Ai-WB2 series firmware programming guide

Content

1. Preparation of hardware and software

1. Ai-WB2 series module or development board
2. Ai-WB2 Burning software, download link:
   https://drive.google.com/file/d/1p0ld8RKDPL8qw9Z4Y9u1jSumkX5QPAu5/view?usp=sharing
3. USB to TTL serial board

2. Original hardware wiring

1. Take the Ai-WB2-12F module as an example, connect the wiring according to the following table

USB to TTL	Ai-WB2-12F
VCC	3.3V
GND	GND
TXD	RXD
RXD	TXD
RTS	EN(reset function)
DTR	Backside solder joints (burning points)

3. Use of burning software
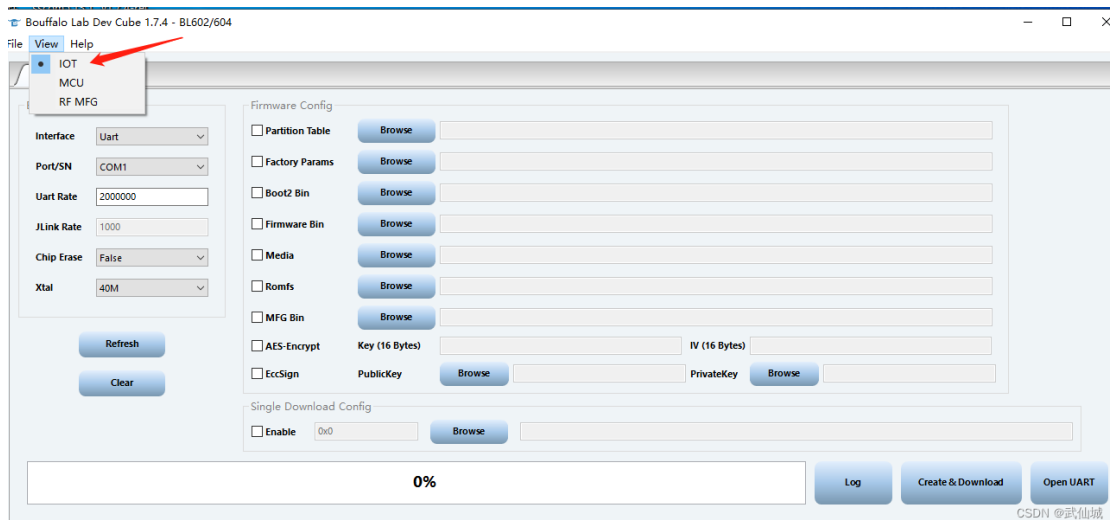
1. Double-click the BLDevCube.exe software, as shown below

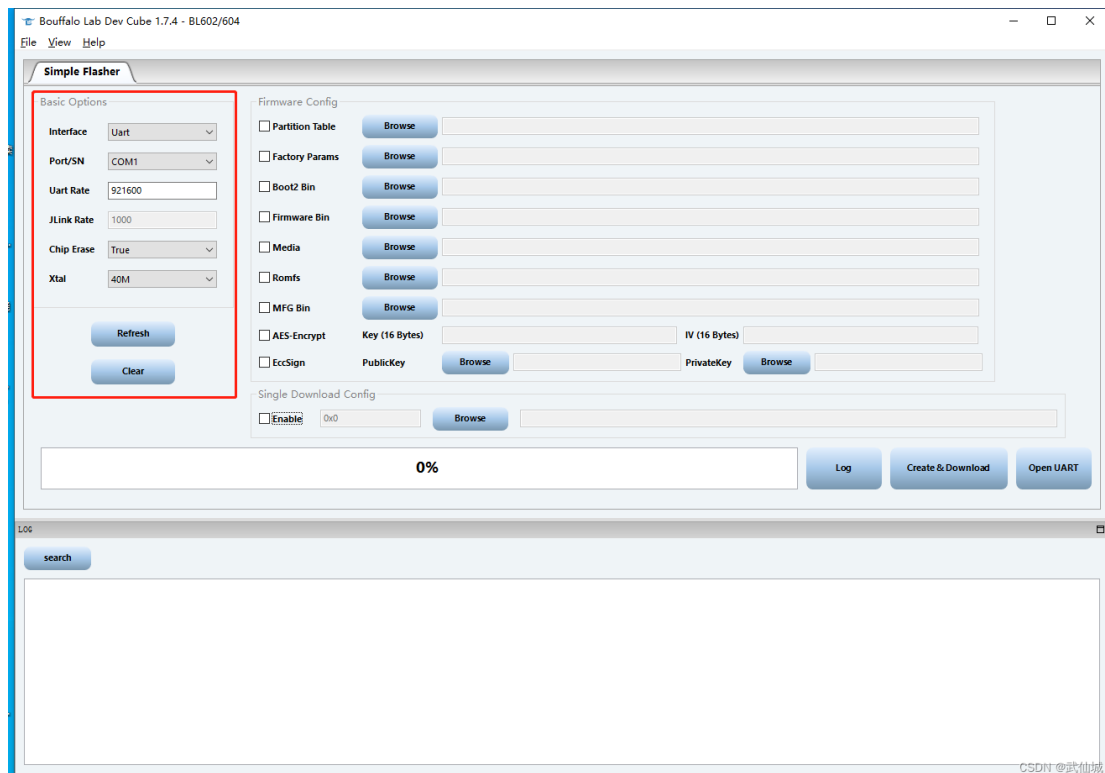double-click the burning software here
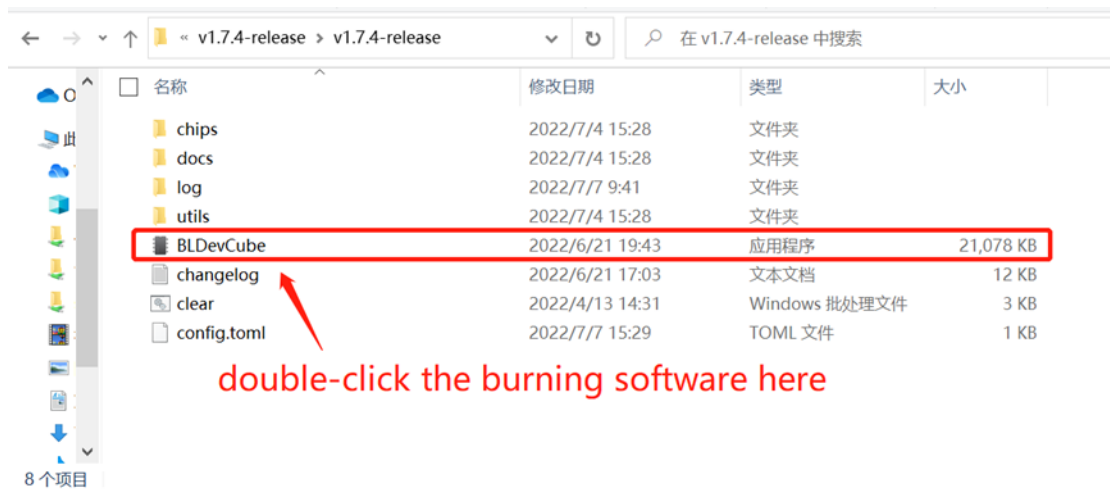
2. Choose BL602/604 chip
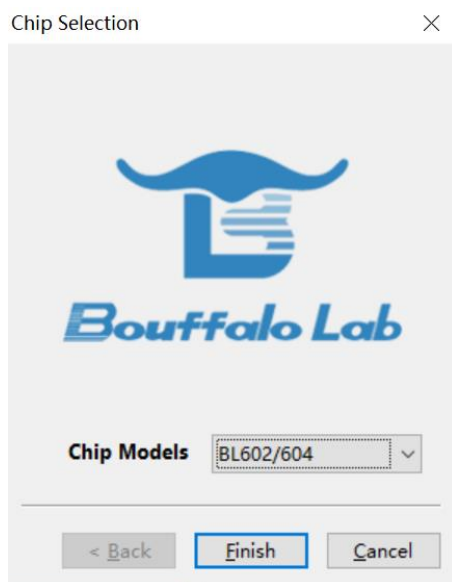
3. Choose IOT_SDK download method

4. For specific instructions on the parameters of the burning software, you can check the docs directory in the burning software. Here is a brief description of the parameters in the red box area.


– Interface: Communication interface for selecting download and programming. Can choose Jlink or UART method accordingly. Default choose UART.
– COM Port: When selecting UART for downloading, select the COM number connected to the chip here, you can click the Refresh button to refresh the COM number.
– Uart Rate: When selecting UART for downloading, Fill in the Baud Rate, the recommended download frequency is set to 921600.
– Board: Select the board model used, the board model and the crystal oscillator type, which together determine the DTS file, that is, determine the board-level hardware configuration parameters.
– Chip Erase: Default setting as False, and when downloading it will be erased according to the burning address and content size. If setting as Ture, all Flash will be erased before the program is burned.
– Xtal: Used to select the type of crystal oscillator used by the board, generally 40M
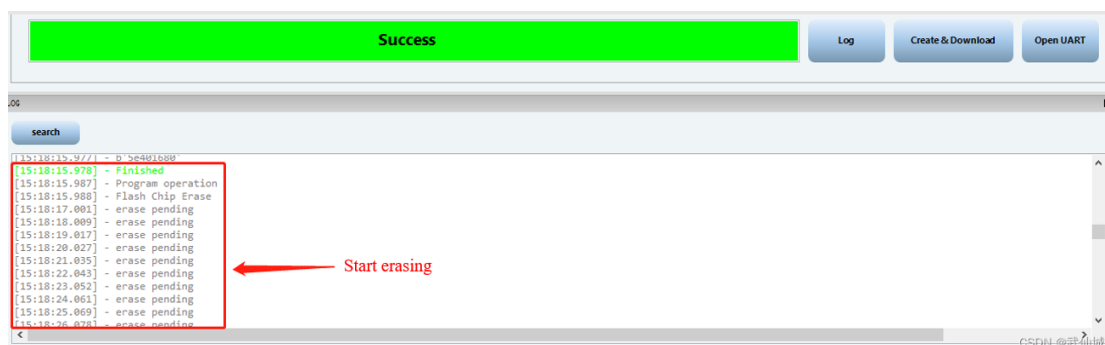
5. The following uses the bin file of helloworld compiled by the SDK to demonstrate how to successfully burn
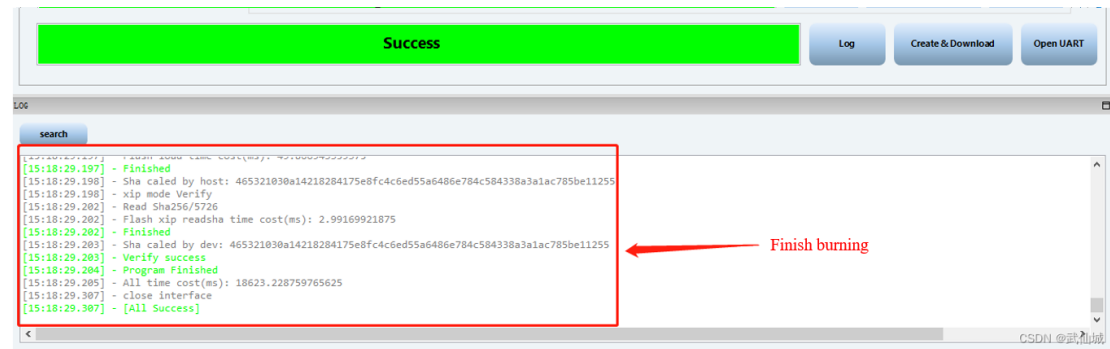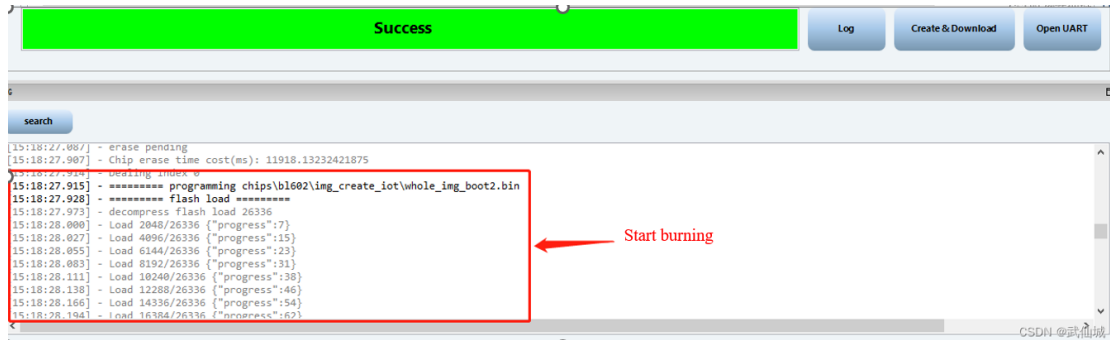
5.1 First use the SDK to generate the bin file of hello world

5.2 Place the relevant burning files according to the following screenshots
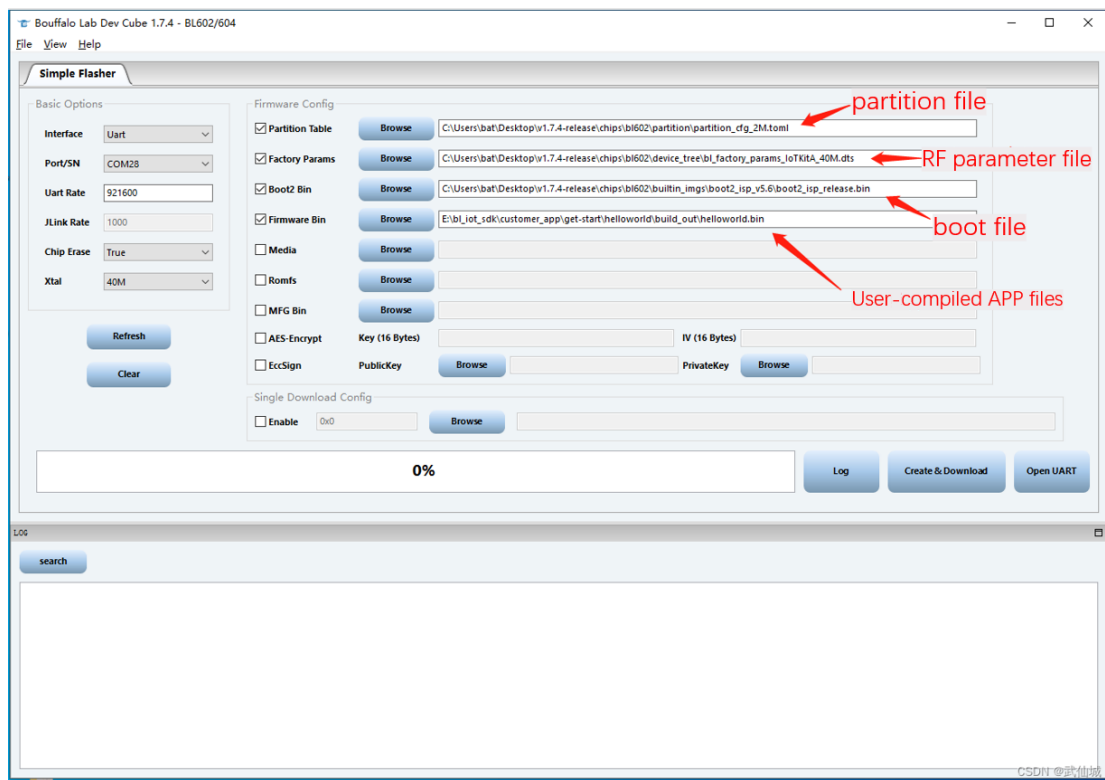
5.3 Click Create&Download button start burning, there are several situations below：

Success | Log | Create & Download | Open UART

search

```
[15:18:27.087] - erase pending
[15:18:27.907] - Chip erase time cost(ms): 11918.13232421875
[15:18:27.910] - Dealing Index 0
[15:18:27.915] - ========= programming chips\bl602\img_create_iot\whole_img_boot2.bin
[15:18:27.928] - ========= flash load =========
[15:18:27.973] - decompress flash load 26336
[15:18:28.000] - Load 2048/26336 {"progress":7}
[15:18:28.027] - Load 4096/26336 {"progress":15}
[15:18:28.055] - Load 6144/26336 {"progress":23}
[15:18:28.083] - Load 8192/26336 {"progress":31}
[15:18:28.111] - Load 10240/26336 {"progress":38}
[15:18:28.138] - Load 12288/26336 {"progress":46}
[15:18:28.166] - Load 14336/26336 {"progress":54}
[15:18:28.194] - Load 16384/26336 {"progress":62}
```

Start burning

Success | Log | Create & Download | Open UART

LOG

search

```
[15:18:29.197] - Flash load time cost(ms): 49.08804333333573
[15:18:29.197] - Finished
[15:18:29.198] - Sha caled by host: 465321030a14218284175e8fc4c6ed55a6486e784c584338a3a1ac785be11255
[15:18:29.198] - xip mode Verify
[15:18:29.202] - Read Sha256/5726
[15:18:29.202] - Flash xip readsha time cost(ms): 2.99169921875
[15:18:29.202] - Finished
[15:18:29.203] - Sha caled by dev: 465321030a14218284175e8fc4c6ed55a6486e784c584338a3a1ac785be11255
[15:18:29.203] - Verify success
[15:18:29.204] - Program Finished
[15:18:29.205] - All time cost(ms): 18623.228759765625
[15:18:29.307] - close interface
[15:18:29.307] - [All Success]
```

Finish burning

5.4 After burning according to the above steps, the module is powered on to read the serial port and print the following log, indicating that the burning is successful.
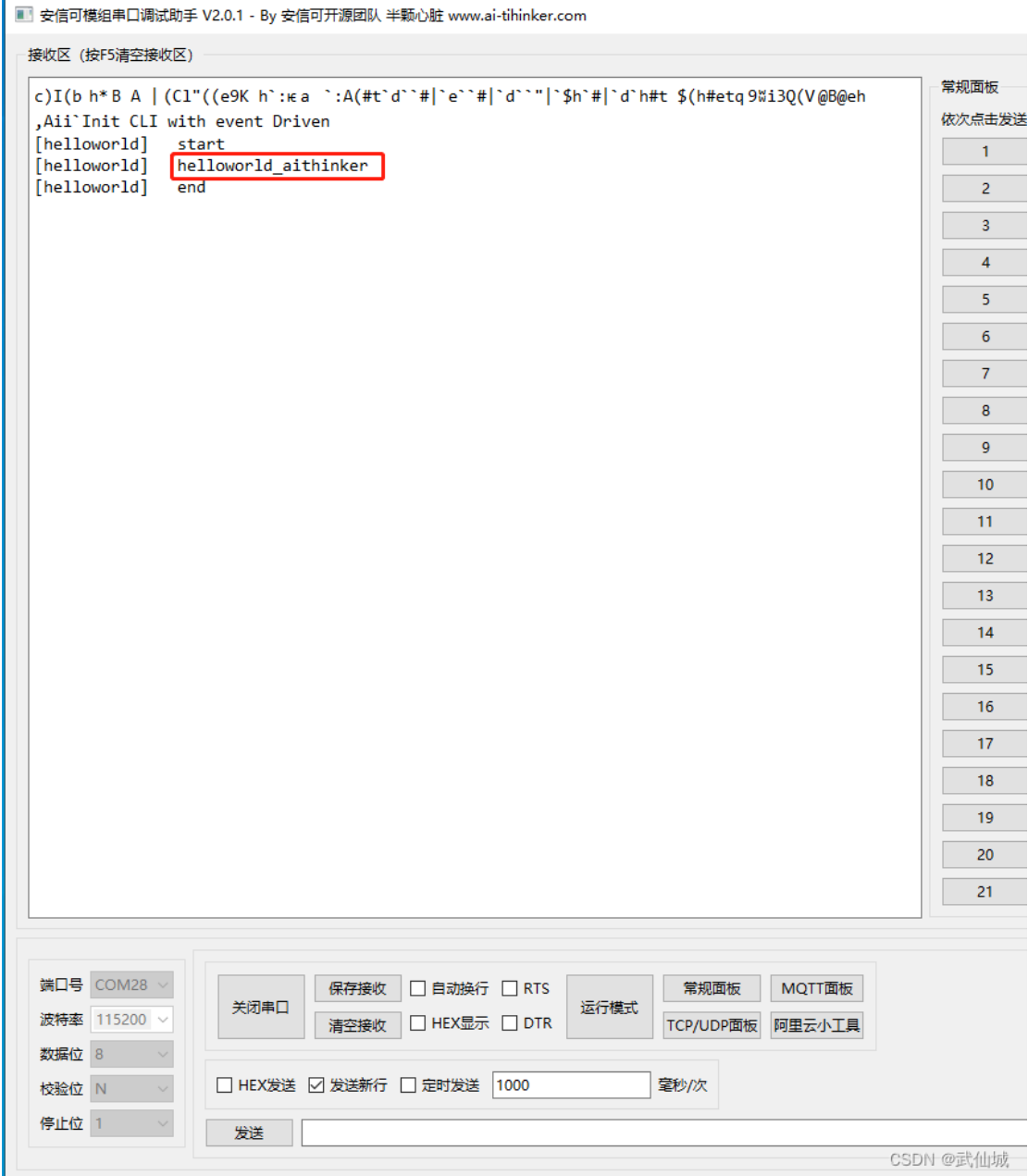
4. Use of burning software

4.1 Burning software settings during ISP download
In order to facilitate downloading and burning, there is no need for additional cable wires to solder the solder joints (burning points) on the backside, which can be done by modifying the configuration file of the burning software. The settings are as follows：

modify the file
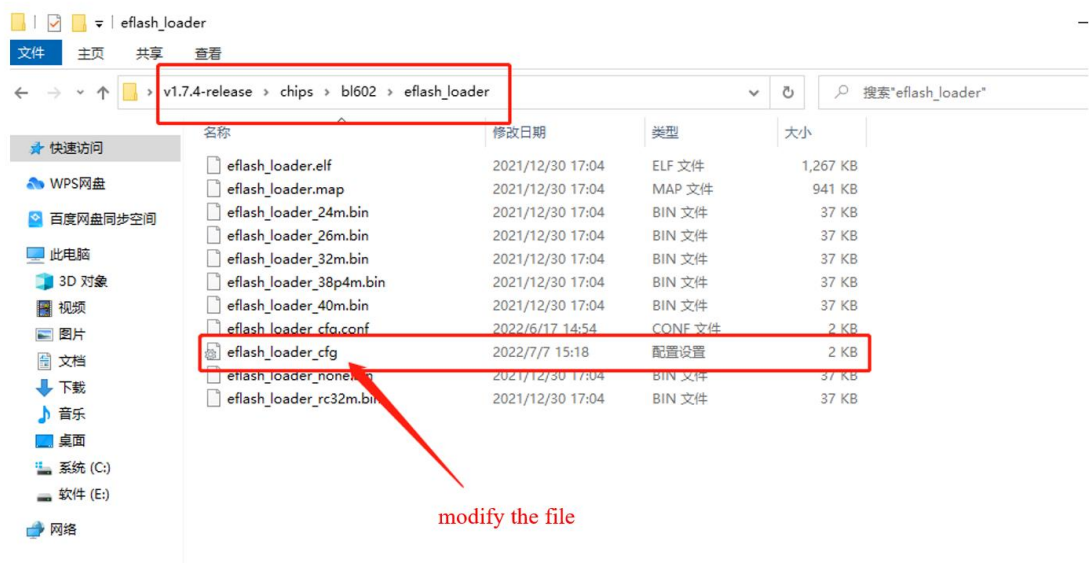
Open the eflash_loader_cfg configuration file with Notepad


```
shake_hand_delay = 100
reset_revert = false
#cutoff revert+cutoff time
cutoff_time = 100
shake_hand_retry = 2
flash_burn_retry = 1
checksum_err_retry = 3
#1:24M, 2:32M, 3:38.4M, 4:40M, 5:26M, 6:RC32M
#xtal_type = 4
erase_time_out = 15000
#chiptype=602
eflash_loader_file = chips/bl602/eflash_loader/eflash_loader_40m.bin
check_mac = true
#0:no erase,1:programmed section erase,2:chip erase
erase = 2
# switch eflash_loader command log save
local_log = false
#0:verify by calculating SHA256(xip), >0:read back verify and verify by calculating SHA256(sbus)
verify = 0
tx_size = 2056
cpu_reset_after_load = false
boot2_isp_mode = 1          Change boot2_isp_mode=0 to boot2_isp_mode=1
isp_shakehand_timeout = 0

[FLASH_CFG]
flash_id = ef4015
flash_clock_cfg = 1
#0:NIO, 1:DO, 2:QO, 3:DIO, 4:QIO
flash_io_mode = 1
#empty: auto,0: internal flash with io switch,1: internal flash no io switch,2: GPIO 17-22,3: GPIO 0-2&20-22
flash_pin = ""
#empty for auto, otherwise specified para file path: eg: chips/bl602/efuse_bootheader/flash_para.bin
flash_para = chips/bl602/efuse_bootheader/flash_para.bin
decompress_write = true
```
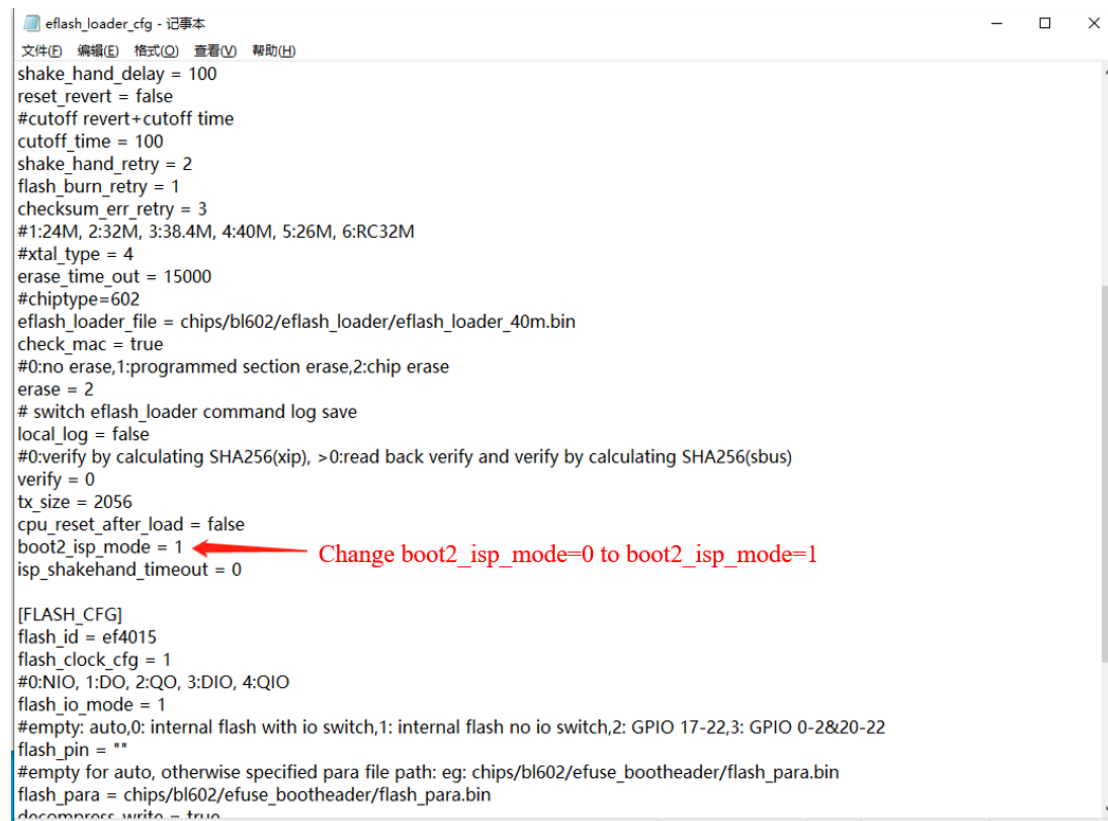
After modification, click save and exit. The burning method refers to the previous method.