
Burn the **W60X** chip firmware via the serial port

RT-THREAD Documentation Center

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When burning the W60x chip firmware through the serial port, you can choose application firmware or complete firmware. Among them, application firmware only contains application code, and complete firmware can be used by users to restore factory settings, restore brick recovery mode, mass production, firmware upgrade, etc. The volume is relatively large. The following introduces the steps of burning the W60x chip firmware through the serial port.

1. Compile the project

For the convenience of introduction, take the example /01_basic_led_blink as a reference. After compiling the project, the firmware will be automatically generated and stored in the Bin folder under the corresponding example directory.

2 Open the burning tool

Open the Xingtong Zhilian serial port debugging assistant, which is located in tools/ThingsTurn_Serial_Tool.zip. After decompression, run it and enter the following interface



figure 1: Serial port tool settings and firmware selection

3 Configure the serial port

As shown in step 1 above, select the corresponding debugging serial port according to the actual development board. This serial port is used to receive logs. The corresponding log serial port settings are baud rate 115200, data bit 8, no parity, 1 stop bit, no flow control; the default download serial port rate is 2M, and the maximum supported is 2M. In view that some host computers or hardware do not support 2M, the example rate is selected as 115200.

4 Select Firmware

Since the names and sizes of application firmware and complete firmware are different: .rbl is application firmware, which is smaller in size, while .FLS is complete firmware, which is large, so you need to be careful when selecting the firmware. Please refer to step 2 in the above figure for the location.

4.1 Application Firmware

The file of the application firmware ends with .rbl. The sample file is `rtthread.rbl` in the Bin directory .

4.2 Complete Firmware

There are some abnormal conditions that cause the routine application firmware to run: the terminal log may show "PPPP..." "LLLL..." "GGGG..." or even garbled characters, but it will eventually display the "CCCCC..." log. In this state, the complete firmware needs to be burned to solve the bricking problem.

The complete firmware ends with .FLS . There are three .FLS files in the example Bin directory, corresponding to three different capacities. `rtthread_layout_1M.FLS` and `rtthread_layout_2M.FLS` are for the 1M and 2M flash capacities of W600 respectively, and `rtthread_layout_16M.FLS` corresponds to the W601 IoT Board development board.

5 Download and run

The figure above shows the log process of application firmware burning: After selecting the firmware correctly, click Download, and the serial port receiving window will display the log of the firmware burning. After the burning is completed, the program will run automatically, the LED will start flashing, and the log will be printed.

If you are burning the complete firmware, "CCCC..." may appear. At this time, you need to reset it and the LED will start flashing, as shown in the log below.

```

星通智联串口调试助手 V1.5.0.2 www.thingsturn.com
接收
CCCCCCCCCCCCCCCC
Start Download rtthread_layout_16M.FLS
start connect deviceCCC
sync success, ROM MAC:286DCD3A8FF0
End Sync, Spend 0.6571776 Seconds
no need to erase secboot !
old gain: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
FF FF FF FF FF
use default baud 115200!
Start Load ...
..... 25%
..... 50%
..... 75%
..... 100%
use default baud 115200!
auto reset device ...
End Load, Spend 17.5173422 Seconds
All Spend 18.1765365 Seconds !

End Download
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC[SFUD]Find a Winbond flash chip. Size is 16777216 bytes.
[SFUD]norflash flash device is initialize success.
[32:22m[I/FAL] RT-Thread Flash Abstraction Layer (V0.4.0) initialize success. [0m
[36:22m[I/OTA] RT-Thread OTA package(V0.2.3) initialize success. [0m
[D/OTA] (ota_main:62) check upgrade...
[D/OTA] (ota_main:89) No firmware upgrade!
[D/OTA] (ota_main:105) jump to APP!
redirect_addr:8010100, stk_addr:200020A0, len:972800

\ | /
- RT - Thread Operating System
/ | \ 4.0.1 build Jun 20 2019
2006 - 2019 Copyright by rt-thread team
[0m[D/main] led on, count: 1 [0m
msh > [0m[D/main] led off [0m
[0m[D/main] led on, count: 2 [0m
[0m[D/main] led off [0m
[0m[D/main] led on, count: 3 [0m
[0m[D/main] led off [0m
[0m[D/main] led on, count: 4 [0m
[0m[D/main] led off [0m

```

figure 2: Abnormal burning log

6. Notes

- The project must be compiled before the firmware can be generated
- The complete firmware can be burned in normal state, but the complete firmware can only be burned in abnormal state to recover
- If the burning fails, the application code jump fails and needs to be re-burned
- In abnormal state, you need to wait for the terminal to receive the "CCCC..." log before burning the complete firmware