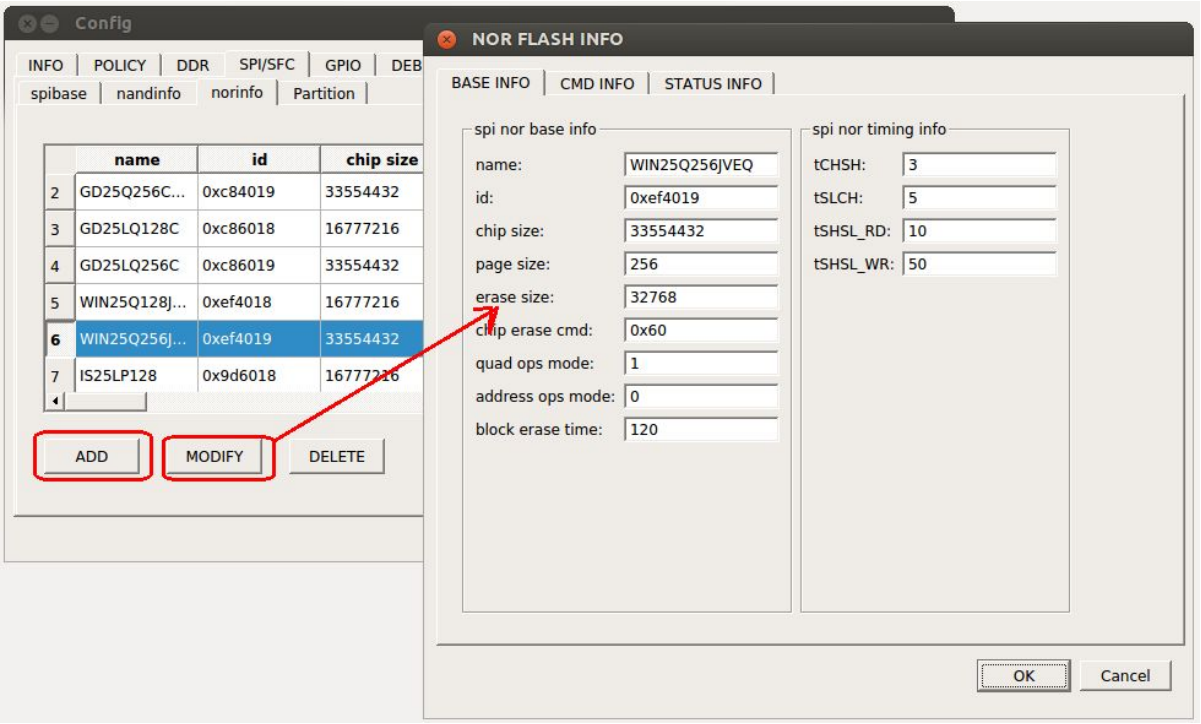


Figure 3-20 adding or modifying nor information

3.3.7.3 Partition

The SFC nor/nand partition table displayed under the partition tab, as shown in Figure 3-21.

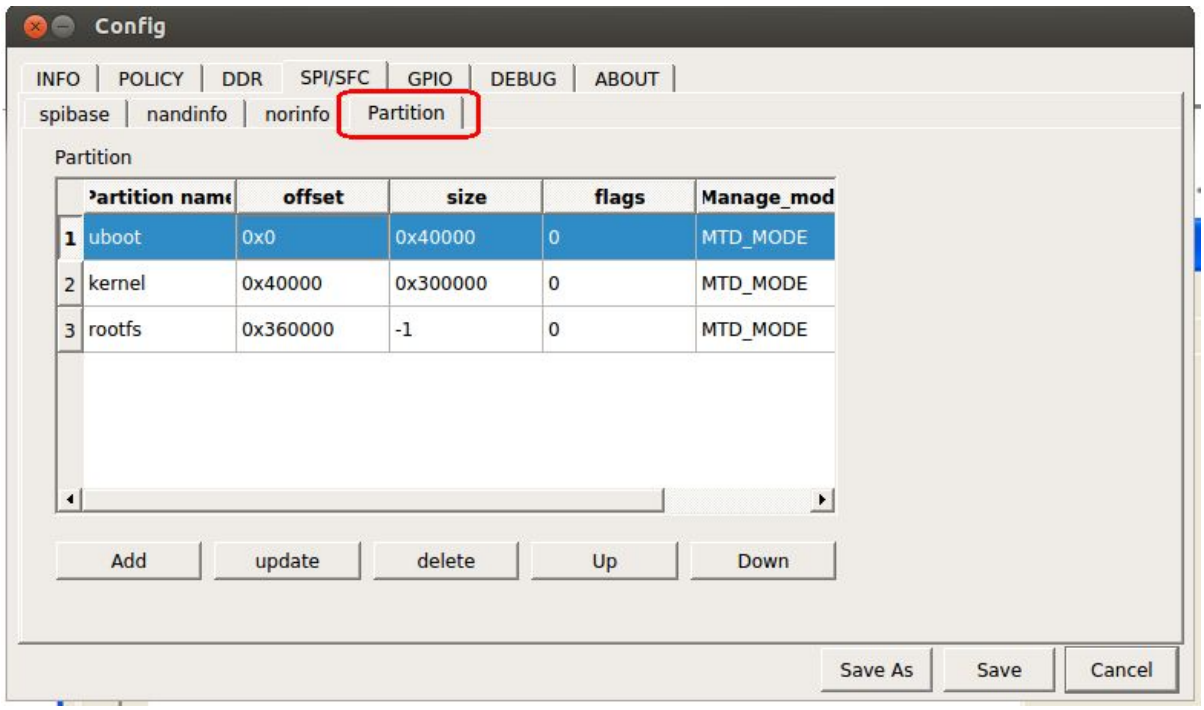


Figure 3-21 partition

You can add, modify, or delete partition information as needed. The offset address must be aligned according to the size of the erase block, as shown in Figure 3-22.

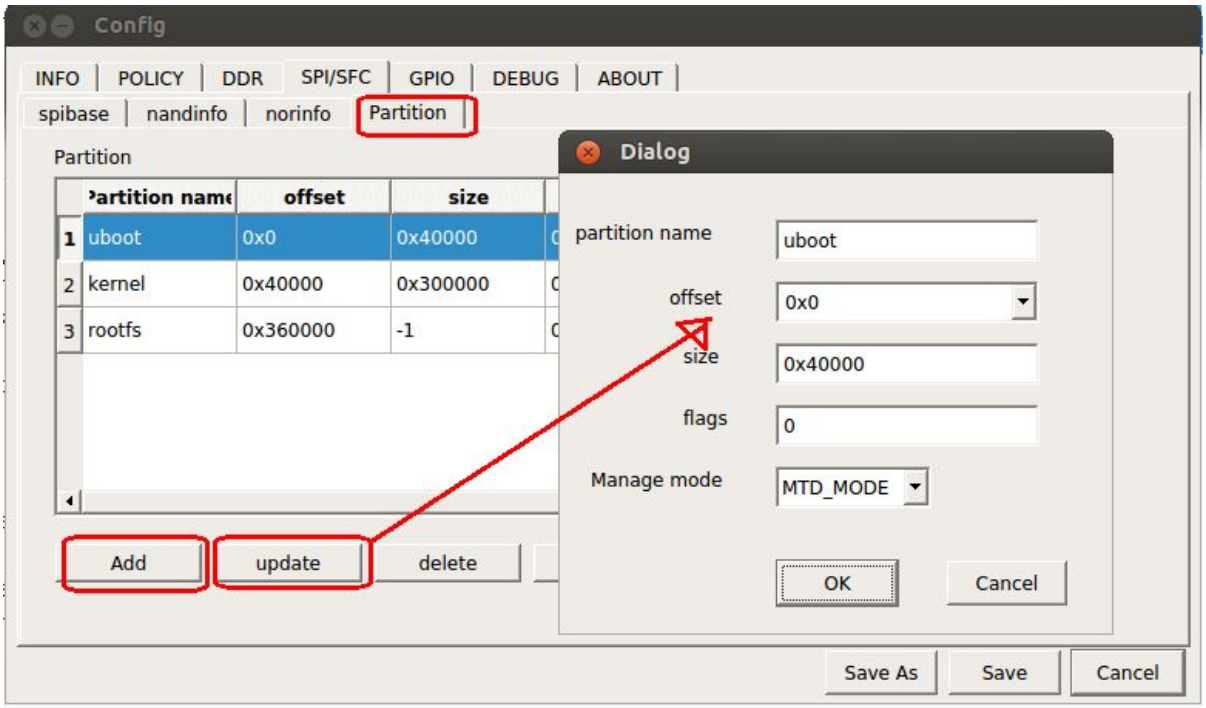


Figure 3-22 adding or modifying partition information

3.3.8 DEBUG

Debug the tab interface, as shown in Figure 3-23。

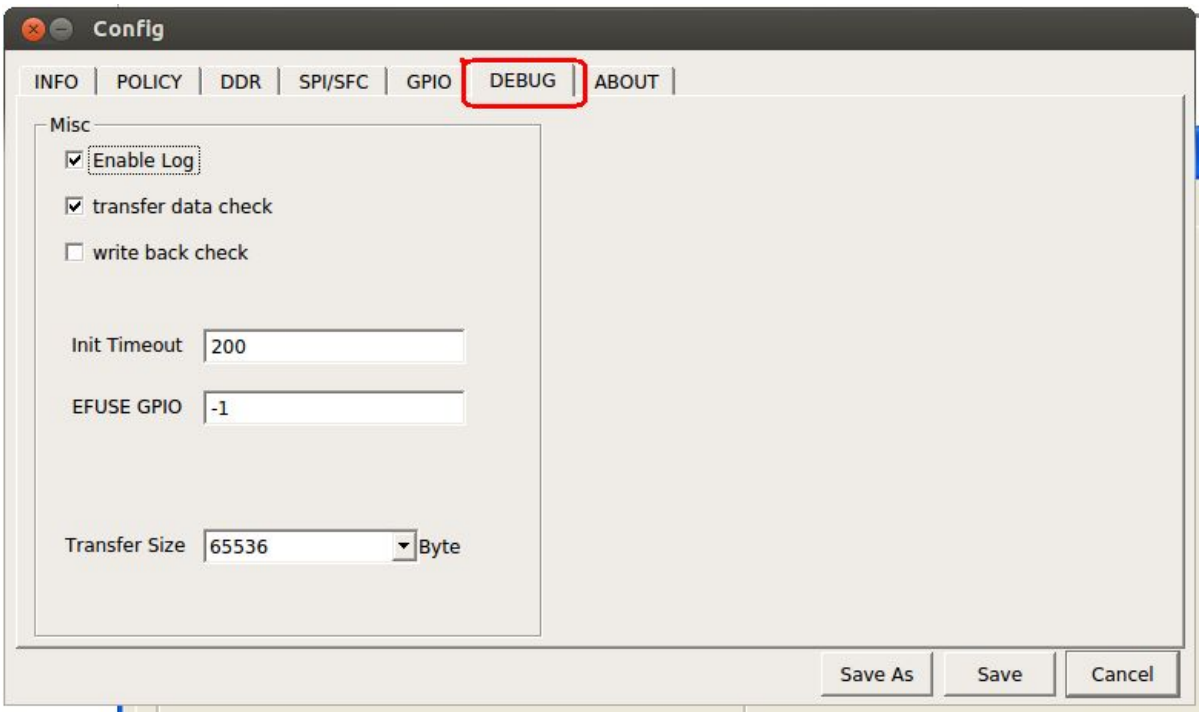


Figure 3-23 configuration debugging information

If you need to save a log file or burn a serial print, you can select "activate log" or deselect.

3.4 Factory burn

3.4.1 Make burn bag

When the configuration is complete, click the build mirror button in the policy tab, as shown in Figure 3-24.

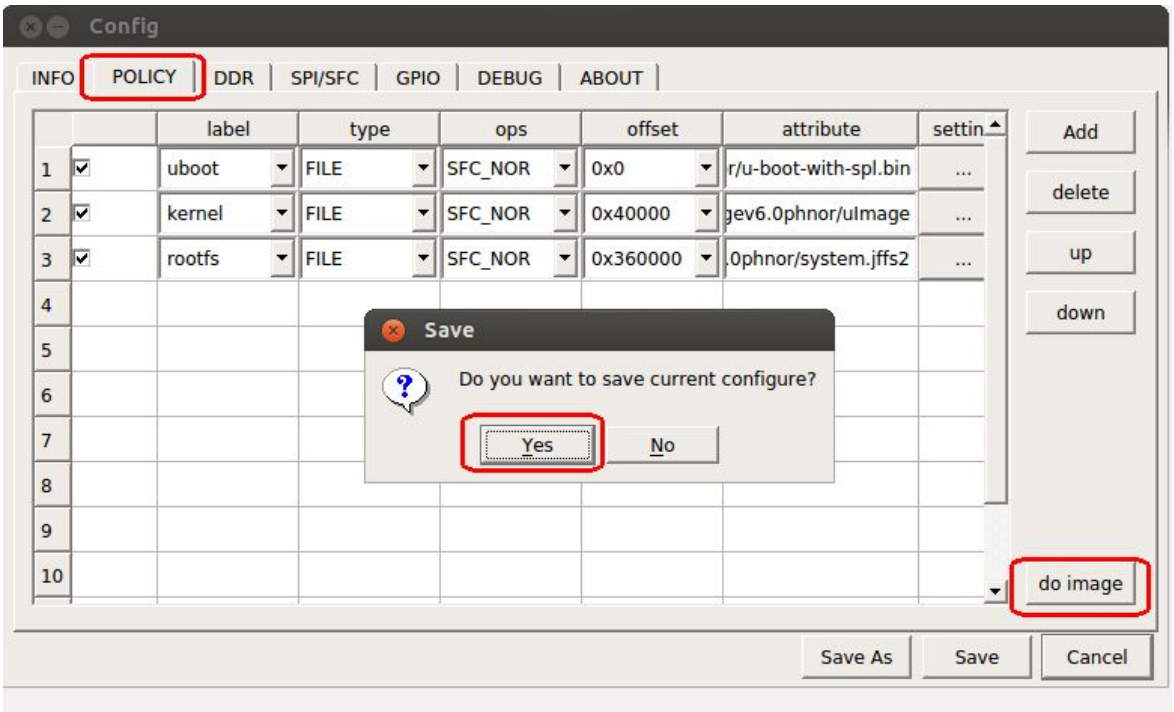


Figure 3-24 the burn tool generates mirror buttons

After you confirm the save configuration, you will pop up an option box to save the package directory and select the path you want to save（The name can be named arbitrarily, but the suffix is best used with our suffix .Ingenic）.

After saving, there will be about the progress of the package into the package, indicating the progress of your package, as shown in Figure 3-25.

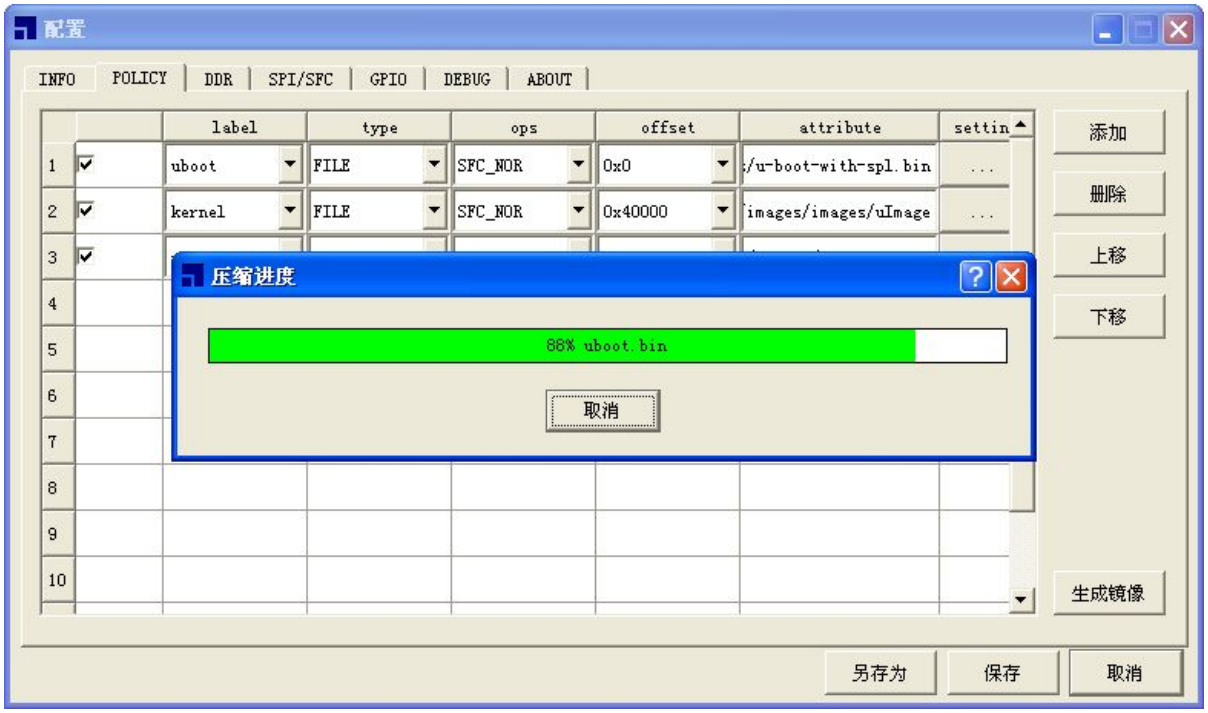


Figure 3-25 burn tool packaging progress display

3.4.2 Configuring the factory burn package file mode

Open the platforms.cfg file under the configs directory, change the value of "lock" in Figure 3-26 to "2", save, close the burn tool, and re open the burn tool. The "configuration" button will be disabled, click "open mirror", import a good burn package, and then start burning.

platforms.cfg

```
1  [current]
2  board=x1000_sfc_nor_quad_lpddr_linux.cfg
3  burnway=0
4  lock=0        改为 lock=2
5  platform="3,x1000"
6
7  [debug]
8  value=1
9
10 [language]
11 current=2
12 mode=0
13
14 [platforms]
15 dir0=jz4775
16 dir1=m200
17 dir2=m150
18 dir3=x1000
19 dir4=m200s
20 dir5=x1500
21
22 [security]
23 burnkey=0
24 enable=0
25
26 [version]
27 value=x.x.x
```

Figure 3-26 factory burn lock configuration

4 Add configuration options

4.1 New DDR model added

Open burning tools directory into the DDRs directory, choose to add DDR into the corresponding directory type As the increase of a programming tool now no LPDDR type of DDR, then in the burn tool to the DDRs directory under the LPDDR directory to copy its newly built or already have configuration files and rename. The specific steps are shown in figure 4-1.

Note that you need to modify the value of the parameters of the new configuration file based on the DDR manual.

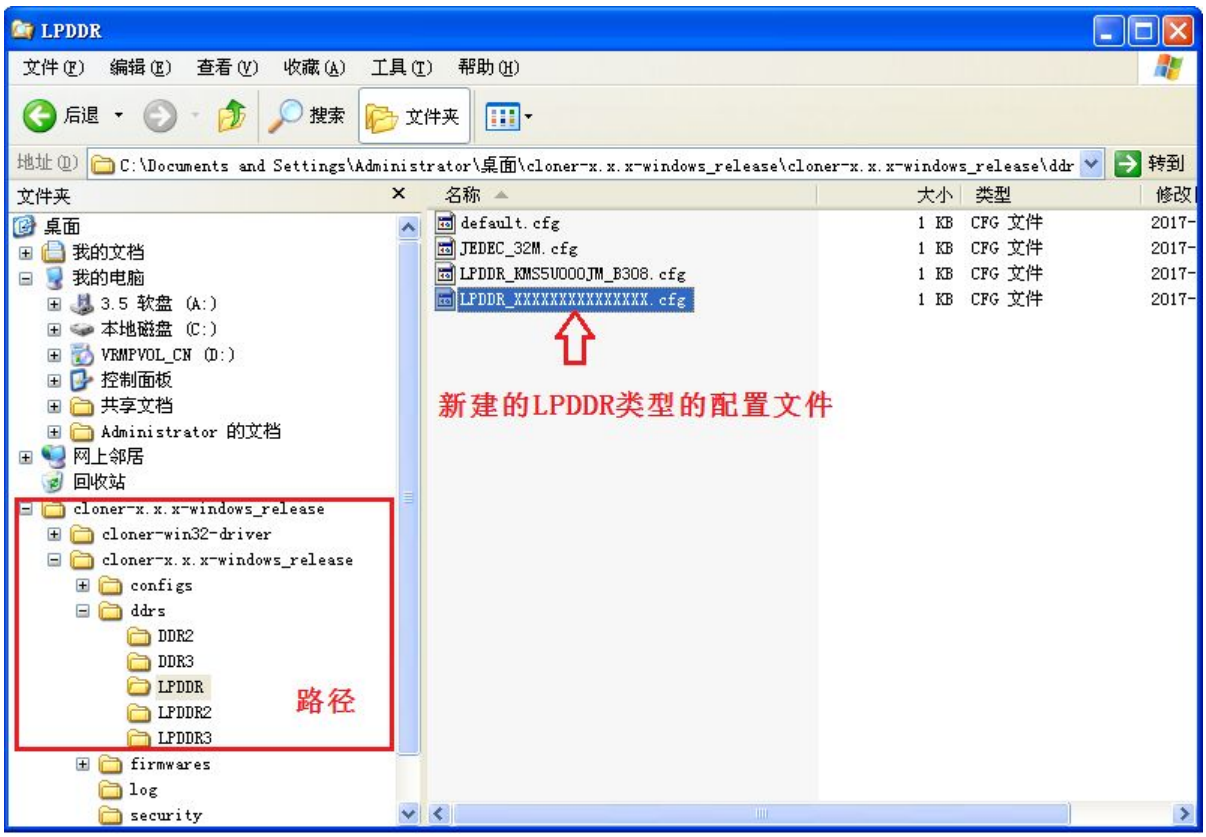


Figure 4-1 adding the DDR configuration file

After you add the configuration file, display the new configuration in the LPDDR configuration drop-down option in the burn tool DDR tab, as shown in Figure 4-2.

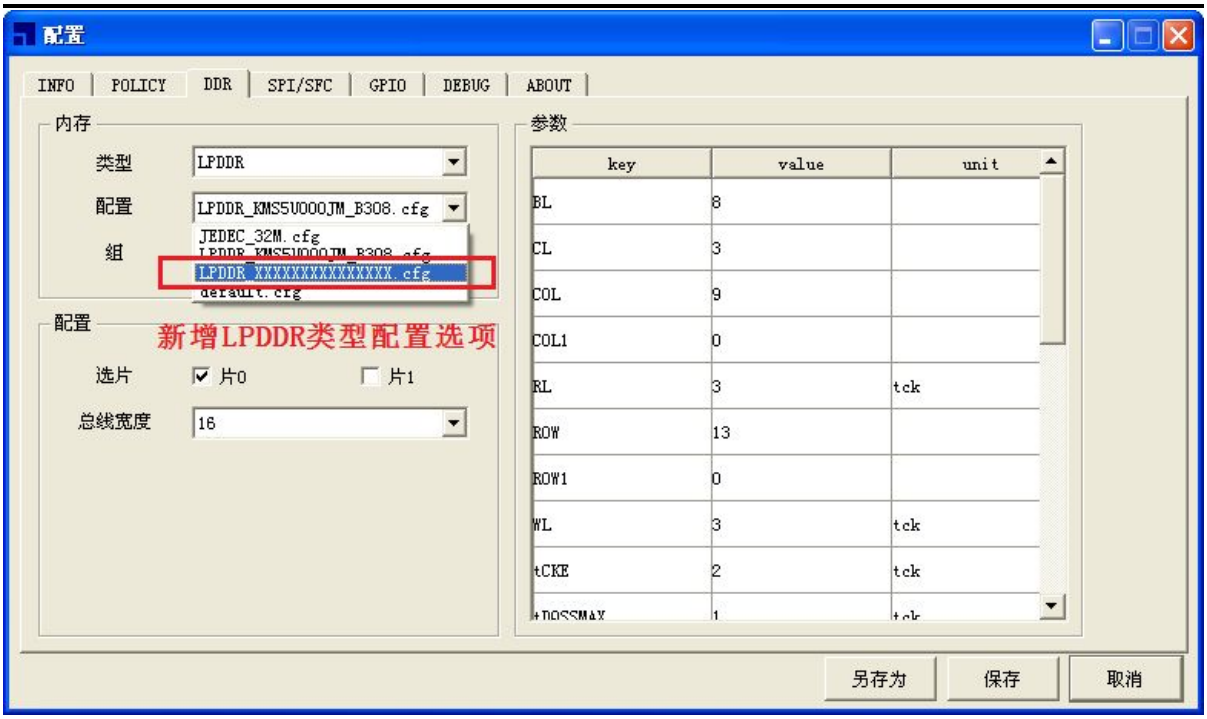


Figure 4-2: The burn tools add new DDR configuration options

4.2 New DDR type added

In the current burning tools, there are only three types of DDR: DDR3, LPDDR, and LPDDR2. But burn tools also support the 4775 DDR2 type. New DDR2 types, and some other types of methods for DDR2 types:

In the burn tools directory under the DDRs directory, new DDR2 directory, and then open the ddr.cfg configuration file, add DDR2 support inside. Add the DDR2 type DDR2 parameter profile, as described in the above 4.1 section. Add the DDR type, as shown in Figure 4-3.

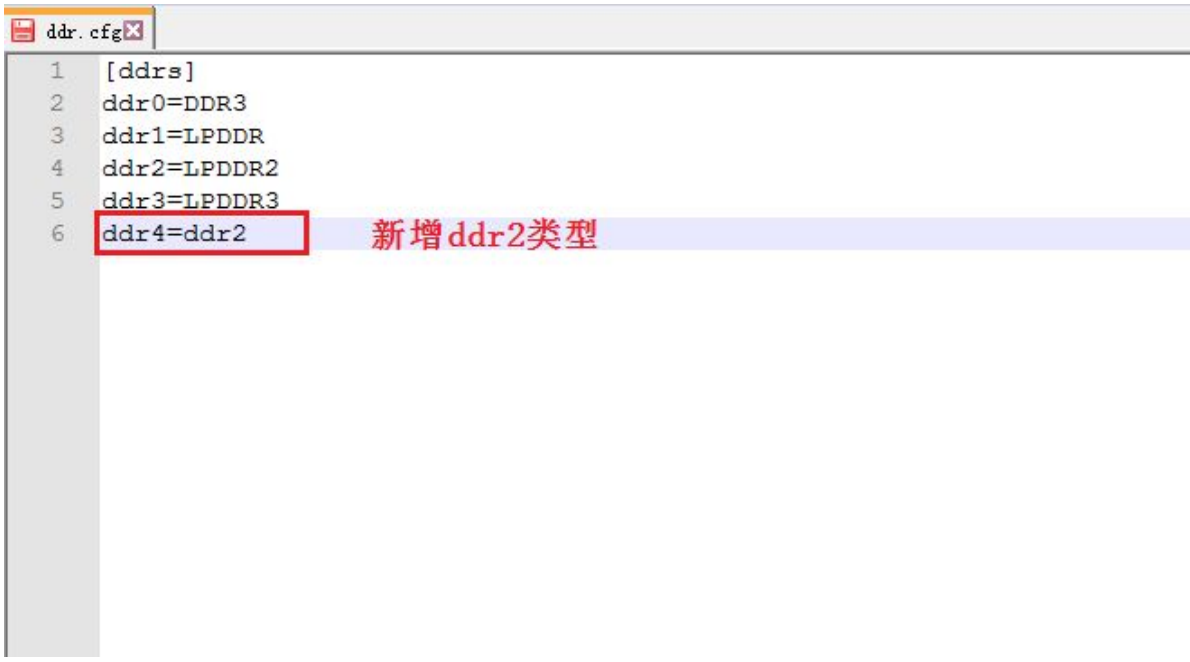


Figure 4-3 adding the DDR type

When you do this, re open the burn tool. These new configurations will be displayed in the tool's configuration interface. When you enter the DDR Options box, you see the option of more DDR than the DDR2 type. As shown in Figure 4-4.

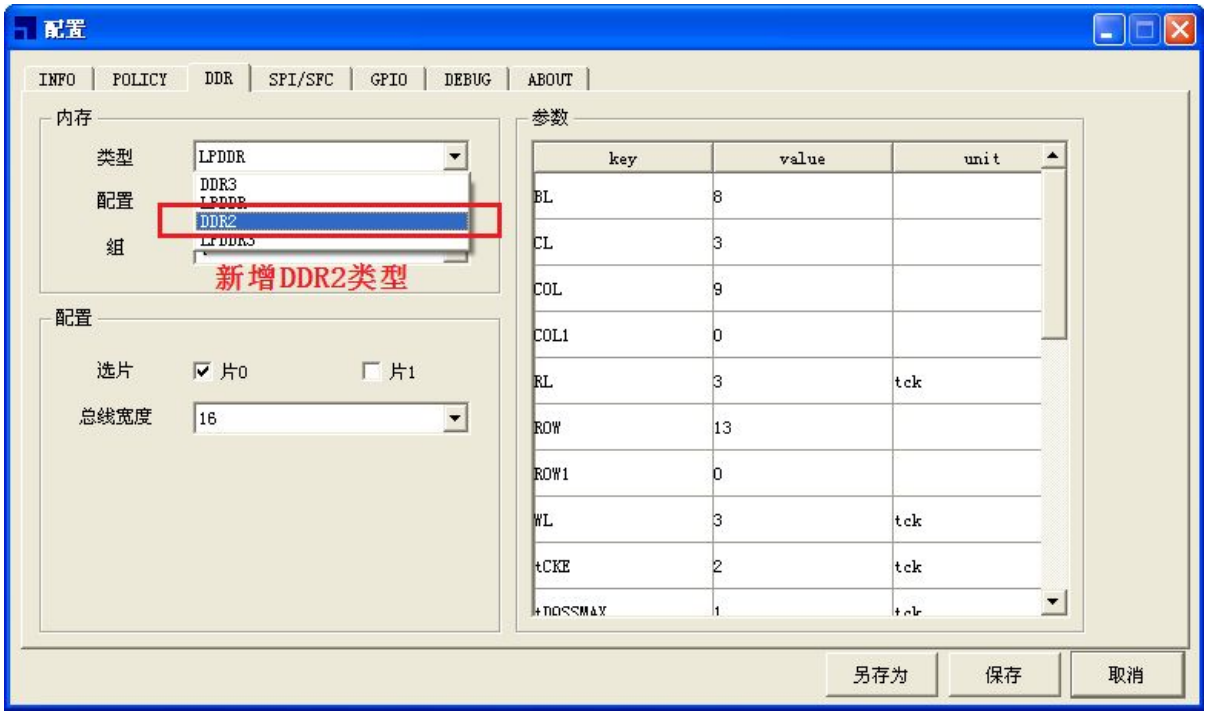


Figure 4-4 new DDR type

Then configure the selection according to the configuration in the third chapter.

After adding the DDR type, the SPL firmware must increase the initialization of the DDR2. To add the firmware first, open the firmwares directory of the burn tool directory. For example, jz4775's DDR, enters the jz4775 directory, opens the config.cfg file, finds the SPL field, and adds the configuration. As shown in Figure 4-5.

config.cfg

```
45
46  [extclk]
47  count=4
48  clk0=12000000
49  clk1=24000000
50  clk2=26000000
51  clk3=48000000
52
53  [spl]
54  ddr0="0,spl_ddr3.bin"
55  ddr1="1,spl_lpddr.bin"
56  ddr2="2,spl_lpddr2.bin"
57  ddr3="3,spl_ddr2.bin"        新增spl_ddr2.bin固件
58
59  [spi]
60  spi_count=2
61  spi0="MX25L12835F,16777216"
62  spi1="GD25LQ64C,8388608"
```

Figure 4-5 burn tool adds SPL firmware

Then, the u-boot source code will be compiled to generate the spl_ddr2.bin firmware copy to the firmwares/jz4775 directory, as shown in figure 4-6. For details about firmware compilation, see related documentation.

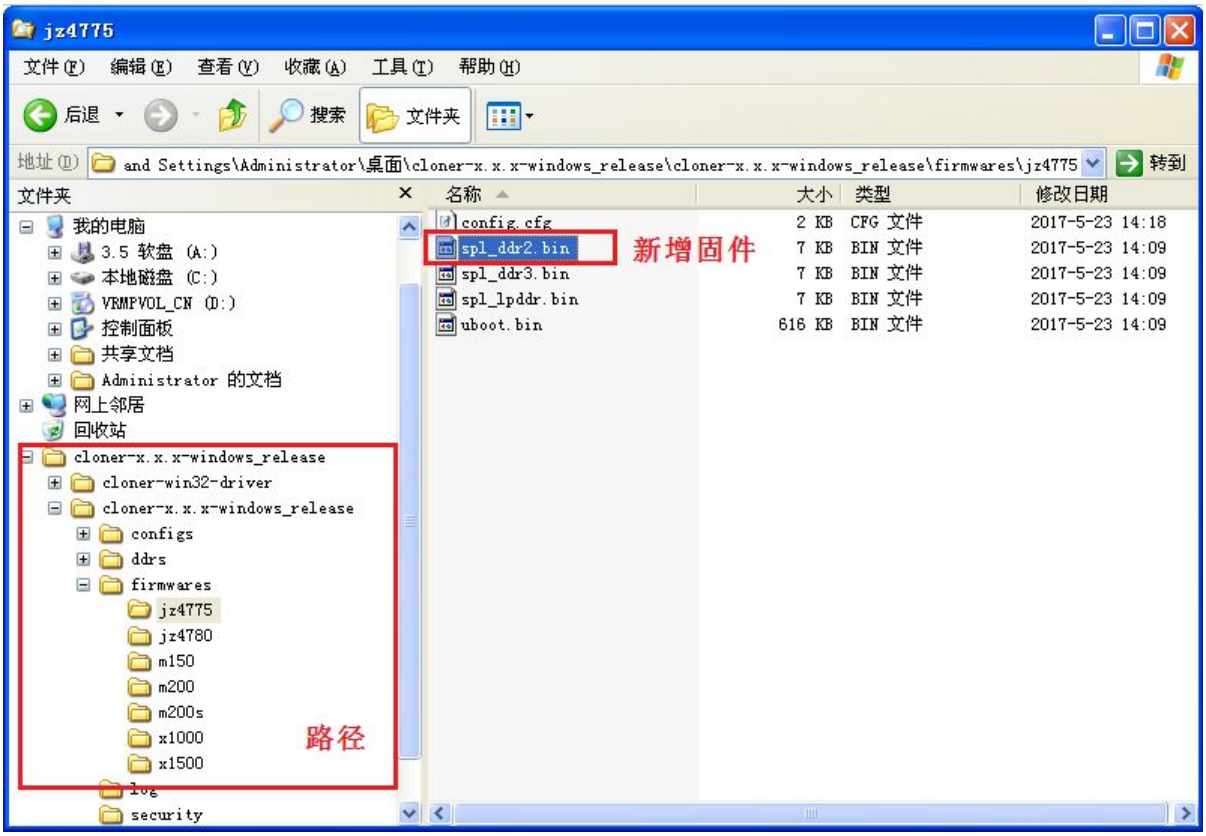
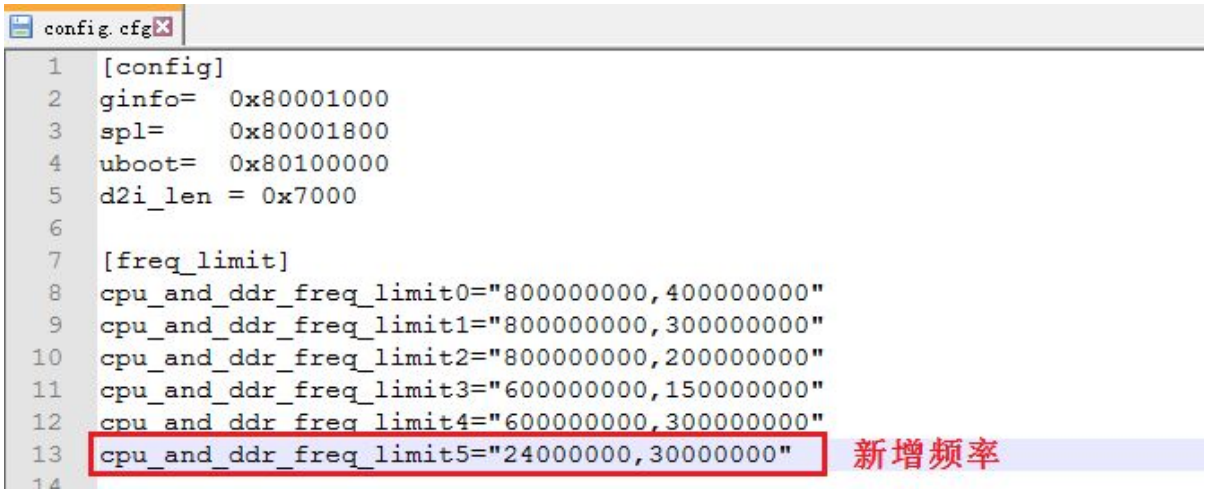


Figure 4-6 new firmware

4.3 New CPU and DDR frequencies

If you need to change the frequency of the burned CPU and DDR during the burning process, there is no suitable CPU and DDR frequency pairing at the moment. Then, manually add a new configuration in the burning tool is also a new frequency division relationship.

Method: open the burn tool directory and enter the firmwares directory. For example, the platform is the m200 chip, which enters the m200 directory and opens the config.cfg file. Under the freq_limit, a new item is added. As shown in Figure 4-7.



Increase CPU and DDR frequency configuration

When you restart the burn tool, you will have more of this CPU frequency option, as shown in Figure 4-8.

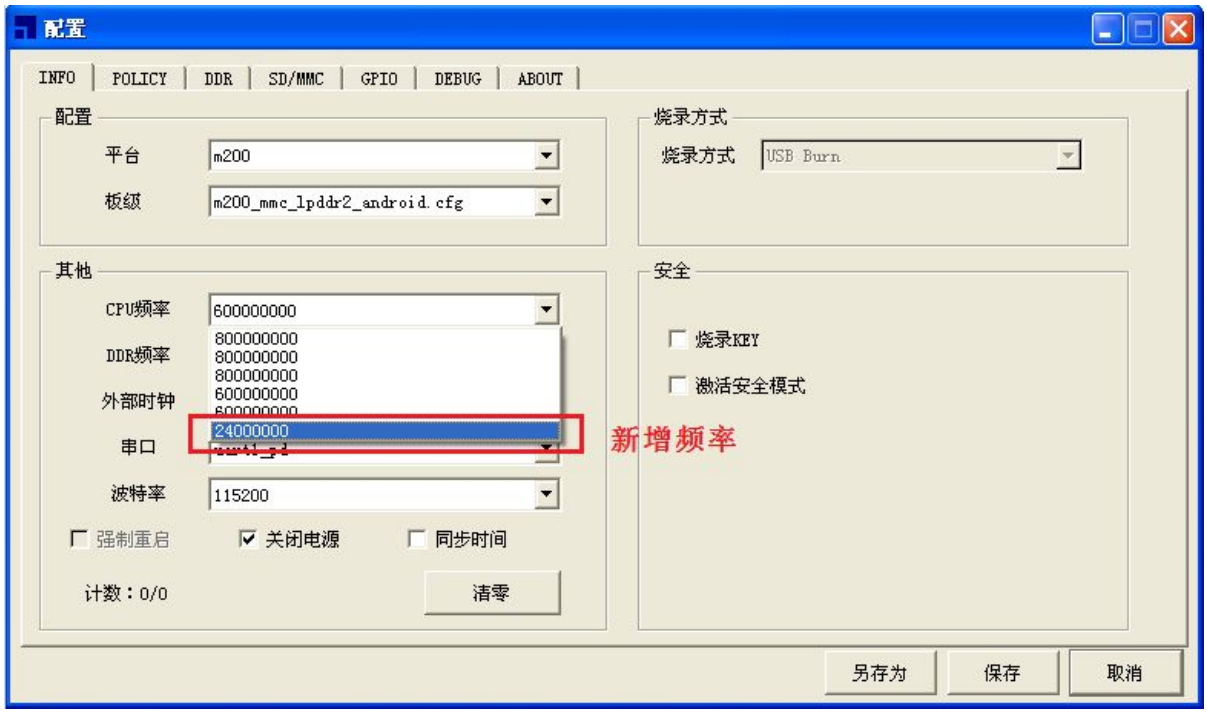


Figure 4-8 burn tool new CPU and DDR frequency

4.4 New GPIO configuration group

Edit the config.cfg file in the firmwares directory of the burn tool, and add new configuration under the [gpio] field. The string behind "=" contains a lot of information, and the string separated by "" "from" to "after" is followed by:

The name of the controller, the GPIO configuration name (which is convenient for developers to understand), the value of the GPIO group, and the values of function and gpio.

As shown in Figure 4-9.

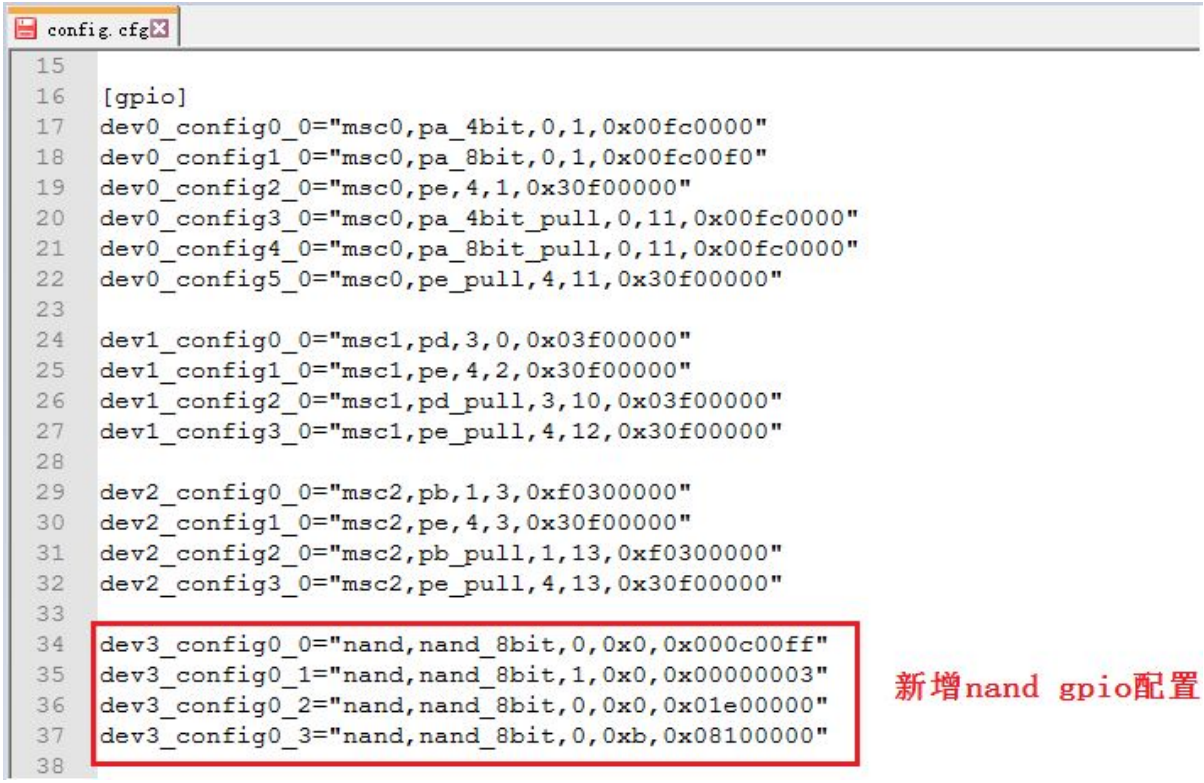


Figure 4-9 adding GPIO configuration

When the config.cfg file has been modified, restart the burn tool, the GPIO configuration page, and display the new configuration options, as shown in Figure 4-10.

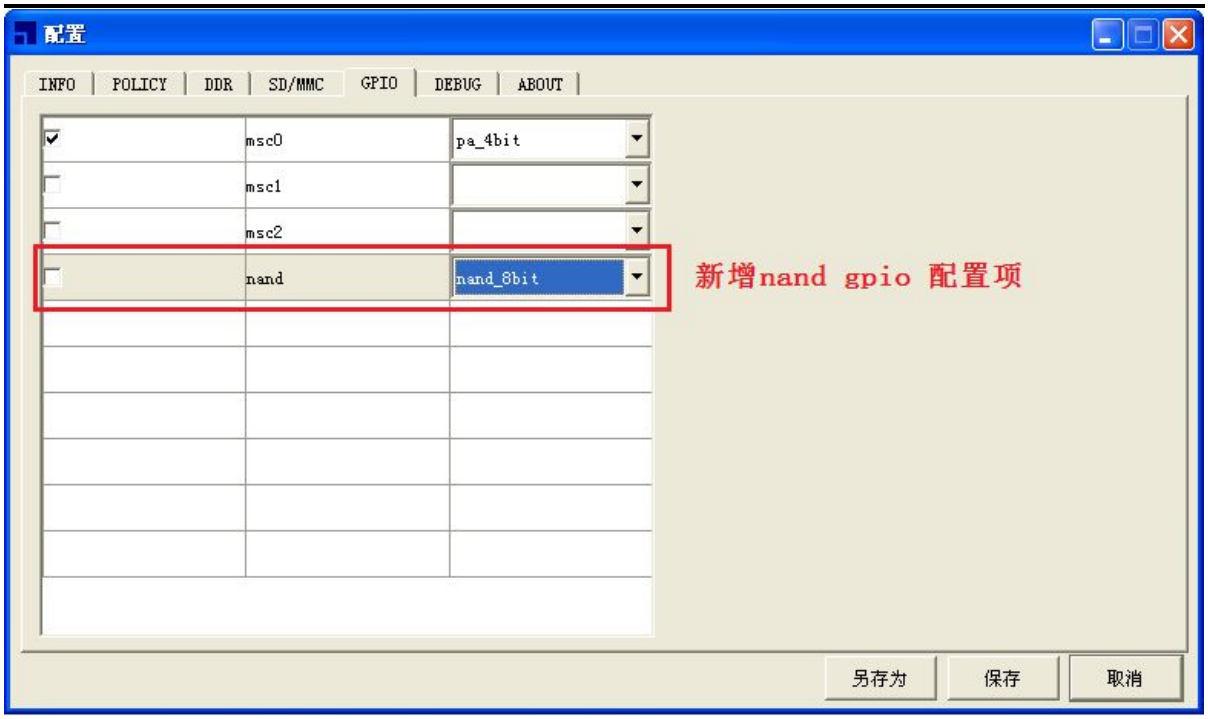


Figure 4-10 burn tool adds GPIO configuration options

4.5 New serial baud option

If the write process 9600, 57600, 115200 of the four baud rate are not hardware needed, so we can add a new baud rate, the corresponding chip type open file or directory under the firmwares directory of the config file, find the UART field. The new baud rate method is shown in Figure 4-11.

Figure 4-11 adds UART baud rate configuration

After you restart the burn tool, add new configuration to the baud rate drop-down option, as shown in Figure 4-12.

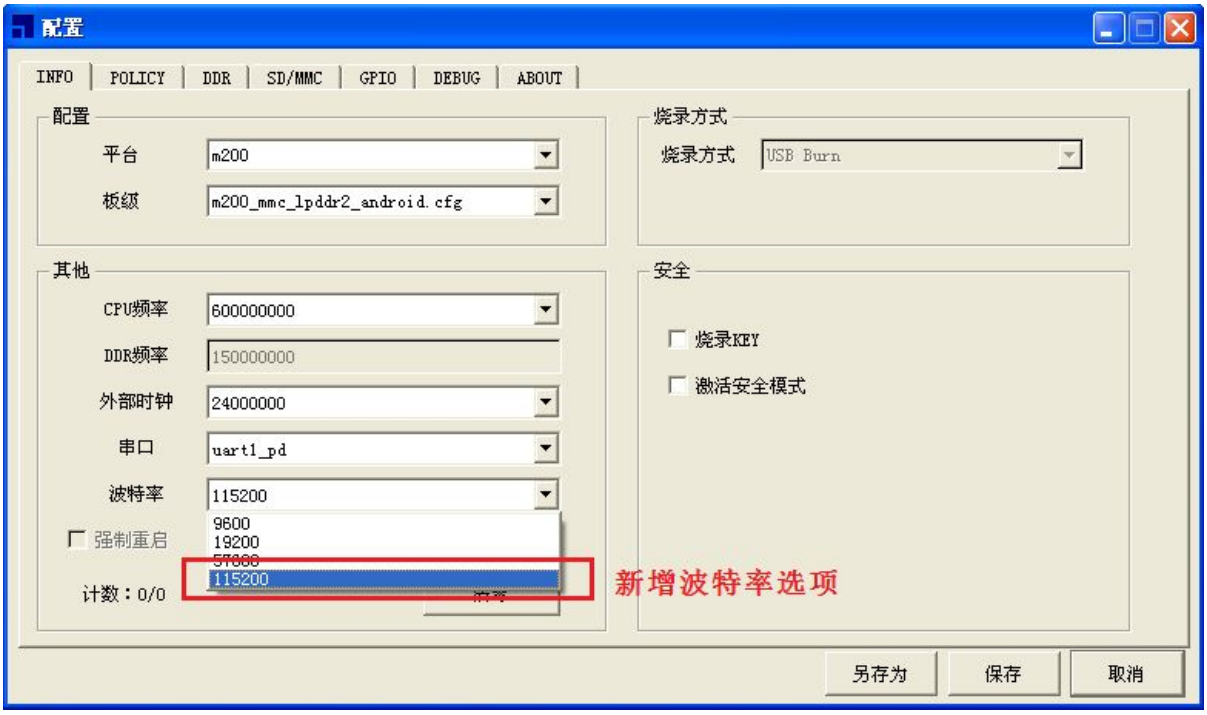


Figure 4-12 burn tool adds UART baud rate

4.6 New external crystal oscillator option

Currently burn tools support 12M, 24M, 48M external crystal oscillator, if the development board requires the external crystal does not have, you can re add. If a board requires an external crystal oscillator is 26M, then we must first open the fiemwares directory under the corresponding chip type, directory config.cfg file, to find the extclk field. After adding a new, the count value should be added. As shown in Figure 4-13.

Figure 4-13 new external crystal oscillator options

Restart the burn tool and add the effect after the external crystal oscillator, as shown in Figure 4-14.

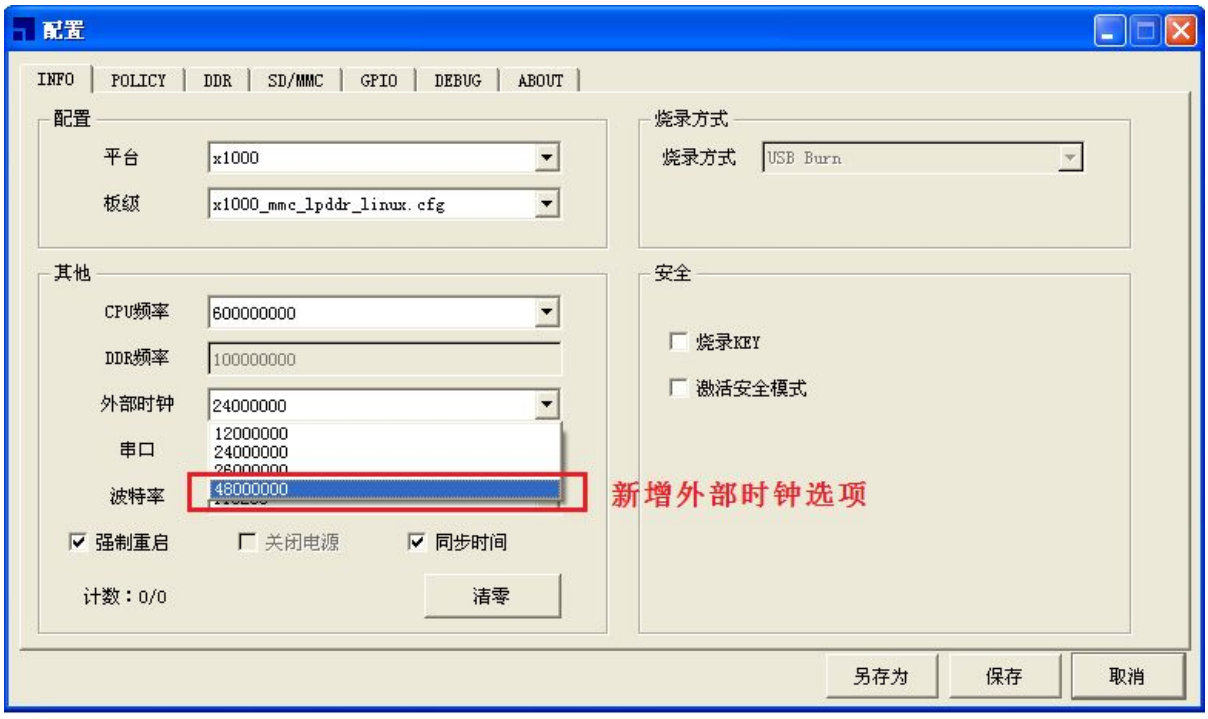


Figure 4-14 burning tool adds external crystal oscillator option

5 Burning mode

When using the burning tool to burn different kinds of burning media, SPI, MMC and so on are supported by NAND, SFC, I2C, MTD and so on

In the development board using my company to provide the mirror of burn, simply select the configuration tab in the "information" option, select the relevant platform and board level, after the completion of the "strategy" to add file mirroring, other parameters can be set using the default configuration, such as the need to revise according to the recording methods the following settings.

5.1 SPI burn

1. To configure

   Click the main interface configuration button to “add” the configuration. According to the actual requirements of the development board, select “the appropriate platform” and “board level”, which can be referred to 3.3.1。

2. Setting policy

   The burn tool provides the default configuration in the "policy" tab "option" in SPI, at the same time offset can modify the offset according to the actual needs of the value of the burn and burn the image path, but also can click "add" to add new strategy refer to the operation strategy in 3.3.2。

3. Set SPI parameters

   In the "spi/sfc" tab, you can set the SPI rate, the size of the erase, and whether you need full wipe according to the actual requirements. Refer to 3.3.7.

4. save

   When the settings above are complete, click “save". After you save the configuration, you can burn.

5.2 SFC burn

1. To configure

   Click the main interface “config” button to add the configuration. According to the actual requirements of the development board, select the appropriate platform and board level, which can be referred to 3.3.1。

2. Setting policy

   The burn tool provides the default configuration in the "policy" tab "option" in SFC, at the same time offset can modify the offset according to the actual needs of the value of the burn and burn the image path, but also can click "add" to add new strategy refer to the operation strategy in 3.3.2.

3. Set SPI parameters

   In the "spi/sfc" tab, you can set the SFC rate, the size of the erase, and whether you need full wipe according to the actual requirements. Refer to 3.3.7.

5. Save

   When the settings above are complete, click “save". After you save the configuration, you can burn.

5.3 MMC burn

1. Config

Click the main interface “config” button to add the configuration. According to the actual development board requirements, select the appropriate platform and board level, can refer to 3.3.1.

2. Setting policy

The burn tool provides the default configuration in the "policy" tab "option" in the selection of MMC0, MMC1 or MMC2 (according to the actual SD card connected MSc control, at the same time offset selection) offset can be modified according to the actual needs of the value of the burn and burn the image path, but also can click "add" to add new strategies a reference to the operation strategy in 3.3.2.

3. Set MMC parameters

In the "SD/MMC" tab, you can set according to the actual needs of whether to force erase or burn before the card.

6. Save

When the settings above are complete, click “save”. After you save the configuration, you can burn.

5.4 MTD burn of Nand

Mtd manages NAND by using two management methods: MTD_RAW and MTD_UBI.

1. Config

Click the main interface “config” button to add the configuration. According to the actual requirements of the development board, select the appropriate platform and board level, which can be referred to 3.3.1.

2. partition

Setting partitions in the Mtd under the Nand tab can refer to the various partitions of 3.3.3 and MTD:

When NAND is burned, if the partition table information changes, you will need to select all of them for the next time you burn.

The following are the starting points for kernel and the partitioning of the presentation of various classifications in an exemplary way:

1. The Kernel single takes the MTD partition, as shown in Figure 5-1
2. Kernel accounts for the UBI volume of MTD, as shown in Figure 5-2
3. Kernel and file systems coexist in the same UBI volume of MTD, as shown in Figure 5-3
4. Kernel and file systems coexist in different UBI volumes of MTD, as shown in Figure 5-4

In practice, the fourth types of partitions are usually used.

Partition name Description: you can customize the following settings for reference only, and also explain the four partitions.

ndxboot——Uboot partition

Ndboot\ndkernel——kernel partition

ndsystem——system partition

When you set the size, take M as the unit

-1: represents all the space left in the current partition for the current NAND;

Represents all the space left in the child partition at the current primary partition.

proposal：when you represent the last partition, use the -1 representation.

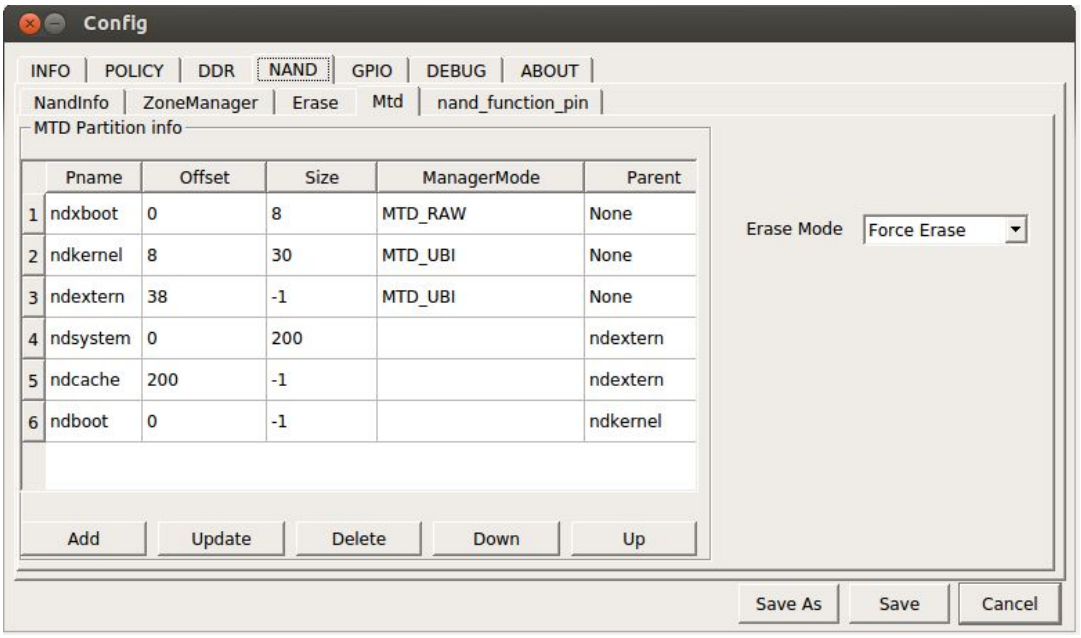


Figure 5-1 Kernel single MTD partition

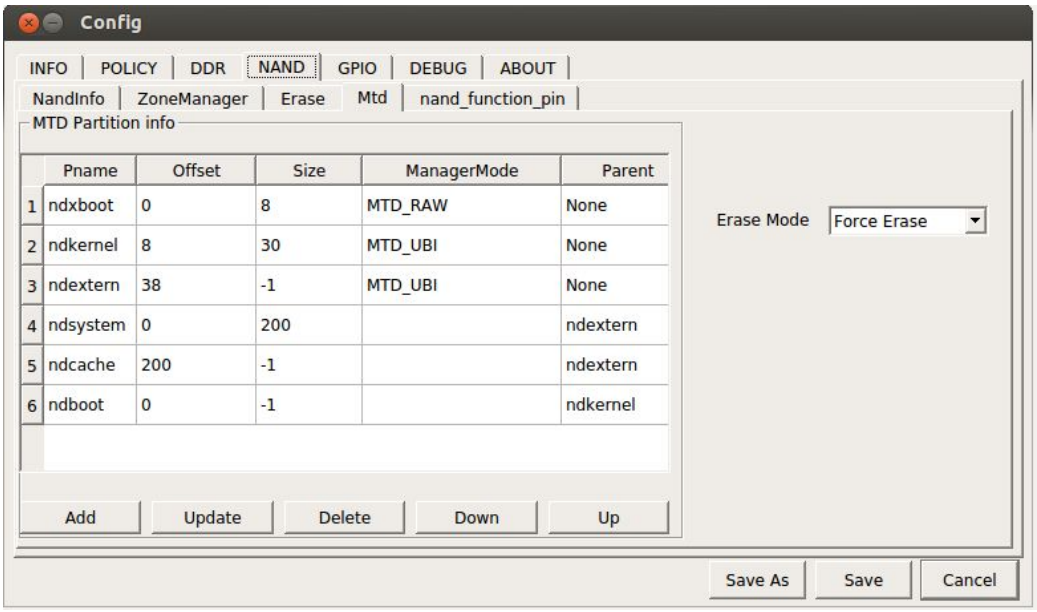


Figure 5-2 Kernel single UBI volume of MTD

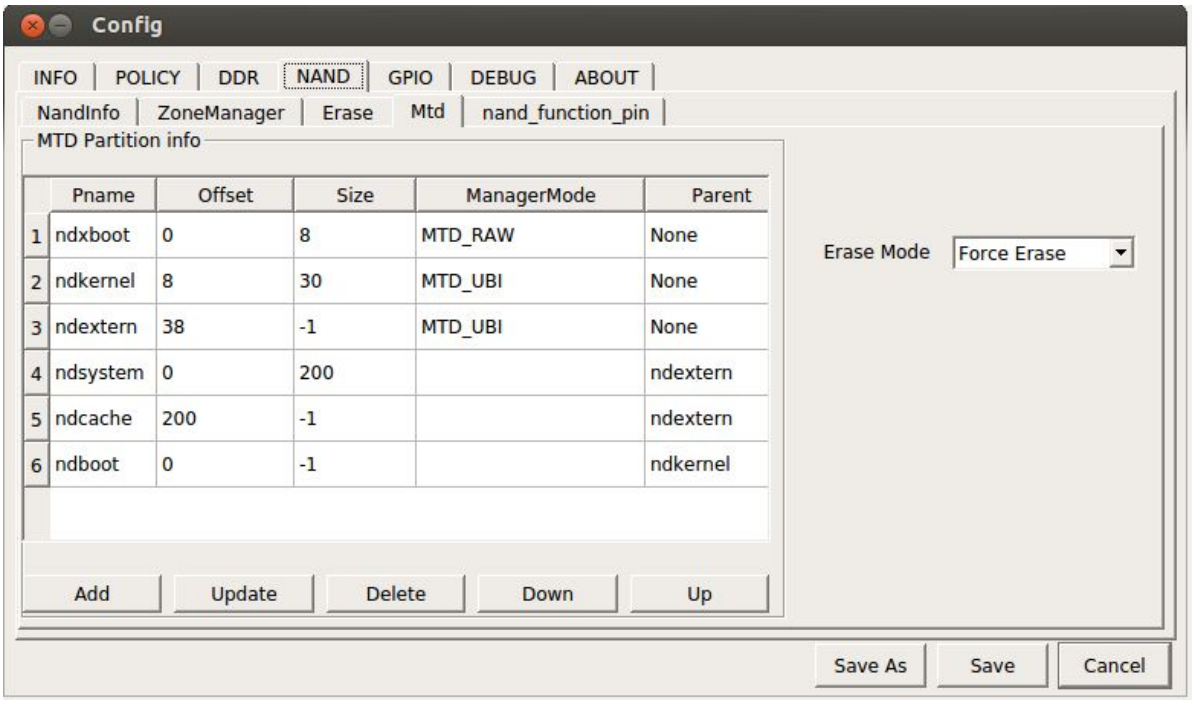


Figure 5-4 Kernel and file systems coexist in the same UBI volume of MT

Note: kernel and files coexist in a UBI volume, ndsystem

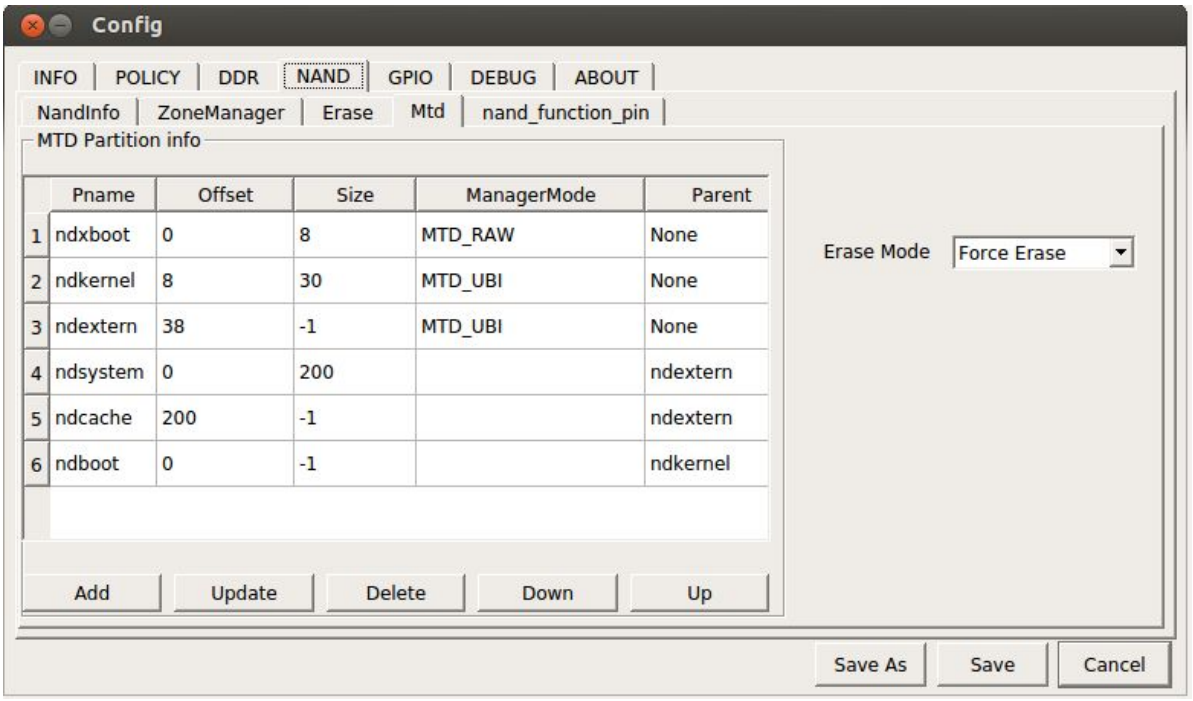


Figure 5-5 Kernel and filesystem coexistence of different UBI volumes in MTD

3. Modify the NAND function pin

In the "Nand" tab in the "Nand function pin" settings, according to the actual NAND chip use and manual to add or edit NAND WP, Rb signals and other related pins, specific settings can refer to 3.3.3.

4. Setting policy

The burn tool provides the default configuration in the "policy" tab "option" in the selection of NAND management MTD_RAW and MTD_UBI at the same time, you can modify the offset where the partition according to the actual needs of the burn and burn the image path, but also can click "add" to add new strategy refer to the operation strategy 3.3.2.

5. Save

When the settings above are complete, click save". After you save the configuration, you can burn.

5.5 Zone management burn for Nand

1. Config

Click the main interface “config” button to add the configuration. According to the actual requirements of the development board, select the appropriate platform and board level, which can be referred to 3.3.1。

2. partition

When the configuration is complete, partition management is done in the "ZoneManager" tab of the "Nand" tab. For the addition, update, or delete of partitioned information, refer to 3.3.3, where the size of the partition is determined according to the actual requirements.

When NAND is burned, if the partition table information changes, you will need to select all of them for the next time you burn.

3. Modify the NAND function pin

In the "Nand" tab in the "Nand function pin" settings, according to the actual NAND chip use and manual to add or edit NAND WP, Rb signals and other related pins, specific settings can refer to 3.3.3.

4. Policy settings

The burn tool provides the default configuration in the "policy" tab "option" in the selection of NAND NAND_IMAGE management, at the same time offset can modify the offset according to the actual needs of the value of the burn and burn the image path, but also can click "add" to add new strategy refer to the operation strategy in 3.3.2.

5. Save

When the settings above are complete, click save". After you save the configuration, you can burn.

5.6 Burn

After saving the settings, click the "start" on the burn tool main interface, enter the burning stage, wait for the access of the development board, and start the development board to burn mode.

The burn tool supports simultaneous burning of multiple development boards, so when the burning tool enters the burning stage, it can continuously access a number of equipment that needs to be burned, and when it is burned, the effect diagram is Figure 5-7.

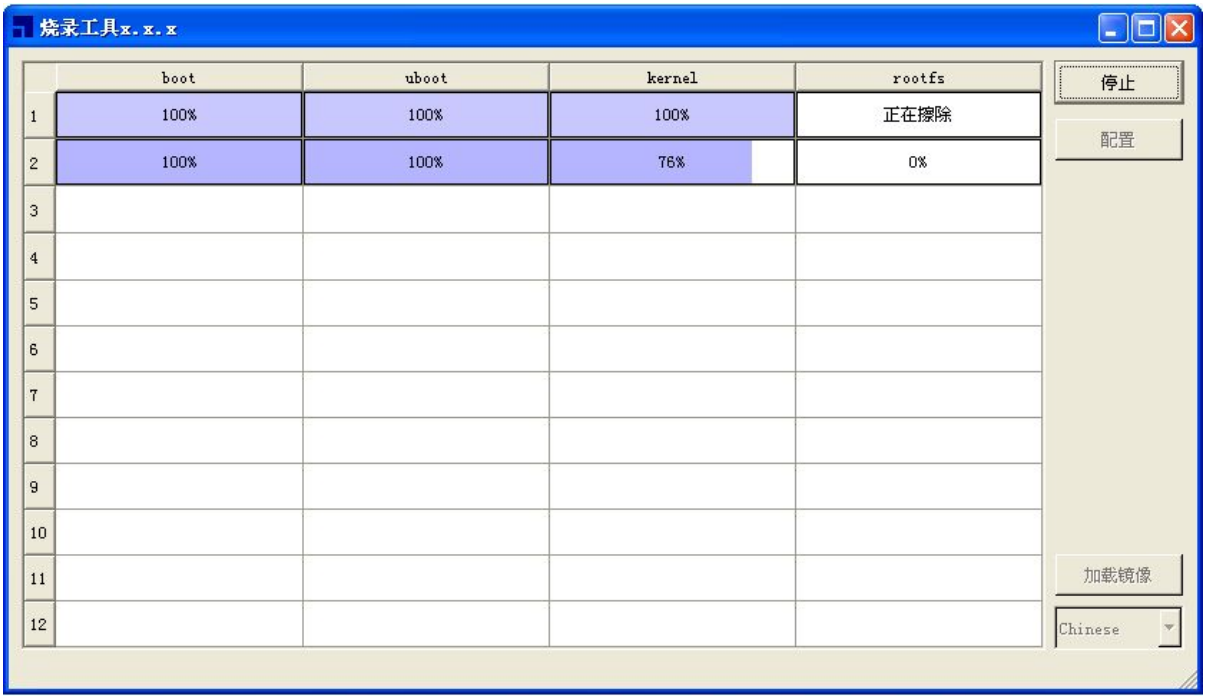


Figure 5-7 burn effect diagram

6 Method for opening burning tool under Linux system

Unzip the USBCloner programming tool package, and then enter the USBCloner programming tools directory, the first to give permission to execute "cloner" and "core" file, then the implementation of./cloner in the terminal, using the method of similar methods and the use of windows, please refer to.

7 General burn type

In the process of using burn tools to burn or mass production, users will mainly use file burning, Sn burning, MAC burning, eFuse and so on. The following are described in turn.

7.1 Burn plain mirror file

Common mirror burning is the most common type of type burning. In the policy configuration interface, the type is selected as the file, as shown in Figure 7-1.

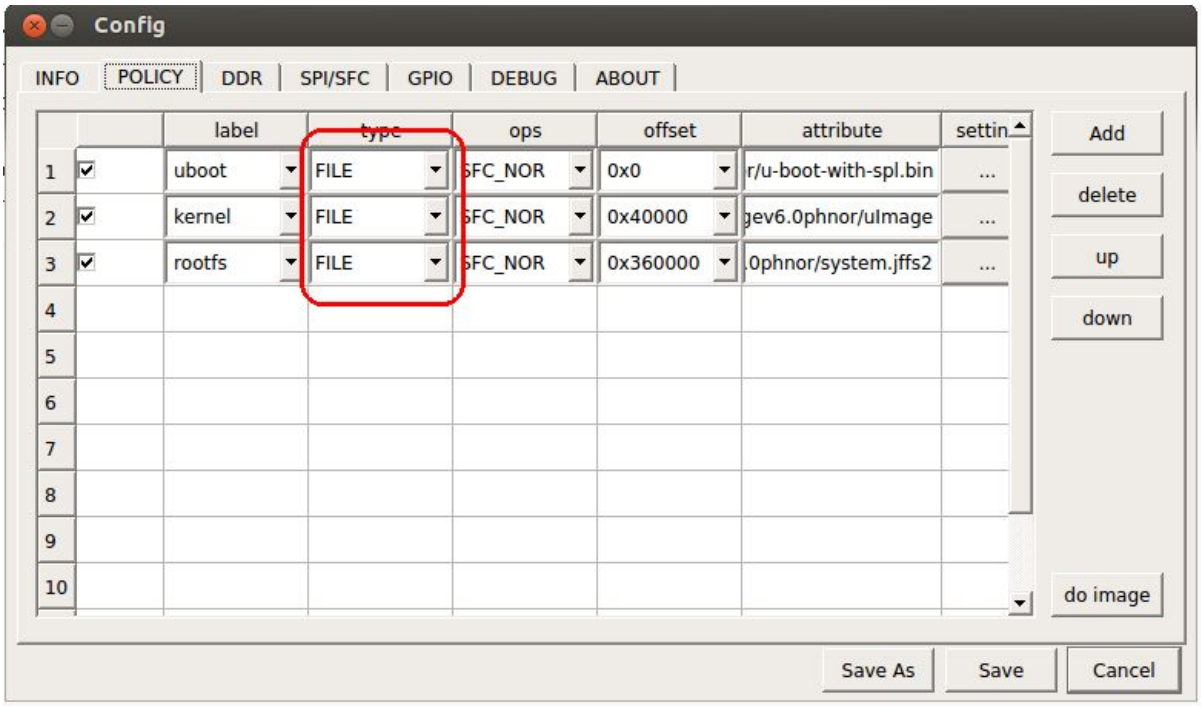


Figure 7-1 configuration policy type

7.2 serial number burning

Serial number burn is a type of more and more customers are used in the production of the record, the sequence number was obtained through the strategy type choice of "input" and "scan gun", "SN_ADD" or "SN_DEVICE" type.

7.2.1 Sequence number increment burn

The new strategy of entry in the strategy programming tool interface, input the label name "Sn" (according to the SN keyword in the burn after the completion of the sequence number is displayed in the progress bar), select the type of "SN_ADD", "SFC_NOR" option (this option can change the burning position according to the demand), click on the settings button "..." the pop-up window, according to the needs of whether the check "prefix" and "suffix" serial number, initial value. After burning successfully, based on the initial number of the serial number, plus 1, the number of times burned, the maximum number of times burned. As shown in Figure 7-2

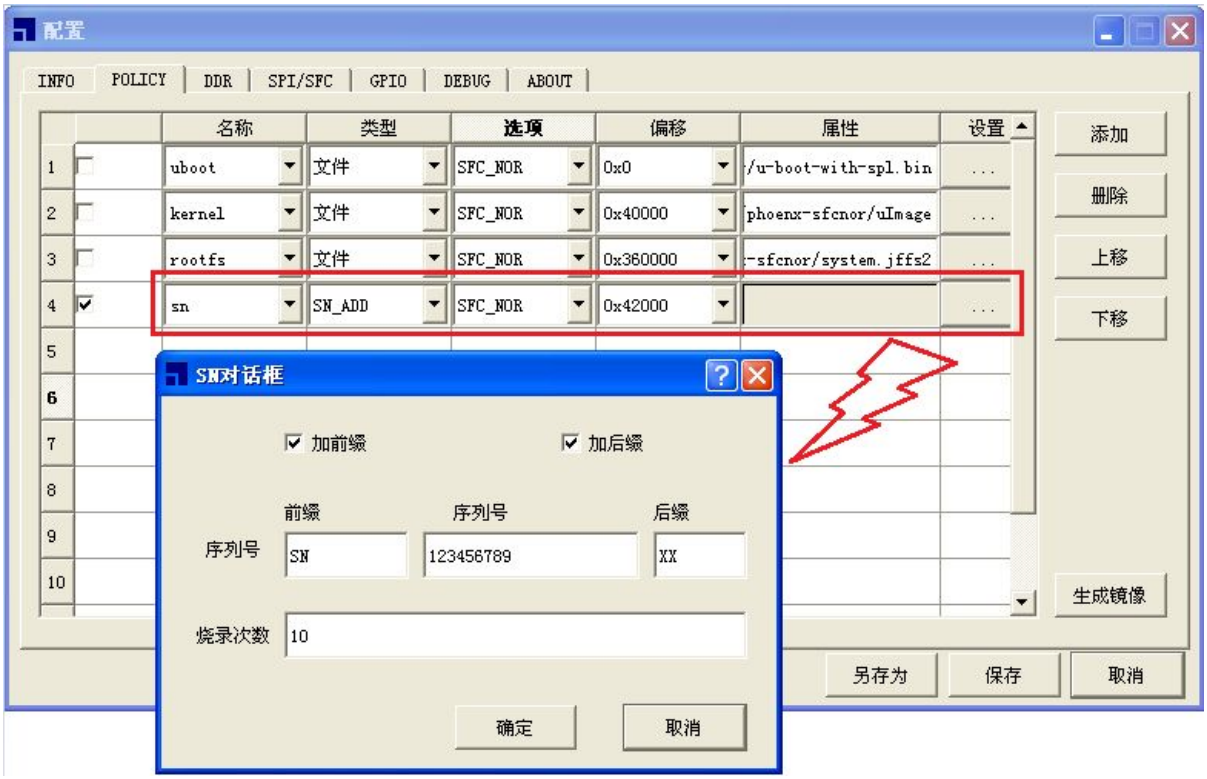


Figure 7-2 SN_ADD configuration

7.2.2 Serial number obtained by scanning gun

The scanning sequence number for the burn grab mode to scan gun strategy position when a pop-up window in the burn, then use the scanner to scan the bar code or two-dimensional code, access to the serial number in the edit box on the display window. And there are many scan guns at the end of the scan without a mouse, but at the end of a carriage return (own), and then automatically trigger the "OK" button click event, and then start burning sn. The entire configuration and the burn process are shown in figures 7-3 and 7-4.

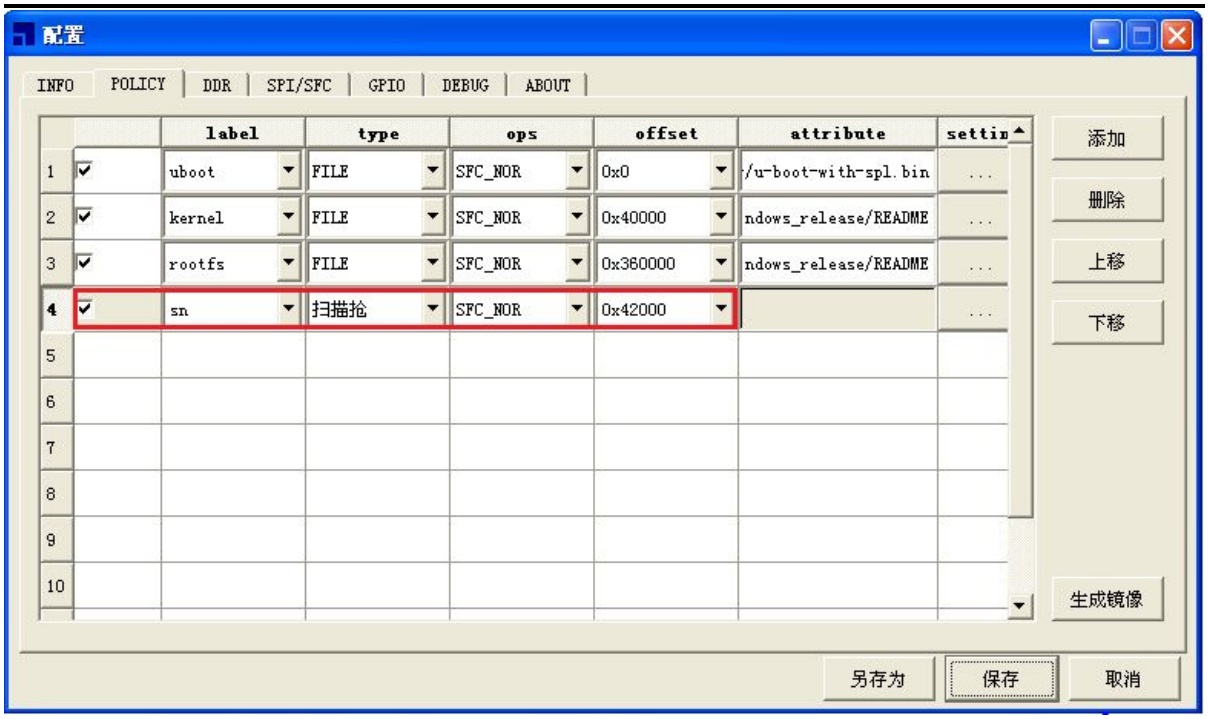


Figure 7-3 scanning gun policy configuration

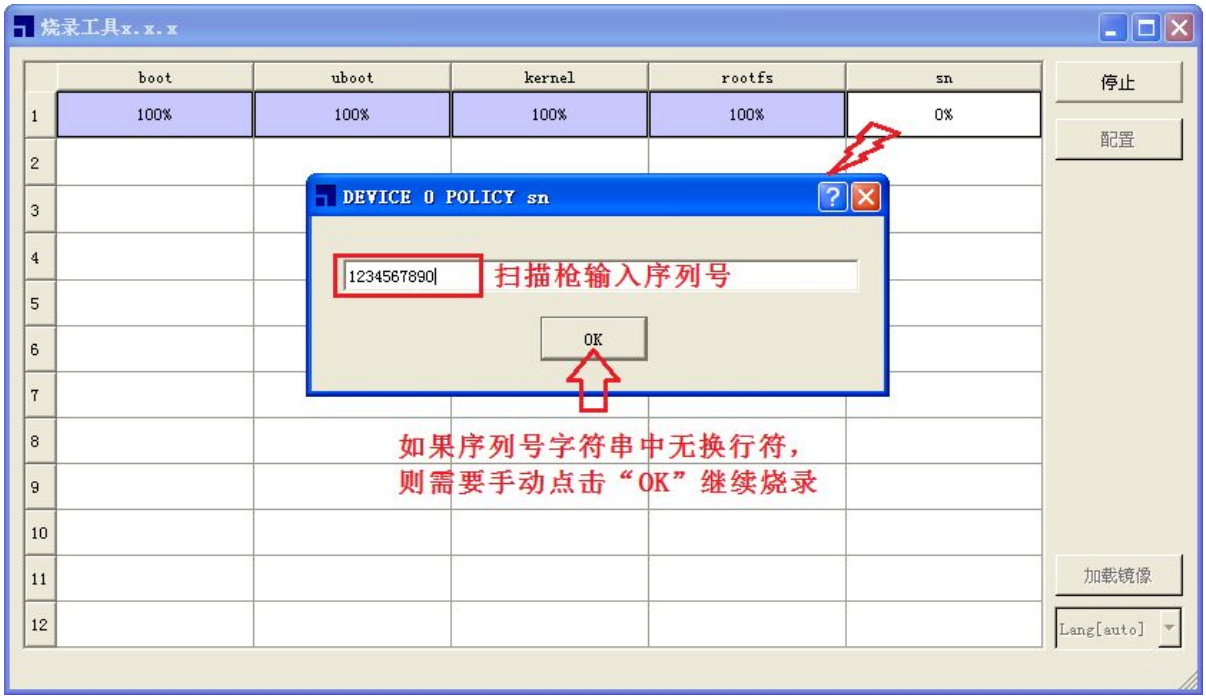


Figure 7-4 serial number of scanner gun

7.2.3 Burn the serial number generated by the input

In the input generation sequence number burning method, will burn at the end of the pop-up an interface, at this time with a scanning gun to sweep, you can display on the interface to burn the serial number. Click the "OK" interface to disappear and start burning sn. The procedures are shown

in figures 7-5 and 7-6.

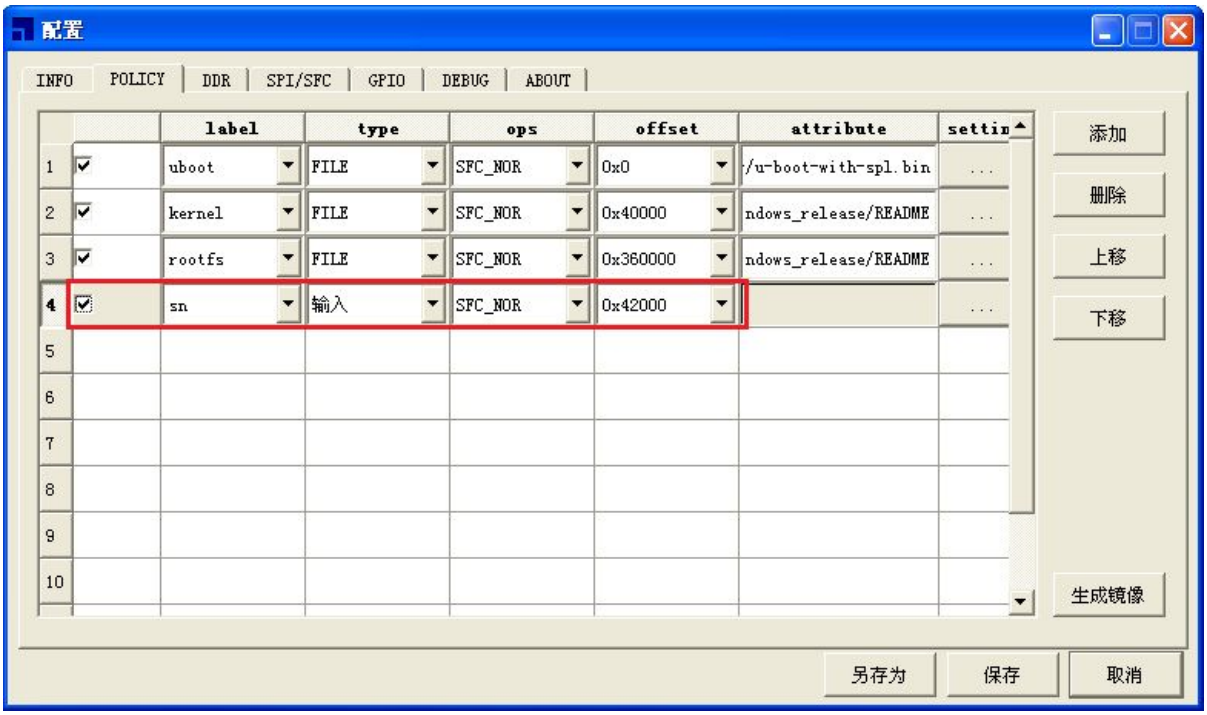


Figure 7-5 input serial number configuration

Figure 7-6 user input serial number

7.2.4 The serial number read from the file is burned

In the burning tool policy, select the "SNDEVICE" to read the serial number from the file, and implement the two methods:

1. Read the sn_device.cfg file by default to burn different serial numbers.

2. Specify a file that contains a sequence number and burn the same serial number continuously.

The first method reads the serial number of the sn_device.cfg file in the configs directory by default, where the value of index under [device] is the value of the value specified under the first few [deivce0~n] sets. The format of the value for value is not required, but be put in quotation marks. If index=0, then start burning from [device0], burn successfully, the value of index plus 1. Figures 7-7, 7-8, and 7-9 are shown.

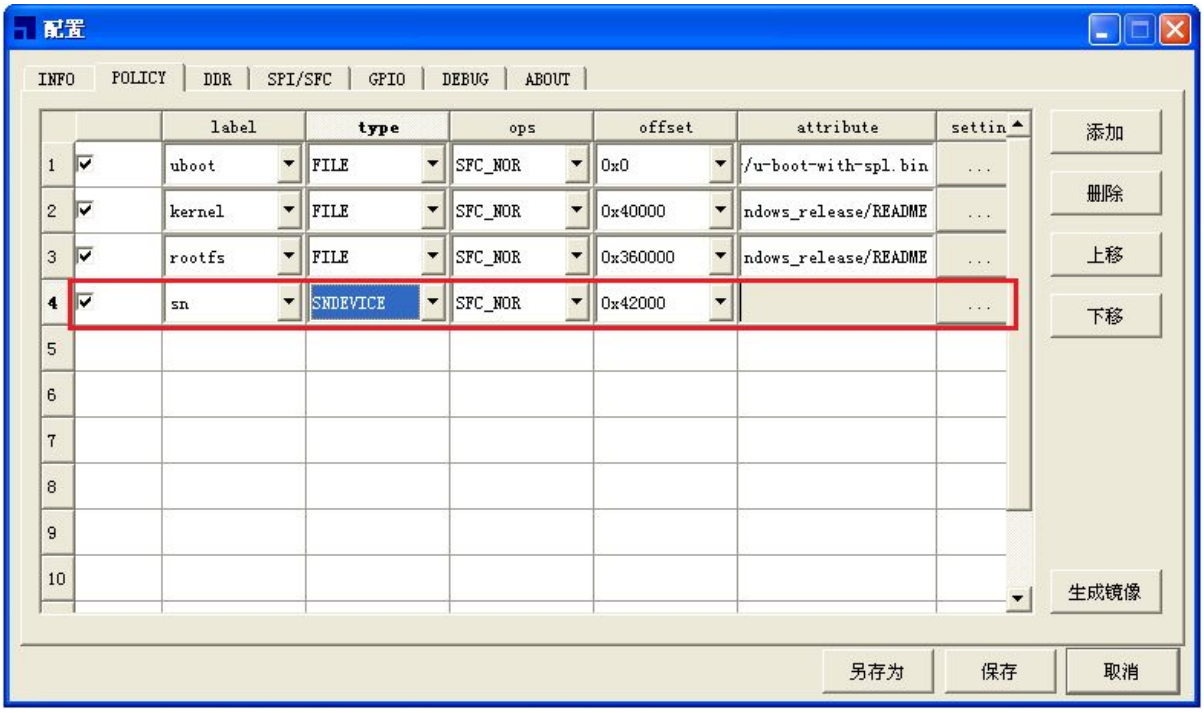


Figure 7-7 SNDEVICE reads the sn_device.cfg configuration

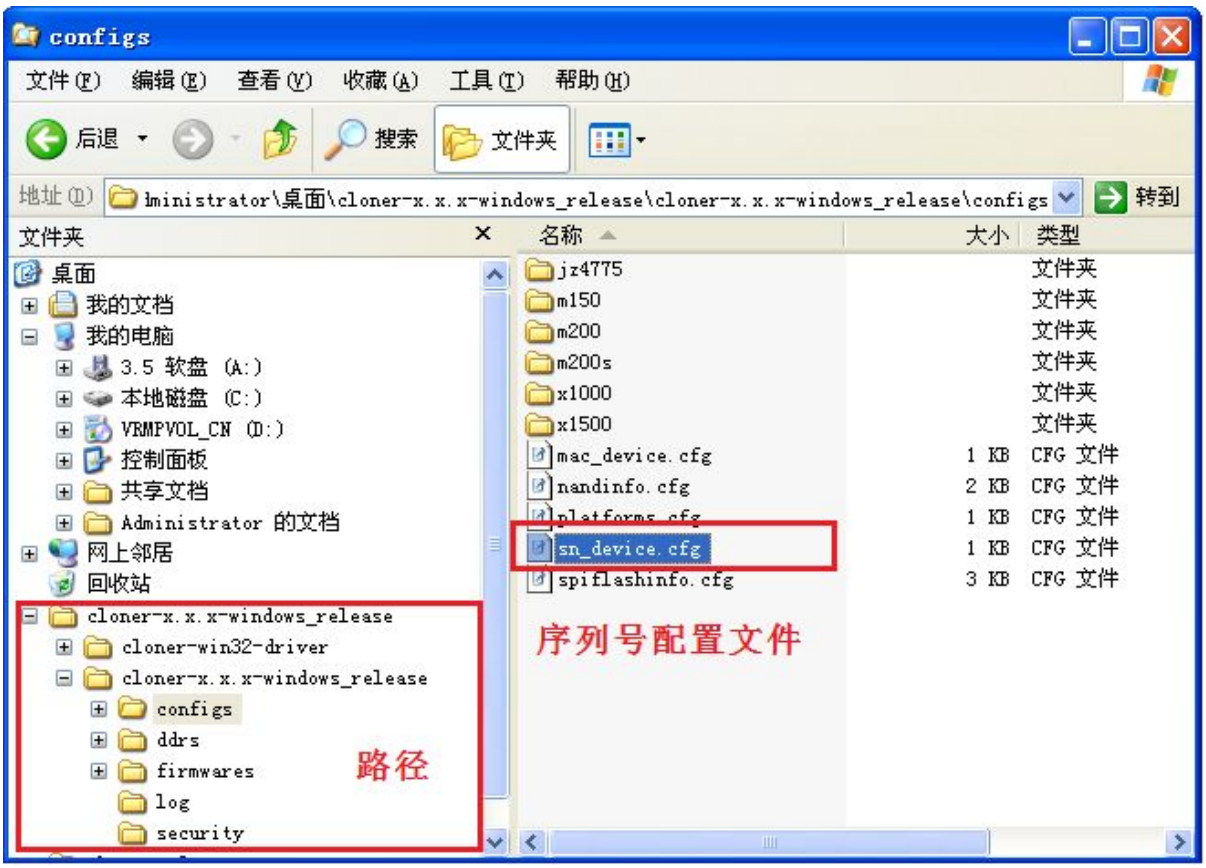


Figure 7-8 serial number profile path

Figure 7-9 serial number configuration file

The second method, policy type, select "SNDEVICE", click Settings "...",

select a file that holds the serial number. As shown in Figure 7-10、7-11.

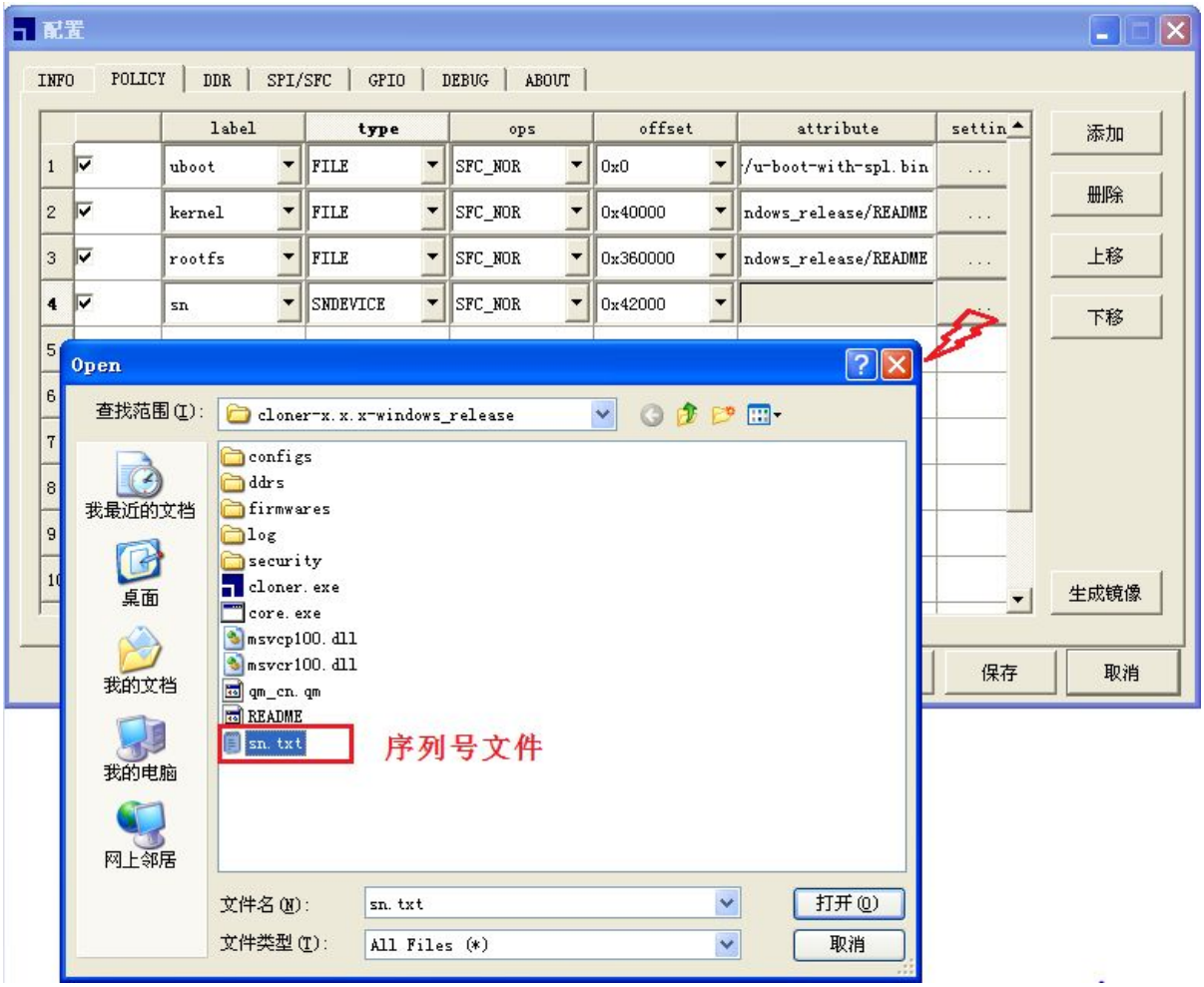


Figure 7-10 select the serial number file

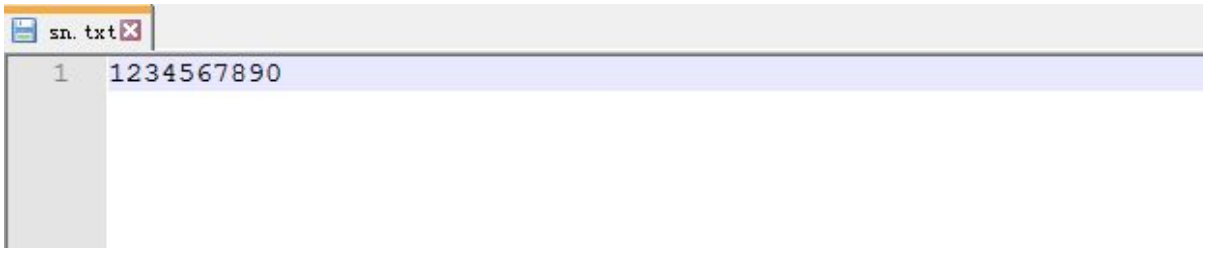


Figure 7-11 serial number file

No matter which burn serial number is used, it is recommended to change the policy name to Sn and tick the activation log on the Debug tab". When finished, you will display the serial number you are burning on the interface progress bar and in the log file. As shown in figures 7-12, 7-13, and 7-14.

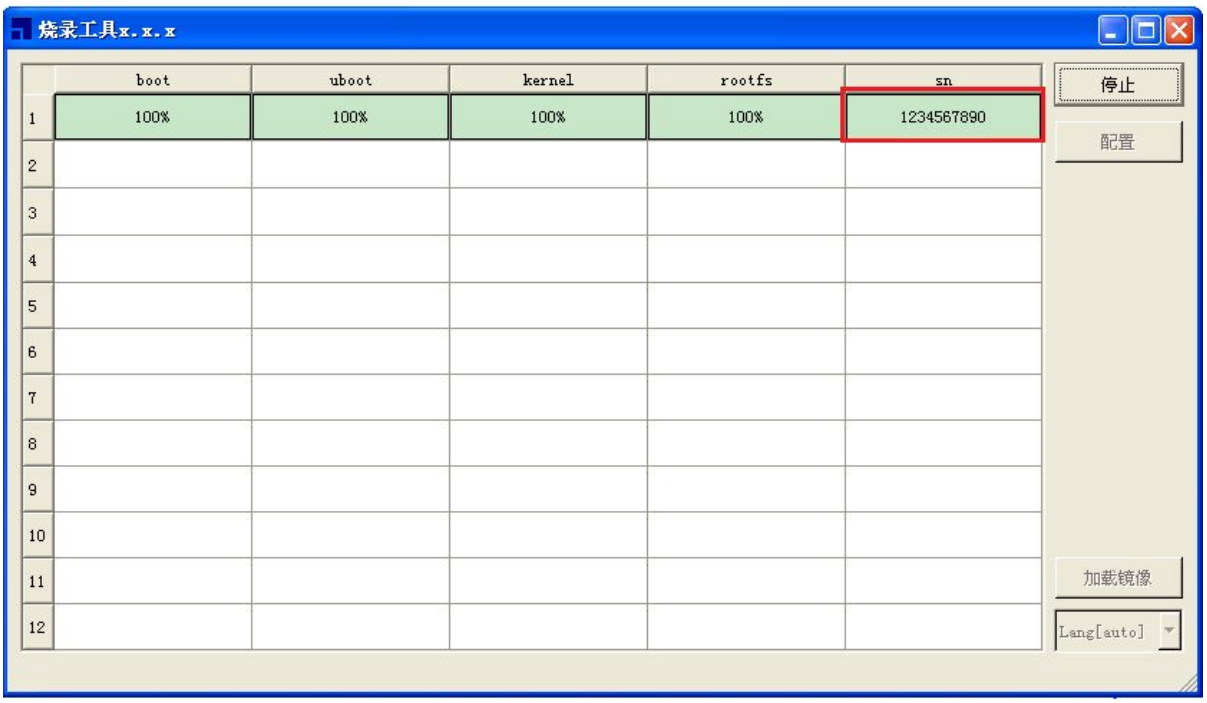


Figure 7-12, burn the serial number, the interface display

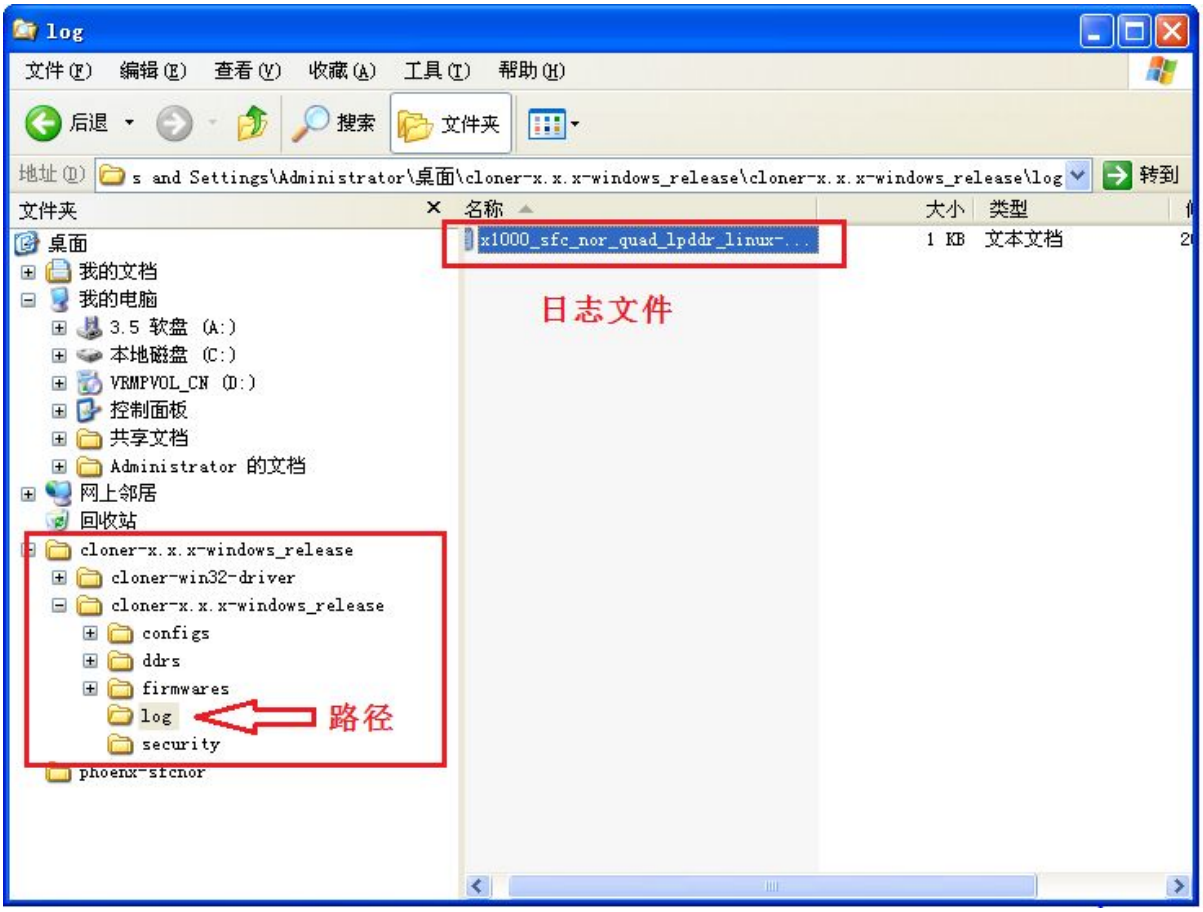


Figure 7-13 save the log file path

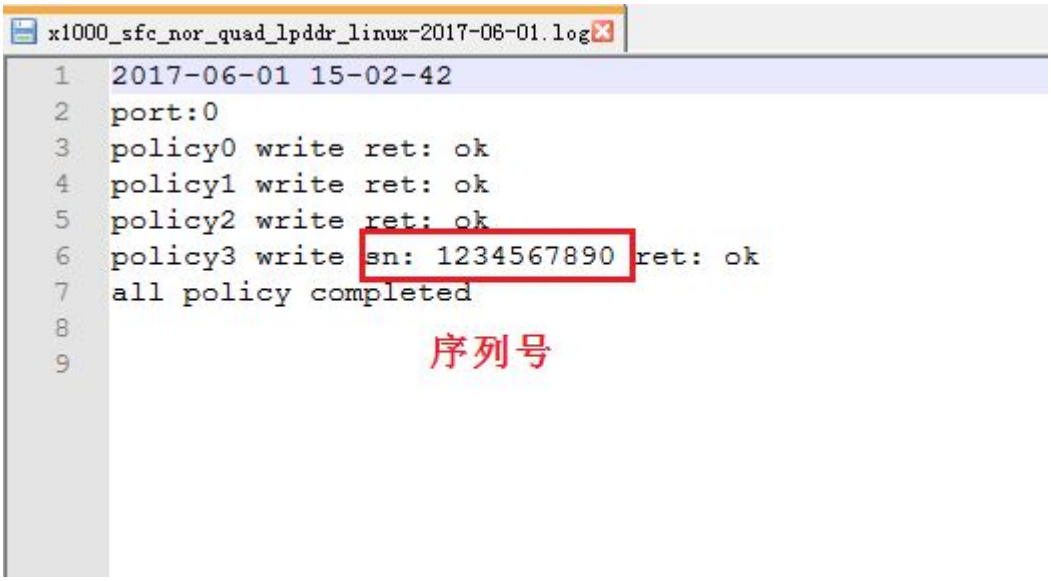


Figure 7-14 display of serial number in log file

7.3 Bluetooth and MAC address burning for WiFi

The burn tool supports the ability to burn MAC addresses individually, select MAC_ADD in the policy type, and then open the settings button to configure. As shown in Figure 7-15.

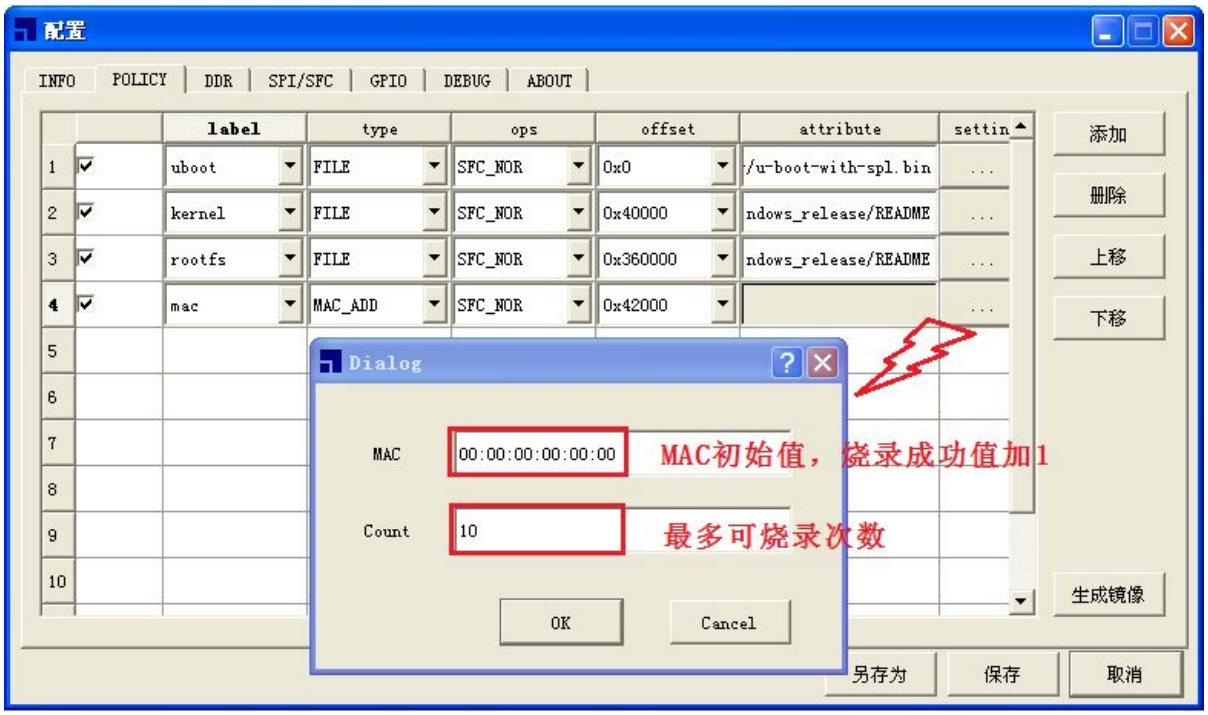


Figure 7-15 MAC address configuration

The offset position is the place where the MAC address is to be burned. When the configuration is pop-up, the MAC is the initial value of the MAC address to be burned, and the number of times is the number of devices to be burned.

7.4 EFUSE Burn

Use the burn tool to write the serial number to the EFUSE CUT ID section, and select EFUSE in the policy ops",CUT ID segment offset address in the reference chip manual， For example, the X1000 chip user ID segment is 0x220-0x23D, then the offset address is based on the CUT ID segment offset address offset and should be set to 0x20.Policy types can be freely chosen according to requirements. This document takes the more commonly used SN_ADD, for example, as shown in Figure 7-16.

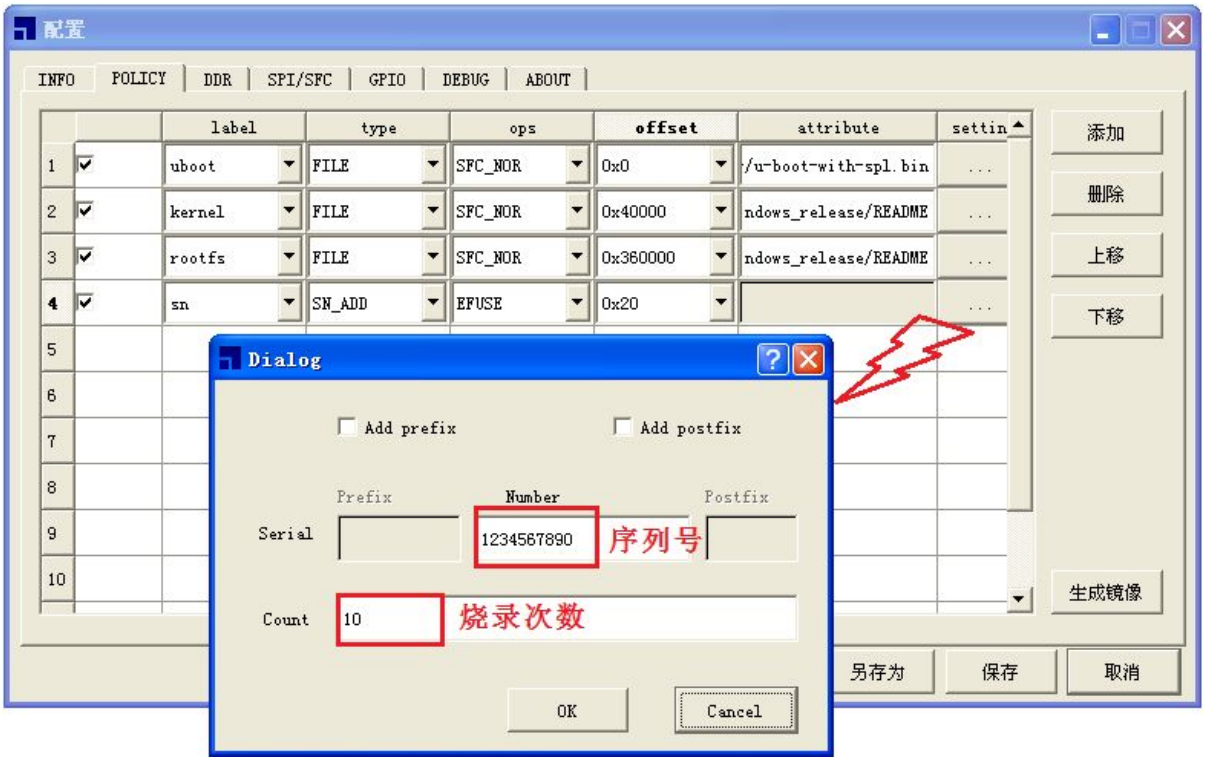


Figure 7-16 burn the EFUSE configuration

8 Common problem

Several common mistakes and troubleshooting methods

8.1 Windows drive installation failed

If the environment for using the usbcloner burning tool is windows, the usbcloner driver failed to install, then consult the second chapter of the document to make sure that the process is not error free. If there is no error in the process, make sure that the board is in the boot mode. If it is Window8 system, the installation process prompted because there is no driver signature certification and reported wrong, you need to restart the computer process, set "disable drive signature, certification enforcement.

If the board driver has not been installed successfully, then open the device manager to see if there is a device we suggest that if you press the recording button, but the recognition is unknown device, you need to re confirm the record key is correct, press and re burn.

8.2 Ubuntu burn tool interface failed to start

In the Ubuntu environment, start the burn tool, the interface failed to start, and print ConnectionRefusedError error in the terminal. Then you can check it in two ways：

1. PC machine CPU utilization is too high, resulting in core program startup delay, cloner can not establish connection with core.

2. In the current environment, there is another core process that can be rerun using the kill command after it terminates.

8.3 The interface progress shows 0% (windows down) failure

The use of usbcloner in the windows programming tool, when you open the burn tool and click the "start" button, then press the recording key board, if the reaction interface at this time, but the schedule is 0%, please check the drive Windows system used is not installed or more new USBcloner. Methods see chapter second.

8.4 The progress of the interface is shown as Boot phase 10% failure

When using the burn tool to burn, if the progress on the interface shows up to 10%, the burn fails. At this point, you can check whether the type of chip selected in the configuration does not match the type of chip on the current board. The inspection and configuration methods are available in Chapter third.

8.5 The progress of the interface is shown as Boot phase 20% failure

When using the burn tool to burn, if the progress on the interface shows up to 20%, the burn fails. Please check whether the board configuration in the configuration is inconsistent with the current board type. Check and configure methods see Chapter third.

8.6 The progress of the interface is shown as Boot phase 40% failure

When using the burn tool to burn, if the progress on the interface shows up to 40%, the burn

fails. Check that the DDR of the current board is consistent with the current DDR type configured in the burning tool.

If so, please check the configuration of DDR programming tools, banks and buswidth are correct selection.

If these parameters are correct, verify that the values for row, col, and row1, col1 parameters, are configured correctly.

If these values are correct, check the CPU in the burning tool, and whether the DDR frequency is too high or too low.

Basic rule: the frequency of DDR3 should not be lower than 150M, the frequency of LPDDR and LPDDR2 should not exceed 200M (these frequency ranges are only used in the burning configuration, and the frequency range in uboot is not discussed).

For specific checks and changes to configuration methods, refer to the burn tool guide.

8.7 Interface progress is shown for Boot phases 50%, 70%, and 75% failures

When using the burn tool to burn, if the progress on the screen shows that 50%, 70% or 75% is red, the burn fails. Then check the configuration of ddr. If the configuration of DDR is correct, then consider whether a virtual machine with USB can be opened if the burning tool is running.

8.8 The progress of the interface is shown as Boot phase 85% failure

When using the burn tool to burn, if the progress on the interface shows up to 85%, the burn fails. Then, make sure that the burning medium is nand.

If it is NAND, please make sure that the current NAND model is configured in the burning tool. If it is configured, then make sure its parameters are correct. If some of the parameters in the NAND are correct, check that the partition configuration for NAND is correct.

For specific checks and modifications, see Chapter third.

8.9 The interface progress is shown as Boot phase 100%, but the file 0% is burned

The use of burning burning tools, if the interface to display the progress of 100%, but the file is shown in 0%, and "INIT_FAILED" is displayed on the progress bar, so this time, we must check the recording file path configuration is correct, the path here refers to the PC on the directory and file name right.

8.10 Other errors

If you are in the use of burning tools, encountered in the above chapters did not refer to the error, or these errors are not resolved in accordance with the above investigation method, you can contact our technical support staff at any time.