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

RT-THREAD Document Center

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Table of contents

Table of contents	i
1 Compile the project...	1
2 Open the burning tool.	1
3 Configure the serial port...	1
4 Select Firmware...	2
4.1 Application Firmware...	2
4.2 Complete Firmware...	2
5 Download and run...	2
6 Notes...	3

When burning the W60x chip firmware through the serial port, you can choose application firmware or complete firmware. Application firmware only contains application code, while complete firmware can be used for restoring factory settings, restoring brick mode, mass production, firmware upgrade, etc. It is relatively large in size. The following introduces the steps for burning the W60x chip firmware through the serial port.

1. Compile the project

For ease of introduction, the example program `examples/01_basic_led_blink` is used as a reference. After compiling the project, the firmware is automatically generated and stored in the Bin folder under the corresponding example program directory.

2 Open the burning tool

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

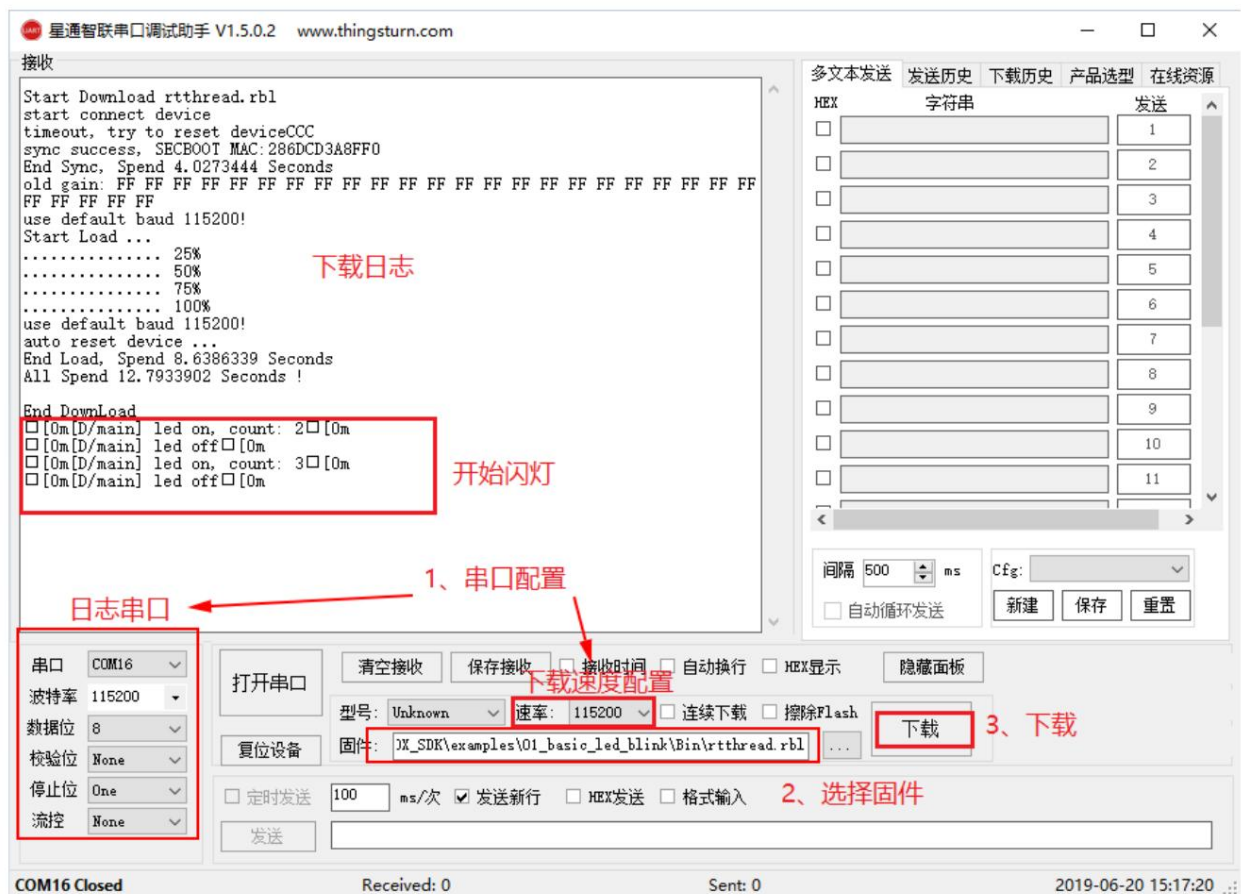


Figure 1: Serial port tool settings and firmware selection

3 Configure the serial port

As shown in step 1 above, select the corresponding debug serial port based on the actual development board. This serial port is used to receive logs. The corresponding logging serial port settings are: baud rate 115200, 8 data bits, no parity, 1 stop bit, and no flow control. The default download serial port rate is 2M, and the maximum supported rate is 2M. Since some host computers or hardware do not support 2M, the example rate is 115200.

4 Select Firmware

Since the application firmware and the complete firmware have different names and sizes: .rbl is the application firmware, which is relatively small, while .FLS is the complete firmware, which is large. The area is large, so you need to be careful when selecting the firmware. Please refer to step 2 in the above figure to select the location.

4.1 Application Firmware

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

4.2 Complete Firmware

There are some abnormal conditions that cause the application firmware of the routine to run: the terminal log may show "PPPP..." "LLLLL..." "GGGG...", or even garbled characters, but it will eventually display the "CCCCC..." log. In this state, you need to burn the complete firmware 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 the W600 respectively, and `rtthread_layout_16M.FLS` is for 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 to recover in abnormal state
- If an exception occurs during programming, the application code jump fails and needs to be reprogrammed
- In abnormal state, you need to wait for the terminal to receive the "CCCC...." log before burning the complete firmware