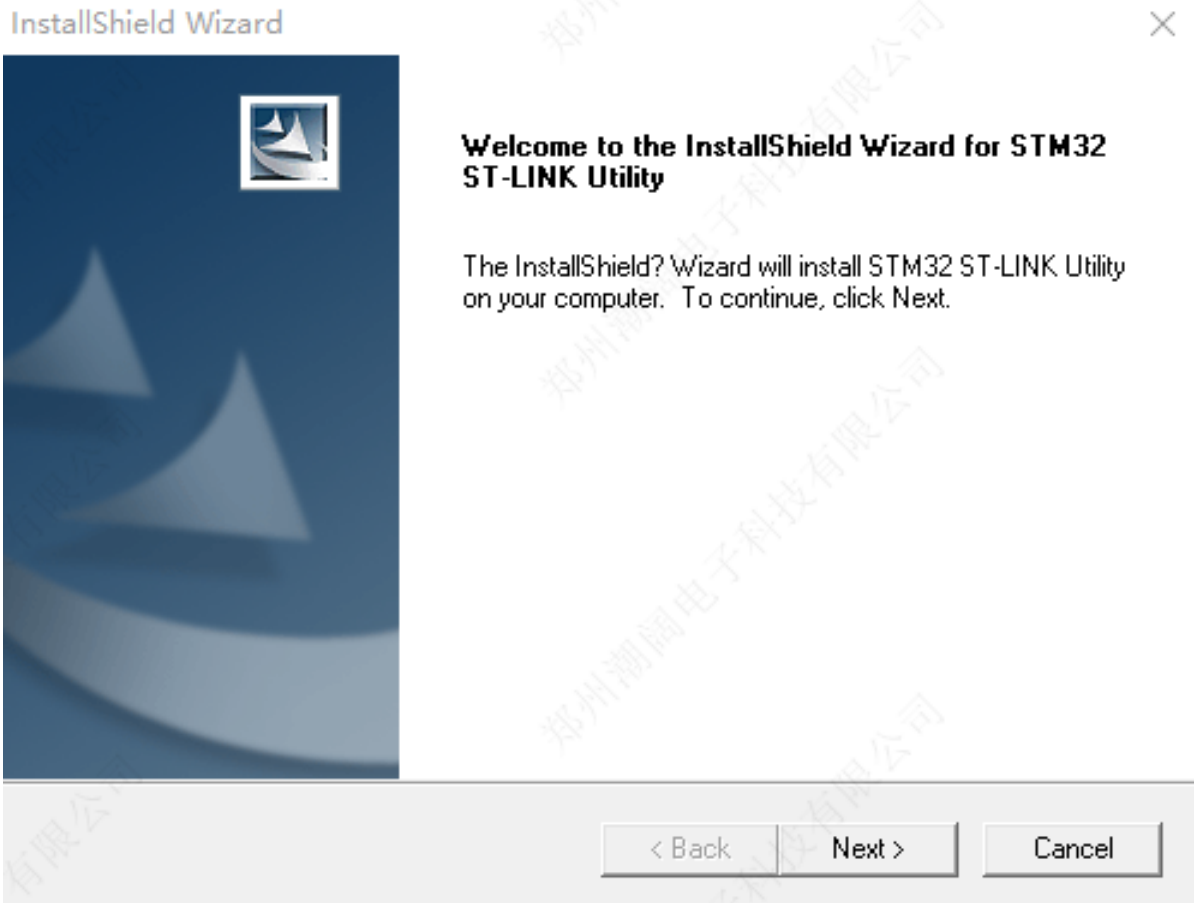
FLSUN S1 - Burning Motor Driver

Required for Burning:

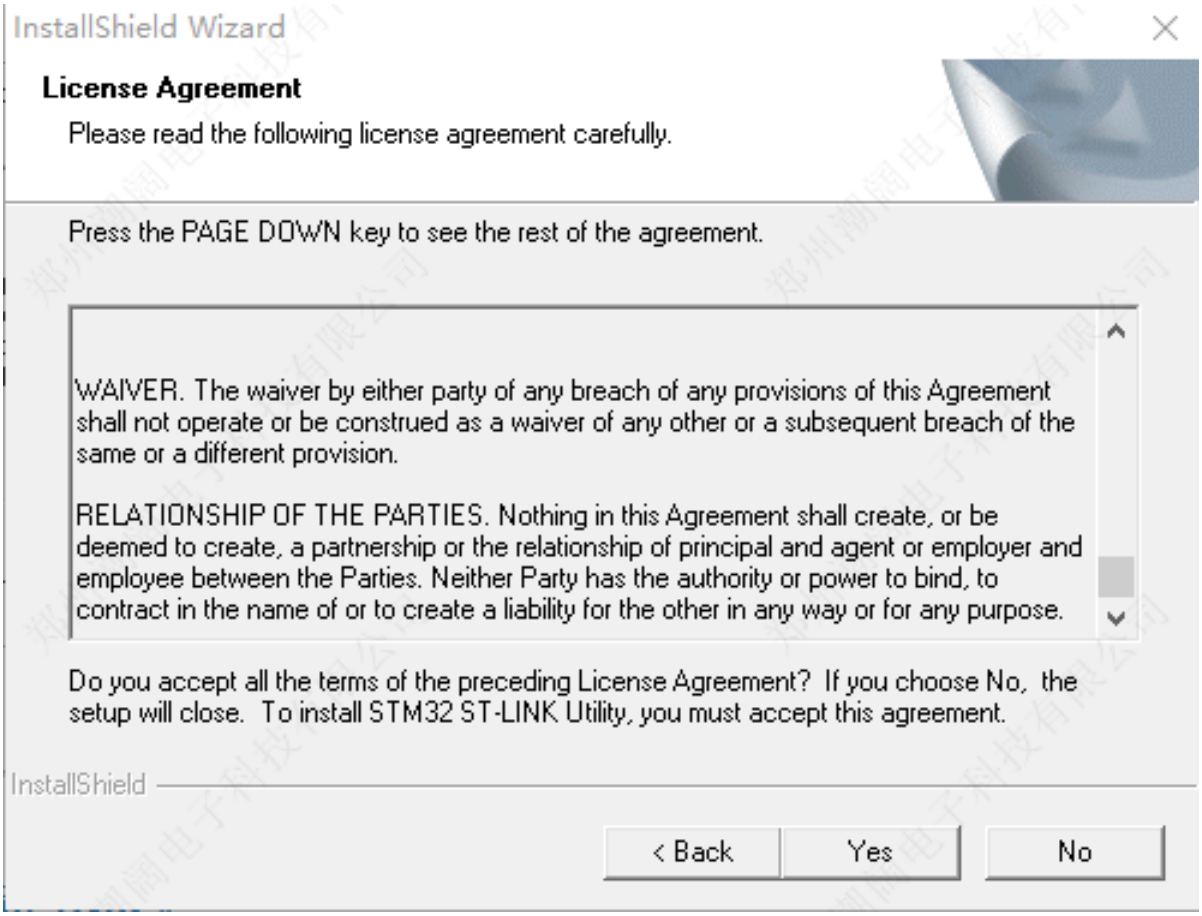
- Host computer software: STM32 ST-LINK Utility
- Programmer: ST-LINK V2
- Burning fixture (STL file, need to print)
- Dupont wire

1. Download STM32 ST-LINK Utility: https://www.st.com/en/development-tools/stsw-link004.html

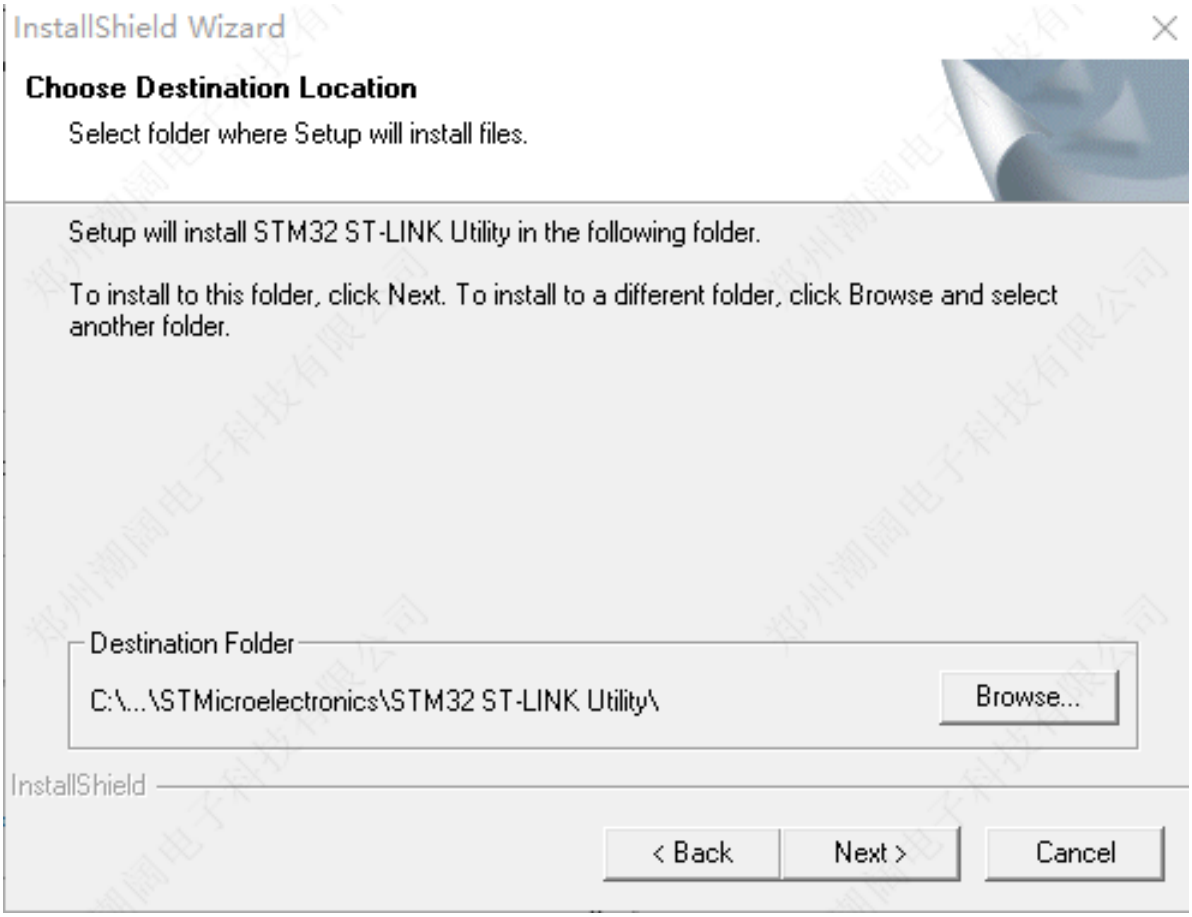
Unzip the software and double-click "STM32 ST-LINK Utility v4.6.0.exe" to start the preparation for installation (unzipping) process. Enter the installation wizard and click "Next".



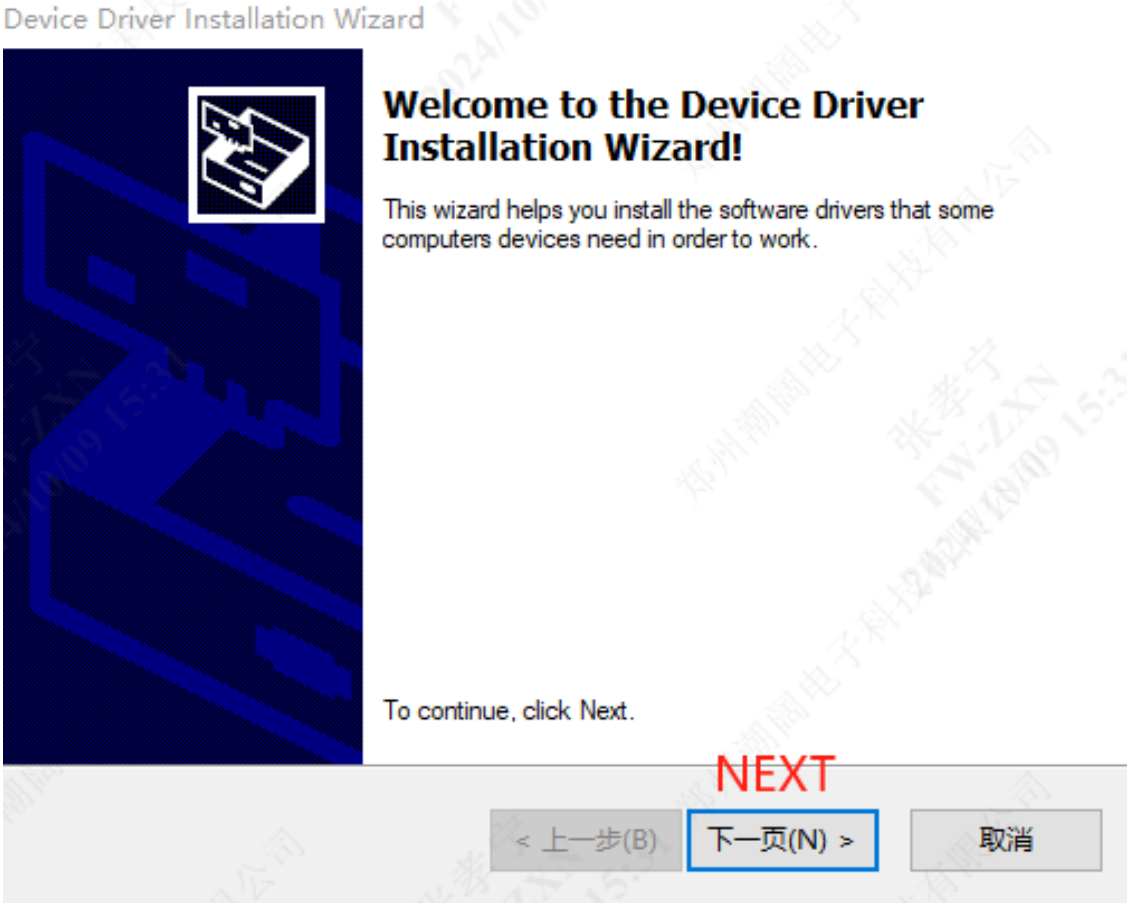
Agree to the license and click "Yes".

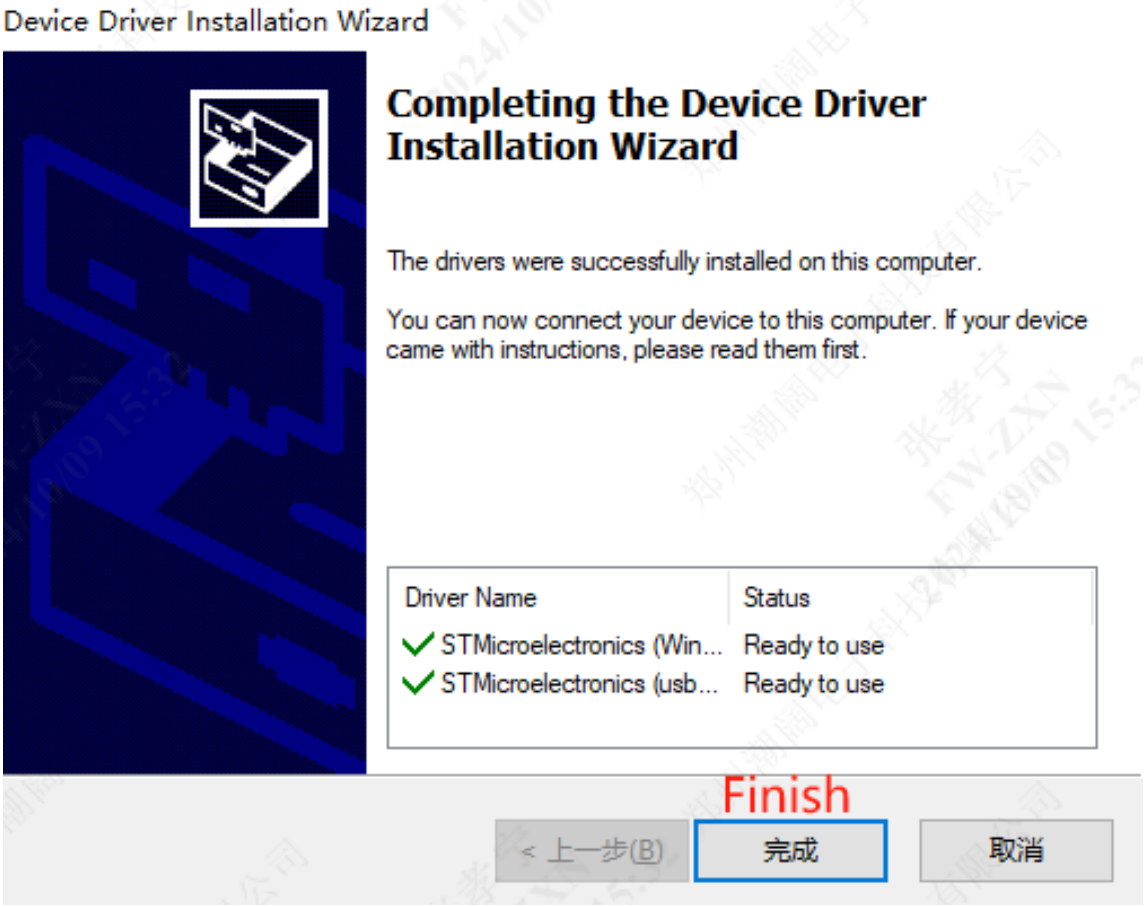


Select the installation path (default here) and click "Next".

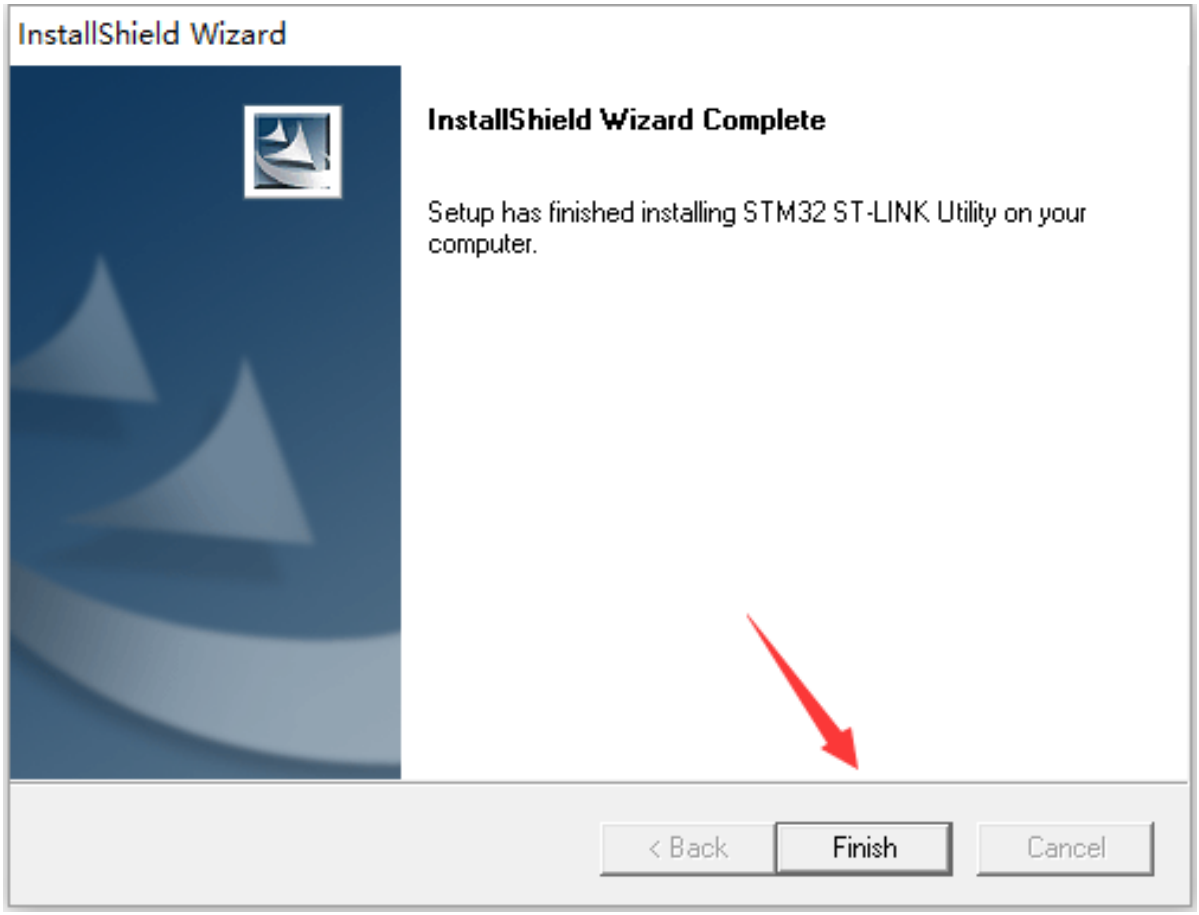


The installation will prompt for "Driver Installation", click "Next", and finally click "Finish".

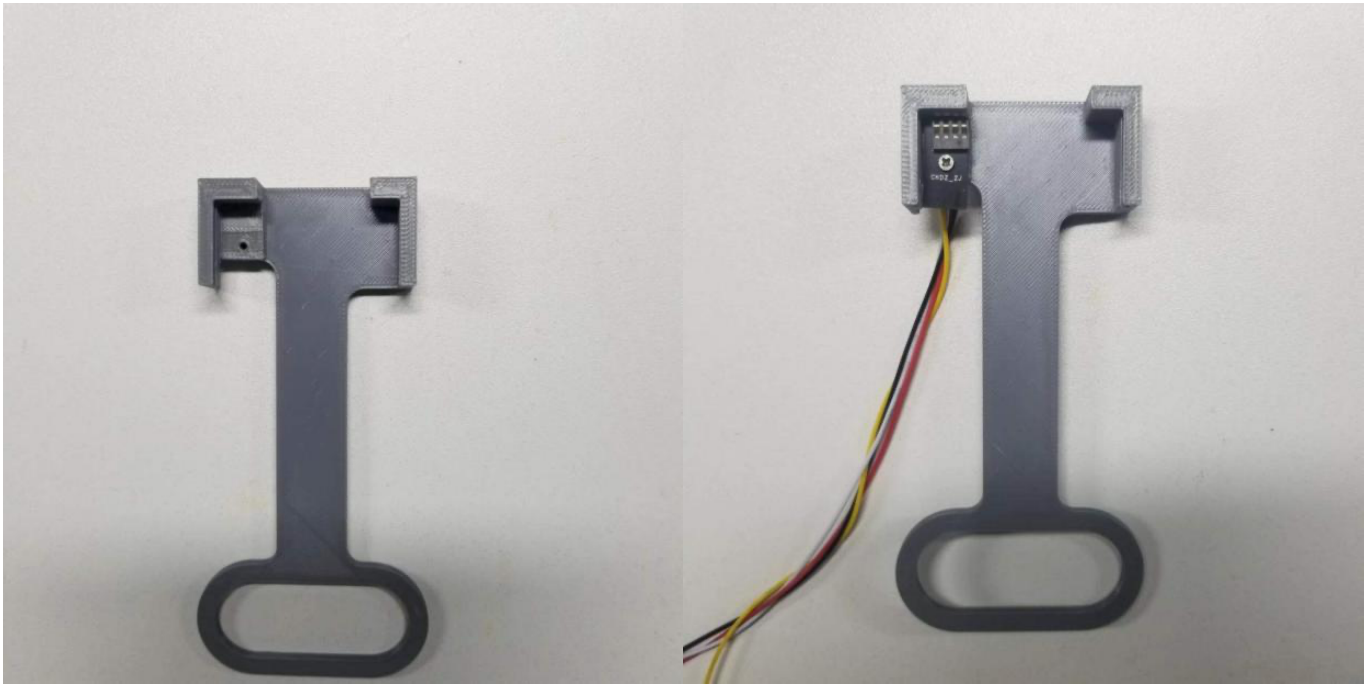




Click "Finish" to complete the installation.

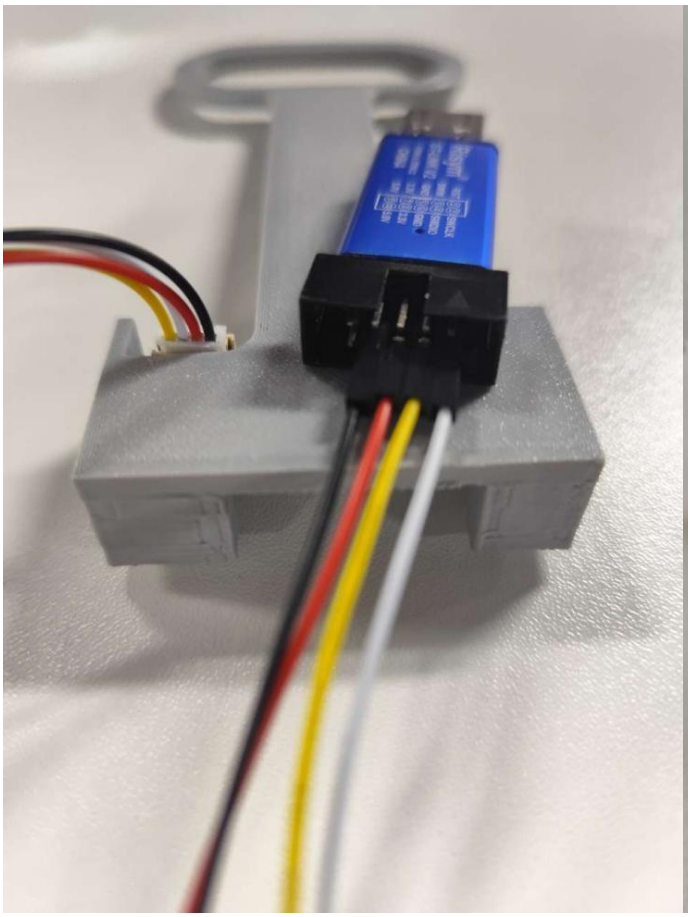


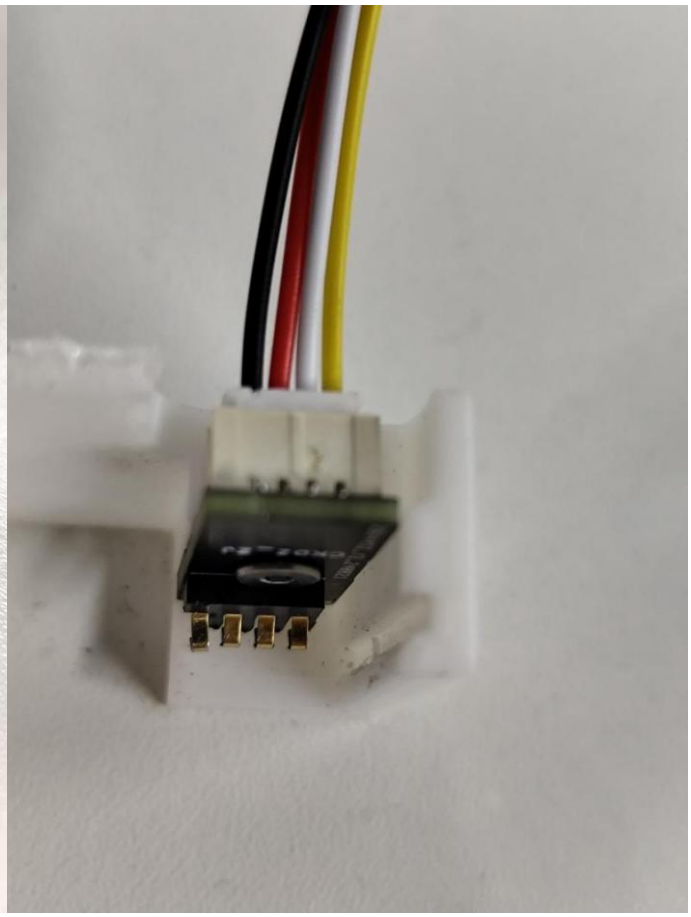
2. Printing Tools (It is recommended to also print out the blower housing required for upgrading the silent fan)



3. Wiring

The female connector on the fixture should be inserted normally; if reversed, it will not fit. The ST-LINK has two rows of pins, with the second row from right to left connected as shown in the figure with white, yellow, red, and black wires. Leave the leftmost pin unconnected. If there are any issues, refer to the pin introduction below:



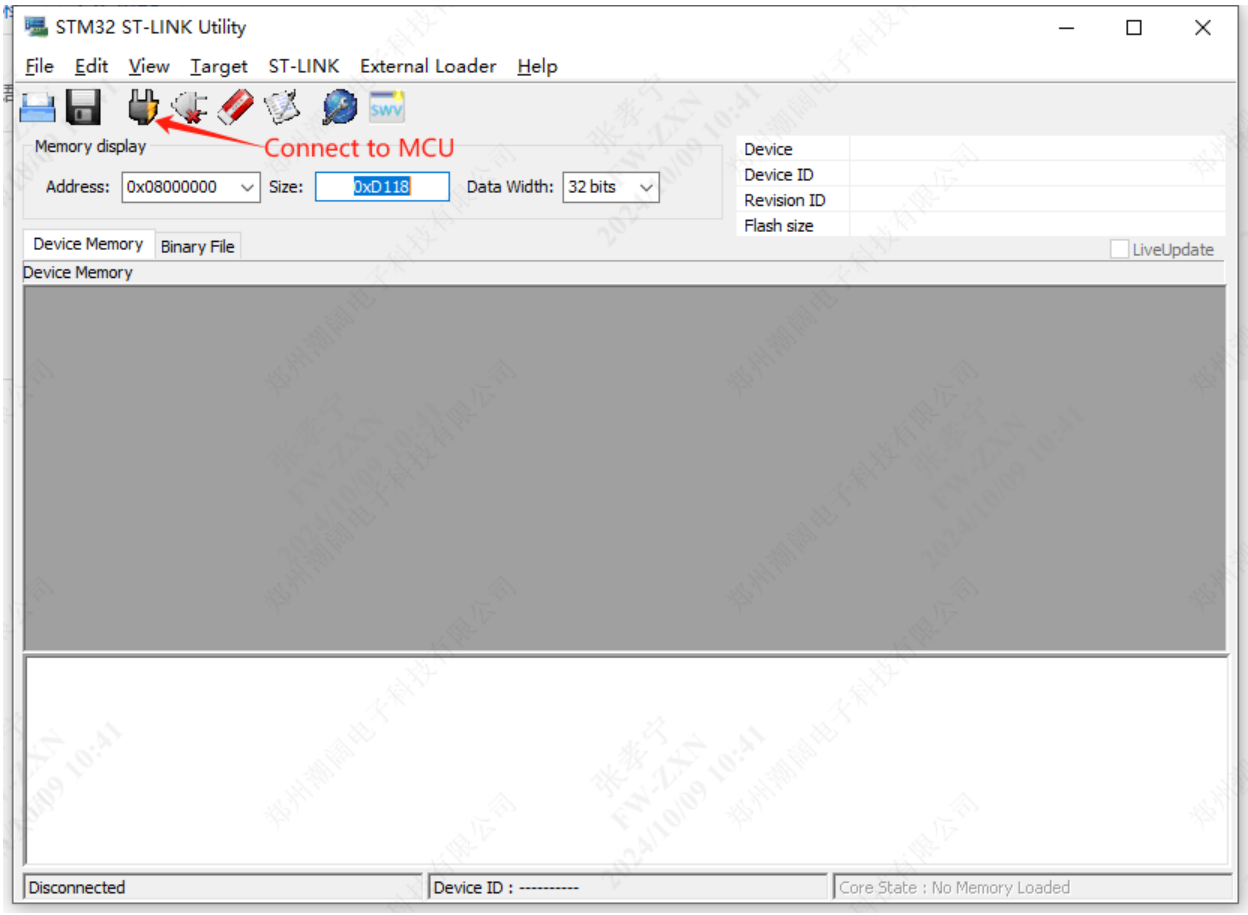


From left to right, this figure shows the sequence as:

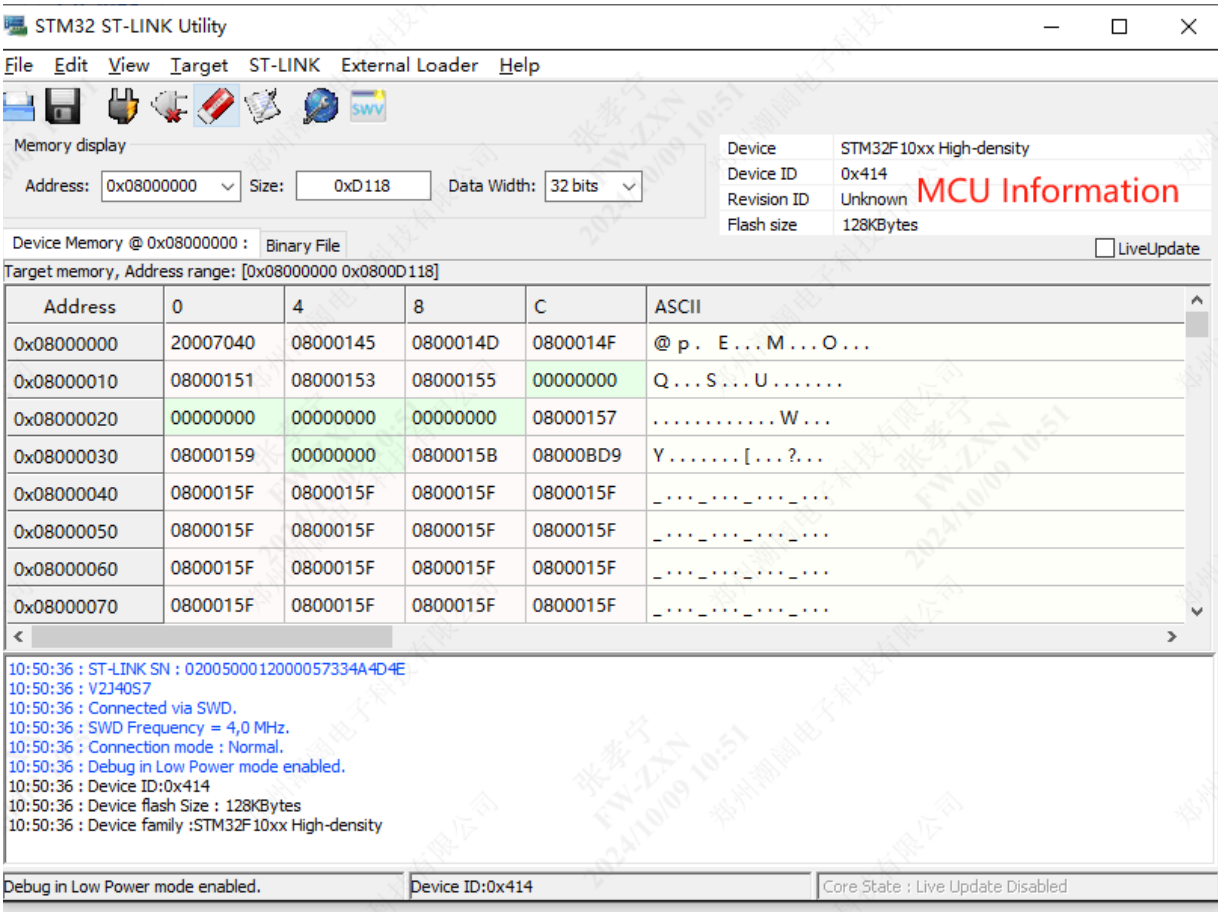
Black -> 3.3V - Red -> GND - White -> SWCLK - Yellow -> SWDIO.

Note: The sequence is based on the order from left to right and is independent of the color.
The bottom row of the ST-LINK V2 from right to left are SWCLK, SWDIO, GND, 3.3V, 5.0V.
The 5.0V is not used, connect the same pins together.
After wiring, open the printer cover and insert the motor drive board into the fixture as shown. If the motor drive board light is on, it indicates that the power connection is normal. If the firmware burning fails but the drive board light is on, the communication line may not be in good contact. Try to tighten the fixture again.

4. After wiring is complete, open the software STM32 ST-LINK Utility.
Connect to the chip: Menu bar Target -> connect or the open icon operation in the figure below.

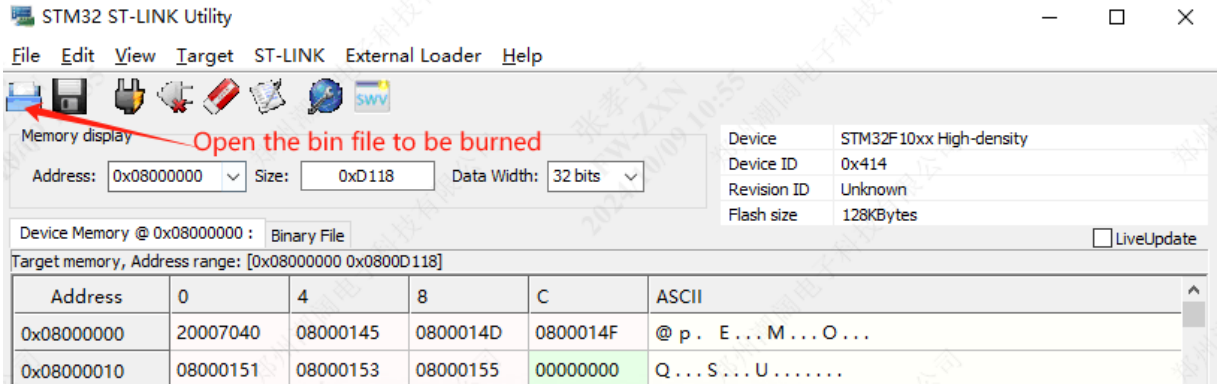


Click the above Connect MCU icon, and after a successful connection, it will be shown as in the figure below:



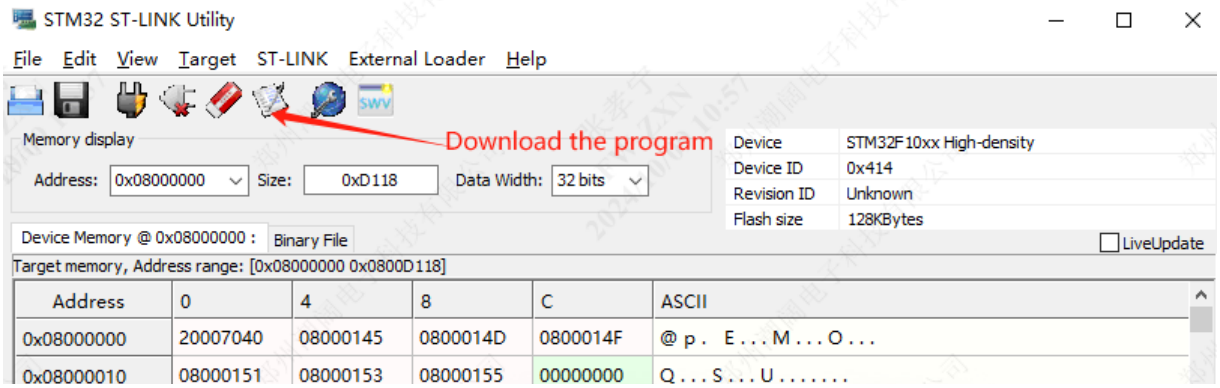
Open the program (bin)

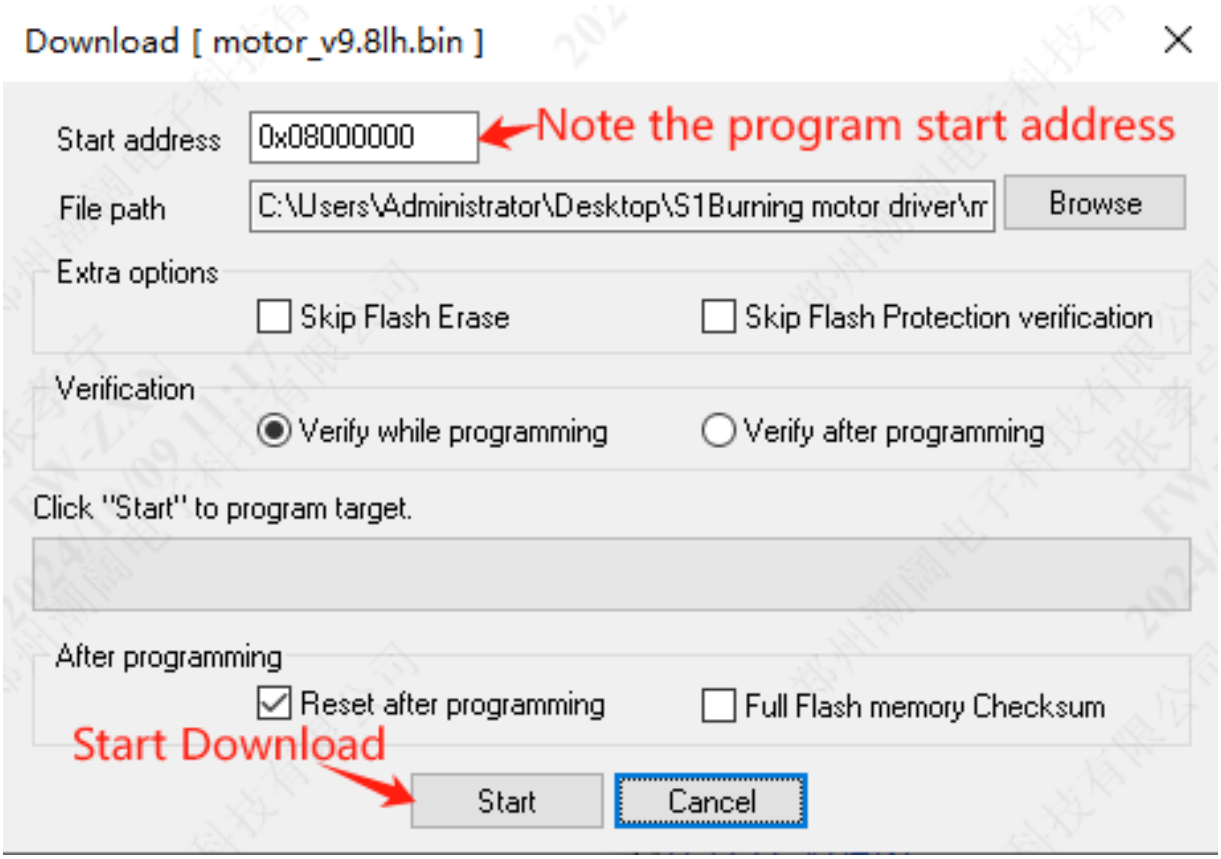
After connecting to the chip in the previous step, open the bin file that needs to be downloaded. The file can be opened from the menu bar (File -> Open File) or by selecting the open icon operation in the figure below:



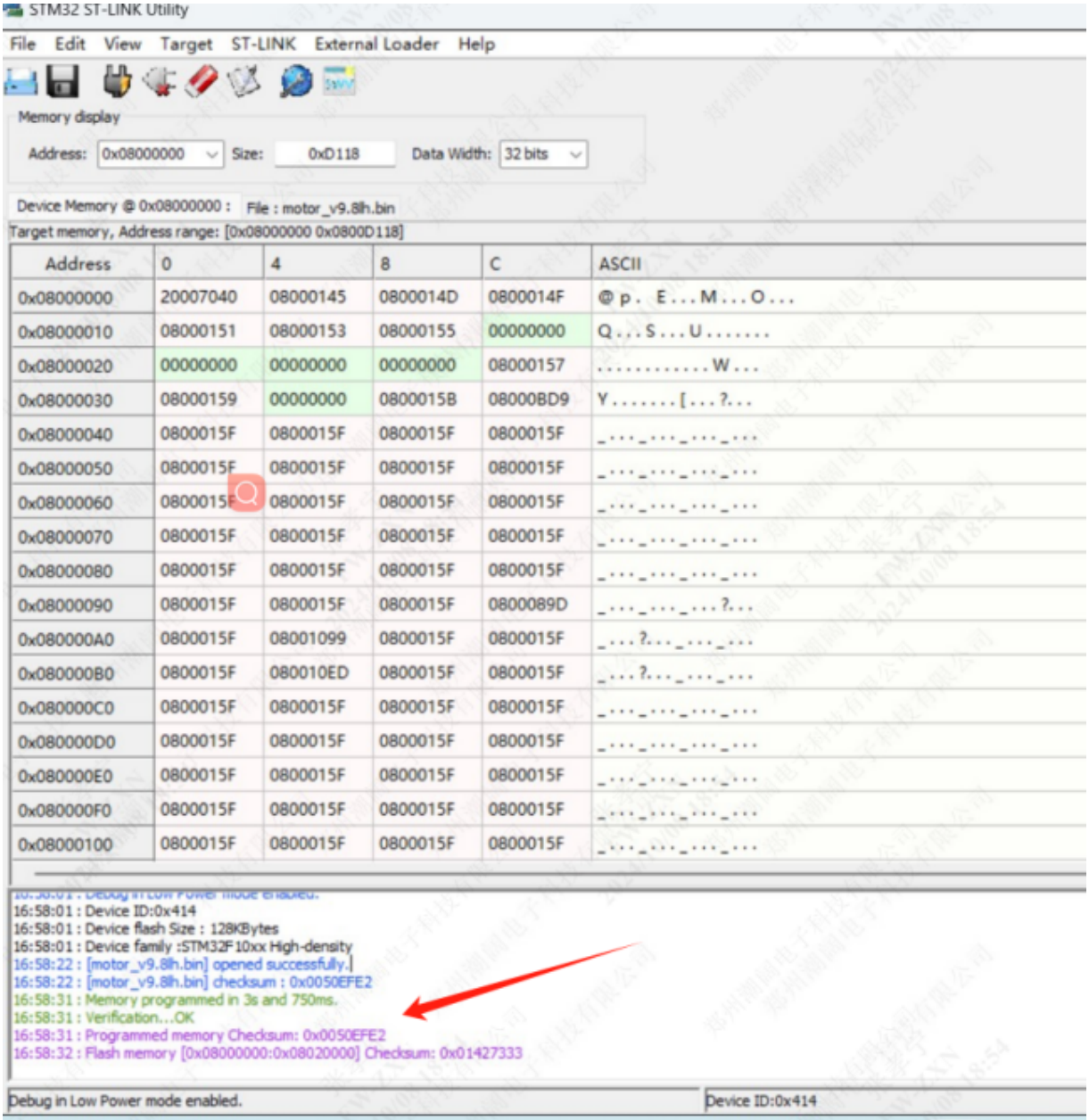
Download the program

After completing the previous step of opening the file, click "Download" (you can Target -> Program, or directly click the download shortcut button, as shown in the figure below):



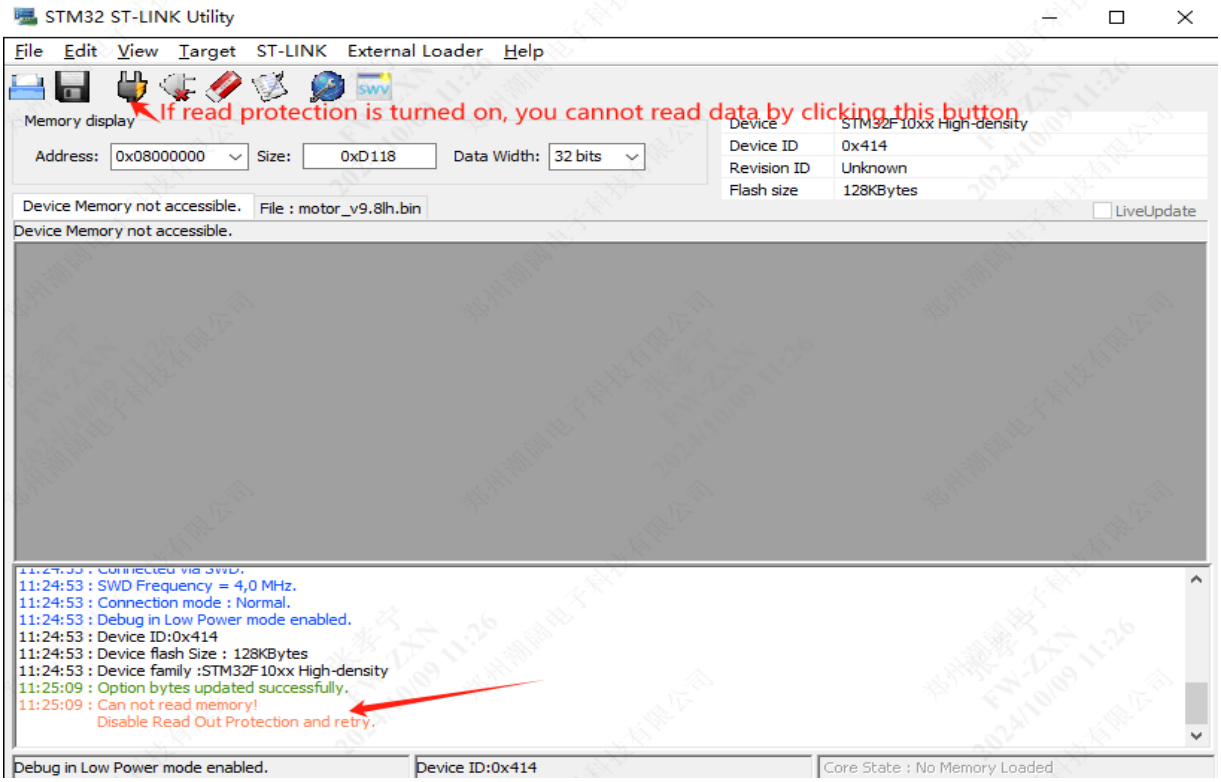


If the firmware is written successfully, the following message will appear:

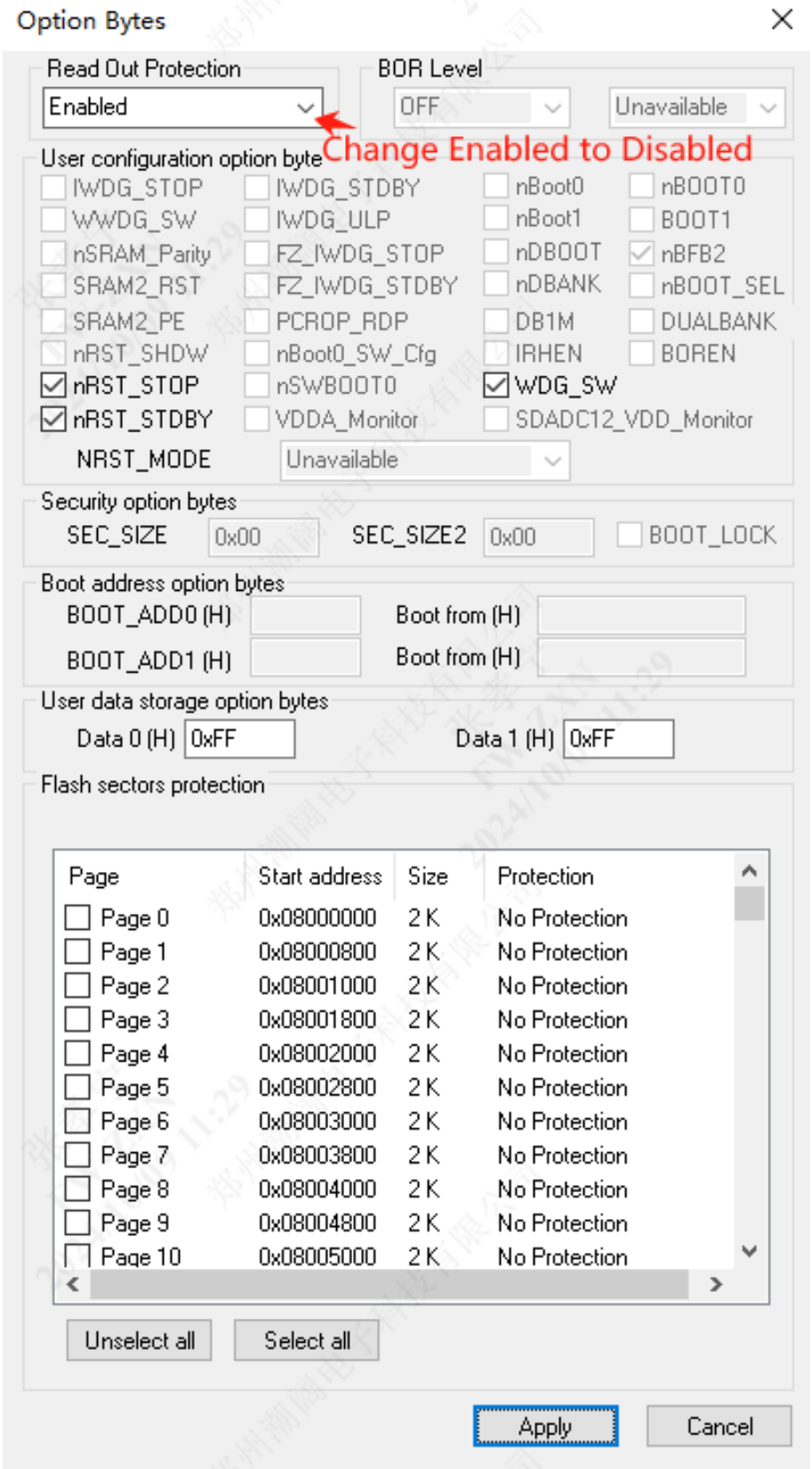


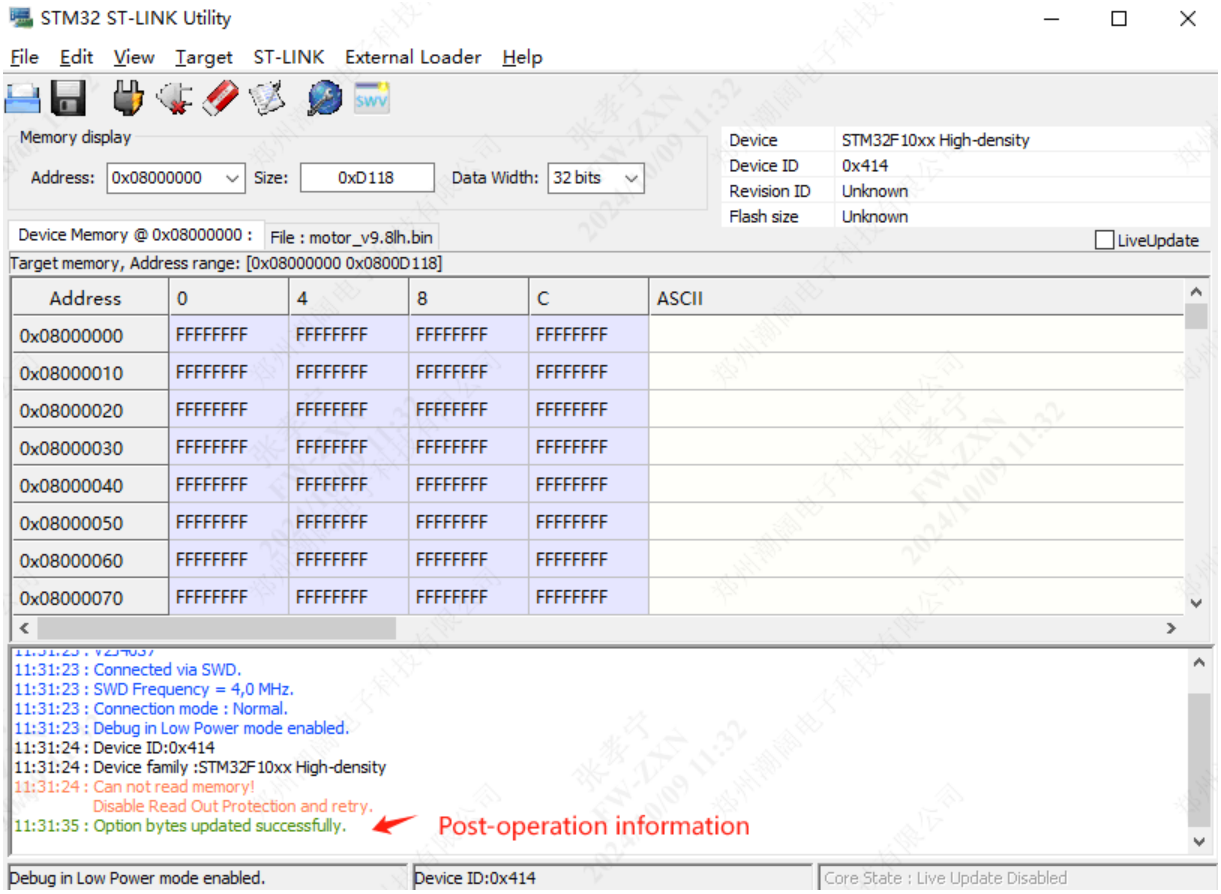
After successful writing, close the burning software and eject the programmer. Then, burn the firmware for the remaining two motor drive boards using the same steps.

If there is read protection (as shown in the figure below), you need to unlock the Flash of the STM32 first.



Click on Target -> Option Bytes, set Read Out Protection to Disabled, and then click Apply.




STM32 ST-LINK Utility
File Edit View Target ST-LINK External Loader Help
Memory display
Address: 0x08000000 Size: 0xD118 Data Width: 32 bits
Device STM32F10xx High-density
Device ID 0x414
Revision ID Unknown
Flash size Unknown
Device Memory @ 0x08000000 : File : motor_v9.8lh.bin
LiveUpdate
Target memory, Address range: [0x08000000 0x0800D118]
Address 0 4 8 C ASCII
0x08000000 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
0x08000010 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
0x08000020 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
0x08000030 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
0x08000040 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
0x08000050 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
0x08000060 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
0x08000070 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
11:31:23 : Connected via SWD.
11:31:23 : SWD Frequency = 4,0 MHz.
11:31:23 : Connection mode : Normal.
11:31:23 : Debug in Low Power mode enabled.
11:31:24 : Device ID:0x414
11:31:24 : Device family :STM32F10xx High-density
11:31:24 : Can not read memory!
Disable Read Out Protection and retry.
11:31:35 : Option bytes updated successfully.
Post-operation information
Debug in Low Power mode enabled.
Device ID:0x414
Core State : Live Update Disabled