



## *IC Programming*

IC Programming, or Integrated Circuit Programming, refers to the process of writing or loading a set of instructions, data, or code into an integrated circuit (IC) to configure its functionality or behavior. Integrated circuits are the fundamental building blocks of electronic devices, and programming them allows customization, control, and optimization of their operations.

IC Programming involves using specialized equipment, such as programmers or programmers/debuggers, to transfer software or firmware to the internal memory of an IC. This software could include firmware for microcontrollers, configuration data for programmable logic devices (PLDs), or even specific code for application-specific integrated circuits (ASICs).

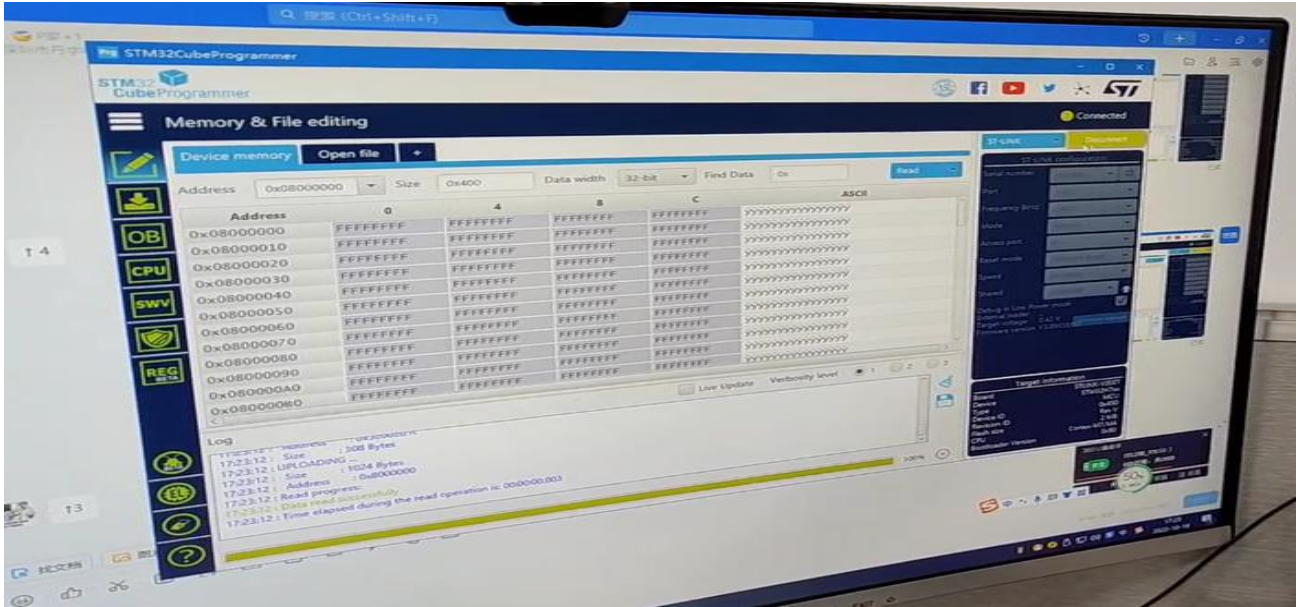
IC Programming serves various purposes:

1. Customization
2. Upgrades and Revisions
3. Encryption and Security
4. Mass Production
5. Rapid Prototyping

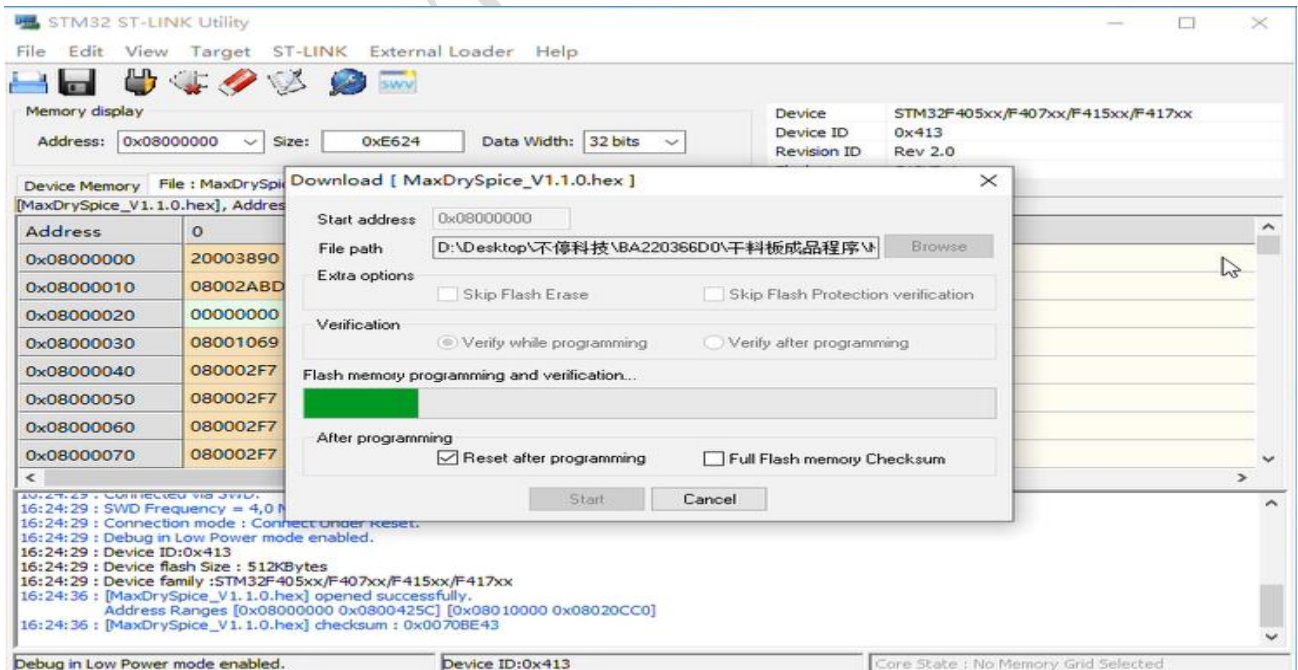
IC Programming can involve various methods, such as in-circuit programming (ICP) or in-system programming (ISP), which allow programming without removing the IC from the circuit board. Additionally, socketed ICs can be programmed offline before being soldered onto the board.

# IC Programming Process

## 1. Loading programming:



## 2. Programing



## 3. IC programing finished

STM32 ST-LINK Utility

File Edit View Target ST-LINK External Loader Help

Memory display  
Address: 0x08000000 Size: 0x14F1C Data Width: 32 bits

Device: STM32F405xx/F407xx/F415xx/F417xx  
Device ID: 0x413  
Revision ID: Rev 2.0  
Flash size: 512KBytes

Device Memory @ 0x08000000: File: MaxDrySpice\_V1.1.0.hex  LiveUpdate

Target memory, Address range: [0x08000000 0x08014F1C]

Address	0	4	8	C	ASCII
0x08000000	20003890	080002DD	08002AC1	08002AB9	?8 . ?...?*..?*..
0x08000010	08002ABD	08000F07	08003525	00000000	?*.....%5.....
0x08000020	00000000	00000000	00000000	08002BED	.....?+..
0x08000030	08001069	00000000	08002AFD	08002D45	i.....?*..E-..
0x08000040	080002F7	080002F7	080002F7	080002F7	?...?...?...?...?
0x08000050	080002F7	080002F7	080002F7	080002F7	?...?...?...?...?
0x08000060	080002F7	080002F7	080002F7	080002F7	?...?...?...?...?
0x08000070	080002F7	080002F7	080002F7	080002F7	?...?...?...?...?

```

16:24:29 : Debug in Low Power mode enabled.
16:24:29 : Device ID:0x413
16:24:29 : Device flash Size : 512KBytes
16:24:29 : Device family :STM32F405xx/F407xx/F415xx/F417xx
16:24:36 : [MaxDrySpice_V1.1.0.hex] opened successfully.
           Address Ranges [0x08000000 0x0800425C] [0x08010000 0x08020C00]
16:24:36 : [MaxDrySpice_V1.1.0.hex] checksum : 0x0070BE43
16:24:41 : Memory programmed in 3s and 907ms.
16:24:41 : Verification...OK
16:24:41 : Programmed memory Checksum: 0x0070BE43

```

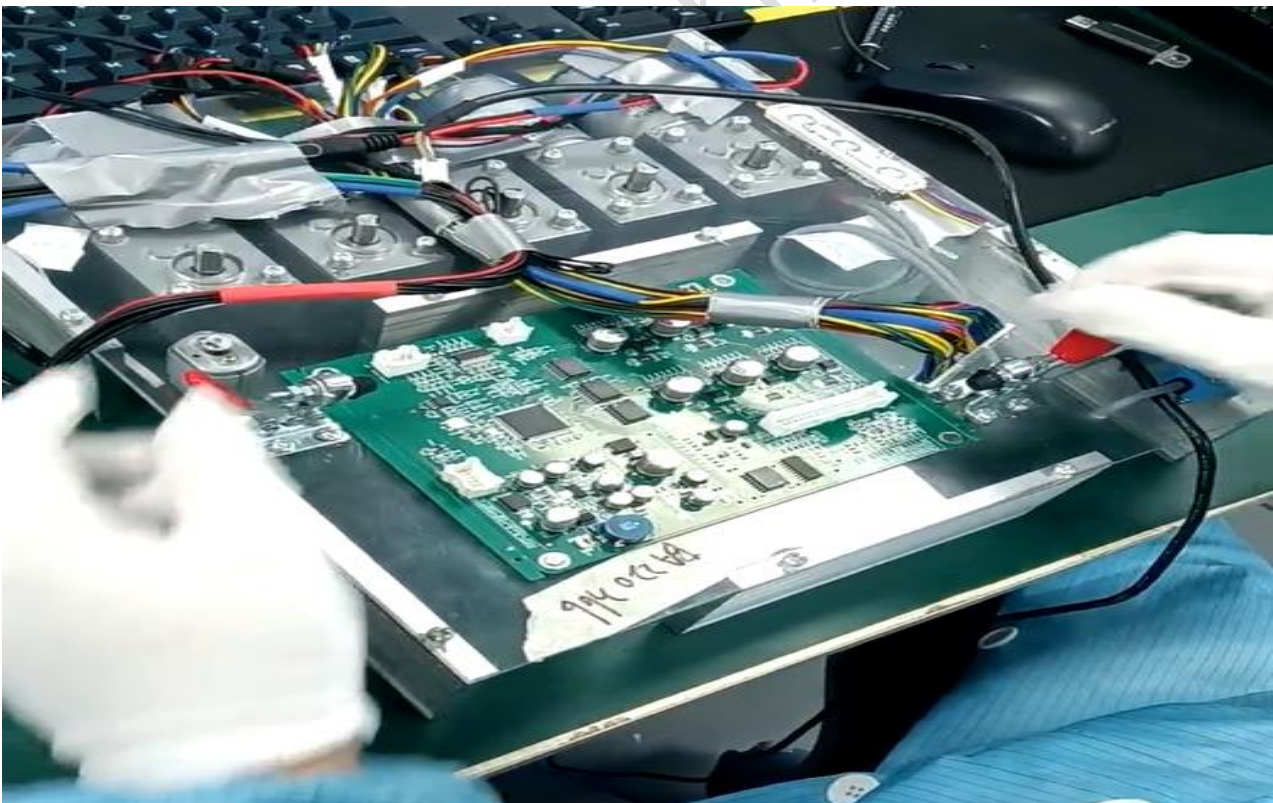
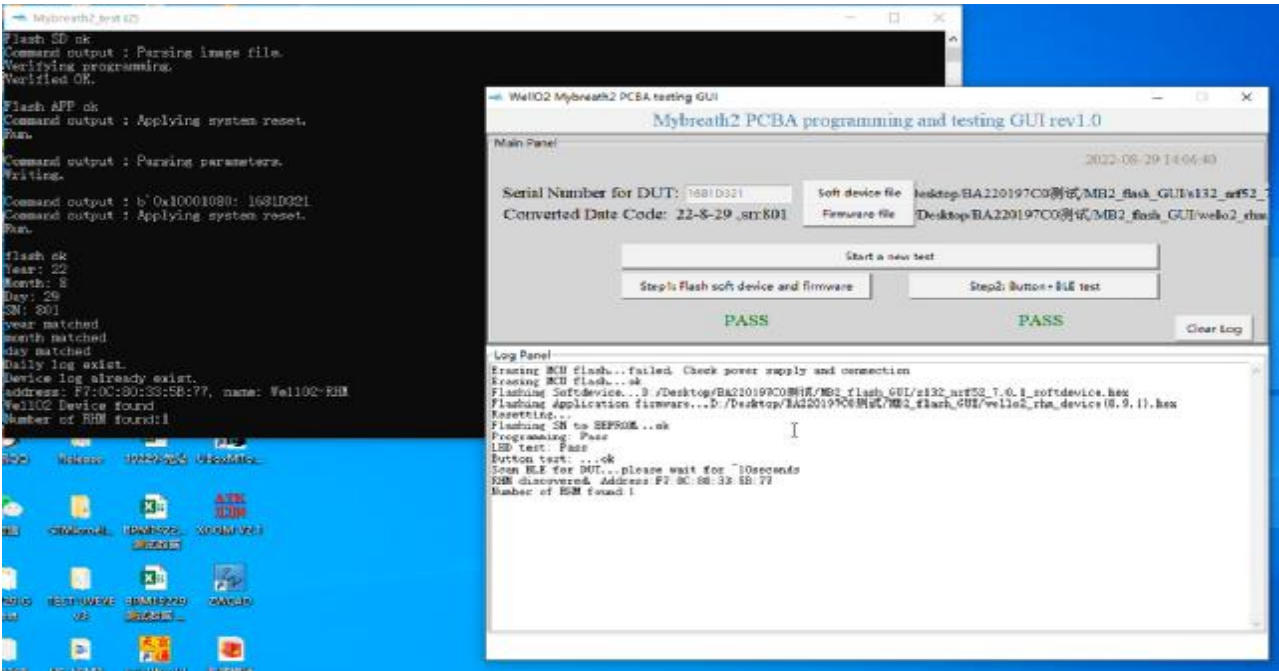
Debug in Low Power mode enabled. Device ID:0x413 Core State : Live Update Disabled

## 4. Power-on test





### 5. Functional test



## 6. Current test/ Voltage test



## 7. IC programming report

1771400A - 记事本

文件(F) 编辑(E) 格式(O) 查看(V) 帮助(H)

Test record for DUT with SN:1771400A

2023-07-20 15:23:57.503448

Step 1: Flash firmware

Step 1.1: Erasing MCU flash:ok

Step 1.2: Flashing Softdevice:D:/Desktop/BA220197C0测试/MB2\_flash\_GUI/s132\_nrf52\_7.0.1\_softdevice.hex

Step 1.3: Flashing Application firmware:D:/Desktop/BA220197C0测试/MB2\_flash\_GUI/wello2\_rhm\_device(0.9.1).hex

Step 1.4: Reset after flash:ok

Step 1.5: Flash SN to EEPROM:ok

Step 1.6: LED check:pass

2023-07-20 15:24:13.328906

Step 2: BTN + BLE test:

Step 2.1: BTN test:Pass

BLE scan result:

Discovered RHM address:EC:54:58:B3:98:B0

Number of RHM found:1

Step 2.2: BLE test: Pass

测试报告