

★ 2 : FAQ Topics

Version: Next

# 2 : FAQ Topics

# 2.1 Software

- PowerWriter For ARM (Power Writer For ARM) : PowerWriter For ARM
- PowerWriter For RISC-V (Power Writer For RISC-V) : PowerWriter For RISC-V

# 2.2 Hot questions

The following procedures are applicable to both the ARM series and RISC-V series clients.

## 2.1.1 Old drive interference

The common phenomenon is that the client recognizes two ports, the automatic connection turns gray, or KEIL cannot recognize the device, indicating that the device cannot be connected, and the driver in the device manager has an exclamation mark.

Treatment method reference:

How to handle driver exceptions

### 2.1.2 Unrecognized chip

The general reason is that the line sequence connection is wrong (the reference voltage VREF is fuzzy, resulting in a direct connection error of 5V) or the need for external power

supply or no signature.

Treatment method reference:

- How to deal with chip connection failure
- The chip name is gray

### 2.1.3 Programming

- PWLINK2 and PWLINK2 Lite support only online programming, PW200,PW300,PW400/PWX1 Support online programming and offline programming.
- How to programming online
- How to programming offline

### 2.1.4 How to read the save chip data

The premise of reading the chip is that the chip is unprotected, which can be confirmed by reading the option byte.

How to read and save the chip data

## 2.1.5 Chip supported or not

The PowerWriter website allows you to query the adapted chip model.

- Querying the chip model
- Submit the support chip form

### 2.1.6 Automation machine

The signal source VCC of the machine needs to connect to the 5V pin of the writer.

How to connect the automation machine

### 2.1.7 About Debugger

While supporting MDK as a debugger, IAR directly uses an IDE based on the eclipse framework without configuration.

- Debugger use tutorial
- Common problems of debugger

### 2.1.8 Correct operation of erasing

The following information is displayed on the log page after the erasing operation is performed: If the current page does not support erasing, see the following correct erasing operation:





Edit this page

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Version: Next

# 3.1.1 : Upgrade Service

### 🗘 ТІР

If it is used stably during the current programming process, you can skip this upgrade or turn off the upgrade function, see Menu -> Preferences -> Check for updates at startup.

All the software of ICWorkshop, as the product is positioned to adapt to more chips on the market, in order to continuously optimize the user experience, it is currently updated regularly (every two weeks), mainly including the following upgrades:

- Add Recently added adaptation chip brands or models.
- Based on user feedback, make appropriate improvements to some functions.

Each update will prompt the user to update through the form of automatic pop-up window, and with a detailed introduction of the updated content. In addition to the mandatory update of the main function, users can choose whether to update according to their own use.

**Client upgrade** pop-up window, click the left arrow in the lower left corner, there will be a simple explanation of this update, the right side is to allow users to skip this update, the pop-up page is as follows:

• Auto Update V1.0.1	- PowerWriter	-		×
劉朝	Ţΰ			
Update file size:192 KB	Current down	load:		
<< )	Update now	<u>Skip cu</u>	rrent ve	<u>rsion</u>

The following is an example of a recent upgrade record:

0	Auto Update V1.0.1 -	PowerWriter	_	
10.0	谢城	<b>ក្</b> រវាភ្		
	ate file size:192 KB	Current de	woload:	
opu			Jwilloau.	
	<u>&gt;</u> ]	Update now	<u>Skip cu</u>	<u>irrent version</u>
Ver	sion V1.3.8.0			
<fi 1. F 2. / 3. / 4. F 0 5. L (I w 6. F</fi 	ked> ix the error in the des Adjust the Flash algorith According to the origin: djust the Flash algorith ixed the issue that sor f the meta core may re- imited by the product roduct maintenance per Note: AB version firmwy which can be switched ix STM32F207xE optio	cription of the byte hms of the MM32F0 al requirements of F m of some PY32 ch me chip reading opt eturn incorrect data capacity, in order t eriod as much as po rare supports differe on the client side!) in byte read return	s of the MM320 010 and MM329 Pran, ips ion bytes o increase the essible, the polic ent brands of ch error issue	50001 optio SPIN040C y of AB ver lips,
<fe Nor</fe 	ectures>			
<n< td=""><th>ew target&gt;</th><th></th><th></th><th></th></n<>	ew target>			
SW SW	M M241xB銆丼WM241xB	_Data		

**Firmware Upgrade** pop-up window, you can skip this update by clicking No. The popup page looks like this:



### 

- The upgrade of the upper PC and firmware of the PowerWriter® is synchronized. If the upgrade is not synchronized, an error may be reported on the new chip.
- You can also delete or change the file name update.exe in the PowerWriter® installation folder to disable the update function. However, you will miss the upgrade opportunity that is optimized for the function. Exercise caution when performing this operation.

 Tags:
 FAQ
 update

Edit this page
Last updated on Apr 15, 2024 by Alan Chen

Version: Next

# 3.1.2 : Product Selection

# 3.1.2.1 : Characteristic comparison

Product Model	PWX1	PW300	PW200	PWLINK2	PW400	PowerDebuggger
Universal serial port	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Standard debugger	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	√(*Part)	$\checkmark$
Network debugger	х	x	x	x	x	$\checkmark$
RTTViewer	х	x	x	x	x	$\checkmark$
RTTScope	х	x	x	х	x	$\checkmark$
ITM Trace	х	$\checkmark$	$\checkmark$	х	x	x
Online programming	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	x
Factory mode	$\checkmark$	$\checkmark$	$\checkmark$	x	$\checkmark$	x

Product Model	PWX1	PW300	PW200	PWLINK2	PW400	PowerDebuggger
Offline programming	$\checkmark$	$\checkmark$	$\checkmark$	x	$\checkmark$	x
Multiple projectes	$\checkmark$	x	x	x	x	x
Display	$\checkmark$	x	x	x	x	x
Programming times limit	$\checkmark$	$\checkmark$	$\checkmark$	x	$\checkmark$	x
ICWKEY authorized signature	$\checkmark$	$\checkmark$	$\checkmark$	x	$\checkmark$	x
Cloud Platform	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Bluetooth	$\checkmark$	$\checkmark$	x	x	x	$\checkmark$
Instruction set	ARM/ Other	ARM	ARM	ARM	RISC-V	ARM

# 3.1.2.2 : Product purchase



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Edit this page

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Version: Next

# 3.1.3 : About Wiring

### 📿 тір

Due to different batches of devices, all devices may have different screen printing of shell materials. Before viewing this document, determine the device model and screen printing of shell materials.

## 1 PWLINK2(lite)

Before using the device, please connect the client to view the connection diagram between the corresponding chip and the programmer.

### 1.1 SWD connection type(ARM)

• When pins 7 and 9 of the device are VDD:

Chip pin : SWCLK, SWDIO, GND, VDD and PWLINK2(Lite)'s SWCLK(2),SWDIO(4),GND(5),VDD(7)Pin docking:



 If the 7th pin of the power supply is VREF and the 9th pin is 5V: Chip pin: SWCLK, SWDIO, GND, VDD are connected to pins of SWCLK(2), SWDIO(4), GND(5), VREF(7) of PWLINK2(Lite). If the chip operating voltage is 5V, the chip VDD is connected to pin of 5V. Specific pin description see Hardware working state description, the device pin distribution diagram is as follows:



#### 1.2 SWIM connection type(STM8)

- If your programmer's power supply pin is 7-VDD 9-VDD: Please connect the pin SWIM RST GND VDD of the chip in your hand with the pin 3-SWIM 1-RST 5-GND 7-VDD of the programmer one by one. The pin distribution diagram of the programmer is shown in the figure above.
- If your programmer's power pin is 7-VREF 9-5V: Please connect the pin SWIM RST GND VDD of the chip in your hand with the pin 3-SWIM 1-RST 5-GND 7-VREF of the programmer one by one. If the working voltage of the chip is 5V, connect the pin VDD of the chip with the pin 5V. The pin distribution of the programmer is shown in the figure above.

### 2 PW200 or PW300

Before using the device, please connect the client to view the connection diagram

between the corresponding chip and the programmer.

### 2.1 SWD connection type(ARM)

 If the power pin of your programmer is 5V Vext Vext: Please connect the pin SWCLK SWDIO GND VDD of the chip in your hand with the pin SWCLK SWDIO GND VEXT of the programmer one by one. If the working voltage of the chip is 5V, connect the pin VDD of the chip with the pin 5V. The physical diagram of the pin distribution of the programmer is shown below.



 If the power pin of your programmer is 5V VIN VREF Please connect the pin SWCLK SWDIO GND VDD of the chip in your hand with the pin SWCLK SWDIO GND VREF of the programmer one by one. If the chip working voltage is 5V, connect the pin VDD of the chip with the pin 5V. Specific pin description see Hardware working state description, the programmer pin distribution diagram is shown below.



#### 2.2 SWIM connection type(STM8)

• If the power pin of your programmer is 5V VEXT VEXT Please connect the pin SWIM

RST GND VDD of the chip in your hand with the pin SWIM RST GND VEXT of the programmer one by one. If the working voltage of the chip is 5V, connect the pin VDD of the chip with the pin 5V. The physical picture of the pin distribution of the programmer is shown in the figure above.

 If the power pin of your programmer is 5V VIN VREF Please connect the pin SWIM RST GND VDD of the chip in your hand with the pin SWIM RST GND VREF of the programmer one by one, then connect the pin VDD of the chip with the pin 5V, the physical picture of the pin distribution of the programmer is shown in the figure above.

### 3 PW400

Connect to the client first and query the wiring diagram of the corresponding chip model and pW400.

The following illustration is for example GD32VF103x4:



The physical pin distribution of PW400 is shown in the figure below:



### **DESCRIPTION OF VDD, VEXT, VREF,5V ON THE DEVICE**

- VDD,VEXT, and VREF are powered on at 3.3V by default. You can use the PowerWriter® client to change the power.
- See How to Set the interface Level.
- The 5V pin can only stabilize the output 5V working voltage and is not controlled by software.

### 4 PWX1

**PWX1** Device interfaces are described as follows



Ports on the conversion board are as follows:



### 4.1 SWD connection type(ARM )

Connect the device to port 5, or connect the adapter board to port SWD.

### 4.2 SWIM connection type(STM8)

Connect the SWIM port of the switch board.

### 4.3 I2C connection type(EEPROM)

Connect the I2C port on the conversion board.

#### 4.4 PWM connection type(wave out)

Connect the PWM interface of the conversion board.

### 4.5 JTAG connection type(Debugger)

Connect the JTAG port on the switch board.

### 4.6 SPI connection type(Nor flash)

Connect the SPI interface of the switch board.

#### 4.7 Machine connection mode

See Interface 8.

### 5 External power supply wiring method

The above programmer itself does not have a large load capacity, when the board needs to be powered separately during programming, the wiring generally remains unchanged, if the 5V pin of the connected programmer needs to be changed to VREF or VDD or VEXT(based on the screen printing on the actual equipment), if it is not connected to the 5V pin, the wiring remains unchanged. In this case, you need to change the interface level of the PowerWriter® client to an external input, and click Apply Settings to synchronize to the programmer. As shown in the picture below:



# 6 Use serial port

Please connect the pin RX, TX of the chip in your hand with the RX, TX pins of the programmer, cross docking, power cord and ground wire one by one. The pin distribution diagram of each programmer is shown in the figure above.

 Tags:
 FAQ
 Connection

 Edit this page

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Version: Next

# 3.1.4 : Device Status

# **1.0 Overview**

This chapter describes the normal or abnormal operating status of the hardware of the PowerWriter<sup>®</sup>, the definition of the status of the indicators, and the definition and functions of each power pin. The user can judge the working state of the equipment with the help of this summary. If the equipment is working abnormally, the description of this summary can judge and eliminate the anomaly. If it cannot be successfully eliminated by yourself, please reproduce the abnormal working state of the equipment, take a video and send it to our staff to help analyze and eliminate the anomaly.

# **1.1 Indicator description**

## 1.1.1 PWLINK2, PWLINK2 Lite

According to the different states between the red and blue lights, the working state of the equipment is displayed:

- **Red on:** normal power on, red and blue alternately, a red light is on, indicating that the device is in standby state, at this time the chip is not recognized, no data interaction
- *Alternating red and blue flashing:* After normal power-on, the working status of the indicator indicates that the device has data interaction with the upper computer or the target chip, and the blinking frequency represents the busy degree of data interaction (if the data interaction reaches a certain degree, the phenomenon of

alternating red and blue flashing will show a state of steady blue and occasional red, which is a normal phenomenon).

- Blue steady on: After normal power-on, if the blue light of the device is steady on, and no red/blue switch occurs, this is the abnormal working state of the device.
   Consider that there is device damage or abnormal working of the main control.
- **No light on:** After powering on, no light on. This phenomenon means that the entire device has no power supply. Please check the power supply status of the device or whether the circuit components are abnormal or damaged.
- **Sudden shutdown:** normal power-on, or normal operation, the indicator light (suddenly) **out**, considering the short circuit or the rear circuit with a large load and other circumstances to trigger the power failure protection of the device, please pay attention to check the short circuit or disconnect the rear circuit connected to the device, and re-power on to see whether the device can start normally.

### 1.1.2 PW200, PW300, PW400, PWX1

- The above equipment has four indicators for only the working state of the equipment, which are:
- **Blue (excluding PWX1)** : POWER indicator (POWER), normally should be on; If the device is off or blinking, the power supply is abnormal or unstable. Ensure that the power supply of the device is stable to ensure that the device can work properly.
- **Orange (yellow)** : STATUS indicator, used to indicate the status of data interaction between the device and the upper computer or target chip. If no data is exchanged, it is in the off state. When there is data interaction, blinking occurs, and the blinking frequency represents the busy degree of data interaction (when a target chip is successfully recognized by the device or a large amount of data interaction is initiated, the blinking state may be characterized as steady on, which is a normal phenomenon).
- Red : Operation error indicator (NG). This indicator will light up when an error occurs

during this operation. It is extinguished (cleared) after the next operation.

- **Green** : Operation success indicator (OK), when successfully completed an operation or programming, the indicator light will light up, indicating that the current operation is successful. The indicator light is extinguished (cleared) when the next operation is initiated, or when an error occurs.
- **Buzzer** : (Except PWLINK system devices, other devices have buzzers.)
  - **One sound** : Only when the device is powered on normally, it is used to mark the normal startup of the device. The sound cannot be shielded.
  - Two rings : Used to indicate that the current operation has been successfully executed, usually accompanied by "OK" indicator light, can be set in the client mask.
  - **Three rings** : Used to indicate that the current operation has an error, usually accompanied by the "NG" indicator light, can be set on the client screen.
  - Long ring : The reason is that the device may detect a short circuit, pay attention to the upper computer prompt (if connected), and pay attention to the investigation

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The **PWX1** device has a screen display, and the power supply indicator is changed to orange, and the indicator status of the VREF pin is displayed.

# **1.2 Normal power-on status of the device**

### 1.2.1 PWLINK2, PWLINK2 Lite

After the device is powered on, the indicator on the fuselage turns blue and then red. The status of the indicator depends on whether the device has data interaction Will show different phenomena.

## 1.2.2 PW200, PW300, PW400, PWX1

After power-on, four different color indicators light up at the same time, and with the buzzer "drop" after a sound, the blue light is on, the rest of the indicators After it is turned off, the three indicators except the blue light will have different phenomena according to the different working status of the equipment.

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After the **PWX1** device is successfully started, the device enters the system desktop.

# **1.3 Serial port self-test**

When you find that the serial port is not working properly, you can short-circuit the **RX**, **TX** pins of the device, and then use a third-party serial port assistant to send any character, and check whether any character is received after each send, and whether the character received by the character is the same as that sent; If each sending is received and the sending is the same as the receiving, the serial port works properly. Or else The serial port is abnormal.

# **1.4 Device pin description**

# 1.4.1 PWLINK2, PWLINK2 Lite

All equipment screen printing, in addition to PWLINK (a generation of products), **VDD**: When pins 7 and 9 of PWLINK2 and PWLINK2 Lite are two VDD's, both VDD's output is 3.3V by default and can be set to 5V output or external input mode on the host computer. Examples of silk screen printing are as follows:



**VREF 5V**: When pins 7 and 9 of PWLINK2 and PWLINK2 Lite are VREF and 5V, the 5V pin only outputs 5V supply voltage, which is not controlled. The operating mode of the Vref pin can be configured by the upper computer, with 3.3V output by default, 5V output mode by the upper computer, or an "input mode" that provides an internal

communication reference level. The communication level of sw pin is consistent with Vref. Examples of silk screen printing are as follows:

Power Writer® Hardware Interface Viewer		×
RST COLORANCIA SAMA SO SPANCIA SAMA SO SAMA SO	家院部王坊 RST SWCLK SWIM SWDIO GND GND VREF RX 5V TX	Power Writer® PWLINK2 ✓ Hardware Version 1.3 ✓
hardware version:v1.3		OK

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In the above two cases, how to modify the output voltage on the upper computer, see Interface level Setting

When the device is working normally, the Power On Reset (POR) policy is not executed, and no data is exchanged.

**SWDIO** : Normal high level (generally equal to VDD), the level size is affected by the upper computer Settings.

**SWCLK** : Normal low level (the above two pins may receive some special application scenarios to adjust, at present it is like this)

## 1.4.2 PW200, PW300, PW400, PWX1

Power pin **VIN**: Power input, input voltage support between 2.8V~6V, internal 5V regulated output as the working power supply of the device. The role of this pin is to power the entire programming device (not applicable to USB to Typd-C power supply). Therefore, if you use this pin to power the device, please ensure that the power of the power supply is sufficient and stable. **VREF**(reference voltage), **VEXT**(extended voltage) : It can have the upper computer configuration working state. When it is output, it can output 1.8V 3.3V 5V voltage according to the Settings of the upper computer. When it is input, it can input 1.8V~5.5V for internal communication level reference.

When the device is in normal working state, no POR(Power On Reset) policy is executed, and no data interaction is performed,

**SWDIO** : Normal high level (usually equal to VDD), the level size is affected by the host computer Settings.

**SWCLK** : Normal low (the above two pins may be adjusted for special use cases, so this is what it looks like now)

# **1.5 Equipment inspection method**

## 1.5.1 PWLINK2, PWLINK2 Lite

When the programmer is powered on, the blue light is always on or the red light is not on, or there is no reaction when it is powered on, it can be judged that there is a certain hardware problem in the programmer. The user needs to recall what operations were carried out before the equipment was abnormal (after feedback, the approximate reasons are as follows: connected to a high-power device, to the high-power device power supply; Voltage reverse; Wrong power line; Improper operation causes the main control to be

programmed by the surge of the USB port or electrostatic breakdown; If a device is plugged in or unplugged during an upgrade, or if the power goes out halfway through)

When the state of the indicator light is not abnormal, the blue and red alternans will be carried out at the moment of power on, and then the red light is always on; When the chip is identified, the blue light is always on; When the chip is not identified, the red light is always on. If compared with other programmer, suspected that there is a hardware problem in the programmer, the multimeter can be used to measure the SWDIO voltage to the ground to rule out, when the host computer does not select any chip, the voltage of SWDIO should be consistent with the interface level set by the host computer, if not, there is a hardware problem, the specific device problem inside the device. Specific analysis is needed to know.

### 1.5.2 PW200, PW300, PW400

When there is an abnormal lighting condition of the indicator light in the use process, it is necessary to consider the wiring problem, especially the connection method of VDD. The correct wiring details should be connected to the programmer to check through the client. If the hardware is abnormal by measuring the pin, see the above description.

(Note: When the device is powered on normally, keil does not recognize the device, or the PowerWriter<sup>®</sup> client recognizes the two ports, this is an old firmware driver migration problem, not a hardware exception problem, see how to handle driver exceptions)

All the above problems can be avoided by standard operation. It is recommended that users familiarize themselves with simple hardware circuit knowledge before use.

### 1.5.3 PWX1

PWX1 equipment has a screen display. If there is a problem, most of the time, you can eliminate it by observing the state of the equipment. If necessary, please contact the after-sales service to return to the factory for inspection and maintenance.



Edit this page

Last updated on Apr 15, 2024 by Alan Chen

Version: Next

# **3.1.5 : Product Information**

PowerWriter<sup>®</sup> series products: PWLINK2&PWLINK2 Lite, PW200/PW300, PWX1, PW400, ICWKEY

# 1 : Software

**PWLINK2&PWLINK2 Lite, PW200/PW300/PWX1** same client for arm, see download link below:

#### PowerWriter® For ARM



**PW400** is available for RISC-V series, client download can be found below link:

PowerWriter® For RISC-V



**Security Authorization Shield ICWKEY** is an auxiliary tool for PowerWriter® offline authorization, which is responsible for controlling the number of authorization and generating authorization keys. It requires not only PowerWriter® client, but also ICWKEY client, see the link below:

#### ICWKEY



#### ICWKEY Operating System: Windows 7 Version: 1.0.2 File Size: 21.2 MB MD5: d439368bec9ae07793840496a60281bd Update Time: 2024-03-06

DOWNLOAD

# 2 : Software user's manual

### PWLINK2&PWLINK2 Lite, PW200/PW300 PW400

Apply to the same user manual, before using the product, you can have a preliminary understanding of the PowerWriter<sup>®</sup> client of the product, FAQ is a summary of common problems in the use process.

PowerWriter<sup>®</sup> User's Manual

PowerWriter<sup>®</sup> FAQ

#### **ICWKEY**

The user manual, related materials, SDK, and licensing videos can be found at the following links:

ICWKEY User Development Manual



Edit this pageLast updated on Apr 15, 2024 by Alan Chen

Version: Next

# 3.1.6 : Driver Install & Cleanup

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The PowerWriter® driver is included in the PowerWriter® software installation directory. It is recommended to use the PowerWriter® client software for processing.

#### : Download and Install 1

### **1.1 : Standard driver (support winusb)**

#### Attachment :

PowerWriter<sup>®</sup> latest driver download (suitable for PWLINK2(including lite), PWX1, PW200(PW300)) Arm chip version

### 

Connect the device to the USB interface of the Windows host: If the device is not inserted, the driver installation may fail.

- After installation, you may need to restart the system if prompted.
- This driver works with firmware versions greater than 1.00.82(Without PWX1).

Driver installation & uninstallation			
Driver list:			
■ USBSER (CDC) USB 串行设备 Microsoft	1 Win-USB	10.0.22000.1098	
Debugger driver libwdi		1.0.0.0	
WinUsB	2 CDC	10.0.22000.652	
Microsoft		10.0.22000.055	
#PDRX_WINUSB (Interfac libwdi	e 2)	6.1.7600.16385	
https://www.powerwriter.com			ð
https://www.icworkshop.com	<u>n</u>		
V1.0.0.2	Update	uninstall	

# 1.2 : SHA1 Support Driver (windows 7)

If the PowerWriter<sup>®</sup> device attribute in device management indicates that it is not signed, so it cannot connect, please try to update the system patch, or use the following alternate driver. The error screenshot is shown below
Generic P	nP Mon	itor Prop	erties				$\times$
General	Driver	Details	Events				
	Generi	c PnP Mo	nitor				
	Device	type:	Monit	ors			
	Manufa	acturer:	(Stan	dard monitor typ	oes)		
	Locatio	on:	on Int	el(R) UHD Gra	phics		
Devic Wind for th insta be m	e status lows can is device lled a file alicious s	not verify A recent that is sig software fr	the digital hardware ned incor om an ur	signature for th or software ch rectly or damag known source.	ne drivers req lange might led, or that n (Code 52)	uired ^ have hight	
							_
					ОК	Cance	əl

Attachment :

Old Windows 7 Dual Signature driver (used when the Device Manager properties bar indicates no digital signature)

### **1.3** : Latest RISC-V drivers installed

Attachment :

#### **PowerWriter® For RISC-V Driver Installation (for PW400 RISC-V chip version)**

#### **INSTRUCTIONS FOR USING RISC-V DRIVERS**

- PW400 driver is dual serial port driver, compared with Arm series driver, no HID, no Winusb
- PW400 USB ID is not the same, can not use PW200, PW300 driver.
- ARM series and RISC-V series have the same way of driver installation and distribution. It is recommended to use PowerWriter® client software for processing (menu bar -> Help -> Driver Installation).

# 2 : Old firmware driver migration

Firmware version **1.00.80 and below USB driver**, if you install with the latest version of the driver, it will not work after installation, please install the old firmware driver first, after connecting the device, upgrade the firmware, switch to the new firmware, download the address, and then reinstall the new driver.

#### Download the old firmware driver

#### 2.1:Handling for old and new firmware

After upgrading the old firmware to the latest firmware, the device manager may see a device with an exclamation mark **#PW\_HID\_CMSIS-DAPal Port (Interface 0)** or **PowerWriter® Serial Port (COM19)**, And the debugger channel is not working properly because of the old driver interference, which can be handled as follows





#### 2.1.1 Manual cleanup

Step 1: Display the exclamation point on the device, right mouse button, uninstall the driver, and check **Remove Driver** 

Step 2: After the uninstallation is complete, refresh the device again and wait for the driver to be installed

Supplementary: If exclamation marks still appear, REPEAT STEPS 1 and 2 until the old driver is uninstalled.

The operation demonstration is shown in the figure:



#### 2.1.2 Auto clean

#### **PowerWriter® Driver Cleanup Tool (ARM products supported)**

#### 

This tool will clean up all versions of the PowerWriter® driver for the system to solve the problem of exclamation marks after upgrading to a new firmware.

Windows 10 + system after cleaning, still for free drive, no need to install additional driver!

For Windows 7 SP1, install the latest driver (including WinUSB driver) from the

client software. Please note that the minimum system requirement is Windows 7 SP1. If the automatic clean-up fails, refer to Manual clean-up method

# 3 : Common exclusion Methods

### 3.1 Driver is normal, but cannot connect

If the driver is newly installed, you can try to restart the system, after the driver installation may need to restart. Second, the device manager device driver is normal, but still can not connect, you can also try to restart the system.

### 3.2 Rebooting system fails to connect

If you still cannot connect to the device after rebooting the system, please first try to clean up unused port numbers and drivers, as shown in the following ,After cleaning up the redundant information, it looks like this,Try connecting to the device again.

rile Action view riep	
Audio invite and outputs	
> Diskulves	
> Les Display adapters	
> Win Human Interface Devices	
> The Alay Alay icontrollers	
> - a imaging devices	
> 🚽 Jungo Connectivity	
> Keyboards	
> III Mice and other pointing devices	
> O Monitors	
> 🕎 Network adapters	
✓	
Debugger driver (COM24)	
🔀 Power Writer Serial Port (COM30)	
■ USB 串行设备 (COM22)	
│	
₩ 通信端口 (COM1)	
> 🚍 Print queues	
> 🚍 Printers	
> Processors	
> IP Security devices	
> 🔒 Smart card readers	
> 📑 Software components	
> Software devices	
> 🐗 Sound, video and game controllers	
> 🍇 Storage controllers	
> 🏣 System devices	
> 🏺 Universal Serial Bus controllers	
> 🏺 Universal Serial Bus devices	
> 🚍 WSD Print Provider	

### 3.3 Try changing the port number



#### 🗘 ТІР

Change the port number, the system will re-initialize the driver, also can solve some driver exception issues.

Tags:FAQConnect

Edit this page

Last updated on Apr 15, 2024 by Alan Chen

Version: Next

# 3.1.7 : Debugger Tutorials

# **1. IDE Support**

IAR, Any version, CMSIS-DAP V1 interface
IAR, >=7.40.2, CMSIS-DAP V2 interface
Keil, Any version, CMSIS-DAP V1 interface
Keil, >=5.36, CMSIS-DAP V2 interface
Segger Embedded Studio, CMSIS-DAP V1 interface
Segger J-Flash, ==V7.22B, CMSIS-DAP V1 interface
OpenOCD
PyOCD
Probe RS
FreeMASTER, CMSIS-DAP V1 interface
RT-Thread Studio
Others to be added

# 2. Common IDE Setup Methods

### 2.1 MDK Debug Settings

Follow the procedure below to open Project Settings and select CMSIS-DAP Debugger as shown in the following figure:

Skip to main content

A Click options	2 Switch to Debug X
Device       Target       Output       Listing       User       C/C++         ○       Use Simulator       with restrictions       Settings         □       Limit Speed to Real-Time       Imit Speed to Real-Time         ✓       Load Application at Startup       ✓       Run to main()         Initialization File:        Edit          Restore Debug Session Settings         ✓       Breakpoints       ✓         ✓       Watch Windows & Performance Analyzer         ✓       Memory Display       ✓         ✓       System Viewer	Asm Linker Debug UtilSettings 4
CPU DLL: Parameter:	Driver DLL: Parameter:
SARMCM3.DLL -REMAP	SARMCM3.DLL
Dialog DLL: Parameter:	Dialog DLL: Parameter:
DCM.DLL -pCM3	TCM.DLL pCM3
Warn if outdated Executable is loaded Manage Component Vi	Warn if outdated Executable is loaded
OK Ca	ncel Defaults Help

Adjust the basic settings of the debugger according to the following settings, and check whether the target chip is connected normally, as shown in the following figure, after no problem, go to the next step.

CMSIS-DAP Cortex-M Driver Setup(60Mhz)	×
Debug   Trace   Flash Download   Pack	_
CMSIS-DAP - JTAG/SW Adapter SW Device	
#PDRX_WINUSB_CMSIS-D,  IDCODE Device Name Move	
Serial No: AAAAB29E161FAI SWDIO Ox1BA01477 ARM CoreSight SW-DP	
Firmware Version: 2.1.0	
SWJ     Port     SW     Image: SWJ	
Add Delete Update AP: 0x00	
Debug Connect & Reset Options Connect: Normal Reset: SYSRESETREO	
Image: Reset after Connect     Image: Reset after Connect <td></td>	
OK Cancel Help	

Flash Download settings are as follows, according to the actual project requirements, set the appropriate erase method, as well as Program, Verify, Reset and Run options, and add the current chip's flash algorithm, as follows:

CMSIS-DAP Cortex-M Target Driver Setup	×
Debug   Trace Flash Download   Pack	_
Download Function       Image: Program         Image: Program       Image:	
Programming Algorithm	
Deceription         Device Size         Device Type         Address Range           STM32F3xx Flash         256k         On-chip Flash         08000000H - 0800FFFFH	
Start: 0x08000000 Size: 0x00010000	
Add Remove	
OK Cancel Help	

#### 🖸 тір

- **Erase Method Selection**: If you need to keep some data of the chip, such as setting data, signature information, you usually select the erase method as Sector Sections.
- **Reset and Run**: To perform a reset and run after the current firmware, you need to check the Reset and Run option.

For advanced users, custom debugging settings can be adjusted as needed, as shown below:

CMSIS-DAP Cortex-M Driver Setup(60Mhz)	×
Debug   Trace   Flash Download Pack	_
Debug Description	
Enable Enable Flash Sequences	
Log Sequences: E:\MainProjects\2023\ESSEDebugger\ESSEDebuggerFirmware\Application\ESSEDet	
Configuration: .\DebugConfig\ESSEDebugger_STM32F103C8_1.0.0.dbgconf Edit	
OK Cancel Help	

Check the Use Debug Driver option to enable the hardware debugger, this option is turned on by default, if you encounter problems, this option is also a key setting to check, as follows:

	Menu Command	
• Use Targe	Driver for Flash Programming	✓ Use Debug Driver
	Use Debug Driver	Settings Update Target before Debugging
Init File:		Edit
Configure Imag	Run Independent     File Processing (FCARM):	
Output File:		Add Output File to Group:
-		Application/MDK-ARM

After checking the settings, you can enter the commissioning normally.



#### 2.1.1 Operational Demonstration

曜 F:\Users\Tiro\_zz015\Desktop\1-书籍配套例程-F103VE指南者\_20211217\12-GPIO输出―使用固件库点亮LED灯\Project\Fire\_F103VE.uvprojx - µVision – ロ 🗙 File Edit View Project Flash Debug Peripherals Tools SVCS Window Help 📄 💕 🛃 🥔 👗 ங 🛍 🤟 🤨 🔄 🔶 隆 隆 隆 隆 🎼 🥀 🕼 🕮 🕼 🕼 APB1PERIPH\_BASE 🖂 🗟 🥐 🔍 • | 👄 🔿 🔗 🅀 • 🖬 • 🍪 🔛 👹 🧼 - 📖 🙀 LED 🖂 💉 📥 🖶 🔶 🕎 🏨 Project **д 🔀** main.c startup\_stm32f103xe.s ▼ X 🖃 🎋 Project: Fire\_F103VE 22 😑 ᇶ LED 23 🖯 / \* \* \* @brief 主函数 \* @param 无 \* @retval 无 🖶 🦢 STARTUP 24 25 startup\_stm32f103xe.s 26 🗉 🛅 CMSIS \*/ 27 🗉 🛅 STM32F1xx\_HAL\_Driver 28 int main (void) 29 📮 { 🖨 🦾 USER /\* 系统时钟初始化成72 MHz \*/ 30 🗉 📄 main.c 31 SystemClock\_Config(); 32 /\* LED 端口初始化 \*/ 🗄 📄 bsp\_led.c 33 34 LED\_GPIO\_Config(); 🗄 🚞 DOC 35 /\* 控制LED灯 \*/ 36 37 while (1) 38 £ LED1 ( ON ); 39 // 亮 40 HAL\_Delay(1000); // 灭 41 LED1 ( OFF ); HAL\_Delay(1000); 42 43 LED2(ON); // HAL\_Delay(1000); LED2(OFF); 44 45 // 亮 46 // 灭 47 LED3( ON ); // 亮 48 HAL\_Delay(1000); LED3( OFF ); 49 4 50 // 灭 🖻 Project 🎯 Books | {} Func... | 🛛 🕁 Temp...| Build Output **ņ** 🗙 CMSIS-DAP Debugger

#### 2.1.2 Video Demonstration

### 2.2 IAR Debugging Settings

Right click on the item, enter Options setting, switch to General Options standard setting page, and check whether Target -> Device is selected correctly, as shown below.

		Options for node "GPIO_T	oggle"			×
	ect CMSIS-DAP Tools Window Help Add Files Add Group Import File List Add Project Connection Edit Configurations Remove Create New Project	Options for node "GPIO_T Calegory: Ceneral Options Static Analysis Runtime Checking C/C++ Compiler Assembler Output Converter Custom Build Build Actions Linker Debugger Simulator CADI OMSIS DAP GOB Server J-set/JTAGjet J-sink/J-Trace TI Stellaris Nu-Link PE micro ST-LINK Third-Party Driver TI MSP-PET TI XDS	Library Options Target Outpu Processor variant O Core Device O CMSIS-Pack Endian mode Big Big BE32 BE32 BE8	2 MISR tt Library Co Cortex-M4 ArteryTek -AT32 None Floating point FPU D registers	A-C:2004 onfiguration 2F413C8T7 t settings VFPv4 single 16	MISRA-C:1998 Library Options 1
°	Add Existing Project Options Alt+F7		Advanced SIM	D (NEON)	Mode Se	cure v
	Version Control System				0K.	Cancel

Enter into the Debugger menu, Setup tab page, select Driver as: CMSIS-DAP device, you can check the Run to main option as needed, as shown below.

alegory	Factory Setting
ieneral Options tratic Analysis untime Checking C/C++ Compiler Assembler Output Converter Output Converter Output Build Build Actions Unker	Setup Download Images Extra Options Multicore Plugins Driver CMSIS DAP  main
Debugger Simulator CADI CMSIS DAP GD8 Server Ljet/JTAGjet J-Link/J-Trace TI Stellaris	Setup macros
Nu-Link PEmicro ST-LINK Third-Party Driver TI MSP-FET TI XDS	Device description file Override default \$TOOLKIT_DIR\$\CONFIG\debugger\ArteryTek\AT32F413x8_

In the Interface tab of Debugger -> CMSIS-DAP, select the interface as SWD as follows :

eneral Options tatic: Analysis unitrie: Checking C(C++ Compler Assembler Output Converter Output Converter Override default Override default Overri	alegoly:			Factory Setting
Assembler Output Converter Output Converter Output Converter Output Converter Output Converter Output Converter Output Converter Probe config Override default Override default Override default Override default Override default CPU: Select Select Interface Multi-target debug system Target number (TAP or Multidrop 0 Target with multiple CPUs CPU number on 0 CPU number on 0	eneral Options tatic Analysis untime Checking C/C++ Compiler	Setup Interfac	e Breakpoints	
Output to build Build Actions     Image: Auto       Dubugger     From file       Debugger     Explicit       CMSIS DAP     Interface       CMSIS DAP     JTAG       Interface     JTAG       Jaink/J-Trace     JTAG       IS Stellaris     SWD       Nu Link     SWD       PE miroo     ST-LINK       TI MSP-FET     Interface       TI MSP-FET     Interface       TI XDS     Auto detect	Assembler Oxforut Converter	Probe config	Probe configuration file	
Linker Debugger Simulator CADL CADL CADL CPU: CPU: Select CPU: Select Select Select Select Select Select Select CPU: Select Select CPU: Select CPU: Select CPU: Select CPU: CPU: Select CPU: Select CPU: CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select CPU: Select Select S	Custom Build Build Actions	Auto	Override default	
Simulator     CPU:     Select       CASIS DAP     Interface     Explicit     CPU:     Select       CONSIS DAP     Interface     Multi-target debug system     Interface     Multi-target debug system       1 stellaris     NuLuk     SWD     Target number (TAP or Multidrop     0       NuLuk     Interface     CPU number on     0       Target Nith Party Driver     Interface     CPU number on     0	Linker Debugger	⊖ From file		
OMSIS DAP     Interface     Explicit probe configuration       GDB Server     JTAG     Multi-target debug system       Jitk/J-Trace     JTAG     Target number (TAP or Multidrop       TI Stellaris     SWD     Target with multiple CPUs       Nu-Link     Interface     CPU number on       Third-Party Driver     Interface     0       TI XDS     Auto detect     V	Simulator	⊖ Explicit	CPU: Select	
I-jet/JTAGjet     O JTAG     Multi-target debug system       Juink/J-Trace     Image: SWD     Target number (TAP or Multidrop 0)       TI Stelaris     Image: Target with multiple CPUs       PE micro     CPU number on 0       ST-LDK     Interface       TI XDS     Auto detect ~	CMSES DAP GDB Server	Interface	Explicit probe configuration	
Jacky/J-Irace     Image: SWD     Target number (TAP or Multidrop     0       Nu Link     Image: Target with multiple CPUs     Image: Target with multiple CPUs       PE micro     CPU number on     0       ST4LINK     Interface     0       TI NSP-FET     Interface       TI XDS     Auto detect ~	I-jet/JTAGjet	_ JTAG	Multi-target debug system	
Nuclrik     Image: With multiple CPUs       PE micro     Image: With multiple CPUs       ST4LPK     CPU number on       Third-Party Driver     Interface       TI NSP-FET     Interface       TI XDS     Auto detect	TI Stellaris	● SWD	Target number (TAP or Multidrop 0	
ST-LINK     CPU number on     0       Third-Party Driver     Interface       TI NSP-FET     Interface       TI XDS     Auto detect ~	Nu-Link PE micro		Target with multiple CPUs	
TI NSP-FET Interface TI XDS Auto detect ~	ST-LINK Third Party Driver		CPU number on 0	
TI XDS Auto detect $\lor$	TI MSP-FET	Interface		
	TI XDS	Auto detect	~	

After the above setup you can proceed with the debugging and development of the chip.

#### 2.1.1 Demo Video

### 2.3 RT-thread Studio Debugging Settings

RT - thread Studio Download Address:https://www.rt-thread.org/studio.html

Go to SDK Manager , as shown below:



Check if the current chip support package, RT-thread source code, and PYOCD are installed.

Name	Size	Status	Description
RT-Thread Source Code			RT-Thread source code releases
Chip_Support_Packages	1 根据	顷目需要,下载对应	z的 RT-Thread、芯片、c开发板、。编译器支持包
🔲 🗃 Board_Support_Packages			Device vendor Board Support Packages
🔲 🐔 ToolChain Support Packages			RT-Thread Studio ToolChain Support Packages
✓ □ ☆ Debugger_Support_Packages			RT-Thread Studio Debugger Support Packages
> 🗌 🐸 J-Link		🔵 Installed	
> 🗍 🐸 ST-LINK_Debugger		🔵 Installed	
🗸 🗌 😂 PyOCD			
🔲 🌐 0.1.6 (2022-07-29)	96.6 MB	🔵 Installed	Add geehy apm32f4 support
① ① ① 0.1.4 (2022-05-06)	96.1 MB	Not installed	add geehy apm32f1 support, update pyocd to 0.33.1
0.1.3 (2021-12-08)	87.8 MB	🔵 Installed	2 卜载安装 Pyocd DAPlink 调试支持继动
①      ⊕ 0.1.2 (2020-09-23)	87.2 MB	Not installed	Add Essemi MCU packs
0.1.1 (2020-09-23)	53 MB	Not installed	Add AT32F4xx support
□ 冊 0.1.0 (2020-07-20)	53 MB	Not installed	PyOCD support debugging with DAP-Link debugger
> 🗍 📂 QEMU		Installed	
> 🗍 📂 OpenOCD-Kendryte		Not installed	
> 🗌 📂 WCH-LINK_Debugger		Not installed	
> 📋 📂 OpenOCD-Nuvoton		Not installed	
> 🗍 📂 OpenOCD-HPMicro		Not installed	
> 🗌 📂 OpenOCD-Nuclei		Not installed	
> 🗍 📂 OpenOCD-Infineon		Not installed	
> > HirdParty_Support_Packages			ThirdParty Support Packages

📿 тір

To debug a project through DAPLink, you must use Pyocd or OpenOCD as the debugger's Adapter, and eventually debug through the gdb connection.

Create a new RT-Thread project as shown below:

workspace - RT-Thread S	itudio		
e Edit Source Naviga	ite Project Run Window	Help	
New	Alt+Shift+N >	RT-Thread Project	
Open File	C	RT-Thread Nano Project	
Recent Files	> 1	🛙 General Project	
Close	Ctrl+W	Board Support Package	
Close All	Ctrl+Shift+W	Froject	
Save	Ctrl+S	Convert to a C/C++ Project (Adds C/C++	Nature)
Save As	0	🔋 Folder	
Save All	Ctrl+Shift+S	Source File	
Revert		i Header File	
Move		File from Template	
Rename	F2	y class	
Refresh	F5	b Other	Ctrl+N
Convert Line Delimiters	s To >		

Set up the debugger as follows:

New Project -		×
Create RT-Thread Project Input project name, choose one mcu.		
Project name: STM32F13RH		
Use <u>d</u> efault location Location: D:\RT-ThreadStudio\workspace\STM32F13RH	B <u>r</u> owse	e
O Base On MCU O Base On Board		
RT-Thread : 4.0.3		~
Vendor : STMicroelectronics ~ Series : STM32F4		~
Subseries : STM32F413 V MCU : STM32F413RH	4 ·	<u> </u>
Console UART : UART1 V TXP : PA9 RXP : PA10		
Adapter : DAP-LINK V Port : SWD		~
1 选择DAP-LINK,Port 选择为 SWD 模式 Suggestions after mcu based project created: The chip use an internal HSI clock. If you need to modify it, please check and modif	fy drv_clk.o	;
(?) < <u>Back</u> <u>Next</u> > <u>Finish</u>	Canc	el

Once the configuration is complete, the project is generated and ready for download and

#### debugging as follows:

Supplying STM22E12PU/st thread (components / drivers / mins / pins / PT Thread				- 0
File Edit Source Navinate Project Run Window Help	auto			0
	e 1+ ≂ ∞ 2 2 1 4 - 0 -		Quick Access	88   🕻 C/C++ 😹 Del
🐇 Debug 🕴 🛷 Search 🐁 Project Explorer 🙆 🛛 調議 🛛 🐐 🗢 🗖	) drv_usart.c 🚯 con 🖳 🚛 👫 🔰 device.c 🔅 drv_gpio.c 🔅 board.c 🔅 components.c 🗈 pin.c 😒 🖳 🧮 🗖	(x)= Varia 23 IIII Regi	🎭 Brea 🔗 Expr 🛋 №	Aod 🕆 Perip 🖱
Image: Search & Project Endern @ Image: The Search & Project Endern @ Image: The Search & Project Endern @ Image: The Search & Project Endern & & Project	dav_uset       0 com       F42       device       0 device       d	00-Varia 13 III Regi⊥ Name > ⇒ name > ⊕ user_data	Sear Strar and A	ted. ?; brip. 2 Get 2 C C C C C C C C C C C C C C C C C C
	1827 1838 nt_err_t <b>t_pin_sttach_irq</b> (nt_int32_t pin, rt_⊔int32_t mode, 1838 void (*hdr)(void *args), void *args)			
	100 L			

💭 ТІР

It is necessary to have Pyocd or Openocd installed in the SDK-manager.

### 2.4 Other IDE Tutorials

# **3. Frequently Asked Questions**

### 3.1 Target Chip Mismatch

Common errors are described below:

- Connection refused due to device mismatch!(Not a genuine ST Device! Abort connection).
- PDSC : Sequence Execution failed.

The above problem may be due to purchasing a chip that is not the original chip, see **Target chip mismatch** 

### 3.2 Connected device (chip) failure

- No Debug Unit Device found
- SWD/JTAG Communication Failure
- RDDI-DAP ERROR

Details of the above issues can be found in Communication Issues

### 3.3 Programming Failure

- Flash Timeout. Reset the Target and try it again.
- Error : Flash Download failed "Cortex-M4"
- Could not stop Cortex-M device!Please check the JTAG cable.
- Error : Flash Download failed Target DLL has been cancelled

Details of the above problem can be found in **Programming Failure** 

### 3.4 Verify failure

• Contents mismatch at: 08000064H(Flash=FFH Required=0)

Details of the above issue can be found in Checksum Failure

### 3.5 Flash configuration error

- Cannot Load Flash Programming Algorithm!
- Overlapping of Algorithms at Address 0800000H

For details of the above issues, please see Flash configuration 1, Flash configuration 1.

Tags: FAC	2 MDK	debug	
🖍 Edit thi	s page		
Last updated	on <b>Apr 12,</b>	2024 by Ald	an Chen

Version: Next

# 3.1.8 : Debugger FAQ

# 1 MDK autorun not working

After the program is downloaded and found not running, the following points need to be noted:

- Check that the reset mode in the Debugger settings is correct.
- · Reset and run is checked or unchecked.
- Is the Flash Algorithm setting correct.

## 2 Breakpoints do not take effect

Please check the compilation settings. Such as optimization level, debugger settings, and its own code features such as whether watchdog is enabled.

# **3 Limit the number of breakpoints**

The number of hardware breakpoints is related to the chip itself and depends on the MCU core version unit, the manual will list the number of breakpoints supported by the current chip, please check the manual of the chip you are using for the contents of the debugging chapter.

Skip to main content

# 4 Bootloader deleted during download

- For IROM setup, it is important to make sure that the generated Image address is correct.
- When writing to Flash, pay attention to the selection, page erase, set in the Debugger page, so that you can avoid the whole chip erase, retaining the other data inside the chip.

## **5 Prompt for device mismatch**

**Tip Message:** Connection refused due to device mismatch!(Not a genuine ST Device! Abort connection)





Maybe the purchased chip is not the original chip, such as polished silkscreen, or business false advertising, due to some of the popular chips many manufacturers have similar chips, and even PIN TO PIN compatible, so there are these problems, the low version of the MDK and the chip support packages will not check the chip's IDCODE, so there may not be an error report, replace with a higher version of the MDK and the support packages, there may be an error report! If you change to a higher version of the MDK and support package, you may get an error. You can check the IDCODE of the chip manual to determine the real chip model.

For example, the IDCODE of the STM32F1 chip is: 0x1B10417.

-SW Dev	vice			
	IDCODE	Device Name		Move
SWDIO	⊙ 0x1BA01477	ARM CoreSight SW-DP		Up
				Down
👁 Aut	omatic Detection	ID CODE:		
C Ma	nual Configuration	Device Name:		
Add	Delete Up	odate	AP: <b>0x00</b>	

But the sample is: 0x2BA01477 as shown below:

-SW Dev	vice			
	IDCODE	Device Name		Move
SWDIO	⊙ 0x2BA01477	ARM CoreSight SW-[	OP	Up
				Down
				Down
💿 Aut	omatic Detection	ID CODE:		
C Ma	nual Configuration	Device Name:		
Add	Delete Up	odate	AP: 0x00	)

After identifying, this chip may be: CS32F103C8T6 (CKS32F103C8T6).

### 5.1 Solution 1

According to IDCODE, you can find the real model number of the chip, download the backup package of the corresponding manufacturer's chip, install it, switch it to the actual chip model, and then debug it.

CKS32F103C8 Download (Keil.CS32F1xx\_DFP.pack is required, STM32F103 library and CKS32F103 library can be used to run the demo properly.)

### 5.1 Solution 2

First find the pack of the selected chip, and find the pdsc file of the current chip, such as C:\Keil\_v5.25\ARM\PACK\Keil\STM32F1xx\_DFP\2.3.0\Keil.STM32F1xx\_DFP.pdsc

```
<sequence name="CheckID">
        <block>
         __var pidr1 = 0;
         __var pidr2 = 0;
          ___var jep106id = 0;
          __var ROMTableBase = 0;
          ap = 0; // AHB-AP
         ROMTableBase = ReadAP(0xF8) & ~0x3;
         pidr1 = Read32(ROMTableBase + 0x0FE4);
          pidr2 = Read32(ROMTableBase + 0x0FE8);
          jep106id = ((pidr2 & 0x7) << 4 ) | ((pidr1 >> 4) & 0xF);
        </block>
        //Comment out the chip ID to check the configuration
       //<control if="jep106id != 0x20">
       // <block>
                   Query(0, "Not a genuine ST Device! Abort
        11
connection", 1);
                  Message(2, "Not a genuine ST Device! Abort
        //
connection.");
       // </block>
       //</control>
</sequence>
```

💭 ТІР

- The PowerWriter<sup>®</sup> team does not trace back to the actual chip model, and the above chip IDCODE is only illustrative of actual cases, as noted.
- The pdsc file is just an example, the paths and settings may be different for different versions of packages.

# **6 Unable to recognize debugger**

#### **Error Code: No Debug Unit Device found.**

CMCIC DAD Contour M Toward Dulinou Coture

CMSIS-DAP - JTAG/SW Adapter	SW Device Error SWDIO No Debug Unit Device found	Move Up Down
Max Clock: 10MHz	Automatic Detection ID CODE:     Manual Configuration Device Name:     Add Delete Update	AP:
Debug         Connect & Reset Options         Connect:       Normal         ✓       Reset         ✓       Reset after Connect         ✓       Log Debug Accesses       S	t: SYSRESETREQ  Cache Options Cache Code Cache Memory	wnload Options Verify Code Download Download to Flash

**Handling method:** Reconnect the programmer, make sure the programmer is connected properly and the driver is connected properly, refer to Driver Installation and Cleanup.

# 7 RDDI-DAP Error

Error message: SWD/JTAG Communication Failure(RDDI-DAP Error)  $\$  RDDI-DAP Error $_{\circ}$ 

CMSIS-DAP Cortex-M Target Driv Debug Trace Flash Download	Pack	×
CMSIS-DAP - JTAG/SW Adapter	SW Device  SWDIO  SWD/JTAG Communication Failure  C Automatic Detection  C Manual Configuration  Device Name:	ive Jp iwn
Max Clock:       10MHz       ▼         Debug	Add       Delete       Update       AP:         t:       SYSRESETREQ       Cache Options       Download Options         i:       SYSRESETREQ       Cache Code       Verify Code Download         i:       Cache Memory       Download to Flash	ad
	OK Cancel Hel	Lp

CMSIS-DAP - Cor	tex-M Error	$\times$
RDDI-D/	AP Error	
	确定	

#### Solution:

Make sure the programmer and the chip programmer port are connected properly, the chip does not have advanced protection turned on or the programmer port is multiplexed, please check the specific treatment:

How to deal with a chip that is not connected

# 8 Programming Failure

Error message: Flash Timeout. Reset the Target and try it again.







μVision	×	
<u> </u>	Error: Flash Download failed - Target DLL has been cancelled	
	确定	

#### Solution:

- Ensure that the chip does not have read protection and write protection turned on, remove the protection method reference:De-read protection。
- When the program runs on the fly or the chip reset is not successful, it will lead to unsuccessful programming, please reconnect the chip and make sure that the debugger setting options are as shown in the following figure, and you can try to pull the boot0 pin high before debugging.
- Change the debug clock size.
- Use the PowerWriter<sup>®</sup> client to erase the target chip.

CMSIS-DAP Cortex-M Target Drive	er Setup			×
Debug   Trace   Flash Download	Pack			
CMSIS-DAP - JTAG/SW Adapter	SW Device	Device Name	Move	B
Serial No: 3FFD6EC83224C1 Firmware Version: 2.1.0	SWDIO Ox0BB1	1477 ARM Core Sight SV	J-DP	n
SWJ Port: SW - Max Clock: 10MHz -	Automatic Detect     Manual Configur     Add Delete	stion ID CODE: ation Device Name: Update	AP: <b>0x00</b>	_
Debug         Connect & Reset Options         Connect:       Normal         ✓       Reset         ✓       Reset after Connect         ✓       Log Debug Accesses       St	: SYSRESETREQ 🚽	Cache Options ✓ Cache <u>C</u> ode ✓ Cache <u>M</u> emory	Download Options <u>V</u> erify Code Download Download to <u>F</u> lash	
	ОК	Cancel	Help	

# 9 Verify failure

**Error message: Contents mismatch** 

Contents mismatch at: 08000062H (Flash=FFH Required=0 Contents mismatch at: 08000063H (Flash=FFH Required=0 Too many errors to display ! Error: Flash Download failed - "Cortex-M4" Flash Load finished at 16:21:51

Troubleshooting: Make sure the flash algorithm parameters are normal, or you can reselect the chip model to update the flash algorithm settings.

Options for Target 'GD32F303E_EVAL'	×
Device Target Output Listing User C/C++ Asm Linker Debug Vtilities	
Software Packs	
Vendor: GigaDevice Software Pack	
Device: GD32F303ZE Pack: GigaDevice.GD32F30x_DFP.2.0.0	
Toolset: ARM URL: http://gd32mcu.com/data/documents/ps	
Search:	
GD32F303VC GD32 is a new 32-bit high performance, low power consumption	^
GD32F303VE universal microcontroller family powered by the ARM Cortex-M4 RISC core which targeted at various MCU application areas.	
GD32F303VG GD32 family integrates features to simplify system design and provide	
GD32F303VI GD32F303VI GD32F303VI GCUStomers wide range of comprehensive and superior cost effective MCU portfolios with proven technology and great innovation.	
GD32F303VK GD32 family includes entry line, performance line and connectivity	
GD32F303ZC Inter currentity.	
GD32F303ZE GD32F303 - ARM Cortex-M4 Core	
GD32F303ZG Flash access zero wait state	
GD32F303ZI Single-cycle multiplier and hardware divider	
▲ Memories	~
OK Cancel Defaults Help	

VISIS-DAP CORTEX-IVI Larget Driver Setup

ebug   Trace   Flash Downlos	ad			
Download Function C Erase Full Chip C Erase Sectors C Do not Erase Programming Algorithm	<ul> <li>✓ Program</li> <li>✓ Verify</li> <li>✓ Reset and R</li> </ul>	Start: 0x	gorithm 20000000 Size: 0x00001	000
Description	Device Size	Device Type	Address Range	
GU32F30x high-density FMC	512K	On-Grip Flash	00000000 - 000FFFFF	
		Start:	Size:	
	Add	Remove	]	
	OK	Cance	1	Help

# **10 Unable to load flash Algorithm**

Error Code: Cannot Load Flash Programming Algorithm

AGDI - Cortex-M Error: C:\Keil\_v5\ARM\PACK\Keil\STM32F1xx\_DFP\... ×



Reselecting the Flash Algorithm

 $\overline{}$
#### 11 Repeat add flash algorithm

Error Code: Overlapping of Algorithms at Address 08000000H



Check Flash Algorithm Settings.

#### **12 Disconnection during debugging**

Build Output
Build target 'fl_cube_test'
"fl_cube_test\fl_cube_test.axf" - 0 Error(s), 0 Warning(s).
Build Time Elapsed: 00:00:01
Load "fl_cube_test\\fl_cube_test.axf"
Erase Done.
Programming Done.
Verify OK.
Application running
RDDI-DAP Error
Flash Load finished at 09:46:25
<
E Build Output Browser

As shown in the above figure, MDK erase, write, and checksum all pass, but after the Application running ..., RDDI-DAP Error occurs!

Reason: The debugging function of IO is not turned on in the program, for example, the debugging function is off by default in Cube MX, if you generate the code directly to debug, this problem will occur.

Solution: In Cube MX, on the left side, open Serial Wire in SYS->Debug as shown below, and then update the code.

Categories A->Z	Widde
System Core DMA GPIO IWDG NVIC RCC SYS WWDG SYS	Debug No Debug Systematic Serial Wire 2 Serial Wire Timeba JTAG (4 pins) JTAG (5 pins) Trace Asynchronous Sw

If directly in code, adjust the debug mode.

```
* Initializes the Global MSP.
61
62 L */
63 void HAL MspInit(void)
64 🖂 {
    /* USER CODE BEGIN MspInit 0 */
65
66
    /* USER CODE END MspInit 0 */
67
68
     __HAL_RCC_AFIO_CLK ENABLE();
69
     ____HAL_RCC_PWR_CLK_ENABLE();
70
71
72
    /* System interrupt init*/
73
74 📋 /** NOJTAG: JTAG-DP Disabled and SW-DP Enabled
75
     */
   76
77
    /* USER CODE BEGIN MspInit 1 */
78
79
     /* USER CODE END MspInit 1 */
80
   }
81
82
83 /* USER CODE BEGIN 1 */
84
```

#### 🛛 тір

Other brands and tools are handled similarly, and such problems are caused by the debug pins not being configured in debug mode.

#### 13 MDK cannot recognize the chip

The reason for this phenomenon is the same as the previous one, because there is code running in the chip, the debugging port is disabled, and the efficiency of the PowerWriter® response is faster than the debugger, so there is a situation where the PowerWriter® can recognize it, but the MDK fails.

#### Treatment:

After connecting to the target chip using the PowerWriter®, perform the following to

erase all data.

Option byte, restore the defaults, and then write.

Erase Program Memory Program space data.

After performing the above operations, go to the MDK to debug.

## 14 Watch variable not refreshed (grayed out)

The data is not refreshed because Periodic Window Update is not checked. After entering the debugging state, check this function from View -> Periodic Window Update in the menu, the debugger and the data in the Watch window will be refreshed in real time, as shown in the following figure:

<u>F</u> ile	<u>E</u> dit	<u>V</u> iev	w <u>P</u> roject	Fl <u>a</u> sh	<u>D</u> ebug	Pe <u>r</u> i	pherals	<u>T</u> ools	<u>s</u> vcs	Window
	💕 🕻	✓	Status Bar				🤊   🔶	12.1	1 12	律律 //
RST	TH.		T <u>o</u> olbars			•		£ .	şa • 🔲	- 🛃 -
Regist	ers	E	<u>P</u> roject Win	dow			embly			
Regi	ster	3	Boo <u>k</u> s Wind	low			153:	if(	FLASH	LATENCY
Ģ Ç	ore	{}	Functions V	Vindow			154:	{	* Dec.	
	RO	0,	Templates <u>V</u>	<u>V</u> indow			155: 0800EC	/ 2A 68	~ Prog	LDR
	R2	20	Source <u>B</u> rov	vser Win	dow		0800EC	2C F0	00000	F AND
	R3 R4	==	Build Outpu	ut Wi <u>n</u> do	w		0800EC	30 28	06	CMP
	R5	×	Error List W	indow						
	R6 R7	-540	Find In Files	Window	N		) main.c	:	startup	_stm32h750
	R8		<b>C</b>				142 🖨	#if d	lefine	d (DATA
	R9 R10		Command V	vindow			143	IC	) uint	32_t tmp
	R11	토	<u>D</u> isassembly	/ Windo	N		144	#endi	.f /* 1	DATA_IN_
	R12	IS	Symbo <u>l</u> s Wi	ndow			146	/*	FPU s	ettings
			Re <u>q</u> isters W	indow			147	#if	(F	PU_PRESE
	R15	۶b	Call <u>S</u> tack W	/indow			148	S	CB->C	PACR  =
	anked		Watc <u>h</u> Win	dows		→	149 -	#en /*	dif Peset	the PCC
l ⊕… S	ystem		Memory Wi	ndows		→	151	/	Rebet	one koo
	.ntern: Mod		Serial Wind	ows		→	152	/*	Incr	easing t
	Pri		<u>A</u> nalysis Wi	ndows		→	153	if(	FLASH	_LATENCY
			Trac <u>e</u>			►	151	` /	* Pro	gram the
	Sec		System Viev	ver		•	156	M	IODIFY_	REG (FLA
± F	ru	2 A.	Toolbox Wi	ndow			157	}		
		~	1001007 111				158 -	/*	Set H	STON bit
		$\checkmark$	Periodic Wi	ndow <u>U</u> p	odate		160	RCC	->CR	I = RCC C
		_					161			
							162	/*	Reset	CFGR re

E:\MainProjects\2021\powerwriter\_for\_production\Source\mcu\_aviplayer\_sam File Edit View Project Flash Debug Peripherals Tools SVCS Window

The reason for the grey is that the compiler optimization level is too high, resulting in the actual generation of debugging information and source code breakpoints are not completely consistent with the location of the synchronization problem, at this time you can adjust the optimization level of the entire project, such as to change to the level of 0 no optimization, the location of the source code breakpoints and access to the actual variables are completely consistent with the following chart:

	Define: USE_HAL_DRIVER,STM32H/50xx
	Undefine:
HSI48 stat _BIT( it st R_LAT	Language / Code Generation Execute-only Code Qptimization: 00 Tum Wamings: AC5-like Wamings Language C: c99 Qptimization: 00 Tum Wamings into Errors Language C++: c++11 Plain Char is Signed O Plain Char is Signed Controls Compiler control string Acc -std=c99 -target=am-am-none-eabi -mcpu=cortex-m7 -mfpu=fpv5-d16 -mfloat-abi=hard -c fno-tti funsigned-char fshort-enums fshort-wchar
-	OK Cancel Defaults Help

In addition, you can adjust the optimization level of part of the source code individually by right clicking the source code file (.c, .cpp) in MDK to open the file properties and set the optimization level of the file individually, as shown in the following figure:

150 dma2d.c	/* Reset the RCC clock configuration to the default reset state	*/
151 ⊕ □ fmc.c 152	🕅 Options for File 'mdma.c'	×
ig	Properties C/C++ (AC6)	
■ ]pege 155 ■ ] ltdc.c 156	Preprocessor Symbols	CR 1 );
	Define:	
stm32h7xx_it.c     160     stm32h7xx_hal_msp.c     161	Undefine:	
AVI_parser.c 161	Language / Code Generation           Execute-only Code         Warnings: <unspecified>         Language C:         <unspecified> <unspecified></unspecified> <unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified><unspecified><unspecified><unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified></unspecified>	1
Application/Oser/PAIPS/1	Optimization: <a href="https://www.edu/data/action.com">default&gt;</a>	hit
sd_diskio.c     166     fatfs_platform.c     167	Image: Construction     Image: Construction       Imag	
Application/User/FATFS/A 168	Image: One ELF S     O2 O3 Of set         Image: One ELF S     O2 O3 Of set         Image: One ELF S     O2 O3 Of set	
Tatrs.c  Trop: Trop:Trop:Trop:Trop:Trop:Trop:Trop:Trop:	Paths Jos balanced	CR
Drivers/CMSIS     172     system stm32h7xx.c	Misc Controls	);
Middlewares/FatFs	- Compiler -xc -std=c99 -target=am-am-none-eabi -mcpu=cortex m7 -mfpu=fpv5-d16 -mfloat-abi=hard -c fno-rtti funsigned-char fshort-enums fshort-wchar	
	string	
	OK Cancel Defaults Help	ΞĮ.
180	Les Proton Onoboood,	



Last updated on Apr 15, 2024 by Alan Chen

Version: Next

### 3.1.9 : Add Firmware Method

In the PowerWriter® software:

- Select Chip.
- In "Program Memory", "Add Firmware" and "Apply Firmware".
- Click Full Function Auto programming.
- After the programming test is normal, you can save this project, and next time you can re-open it to programming directly.

#### 1 : Prepare

```
04/12-15:56:46:906> Update programmer Settings complete...
04/12-15:56:46:935> Update chip information successfully...
04/12-15:56:49:447> Target Online...
```

Skip to main content

🔘 Po	wer Write	r®1.3.	3.0 [Buil	d:2024	4-04-	10 19	9:40:33]															-	. 🗆	×
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Open	Save	F-in	F-out	PLo	ad I	PRea	d Bl	ank	Erase	e f	Read	Write	e Ve	rify	Auto	Reset	D	AnyRD	Error	Serial	Wire		PWX	1 ~
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AD	DDRESS	00	01 02	03	04	05	06 07	7 08	09	0A	0B 0	C 00	) 0E	0F		TEXT				🗌 Flash	Map(All/Una	II):	Erase-Sel	<b> -</b> ]
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8	Save Project			(CTRL+S)		2		5	
C	Save Project As		(Ctr	l+Shift+S)		e ase		Read	J
©.	Load Project			(CTRL+O)		am	n Me	mory	,
4	Recent projects				>	9	0A	0B	(
∢	Others				>	F	FF	FF	]
<u>-</u>	Export project BOM file(.xlsx	( <b>)</b>		(CTRL+B)		F	FF FF	FF FF	1
8	Verify project BOM file(.xlsx)	)		(CTRL+V)		F F	FF FF	FF FF	1
÷	Exit			(Alt+F4)		F	FF FF	FF FF	1
OW0.	COCCOCC II II II II	- <b>1 1</b>			±	C L	r r	C C	1

#### 2 : Operational Demonstration

File(F)       Operation(E)       Tools(T)       Setting(S)       Help(H)         Image: Save Frin       Front PLoad PRead       Image: Save Frin       Front PLoad PRead       Image: Save Frin       Front PLoad PRead       Image: Save Frin       Front PLoad PRead       Image: Save Frin       Image: Save		×									
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Depen       Save       F-in       F-out       PLoad       PRead       Blank       Erase       Read       Write       Verify       Auto       Reset       ID       AnyRD       Error       Serial       Wire       I         Image: Stress of the stre	Device										
Writer Setting       Option bytes       Program Memory       OTP Memory         Chip Select       MCU model:       STM32G070xB       Select       Apply         Flash size: 128.00KB       Interface level       Misc       Misc       04/12-14:53:18:0632> [07D6] Current device firmware type : Universal 04/12-14:53:18:067> Power Writer® is connected         Obon't erase       0.3.3V       OptionByte       Speed       10M hz       04/12-14:53:18:022> Update burner Settings complete       04/12-14:53:18:022> Update burner Settings connected       04/12-14:53:18:022> Update burner Settings connected       04/12-14:53:18:022> Update burner Settings connect Power Writer® is connected         Ø Full Erase       0.3.3V       OptionByte       Factory=>Custom       04/12-15:56:43:253       Change bank       04/12-15:56:43:253       05.0V       04/12-15:56:43:253       02/12-15:56:43:253       0.0KB         Ø Write function configuration       Image bank       Image bank       04/12-15:56:43:253       04/12-15:56:43:253       0.0KB       04/12-15:56:43:253       0.0KB       04/12-15:56:43:263       04/12-1	PWX1	~									
Chip Select         MCU model:       STM32G070xB         Flash size:       128.00KB         Plash size:       128.00KB         Opon't erase       1.8V         Opon't erase       1.8V         OptionByte       Factory=>Custom         OptionByte       Factory=>Custom         OptionByte       Factory=>Custom         Sector Erase       Chill Erase         Write function configuration       External input         SN Start:       0x00000000         SN Start:       0x000000001         Decimal display       Decimal display											
MCU model:       STM32G070xB       Select       Apply         MCU model:       STM32G070xB       Select       Apply         Flash size: 128.00KB       Interface level       Misc         Don't erase       1.8V       Speed       10M hz         OptionByte       Factory=>Custom       04/12-14:53:18:052> [07D6] Current device firmware type : Universal 04/12-14:53:18:0833         OptionByte       Factory=>Custom       04/12-14:53:18:0749> Resource version: 1.0.0 size: 0xcc5ac crc32:0x75         04/12-14:53:18:322> Update burner Settings complete       04/12-14:53:18:328> Please select the chip first         04/12-14:55:18:3129> STM32G070xB GTP Memoy size: 1.00 KB       04/12-15:56:43:190> STM32G070xB GTP Memoy size: 1.00 KB         04/12-15:56:43:300> Update chip information successfully       04/12-15:56:43:300> Update chip information successfully         04/12-15:56:45:957> Writer Info: hwVer:1.0 biVer:1.00.02 ifVer:1.00.1       SN:0123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789ABCDEF10123456789AB											
Flash size: 128.00KB         Erase Type       Interface level         Opon't erase       1.8V         Speed       10M hz         OptionByte       Factory=>Custom         OptionExtended       Certification         Opti2											
Erase Type       Interface level       Misc         Opin't erase       1.8V       Speed       10M hz         Image: Speed       10M hz       04/12-14:53:18:329 Update burner Settings complete         04/12-14:53:18:329 Update burner Settings complete       04/12-14:53:18:329 Update burner Settings complete         04/12-14:53:18:329 Update burner Settings complete       04/12-14:53:18:329 Stroker Writer@is disconnected         04/12-14:53:18:329 Stroker Writer@is disconnected       04/12-15:56:43:175 STM32G070xB Flash size: 128:00KB         04/12-15:56:43:190> STM32G070xB OTP Memory size: 1.00 KB       04/12-15:56:43:205 Please connect PowerWriter@is disconnected         04/12-15:56:43:205 Please connect PowerWriter@is disconnected       04/12-15:56:43:205 Please connect PowerWriter@is connected         04/12-15:56:43:205 Please connect PowerWriter@is connected       04/12-15:56:45:973 [07D6] Current device firmware type: Universal         04/12-15:56:45:973 [07D6] Current device firmware type: Universal       04/12-15:56:46:905 Power Writer@is connected         04/12-15:56:46:906 Update burner Settings complete       04/12-15:56:46:905 Resource version: PWX1         04/12-15:56:46:906 Update burner Settings complete       04/12-15:56:46:905 Update chip information successfully         04/12-15:56:46:905 Update display       04/12-15:56:46:905 Update display Update display Update display Success	050-60										
Erase Type       Interface level       Misc         Opon't erase       1.8V       Speed       10M hz         OptionByte       Factory=>Custom       04/12-14:53:18:82>       Update burner Settings complete         OHID: 14:53:07:995       03:3V       OptionByte       Factory=>Custom         ObtionByte       Factory=>Custom       04/12-15:56:43:175>       STM32G070xB Flash size: 128:00KB         OHID: 15:56:43:253>       Change bank: Single bank       04/12-15:56:43:253>       Change bank: Single bank         OHID: 15:56:43:30>       Update chip information successfully       04/12-15:56:43:30>       Update chip information successfully         Write function configuration       Image: Single output       Certification       04/12-15:56:45:973>       Orbit Plasmatic erase         SN N Quantity_Check       IHI Signal output       Certification       04/12-15:56:45:973>       Orbit Plasmatic erase         SN Start:       0x00000000       Enable SN       04/12-15:56:46:0404>       Switch version:PWX1         04/12-15:56:46:0404       Switch version:PWX1       04/12-15:56:46:095>       Resource version:1.0.0 size:0xcc5ac crc32:0x750         SN Start:       0x00000001       Decimal display       04/12-15:56:46:095>       Update chip information succeesfully         04/12-15:56:46:095>       0x00000001	ODUCUS	1									
○ Don't erase       ○ 1.8V       Speed       10M hz       ○         ○ Full Erase       ○ 3.3V       ○ ptionByte       Factory=>Custom ∨       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○       ○											
● Full Erase       ● 3.3V       OptionByte       Factory=>Custom       04/12-14:55:07:995> Power Writer® is disconnected         ● Full Erase       ● 5.0V       ● External input       ● Enable buzzer       04/12-15:56:43:175> \$TM326070xB OTP Memory size: 1.00 KB         Write function configuration       ● External input       ● Enable buzzer       04/12-15:56:43:253> Change bank: Single bank         Write function configuration       ● Quantity_Check 11:1       Signal output       ● Certification         SN N Quantity_Check 11:1       Signal output       ● Certification       04/12-15:56:45:973> (07D6) Current device firmware type : Universal         SN Start:       0x0000000       ● Enable SN       04/12-15:56:46:045       Synchronizing device time succeeded         SN Step:       0x00000001       ● Dedmal display       ● Dedmal display       04/12-15:56:40:205       Synchronizing device time succeeded											
● Full Erase       ○ 5.0V       ○ bit of the state size: 128:00KB         ○ Sector Erase       ○ 5.0V       ○ External input       ○ Enable buzzer         Write function configuration       ○ 100 KB       ○ 100 KB       ○ 100 KB         ○ Sector Erase       ○ 5.0V       ○ External input       ○ Enable buzzer         Write function configuration       ○ 100 KB       ○ 100 KB       ○ 100 KB         ○ Sector Erase       ○ 100 KB       ○ 100 KB       ○ 100 KB         ○ Sector Erase       ○ 100 KB       ○ 100 KB       ○ 100 KB         ○ Sector Erase       ○ 100 KB       ○ 100 KB       ○ 100 KB         ○ Sector Erase       ○ 100 KB       ○ 100 KB       ○ 100 KB         ○ Sector Erase       ○ 100 KB       ○ 100 KB       ○ 100 KB         ○ External input       ○ Erable buzzer       ○ 100 KB       ○ 100 KB         ○ SN N       Quantity_Check       1 1 1 100 KB       ○ 100 KB       ○ 100 KB         ○ N N       Quantity_Check       1 1 1 100 KB       ○ 100 KB       ○ 100 KB         ○ N N Output       ○ 100 Certification       ○ 100 KB       ○ 100 KB       ○ 100 KB         ○ N 0000000       ○ 100 Certification       ○ 100 Certification       ○ 100 Certification       ○ 100 Certification											
○ Sector Erase       ○ S.0V         ○ External input       ■ Enable buzzer         Write function configuration       ○ Multi-15:56:43:300> Update chip information successfully         ○ Multi-15:56:43:90ABCDEF 1234567890ABCDE Target:PWX1         ○ Multi-15:56:45:97> Writer Info: hwVer:1.0.0 blVer:1.00.02 ifVer:1.00.         SN Start:       ○ x00000000         □ Enable SN       □ Enable SN         ○ Multi-15:56:46:6995> Descurce version:1.0.0 size:0xc5ac crc32:0x756         ○ Multi-15:56:46:935> Update burner Settings complete         ○ Multi-15:56:46:935> Update chip information successfully         ○ Multi-15:56:40:935> Update duli firmware data to data editor buffer         ○ Multi-15:56:40:915> Update data to data editor buffer         ○ Multi-15:56:40:305> Update data to data editor buffer         ○ Multi-15:56:305> Save success	04/12-15:56:43:175> STM32G070xB Flash size: 128.00KB										
O Sector Erase       ○ External input       ■ Enable buzzer         Write function configuration       04/12-15:56:43:3285- Please connect PowerWriter device first         Write function configuration       04/12-15:56:43:3285- Please connect PowerWriter device first         04/12-15:56:43:300> Update chip information successfully         04/12-15:56:43:300> Update chip information successfully         04/12-15:56:45:957> Writer Info: hw/er1.0 bl/er:1.00.02 if/er:1.00.         SN N Quantity_Check       1+1         SN Start:       0x00000000         □ Enable SN       04/12-15:56:46:905> Power Writer® is connected         04/12-15:56:46:906> Update chip information successfully         04/12-15:56:46:906> Update burner Settings complete         04/12-15:56:46:905> Update chip information successfully         04/12-15:56:46:905> Update chip information successfully         04/12-15:56:46:905> Update chip information successfully         04/12-15:56:46:905> Update duit information successfully         04/12-15:56:46:905> Update duit information successfully         04/12-15:56:40:915> Update duit information successfully         04/12-15:56:40:925> Update duit information successfully         04/12-15:59:51:324> Update duit information successfully         04/12-15:59:50:35> Update duit information successfully         04/12-15:59:50:35> Update duit informate data	04/12-15:56:43:253> Change hank: Single hank										
Write function configuration         Write function configuration         Image: SN image: SN image: Signal output	04/12-15:56:43:285> Please connect PowerWriter device first										
Write function configuration       04/12-15:56:45:957> Writer Info: hwVer:1.0 blVer:1.00.02 ifVer:1.00.         Image: SN image: SN image: Signal output	04/12-15:56:43:300> Update chip information successfully										
Image: SN image: SN image: SN Quantity_Check       i + i Signal output       Certification         SN image: SN Start:       0x00000000       Image: SN Start:       0x00000000         SN Start:       0x00000000       Image: SN Start:       0x000000000         SN Start:       0x00000000       Image: SN Start:       0x00000000         SN Start:       0x00000000       Image: SN Start:       0x0000000000         SN Start:       0x00000000       Image: SN Start:       0x000000000         SN Step:       0x00000001       Image: SN Start:       0x00000001         Decimal display       Image: SN Start:       0x000000001       Image: SN Start:         SN Step:       0x00000001       Image: SN Start:       0x00000001         Decimal display       Image: SN Start:       0x00000001       Image: SN Start:	.02										
SN Start:       0x0000000       Enable SN         SN Start:       0x00000001       Enable SN         SN Step:       0x00000001       Decimal display											
SN Start:         0x0000000         Enable SN         04/12-15:56:46:989> Power Writer® is connected           SN Start:         0x0000000         Enable SN         04/12-15:56:46:004> Switch version:PWX1           04/12-15:56:46:005> Resource version:1.0.0 size:0xcc5ac crc32:0x75i         04/12-15:56:46:005> Update burner Settings complete           SN Step:         0x0000001         Decimal display         04/12-15:56:46:905> Update chip informato successfully           04/12-15:56:49:47> Target Online         04/12-15:56:40:915> Update dall firmware data to data editor buffer           04/12-15:59:51:834> Updated all firmware data to data editor buffer         04/12-15:59:51:834> Updated all firmware data to data editor buffer											
SN Start:       0x0000000       Enable SN       04/12-15:56:46:004> Switch version:PWX1         04/12-15:56:46:004> Switch version:PWX1       04/12-15:56:46:004> Switch version:PWX1         04/12-15:56:46:004> Synchronizing device time succesded         04/12-15:56:46:710> Synchronizing device time succesded         04/12-15:56:46:905> Update burner Settings complete         04/12-15:56:46:935> Update chip information successfully         04/12-15:56:49:447> Target Online         04/12-15:59:18:34> Updated all firmware data to data editor buffer         04/12-15:59:275> Updated all firmware data to data editor buffer         04/12-15:59:20:305> Save success											
SN Step:       0x0000001         Understand       Decimal display											
SN Step:     0x0000001     Decimal display     04/12-15:5040:710-5906> Update burner Settings complete       04/12-15:5640:906> Update chip information successfully     04/12-15:5640:935> Update chip information successfully       04/12-15:595:15345> Update data to data editor buffer       04/12-15:595:2752> Updated all firmware data to data editor buffer       04/12-15:59:50:305> Saye success	04/12-15:56:46:695> Resource version:1.0.0 size:0xcc5ac crc32:0x750b0c69										
SN Step:     0x0000001     Decimal display     04/12-15:56:46:935> Update chip information successfully       04/12-15:59:40:447> Target Online     04/12-15:59:51:834> Update all firmware data to data editor buffer       04/12-15:59:51:252> Update all firmware data to data editor buffer     04/12-15:59:52:752> Update all firmware data to data editor buffer											
SN Step:     0x0000001     Decimal display       04/12-15:59:51:834>     Updated all firmware data to data editor buffer       04/12-15:59:52:752>     Updated all firmware data to data editor buffer       04/12-15:59:52:752>     Updated all firmware data to data editor buffer       04/12-15:59:52:752>     Updated all firmware data to data editor buffer       04/12-15:59:52:752>     Updated all firmware data to data editor buffer       04/12-15:59:52:752>     Updated all firmware data to data editor buffer											
SN Step: 0x00000001 Decimal display 04/12-15:59:51:834> Updated all firmware data to data editor buffer 04/12-15:59:52:752> Updated all firmware data to data editor buffer 04/12-15:59:56:305> Save success											
04/12-15:59:52:752> Updated all firmware data to data editor buffer 04/12-15:59:56:305> Save success											
04/12-15:59:56:305> Save success											
04/12-15:59:56:336> Power Writer® fully functional online programmir	ng										
SN Addr: 0x080 IFFFC Bin end model 04/12-15:59:56:351> Write factory default OB											
04/12-15:59:57:177> Recalculate Program Memory data											
U4/12-15:59:57/2009 Smart online erase chip											
Communication configuration 04/12-15-59-57-200-2 Write chip data											
COM4 Kerresh Disconnect Auto Connect		34									

#### 3 : Multi-zone firmware

The file belongs to the multi-segment firmware, this situation is normal, need to be added, multi-segment firmware, the first section on-demand loading, because: developers in the project using the definition of the section, or sct file, the definition of the segment information, the PowerWriter® will automatically recognize the inside of the Segment (section information) Due to this segmentation of the firmware, the inside of the section, there will be Because of this kind of segmented firmware, there will be dummy byte

(padding byte, default is 0xff), PowerWriter® will remove the default padding when loading, and only take out the effective length of the firmware (this can speed up the programming speed, avoid writing dummy byte when programming), and other blocks such as boot code, vector table, bootloader code, application/user data/option byte, etc. to show the user which blocks need to be loaded to programming, the user can choose according to the need, or load multiple times.

Power Writer® Multiple firmware document selectors	X
劉朝堂王敬	
Multi-segment firmware	
[Firmware 0]: StartAddr:0x00000000 EndAddr:0x00007688 Size:30344	$\sim$
[Firmware 0]: StartAddr:0x00000000 EndAddr:0x00007688 Size:30344	
[Firmware 1]: StartAddr:0x00010000 EndAddr:0x00057E66 Size:294502	
This document contains more than one firmware. Please select one to load	

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Segmented firmware can be added at once using the merge function. PowerWriter® will merge all segments by default, but please note that if the firmware contains segments that exceed the Flash space, it will indicate that the capacity is exceeded and cannot be added.



Version: Next

### 3.1.10 : Error when add firmware

When you are adding firmware, the following error may be reported:

请填写参数			>	<						
File path :	0 教程(1)\PW300烧录nF	RF9160 教程\merge	d_serial_lte_modem_v1.7.hex							
Data size :	360040	Bytes = 351.6	KB = 0x00057E68							
Start addr :	0x08000000	End Addr:	0x08057E67							
Memory range: 0x08000000~0x0801FFFF										
Error: the file is too long. Please re - select the file!Error: end address is out of scope!										
	🗸 ок		X Cancel	=						

Firmware can not exceed the Program Memory space, including the start address and end address must be within the range of Program Memory. When the above error occurs, check whether the capacity of your own chip is selected correctly, if the chip model is correct, then consider checking the firmware size or compilation settings; if you encounter the case of hex file firmware segmentation, you can try to cancel the merge add function of the firmware, and add the segmentation to write once.

The above prompt appears because the compiled firmware address and the chip's FLASH address does not match, when importing bin format file, this format does not have address information, the default is 0, then the software will prompt the lack of address information or the address is not correct, whether to load to the specified address, If you pass the Add Firmware methodologies, The program will confirm more information to you, Skip to main content including the size, checksum value and starting address.



Last updated on Apr 12, 2024 by Alan Chen

Version: Next

### 3.1.11 : Smart Programming

PowerWriter® provides a wealth of online and offline programming features:

- Supports continuous programming
- Supports chunked programming
- Supports option byte programming
- Other functions, etc.

#### 1 : online mode

Automatic download of all data can be achieved through full-featured auto-programming:

- Menu Position: Execution->Full Function Auto Programming.
- Toolbar buttons



Tags:	FAQ	auto	program
🖍 Edi	t this p	age	

Last updated on Apr 15, 2024 by Alan Chen

Skip to main content Version: Next

### 3.1.12 : Fast Offlining

Skip to main content

This document demonstrates the configuration process for rapid offline production after receiving the PowerWriter® from 0. The reference chip is the N32G032P6W7 from Nations, and the process is the same for other chips, so we will describe how the whole process works.

#### 1 : Prepare

Before configuring the PowerWriter® offline production project, you need to prepare the PowerWriter® client software, the firmware data to be programmed, and know the pins and configuration methods of the signal interface of the PowerWriter® programmer, as well as some of the special functions of the process.

#### 1.1 Installing the PowerWriter® Software

PowerWriter<sup>®</sup> software can be obtained through the following site, and then install the client software, the software is completed to start the software, PowerWriter<sup>®</sup> supports Win7 or above system.

PowerWriter<sup>®</sup> Download



Note: If there is no network in your environment, you can contact our customer service to get the installation package, the installation package in both places are the same installation package.

After downloading the installation package, unzip the zip package, run PowerWriter\_x.x.x.x\_installer.exe to install the PowerWriter® client software, start the software after the installation is complete, and enter the PowerWriter® main interface, as shown in the following figure:

Power Writer®1.3.	8.0 [Build:2024-04-10 19:40	:33]								_		×	
File( <u>F</u> ) Operation( <u>E</u> )									<b>[</b> 72]				
	2 30 30		<b>6</b> ] <b>6</b> ]		l iD		U		8		Device		
Open Save F-in	F-out PLoad PRead	Blank Erase <b>Kead</b>	Write Verify	Auto Reset	U ID	AnyKD	Error	Serial	Wire		PVVAI	~	
Writer Setting	Option bytes	Program Memory	💾 ОТР Ме	emory									
Chip Select				04/12-15:50	0:43:285	Please	connec	trower	writer device	e tirst		_	
MCU model:	STM32G070xB	Select	🗸 Apply	04/12-15:50	6:43:300 6:45:957	> Update > Writer	e chip in Info: hw	formatio Ver:1.0	n successful blVer:1.00.0	lly )2 ifVer:1.0	0.02		
Flash size: 128.00	ОКВ			SN:012345	6789AB	CDEF012	2345678	390ABCE	)E Target:P\	NX1			
				04/12-15:5	6:45:973 6:45:989	≥[07D0] ≥Power	Writer®	is conne	rmware type ected	e : Universa			
Erase Type	Interface level	Misc		04/12-15:5	6:46:004	> Switch	version:	PWX1					
O Don't erase	O 1.8V	Speed 10M hz	~	04/12-15:5	6:46:695	> Resou	rce versi	on:1.0.0	size:0xcc5a	ac crc32:0x7	50b0c69	Э	
0	0 3 3V			04/12-15:5	6:46:710	Synchr	onizing	device ti	me succeed	led			
Full Erase	0.50	OptionByte Factory=	⊳Custom ∨	04/12-15:5	6:46:906	> Update	e burner	Settings	complete				
	O 5.0V		04/12-15:56:46:935> Update chip information successfully 04/12_15:56:40:447> Target Online										
<ul> <li>Sector Erase</li> </ul>	External input	🗹 Enable buzzer		04/12-15:5	0.49.447	> Lindate	online ad all firr	nware d	ata to data e	ditor buffer			
				04/12-15:5	9.52.752	> Undate	ed all firr	nware d	ata to data e	ditor buffer			
Write function config	juration			04/12-15:5	9:56:305	> Save s	uccess						
	en er i Altres i	e e 💼 o en el	1	04/12-15:5	9:56:336	> Power	Writer®	fully fund	ctional onlin	e programn	ning		
	itity_Check [‡] Signal ou	tput 🤍 Certification		04/12-15:5	9:56:351	> Write fa	actory de	efault OB			-		
				04/12-15:5	9:57:177	> Recald	ulate Pr	ogram N	lemory data	I			
-	0×0000000	_		04/12-15:5	9:57:209	Smart	online e	rase chij	p				
SN Start:	0x0000000	Enable SN		04/12-15:5	9:57:288	> Write c	hip data						
				04/12-15:5	9:57:820	⊳ Write u	iser cust	om OB					
				04/12-15:5	9:58:774	> All don	e!						
				04/12-10.01.22.7052 Updated all firmware data to data editor buffer									
SN Step:	0x0000001	Decimal display		04/12-16:0	1.23.655	> Save e		nware u		ultor buller.			
				04/12-16:01:27:753> Power Writer® fully functional online programming									
				04/12-16:0	1:27:769	> Write fa	actory de	fault OB					
				04/12-16:01:28:594> Recalculate Program Memory data									
SN Addr :	0x0801FFFC			04/12-16:01:28:625> Smart online erase chip									
		Big end model		04/12-16:01:28:704> Write chip data									
				04/12-16:0	1:30:783	> Write u	iser cust	om OB					
Communication con	figuration			04/12-16:0	1:31:733	> All don	e!						
	ingurudon			04/12-16:03	3:46:739	Operat	ion cano	celled!		Den La P			
Device: COM4	✓ Refresh	Disconnect	Auto Connect	04/12-16:0	0:31:911	> Opdate	ea all firr	nware d	ata to data e	attor butter.		1	
Target: connected	ICWorkShop Techno	logy (Shenzhen) Co	td All Right Per	enved									
arget: connected	T - 2024 02 20	logy (Shenzhen) Co.,	Ltu.All Right Res	erveu			_					_	

#### **1.2 Select Target Chip**

Take N32G032P6W7 as an example, select N32G032 in the Select Chip button.



Chip Select			×
Vendor	Series	Туре	
A1SEMI Aerosemi Air AisinoChip Artery AUCU Autochips ChipNexus CKS CMIOT Cmsemicon CS32 CubicLattice CW32 Edgeless FMD FMSH GD32 Geehy GFCHIP HC32 HED HK32 InnoStar JuSheng LCM32 Linko Metanergy MH Microchip MM32 Nations Nordic	N32A455 Series N32G003 Series N32G020 Series N32G030 Series N32G031 Series N32G031 Series N32G401 Series N32G430 Series N32G432 Series N32G455 Series N32G457 Series N32G457 Series N32G457 Series N32L402 Series N32L403 Series N32L406 Series N32L433 Series N32L436 Series N32WB031 Series N32WB031 Series N32WB031 Series N32WB031 Series N32WB452 Series N32WB452 Series	N32G032x6 N32G032x8	
Find N32WB	EQ	Selected N32G032x6	Export
	✓ ОК	X Cancel Add favorites	Favorites

#### **1.3 Confirmation of target chip connection**

On the far right side of the PowerWriter® software toolbar there is a way to view the Chip Connection Diagram, as shown below:

	~			-			-													
	File( <u>F</u> )	Opera	tion( <u>E</u> )	Tools(	[) Setti	ng( <u>S</u> )	Help( <u>H</u> )													
	6	Β	Ľ		ŵ	to	Q	<b>I</b> X	ю	6	6	· •	0	iD		0	Ň		Device	•
1	Open	Save	F-in	F-out	PLoad	PRead	Blank	Erase	Read	Write	Verify	Auto	Reset	ID	AnyRD	Error	Serial	Wire	PWX1	
	34						-												1	

Or look through the menu:

.3.8.0 [Build:2024-04-10 19:40:33]

E)	Tools	( <u>T</u> ) Setting( <u>S</u> ) Help( <u>H</u> )		
2	Š	Serial Port Assistant	(Ctrl+T)	2
1	₿ <sup>2</sup> Ω	View the Power Writer® interface definition	(Ctrl+l)	set
		View the chip wiring diagram	(Ctrl+G)	
ng	ılı	Reserved data read-write	(Ctrl+H)	
N		Advanced setup for offline project	(Ctrl+X)	:5
	$\checkmark$	Exporting or load the UID authorization configuration	>	:5
)K	11	Test and Production		:5
		Super serial number		:5 :5
	()	1.8V/ opeed TUMITZ	104/12-15	5.5

You can see the signal wiring diagram of PowerWriter® as shown below, you only need to connect VEXT, GND, DIO, CLK, NRST and BOOT0 are auxiliary signals, such as programming normal, can not be connected.



The interface signals of the PowerWriter<sup>®</sup> are shown as the socket pin in the above figure, and can also be viewed via the Menu -> Tools -> View PowerWriter<sup>®</sup> Interface Definition button.

Power Writer® Hardware Interface Viewer	×
SOV TRST CLK VNREF	Power Writer® PWX1 ✓ Hardware Version
<ul> <li>DC 电源</li> <li>USB Host</li> <li>USB Device</li> <li>DC 电源</li> <li>DC 电源<td>1.0 ~</td></li></ul>	1.0 ~
hardware version: v1.0	ОК

Referring to the information as above, connect the target board and chip to confirm the connection method, at the same time the PowerWriter® software indicates that the target chip is connected, as shown below:

```
04/12-17:06:39:645> Update programmer Settings complete...
04/12-17:06:39:676> Update chip information successfully...
04/12-17:06:41:933> Target Online...
```

#### 2 : Basic parameters

#### 2.1 Erase Method

The default is full erase, full erase will erase the entire chip data, and then write, if the

firmware is larger than more than half of the chip capacity, full erase efficiency will be guaranteed, if the firmware is smaller, you can choose the page erase, only erase the need to erase the sector, according to the actual application of the choice of full erase or page erase, such as no special requirements, the default can be.

#### 2.2 interface VREF

The default interface level is 3.3V, which matches the IO voltage of the target chip, just match it according to the IO level of the actual chip.

#### 2.3 Programming speed

Default is 10Mhz, if the working environment has less interference and the external wiring is shorter (less interference), then it can be changed to 20Mhz, if there is a failure during the programming process, then you need to change it back to 10Mhz, or reduce the speed.

Note: Unless the chip itself is defective, a chip that fails to programming in can be reprogrammed and will not lead to chip scrapping.

#### 2.4 Option byte update method

The default is Before programming: factory setting (for chips with secondary programming), After programming: write user-defined option words, which can be adjusted according to the actual situation or not.

## 3 : Offline programming Behavior Settings

#### 3.1 Auto start/stop programming

Turn on the automatic chip detection function, you can start the programming without pressing the key during the offline programming (you need to start it for the first time), and it will start the offline programming automatically when connecting to the target chip, as shown in the following figure:

🗏 SN 🖪 Quantit	y_Check †‡† Sigr	nal output 🦁 Certification				
Vrite Number	1	Hexadecimal display				
Automatic chip dete	ection					
Insert chip to jitter time(ms):						
Unplug Chip to Jitter Ti	ime(ms) :	250				

#### 3.2 Limit the count of offline programming

If you need to limit the number of offline programming times, please enable the function of limiting the number of programming times and limit the number of times as shown below :

Write function configura	tion Check țiți Signa	l output	Certification	
🕑 Write Number	1	He	xadecimal display	
Automatic chip dete	ction			
		250		

#### 4 : Option Byte Configuration

If you need to programming special option words after programming the firmware, such as read protection to prevent the chip from being read out, set RDP1 and RDP2, and set RDP1 to RDP2, and set RDP2 to RDP2.

Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-c
>>>	[Double-click to modify] Byte 0
RDP	0xAA: Level 0, read protection not active $\sim$
>>>	0xAA: Level 0, read protection not active
nRST_STDBY nRST_STOP	0xBB: Level 1, memories read protection active 0xCC: Level 2, chip read protection active(Note: The chip will be permanently locked 0x01: Noteset generated when entening the Stop mode
>>>	[Double-click to modify] Byte 2

As above set to level 1 protection, if you need to completely disable debugger access after programming, you can set RDP2 to L2 as shown below:

0xAA: Level 0, read protection not active 0xBB: Level 1, memories read protection active 0xCC: Level 2, chip read protection active(Note: The chip will be permanently locked

#### 

If L2 is set, the target chip cannot be connected to the debugger (programmer) after programming is completed.

#### 5 : Importing firmware data

After the basic setup is completed, you can import the project's firmware data into the PowerWriter<sup>®</sup>, through the Add Firmware button in the Program Memory page, import the firmware in intel Hex, Raw binary, srec record (s19) format file, after importing, a confirmation box will pop up as shown below, after confirming that there is no error, click on the OK.



#### (i) NOTE

GCC compiler compiled firmware may pop up firmware selection box (prompting the loaded file has more than one firmware), which is related to the compiler's firmware output form, arm complier output file default padding 0xff, GCC is segmented output valid data segments, if there is more than one segment of the firmware, generally choose to merge the add can be added, if the add fails to prompt beyond the space, generally in the compilation of the project, set the address beyond the Flash space, such as compiling memory code, but did not deal with, or in the project, the option byte is also compiled into, there will be such a prompt, such as not sure how to deal with, please contact us for technical support.

#### 6 : Importing a project to programmer

After everything is ready, you need to import the project into PowerWriter®, you can do it through the menu Execute Offline Load, or the toolbar shortcut buttons, Note: When loading the project offline, if the current data has not been saved as a project file, you will see the message of whether or not you need to save it. Project offline loading read adjustment



When you save the project, set the save path of the project to avoid the loss of the configured programming data, and you can also set a password for the project for data protection to avoid data theft by others.

PowerWrite	er® Encrypts data and sets file paths	×
	剥额某城	
Password		
Password	Please enter the project password, maximum 16 chara Generate	*
Tips : 1: You car improve p 2: If you y	n use the random generation function to generate random passwords to assword security. want to publish to the platform, you must set a password.	
File path		
	Select an open or save path and leave it blank will random generation.	
	Done	

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After the project is configured, it can be reused subsequently without having to reconfigure it each time, just load it into the programmer to deliver it to the production line, and if you need to update the data, recycle it back from the production line and reload the new data into the programmer.

#### 6.1 Operational Demonstration

File(E)       Operation(E)       Tool(E)       Setting(E)       Help(E)	Power Writer®1.3.8.	.0 [Build:2024-04-10 19:40	.33] —	
Provide	File(E) Operation(E)	Tools(T) Setting(S) H	ielp( <u>H</u> )	
Open       Sive       F-in       F-out       PLoad       PRead       Blank       Erase       Rest       ID       AnyRD       Error       Serial       Wire       PWX1         Writer Setting       Option bytes       Program Memory       OTP Memory         Chip Select       MCU model:       STM320070xB       Image: STM3200	BBK	2 30 30		Device
Writer Setting       Option bytes       Program Memory       OTP Memory         Chip Select       Writer Setting       Option bytes       Program Memory       OTP Memory         MCU model:       STM32G070xB       Image: Stress of the stress of	Open Save F-in	F-out PLoad PRead	Blank Frase Read Write Verify Auto Reset ID AnvRD Error Serial Wire	PWX1 V
Writer Setting       Option bytes       Program Memory       OTP Memory         Chip Select       MCU model:       STM32G070x8       Image: Stress of the str				
Chip Select         MCU model:       STM32G070xB         Flash size:       128.00KB         Erase Type       Interface level         Misc       Misc         OptionTerase       3.3V         OptionByte       Factor=>Custom         Sector Erase       0 1.8V         Sector Erase       OptionByte         Full Erase       3.3V         OptionByte       Factor=>Custom         Write function configuration       Enable buzzer	Writer Setting	Option bytes	Program Memory 📗 OTP Memory	
MCU model:       STM32G070xB       Select       ✓ Apply         Miss       Virial States       Virial States       Virial States       Virial States         Flash size:       128.00KB       Miss       Virial States	Chip Select		U4/12-10:09:00:3UD> Save success	
MCU model:       SINS200708       tpp Select       V Appy         Pilash size:       128.00KB         Flash size:       128.00KB         Erase Type       Interface level       Misc         O Don't erase       0.1.8V       OptionByte         Flash size:       128.00KB       04/12:1559:57.209. Write user custom OB         04/12:1559:57.209. Write user custom OB       04/12:1559:57.8270. Updated all firmware data to data editor buffer         04/12:1559:57.8270. Updated all firmware data to data editor buffer       04/12:1601:22:7722. Save success         04/12:1601:27.7722. Save success       04/12:1601:27.7722. Save success         04/12:1601:27.7722. Save success       04/12:1601:27.7722. Save success         04/12:1601:27.7729. Write factory default OB       04/12:1601:27.7722. Save success         04/12:1601:27.7729. Write factory default OB       04/12:1601:27.7722. Save success         04/12:1601:27.7729. Write factory default OB       04/12:1601:28:625. Smart online erase chip         04/12:1601:28:625. Smart online erase chip       04/12:1601:28:625. Smart online erase chip         04/12:1601:28:625. Smart online erase chip       04/12:1601:28:625. Smart online erase chip         04/12:1601:28:625. Smart online erase chip       04/12:1601:28:625. Smart online erase chip         04/12:1601:28:625. Smart online erase chip       0	MOU madely S		04/12-15:59:56:336> Power Writer® fully functional online progra	amming
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• Full Erase       • 3.3V       OptionByte       Factory=>Custom       04/12-16:01:23:855> Updated all firmware data to data editor buffer         • Sector Erase       • External input       • Enable buzzer       04/12-16:01:27:722> Save success       04/12-16:01:27:733> Power Writerst fully functional online programming         • Write function configuration       • Enable buzzer       04/12-16:01:27:769> Write factory default 08       04/12-16:01:28:594> Recalculate Program Memory data         • Ø/12-16:01:28:704> Write factory default 08       04/12-16:01:28:704> Write concertaine       04/12-16:01:28:704> Write concertaine         • Ø/12-16:01:28:704> Write concertaine       04/12-16:01:28:704> Write concertaine       04/12-16:01:28:704> Write concertaine         • Ø/12-16:01:28:704> Write concertaine       04/12-16:01:28:704> Write concertaine       04/12-16:01:38:732> Operation cancelled!         • Ø/12-16:01:31:733> All done!       04/12-16:03:31:733> All done!       04/12-17:04:31:73> N20032x6 Flash size: 32:00KB         • Ø/12-17:04:43:267> Update burner Settings complete       04/12-17:04:43:267> Update burner Settings complete       04/12-17:04:33:267> Update bank: Single bank         • Ø/12-17:04:31:733       Vill update dil firmware data to data editor buffer       04/12-17:03:9:516> STM32G070xB Flash size: 128:00KB         • Ø/12-17:04:31:733       • Ø/12-17:06:39:516> STM32G070xB Flash size: 128:00KB       04/12-17:06:39:516> STM32G070xB Flash size: 128:00KB	O Don't erase	01.80	04/12-15.39.56.7742 All done: 04/12-16:01:22:705> Updated all firmware data to data editor bu	ffer
O Sov       O Sector Erase       O Sector Erase       O 4/12-16:01:27:752> Save success         Write function configuration       O 4/12-16:01:27:752> Power Writer® fully functional online programming         O 4/12-16:01:27:752> Power Writer® fully functional online programming         O 4/12-16:01:27:752> Power Writer® fully functional online programming         O 4/12-16:01:28:704> Write factory default OB         O 4/12-16:01:28:704> Write chip data         O 4/12-16:01:37:732> All done!         O 4/12-17:04:43:267> Update data to data editor buffer         O 4/12-17:04:43:267> Update burner Settings complete         O 4/12-17:06:39:510> STM320070x8 Flash size: 128:00KB         O 4/12-17:06:39:512       O STM320070x8 Flash size: 128:00KB         O 4/12-17:06:39:512       O KB         O 4/12-17:06:39:512       O KB         O 4/12-17:06:39:512       O KB	• Full Erase	O 3.3V	OptionByte Factory=>Custom v 04/12-16:01:23:855> Updated all firmware data to data editor bu	ffer
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SN       Quantity_Check          it is Signal output       Certification         Q4/12-16:01:32:743> Write user custom OB       Q4/12-16:01:33:733> All done!         Q4/12-16:01:31:733> All done!       Q4/12-16:01:31:733> All done!         Q4/12-17:04:43:25> Update all firmware data to data editor buffer       Q4/12-17:04:43:25> Update burner Settings complete         Q4/12-17:04:43:25> Update burner Settings complete       Q4/12-17:06:39:516> STM32G070x8 Flash size: 128.00KB         Q4/12-17:06:39:516> STM32G070x8 Flash size: 128.00KB       Q4/12-17:06:39:56> Change bank: Single bank         Q4/12-17:06:39:516> STM32G070x8 DTP Memory size: 1.00 KB       Q4/12-17:06:39:56> Change bank: Single bank         Q4/12-17:06:39:64> Update burner Settings complete       Q4/12-17:06:39:64> Update burner Settings complete         Q4/12-17:06:39:64> Update burner Settings complete       Q4/12-17:06:39:64> Update burner Settings complete         Q4/12-17:06:39:64> Update burner Settings complete       Q4/12-17:06:39:64> Update burner Settings complete         Q4/12-17:06:39:64> Update burner Settings complete       Q4/12-17:06:39:64> Update burner Settings complete         Q4/12-17:06:39:64> Update burner Settings complete	Write function configu	uration	04/12-16:01:28:625> Smart online erase chip	
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<ul> <li>Automatic chip detection</li> <li>Insert chip to jitter time(ms):</li> <li>250</li> <li>Unplug Chip to Jitter Time(ms):</li> <li>250</li> <li>Communication configuration</li> <li>Device:</li> <li>COM4</li> <li>Refresh</li> <li>Disconnect</li> <li>Auto Connect</li> <li>Auto Connect</li> </ul>	🗹 Write Number	1	Hexadecimal display 04/12-16:06:31:911> Updated all firmware data to data editor bu	ffer
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	Device: COM4	<ul> <li>✓ Refresh</li> </ul>	Disconnect Auto Connect 04/12-17:16:55:589> Load offline data successfully	1

## 7 : Delivery programmer to the production line

After the programmer is configured with data, the programmer can be delivered to the production line for production.

## 8 : Confirmation of programming results

programming results, given in three ways:

- **Two beeps from the buzzer means success**. More than two sounds means failure. If the comparison production line requires no ringing (noisy), the buzzer can be turned off when configuring the basic parameters.
- Green light indicates success, red light indicates failure.
- **Interface signals:** OK output is high to indicate successful programming, NG output is high to indicate programming failure, you can use the signals from these two pins to access the automation control system.

	<b>N</b>	随于抗	Power Writer®
		-	PW200 ~
ND	NG/SWO		Hardware Version
GND	ОК		
IND	RST		1.4 ~
GND	SWIM		
GND	CTRL		
GND	SWCLK	Γ	
воото	SWDIO	-	
GND	RX		
5V	ΤХ		
VIN	VREF		
			ОК

#### 9 : Common problems

### 9.1 : Auto-detect is on, but it doesn't respond when you put the chip in.

The PowerWriter<sup>®</sup> requires a manual button press to start the automated process for the first time to ensure that the production environment is ready and to avoid incorrect programming when the production line is not ready.

### 9.2 : Auto-programming function is automatically turned off when programming fails

If you use the programming test rack, press the way, the failure of the case is very low, only in the manual use of tweezers to pick up the bare core due to the lack of alignment or poor contact may lead to failure, this case can be adjusted to increase the de-jittering time of the automatic detection.

After the automatic programming function is turned off, it is usually necessary to manually verify the production environment, and after the verification is complete, press the button again to resume the automatic detection of the chip programming process.

#### 9.3 : Failure error when problematic backtracking

PowerWriter<sup>®</sup> products for sale do not have a screen, but they do record the last error code, which can be read by the PowerWriter<sup>®</sup> software to obtain the type and description of the error.



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For occasional programming failures, try to lift the programming test rack and press it again. If the same board (chip) fails more than 2 times, it will be sorted out, if necessary, please contact us.

#### 9.4 : programming state back and data back

Projects that have been loaded into PowerWriter<sup>®</sup> can be read internally by going to Menu -> Perform Offline Read and Save, (if a password has been previously set, a password is required to view the data).



Or backtrack the current programming status, such as the number of programmings remaining, by doing the following

₿	B	Ľ	Ľ	\$	\$0	Q	5	Б	ю	6	÷.	C	iD			Ň	S.	
Open	Save	F-in	F-out	PLoad	PRead	Blank	Erase	Read	Write	Verify	Auto	Reset	ID	AnyRD	Error	Serial	Wire	
\$	Writer	Setting	1	Option	bytes	Pi	rogram M	lemory		OTP Me	mory							
Chip	Chip Select 04/12-10:01:27:722> Save success 04/12-16:01:27:753> Power Writer® fully functional online pro																	

#### 9.5 : programmer Marker

The programmer can be marked by menu Tools -> Reserved Data Read/Write, as shown below:

Power Writer® Preserves Data Editor		×
	1/2	<u> </u>
Misc		
Additional offline project name		
Additional offline project checksum		
Additional date time		
Write V= Kead back		

#### 9.6 : Tagging PowerWriter® Projects

You can make a note of the project in the menu Tools -> Advanced Settings for Offline Production Projects -> Offline Files, as shown below:

Commer	seconds for c	offline project	s for Power	Writer®						
commen	nt in the off	ine package	:							
Offline p	ackage limi	t Power Wri	ter® seria	I number:						
_) Enable	e									
NO. P	ower Write	r Sn								
									Ad	ld Sn
		Add th	e current	device	×	Delete	the sele	cted		
)ffline p ]Enabl	iackage limi	Add th	e current	device	×	Delete	the seled	cted		
Offline p Enabl	vackage limi e c 0X0C 0X00	Add th ts UID burnin	e current ng range 0X00 0X00	device 0X0C 0X0	×	Delete 0X0( 0)	the selec	ox00	0X00	0X0( 0X
Offline p Enabl rom 0x	ackage limi e c 0X0C 0X0C c 0XFF 0XFF	Add th ts UID burnin 0X0C 0X0C	e current ng range 0X0( 0X0( 0XFF 0XFF	device 0X0( 0X0 0XFF 0XF		Delete 0X0( 0) 0XFF 0)	the selea KOC OXOC	0X00	0X0( 0XFF	0X0( 0X 0XFF 0X
)ffline p ] <u>Enabl</u> rom 0x o 0x	ackage limi e c 0X0C 0X00 c 0XFF 0XFI	Add th ts UID burnin 0X0C 0X0C	e current ng range 0X0( 0X0( 0XFF 0XFF	device 0X0( 0X0 0XFF 0XF	<b>X</b> ( 0X0( F 0XFF	Delete OXO( O) OXFF O)	the selec KOC OXOC KFF OXFF	oxoo 0XOO	0X0( 0XFF	0X0C 0X 0XFF 0X
Offline p Enabl rom 0x	ackage limi e c 0X0C 0X00 c 0XFF 0XFI	Add th ts UID burnin 0X0C 0X0C	e current ng range 0X0( 0X0( 0XFF 0XFF	device 0X0( 0X0 0XFF 0XF	<b>X</b> ( 0X0( F 0XFF	Delete 0X0( 0) 0XFF 0)	the selea KOC OXOC KFF OXFF	ox00 0X00	0X0( 0XFF	0X0( 0X 0XFF 0X
)ffline p ⊇Enabl rom 0x o 0x	ackage limi e c 0X0C 0X00 c 0XFF 0XFI	Add th ts UID burnin 0X0C 0X0C	e current ng range 0X00 0X00 0XFF 0XFF	device 0X0C 0X0 0XFF 0XF		Delete 0X0( 0) 0XFF 0)	the selec KOC OXOC KFF OXFF	oxoo 0xFF	0X0C	0X0( 0X 0XFF 0X

#### 10 : Contact & Feedback

If you encounter any problems, suggestions or comments in the process of use, promptly contact us.

 Tags:
 FAQ
 Offline



Last updated on Apr 15, 2024 by Alan Chen

Version: Next

### 3.1.13 : How to setup RDP

PowerWriter<sup>®</sup> provides a complete option byte description page for each chip, refer to the "Option Bytes" Tab page as shown below:



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The option byte description page is basically the same as the chip datasheet, for some brands we have extended the official option byte to realize specific functions, please refer to the option description.



Edit this page

Last updated on Apr 12, 2024 by Alan Chen

Skip to main content Version: Next

# 3.1.14 : How to remove RDP

#### 1 : Disconnect while reading data

When PowerWriter<sup>®</sup> connects to the target chip successfully and can also read OB correctly, but when reading other data, it reports an error, and in serious cases, there is a prompt that the chip is offline, the possible reason is that the target chip has a read-protection, and the method to release the read-protection is as follows.

#### 2 : Setting option bytes

After connecting the chip, switch to the Option Byte page, and then restore the option word to default, or modify the read protection method to none, as shown in the figure.

🗱 Writer Setting 🛃 Option bytes 📳 Program Memory 💾	OTP Memory					
Option Byte: AA E1 FF DF 3F 00 00 00 3F 00 00 00	Size : 12 Byte 💽 Reset 💽 Load 🖺 Save 🖛					
Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-c					
>>>	[Double-click to modify] Byte 0					
RDP	0xAA: Level 0, read protection not active 🗸 🗸 🗸					
>>>	0xAA: Level 0, read protection not active					
nRST_STDBY	0xBB: Level 1, memories read protection active					
nRST_STOP	OxCC: Level 2, chip read protection active(Note: The chip will be permanently locked UXU1: No reset generated when entering the Stop mode					
>>>	[Double-click to modify] Byte 2					

Skip to main content
# 3 : Write option byte

After turning off the read protection in the option byte, you need to write the option byte to the chip to remove the read protection, as follows:

۲	Auto Program Memory programming	(Ctrl+P)
	Fully functional automatic programming	(Ctrl+Alt+P)
4	Other data area operations	>
Ö	Reset target chip	(Ctrl+D)
Ð	Read option byte	(Ctrl+M)
N	Write option byte	(Ctrl+N)
ID	Read Union Chip ID	(Ctrl+J)
፠	Read Data Anywhere	(Ctrl+K)
ଜ	Get Last Offline Error	(Ctrl+L)

# 4 : Operational Demonstration

Power Write	er®1.3.8.0 [B	uild:2024-04-1	) 19:40:33]											-		×
File( <u>F</u> ) Operat		ois() Setting		Second State		(Conservation)		-	-		-					
6 B	ĽĽ	2 🕉	τ <u>ο</u> Ο		6	6	· <b>*</b>	G	iD			J. Contraction			Device	•
Open Save	F-in F-o	out PLoad P	Read Blank	Erase R	ead Write	e Verify	Auto	Reset	ID	AnyRD	Error	Serial	Wire		PWX1	~
Writer S	Setting	Option by	tes 📘 P	ogram Mer	nory 🛄	OTP Me	mory									
Option Byte:	AA E1 FF E	OF 3F 00 00 00	3F 00 00 00							Size : 12	Byte	ØR	eset	Load	🖺 Sar	ve   🗸
Option Name						Option \	Value(C	lick the i	item w	ith the m	ouse ai	nd selec	t the pa	rameters fro	m the dro	op-c
>>>						Doubl	e-click	to mo	dify] E	Byte 0						
RDP						0xAA:	Level C	), read	prote	ection r	ot act	ive				
>>>						[Doubl	e-click	to mo	dify] E	Byte 1						
nRST_STD	BY					0x01:	No res	et gen	erate	d wher	n enter	ing the	Stand	dby mode		
nRST_STO	P					0x01: N	No rese	et gene	erated	d when	enteri	ng the	Stop r	node		
>>>						[Doubl	e-click	to mo	dify] E	Byte 2						
RAM_PAR	ITY_CHE	CK				0x01: \$	SRAM	parity (	check	( disabl	е					
WWDG_S	N					0x01: \$	Softwa	re wat	chdo	9						
IWDG_STE	3Y					0x01: I	ndepe	ndent	watch	ndog co	ounter	is runn	ning in	Standby n	node	1
IWDG_STO	OP					0x01: I	ndepe	ndent	watch	ndog co	ounter	is runn	ning in	Stop mod	е	
IWDG_SW						0x01: \$	Softwa	re inde	epend	lent wa	tchdo	g				
>>>						[Doubl	e-click	to mo	dify] E	Byte 3						
nBOOT0						0x01: r	IBOOT	0=1								
nBOOT1						0x01: r	IBOOT	1=1								
nBOOT_SE	EL					0x01: E	зоото	signa	l is de	efined b	y nBC	OT0 o	ption b	bit		
>>>						[Doubl	e-click	to mo	dify] E	Byte 4						
WRP1A_S	TRT bit5					0x01: \	NRP1/	A_STR	RT bit	5						
WRP1A_S	TRT bit4					0x01: \	NRP1	\_STR	RT bit	4						
WRP1A_S	TRT bit3					0x01: \	NRP1	A_STR	RT bit:	3						
WRP1A_S	TRT bit2					0x01: \	NRP1	A_STR	RT bit	2						
WRP1A_S	TRT bit1					0x01: \	NRP1	\_STR	RT bit	1						
WRP1A S	TRT bit0					0x01·\	NRP1/	A STR	RT bit	)						

Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All Right Reserved

### 

Unprotected, updating the option byte causes the target chip to initiate an internal erase operation, and depending on the security characteristics of the chip, the original data inside will be lost.

# 5 : Unlock chip when SWD is off

Some chip models in the programming, and the mainstream chip there are some differences, when the chip's option byte is set to the first level of protection or the second level of protection, the chip will automatically turn off the SWD after programming, at this time the specific unlocking mode refer to the CX32 unlocking mode, the chip will automatically turn off the SWD after programming.

#### See CX32 unlocking method.



# 3.1.15 : Chip Connection Failure

# 1 : Troubleshooting wire problems

Use a multimeter to self-test that the DuPont wire used is conducting.

- · Connect the red and black pens correctly.
- Connect the red and black pens to the ends of the wires to be measured.
- If the resistance is close to zero, or relatively small, the wire is connected, and if the resistance is high the wire is disconnected.

### 📿 тір

If, after the above operation, you determine that there is a problem with the cable, you will need to replace the cable before proceeding with the operation.

## 2 : Troubleshooting Hardware Issues

- First, open the corresponding datasheet of the chip to find the corresponding power supply pins and programming ports of the chip, and then make sure that the hardware is soldered properly and then connect the chip to the power supply.
- Without connecting the programming ports, such as SWDIO and SWDCLK, measure the voltage of SWDIO with a multimeter.

 If the chip is empty or there is no multiplexed SWDIO pin, the SWDIO pin has the same voltage as the power supply of the chip, if not, there is a hardware abnormality, please check the hardware.

#### **Example references:**



# 3 : Troubleshooting programmer wiring problems

- Open the PowerWriter<sup>®</sup> software and select the appropriate model number based on the chip model and view the appropriate connection diagram.
- Click on the Tools button in the menu bar to view the interface definition for the corresponding programmer.

- Prioritize the use of the connection cable provided with the programmer and ensure a stable connection.
- Ensure that the corresponding power supply and programming port are connected properly. If they are connected properly, the software log will show that the **target chip is connected**.
- For wiring details and description of the programmer pinout see About Wiring.





Power Writer® Hardware Interface Viewer	×
SOV TRST CLK VNEF	Power Writer® PWX1 ✓ Hardware Version
DC 电源	1.0 ~
hardware version: v1.0	ОК

# 4 : IO multiplexing pins

- When the program running on the chip has multiplexed pins, it is recommended to use only the programmer's power connector when connecting.
- When using an external power supply, connect the reset pins.
- When the chip is multiplexed, compilers such as KEIL may not be able to connect to the chip, so you need to use PowerWriter® software to erase the chip before debugging.
- When multiplexing the chip's programming pins in a program, it is recommended to add a delay of about 2~20ms before them.



## 5 : Troubleshooting chip damage

- Replace the chip with a new one.
- Replace the PCB with a new one.
- Replace with another chip model.

# 6 : Try to adjust the clock speed

In different environments, the clock speed of the PowerWriter® programmer mode is higher than that of the Debugger mode. For example, in the MDK system environment, the default clock speed is 1Mhz, and the default clock speed of the PowerWriter® is 10Mhz, so there may be a situation in which the MDK is able to connect to the target chip but the PowerWriter® fails to do so. There may be cases where the MDK can connect to the target chip, but the PowerWriter® connection fails. You can try to reduce the clock speed to, for example, 5Mhz, etc. In some applications, the MCU firmware has enabled read protection, so you need to connect to the target chip with a faster speed, and you need to adjust the clock speed to a higher speed, or else you may have a handshake failure (the system enters into the protection state, and the debugging port is turned off). settings to the PowerWriter® device, as shown below:

Writer Settin	g 🛃 Option bytes	Program	Memory	OTP Memo	
Chip Select					
MCU model:	STM32G070xB	🔅 Select 🗸 Apply			
Flash size: 128.	00КВ			2	
Erase Type	Interface level	Misc			
O Don't erase	○ 1.8V	Speed	10M hz	~	
• Full Erase	<b>O</b> 3.3V	OptionByte	20M hz(E 10M hz	(1 xtend)	
	○ 5.0V		5M hz		
<ul> <li>Sector Erase</li> </ul>	O External input	🗹 Enable bu	2™ nz 1M hz		
Write function conf	iguration		500K hz 200K hz		
≡ SN N Quantity Check 1 <sup>1</sup> <sup>1</sup> Signal output S Certifi 100K hz					
		-	20K hz		
SN Start:	0x0000000	🗌 Enable	10K hz 5K hz		



Edit this page

# 3.1.16 : VREF Config

Interface voltage Setting (VREF) is used to set the output voltage of the programmer and the level size of the programmer signal, which generally defaults to 3.3v on power-up, and can be changed by connecting to the PowerWriter® upstream software, refer to the following:



### 📿 тір

When an external voltage is selected, the target board should be connected to the programmer's power pins and ground along with the external power supply, as it is necessary to use the external input power to power the programmer interface.

Modify the default output voltage when the programmer is powered on, you need to check Save Global Save Voltage:



Power Writer® Device preferences	×
劉烈斯王坊	
Save global voltage	
Device AT interface	
Enable the AT function of the USB port	
Enable the AT function of the UART port(*)	
Enable AT data encryption	
Key:	
Initial vector:	
Randomly generated key Copy to dipboard	-
	ĺ
	=
	Help
	<u>Herp</u> E
Vpdate to de	-

### 📿 тір

• When the default output voltage is to be re-modified, the settings need to be updated again once more.

 If you need to turn off this action for different application scenarios, please change the setting to external power input and do not use the power supply of the device itself to control it, as shown below:

Interface level
○ 1.8V
O 3.3V
○ 5.0V
O External input

#### ABOUT OUTPUTS VERF(VEXT) OUTPUT JUMPS

**VREF (Reference Voltage), VEXT (Extended Voltage)** may jump when the chip is not successfully connected, this action is actually trying to execute POR (Power On Reset), which is used to solve the problem of connecting and unlocking when the target chip is in the following two situations:

- **Target chip open protection**: After some chips open protection again, the RESET pin may not be able to perform reset and can only be reset by POR, at this time, it is necessary to perform POR to communicate with the target chip.
- Target chip internal firmware disables debug port, or multiplexes RESET pin: Some chips run internal firmware that multiplexes the debug port IO, or multiplexes the RESET pin, which may also result in not being able to reset the target chip, and only attempting a POR reset.

Note: Self-output power supply can do POR, external input voltage can't do POR; however, if self-power supply exists on the board, it also can't do POR, the power supply must be controlled by PWLINK.

Tags:FAQvoltage



# **3.1.17 : Chip name turns** gray

## 1 : Vendor Signature Overview

When PWLINK2 Lite products are manufactured, several brands are signed by default, and other unsigned brands are not available by default. If you need to switch brands, series, or models supported by the PWLINK2 Lite version, you need to select the user in the platform and then synchronize the settings in order to use the new brand:

Chip Select			×
Vendor	Series	Туре	
A1SEMI Aerosemi Air AisinoChip Artery AUCU Autochips ChipNexus CKS CMIOT Cmsemicon CS32 CubicLattice CW32 Edgeless FMD FMSH GD32 Geehy GFCHIP HC32 HED HK32 InnoStar JuSheng LCM32 Linko Metanergy MH Microchip MM32 Nations Nordic	ASM32F300 Series ASM32F310 Series ASM32F312 Series ASM32F320 Series ASM32F321 Series	ASM32F300B4DI ASM32F300D4DI ASM32F300D4FI ASM32F300D6FI ASM32F300F4BI ASM32F300F4DI	
Find Enter the chip n	ame for search 🚊 Select	ted ASM32F300B4DI Exp	oort
Vendor sign(Gray)	🗸 ок 🛛 🗙	Cancel Add favorites Favorit	tes

### () INFO

- PWLINK2 Lite and PWLINK2 hardware are identical.
- PWLINK2 supports all existing brands as well as future adapted brands. Lite can only use a few brands at the same time, if you need to use other brands, you

need to switch yourself.

• PWLINK2 Lite can manually change supported brands by itself.

# 2 : Configure vendor signatures online

### 2.1 : Online Self-Configuration

Online self-configuration function, by clicking on the chip selection interface in the lower left corner of the "chip manufacturer's signature", hyperlink to enter the boot configuration page, as shown in the following figure:



Click "Open Online Configuration Page" to go to the platform server side as shown below:

俞创植工坊	My Space	Buyer	Developer	Tools 🛓	Help Center +	<b>€ 99</b> +	cshsoft 📻	中文 / EN
	_							_
Tools	Chip Co	nfiguratior	1					
Tool Configuration Y								-
Chip Configuration	Writer SN	4CEC76	5092D77C8EDB2659F2	24B66ED80				Go
		*Opening through t	this page through Power the software, and paste it l	Writer software will autoi nere.	matically bring in the SN	l, or view and c	opy the writer SN	
	Maiter Int	*The SN o	f the burner is private info	rmation, beware of infor	mation leakage.			
	type:	PWLINK2 Lit	te hardware ver	sion:1.3 interfa	ce version:1.00.92	bootLoa	ader Version:1.00.	04
	Authorize	ed Signature	e:					
	BB/ 87[	A344C87D47 DA5B2A3705	7E0C2424AC49DC3C7E 58BC3367DE99613E02	393730DC049E08435 A0A4346CFEA126544	51F64486DD85BB82 \A7	59FF73F2E18	07A28D187F46A	83573
	Supporte	ed Brands/Se	eries (5/5):					
	GD3	32						
	HC3	32						
	HK3	32						
		132						
	STN	//32						
	□ A15	SEMI						
	Aer	osemi						
	🗆 Air							
	🗆 Aisi	noChip						
	□ Arte	erv						

According to the list of brands displayed, select the brand you need to use by yourself as needed, and confirm when the selection is complete.

### 

- If you don't have an account with Creative Core Workshop, please register for an account and log in to the vendor signature configuration page.
- If you are not connected to the device, the client will not show the synchronization entry and you need to use offline configuration.

### 2.2 : Online Self-Service Synchronization

After completing the manufacturer's configuration on the platform side, you need to synchronize the information to the PWLINK2 Lite device and synchronize the manufacturer's signature information in the PowerWriter® client, as shown below:

PowerWriter - Vendor Signature	×
劉朝堂王道	
Online self-service configuration	
Browse the online configuration page Sync online signature to PowerWriter.	
Offline configuration	
Write offline signature	
Tip: promote online self-help configuration, offline configuration please consult technical support.	
67FF20D07927387A92B2148D6FCF29A74CF8A066C4E36D9774708088C780AC3C85F2 8CA083026552522E9BA59F0FCA4BC6D321D3FF5615E126BB705AC478C89877A47E44 165C5E	•
Confirm	v

Wait for the operation to complete and then OK to synchronize the vendor signature to the chip.

# 3 : Offline configuration of vendor signatures

If the PWLINK2 Lite hardware device is no longer around, or if there is no network in the current environment, this means that the online synchronization function cannot be used, in which case the offline vendor signature can be used.

### 3.1 : Copy the device's SN

To generate signature information offline, you need to bind it to the SN of the current device, please connect the device first, read the SN information of the device, and copy the SN information to the clipboard.

### 3.2 : Online signature generation

Configure the page online using a web-enabled device such as a cell phone. Tool Configuration (icworkshop.com) (https://www.icworkshop.com/user/ supportChipConfiguration)

劉則范工坊	My Space Buyer Developer 🛛 Tools 🛓 Help Center - 众 🥮 cshsoft 鐔 中文 / EN
ひんします。     ひんします。     ひんします。     ひんします。     ひんしょうない     ひんしょうない	My Space       Buyer       Developer       Tools 业       Help Center • 众 999* cshsoft 会 中文 / EN         Image: Chip Configuration       Image: Chip Configuration       Image: Chip Configuration       Image: Chip Configuration         Image: Writer SN:       Please enter the serial number of the write ③       Image: Configuration       Image: Configuration         Image: Writer SN:       Please enter the serial number of the write ③       Image: Configuration       Image: Configuration         Image: Writer SN:       Please enter the serial number of the write ③       Image: Configuration       Image: Configuration         Image: Writer SN:       Please enter the serial number of the write ③       Image: Configuration       Image: Configuration         Image: Writer SN:       Please enter the serial number of the write ⑤       Image: Configuration       Image: Configuration         Image: Opening this page through Power Writer software will automatically bring in the SN, or view and copy the writer SN through the software, and paste it here.       Image: Configuration       Image: Configuration         Image: The SN of the burner is private information, beware of information leakage.       Image: Configuration       Image: Configuration       Image: Configuration         Image: All Arcosemi       Image: Configuration       Image: Configuration       Image: Configuration       Image: Configuration       Image: Configuration       Image: Configuration
	AUCU     Autochips

Fill in the SN of the device, and then query the device to get the device information as shown below:

Writer SN:	4CEC765092	D77C8EDB2659F24B66ED80	0	Go
	*Opening this pa through the so	age through Power Writer softwa ftware, and paste it here.	re will automatically bring in the SN,	or view and copy the writer SN 2
	*The SN of the b	ourner is private information, bew	vare of information leakage.	
Writer Info	:			
type:PV	VLINK2 Lite	hardware version:1.3	interface version:1.00.92	bootLoader Version:1.00.04
Authorized	Signature:			
BBA3	44C87D47F0C2	2424AC49DC3C7B93730DC0	49F0843551F64486DD85BB8259	9FF73F2F1807A28D187F46AB357
87DA	5B2A37058BC	3367DE99613E02A0A4346CF	EA12654AA7	511101221001120510114010051
Supported	Brands/Series (	(5/5):		
Supported	Brands/Series (	(5/5):		
Supported	Brands/Series (	(5/5):		
Supported	Brands/Series (	(5/5):		
Supported GD32	Brands/Series (	(5/5):		
Supported GD32 HC32	Brands/Series (	(5/5):		
Supported GD32 HC32 HC32 KK32	Brands/Series (	(5/5):		
Supported GD32 HC32 HC32 HK32	Brands/Series (	(5/5):		
Supported GD32 HC32 HK32 MM32 STM3	Brands/Series ( 2	(5/5):	3	
Supported GD32 HC32 HK32 MM33 STM3	Brands/Series ( 2	(5/5):	3	
Supported GD32 HC32 HC32 HK32 MM33 STM3 A1SE	Brands/Series ( 2 2 VII	(5/5):	3	
Supported GD32 HC32 HC32 HK32 MM33 STM3 A1SEP	Brands/Series ( 2 2 VII	(5/5):	3	
Supported GD32 HC32 HC32 HK32 MM32 STM3 A1SEF Aeros	Brands/Series ( 2 2 VII emi	(5/5):	3	
Supported GD32 HC32 HC32 HK32 MM33 STM3 STM3 A1SE Aeros	Brands/Series ( 2 2 MI emi	(5/5):	3	
Supported GD32 HC32 HC32 HK32 MM32 STM3 A1SEI Aeros Air	Brands/Series ( 2 2 VII emi	(5/5):	3	

When ready, execute the modification:

□ TAE
□ WCH
□ XK32
□ Zbit



After the operation is successful, copy the signature information:

*The SN of	the burner is private information, bew	are of information leakage.	
Writer Info:			
type:PWLINK2 Lite	e hardware version:1.3	interface version:1.00.92	bootLoader Version:1.00.04
Authorized Signature	:		
BBA344C87D47	E0C2424AC49DC3C7B93730DC04	49E0843551F64486DD85BB825	9FF73F2E1807A28D187F46AB3573
87DA5B2A3705	8BC3367DE99613E02A0A4346CF	EA12654AA7	

Supported	Brands/Series	(5/5):
-----------	---------------	--------

At PowerWriter<sup>®</sup> Vendor Signature, paste the signature code, then write to the device and OK as shown below:

PowerWriter - Vendor Signature	×
劉朝道王敬	
Online self-service configuration	
Browse the online configuration page	
Sync online signature to PowerWriter.	
Offline configuration Write offline signature Tip: promote online self-help configuration, offline configuration please consult technic support.	ical
67FF20D07927387A92B2148D6FCF29A74CF8A066C4E36D9774708088C780AC3C8 8CA083026552522E9BA59F0FCA4BC6D321D3FF5615E126BB705AC478C89877A47E 165C5E	5F2 - 5 E44
	-
Confirm	

# 4 : Automatic synchronization of settings

Vendor signature will not be automatically synchronized by default, if you need to synchronize the vendor signature automatically, please check this function in Settings->Preferences->Automatic Synchronization of Vendor Signature, every time you select the chip, the vendor signature information will be automatically synchronized from the platform side, as shown in the following figure:

Power Writer® Settings ×
劉朝堂士道
Standard settings
MessageBox 0: Prompt all message boxes V
Automatically checks for updates at startup
Behavior Synchronization option bytes after successful chip connection (default enabled) Auto onlie smart programming when the chip connection is successful (default off) Automatic synchronization vendor signature Automatic save and load last recent projects Automatically selected last selected chip Enable offline read/write save project prompt
Save Set

# **5** : Operational Demonstration

This demonstration is to add the Air branded series:

)pen Save F-in	F-out Blank Erase	Read Write Verify Auto Reset	ID AnyRD Serial Wire	PWLINK2
Writer Setting	Option bytes	Program Memory 📋 OTP Me	mory	
Chip Select			PWLINKZ	
MCU model:	STM32G070xB	🔅 Select 🗸 Apply	04/15-10:09:15:002> Writer Info: hwVer:1.3 blVer:1.00.04 ifVer: SN:4CEC765092D77C8ED82659F24B66ED80 Target:PWLINK2	1.00.92
Flash size: 128.0	0KB		04/15-10:09:15:033> [07D6] Current device firmware type : Univer 04/15-10:09:15:048> Power Writer® is connected	sal
Erana Turna	Interface level	Mino	04/15-10:09:15:064> Switch version:PWLINK2	
Lidse Type		Speed 10M bz	04/15-10:09:15:128> Update burner Settings complete	
○ Don't erase	01.80		04/15-10:09:10:319> Opdate chip information successfully 04/15-10:09:20:035> BootLoader update successfull	
• Full Erase	• 3.3V • 5.0V	OptionByte Factory=>Custom >	04/15-10:09:22:096> Power Writer® production switch : From PW PWLINK2	'LINK to
O Sector Erase	O External input	Enable buzzer	04/15-10:09:22:112> Writer Info: hwVer:1.3 blVer:1.00.06 ifVer: SN:4CEC765092D77C8EDB2659F24B66ED80 Target:PWLINK2	1.00.92
Write function confid	ouration		[04/15-10:09:22:143> [07D6] Current device firmware type : Univer 04/15-10:09:22:160> Power Writer® is connected	sal
	in or i the or i		04/15-10:09:22:209> Update burner Settings complete	
	ntity_Check [+] Signal of	utput V Certification	04/15-10:09:22:398> Update chip information successfully	
			[04/15-10:09:24:246> [002F] Disconnect the device and power it of complete the upgrade	n again to
SN Start:	0x0000000	Enable SN	04/15-10:09:26:313> Power Writer® production switch : From PW	LINK to
			PWLINK2	1 00 00
			04/15-10:09:26:329> Writer Info: hwVer:1.3 bIVer:1.00.06 ifVer: SN:4CEC765092D77C8EDB2659E24B66ED80 Target:PWI INK2	1.00.00
SN Sten:	0x00000001	0	04/15-10:09:26:360> [07D6] Current device firmware type : Univer	rsal
Sitt Step.		Decimal display	04/15-10:09:26:376> Power Writer® is connected	
			04/15-10:09:36:922> Power Writer® production switch : From PW	LINK to
			PWLINK2	
SN Addr:	0x0801FFFC	Big end model	04/15-10:09:36:938> Writer Info: hwVer:1.3 blVer:1.00.06 ifVer:	1.01.12
		-	04/15-10:09:36:970> [07D4] Current device firmware type : A	
Communication and	afiguration		04/15-10:09:37:001> Power Writer® is connected	
Communication cor	inguration		04/15-10:09:37:048> Update burner Settings complete	
Device: COM5	✓ Refresh	Disconnect Auto Connect	04/10-10.08.57.256× Opdate chip information successfully	

### 

Automatic synchronization of signatures may cause lag in system environments with poor network environments, so it is recommended to keep the default off and manually configure or synchronize when needed.



# 3.1.18 : Offline auto start/ stop

When you make the pkg file for offline programming, check Auto Chip Detection in Quantity and Self-Detection page, after loading the offline data (click the shortcut key above to load, or load offline in the menu bar Execute), you need to keep the offline state and manually press the key to programming and start the function of auto chip detection. Note: Even if automatic chip detection is enabled, you still need to manually press the key to start the programming process for the first time during the programming process.

🔘 Po	wer Writer	®1.3.8.	0 (Build	:2024-04	-10 19:4	0:33]												_		×
File(F)	Operat	on( <u>E</u> )	Tools(	) Setti	ng( <u>S</u> )	Help( <u>H</u> )														
6	B	$\mathbf{\varkappa}$	Ľ	ŵ	<b>\$</b> 0	Q	<b>I</b>	Б	5	6	÷	0	iD	⊡		Ň	S		Device	
Open	Save	F-in	F-out	PLoad	PRead	Blank	Erase	Read	Write	Verify	Auto	Reset	ID	AnyRD	Error	Serial	Wire		PWX1	
*	Writer S	etting	1	Option	bytes		rogram	Memor		отр м	emory									
Chip	Select										SIN	1:40EC70	009207		3200952	4800ED	su rarge			
мс	J model:	ST	TM32G	070xB			🔅 Se	elect	<ul><li>✓</li></ul>	Apply	04/ 04/	/15-10:09	:22:143 :22:160	> [07D6]  > Power	Current Writer®	device fii is conne	mware t cted	ype : Univer	sal	
FI	ash size:	128.00	KB								04	/15-10:09	22:209	> Update > Update	e ourner e chip inf	ormation	complete	e sfullv		
Fra	ee Type		Inter	face leve		Miec					04	/15-10:09	24:246	> [002F]	Disconn	ect the d	evice and	d power it o	n again to	
LIC	ise type			lace leve	51	Spo	- d	1044	-	~	cor	mplete the	e upgra	de						
0	Don't era	se	01	.8V		ope	30		Z	, v	04/	/15-10:09	:26:313	> Power	Writer®	production	on switch	1 : From PW	LINK to	
0	Full Eras	е	03	.3V 0V		Opti	onByte	Factor	y=>Cust	om ~	04/ SN	/15-10:09 I:4CEC76	:26:329	> Writer	Info: hw 32659F2	Ver:1.3 4B66ED	blVer:1.0 80 Targe	0.06 ifVer: t:PWLINK2	1.00.00	
C	Sector E	rase	OE	xternal i	nput	E	nable b	uzzer			04/15-10:09:26:360> [07D6] Current device firmware type : Universal 04/15-10:09:26:376> Power Writer® is connected									
											04/	/15-10:09	34:847	> Interfa	ce firmw	are upda	te succe	ssful		
VVrite	function	configu	iration								04/	/15-10:09	:36:922	> Power	Writer®	productio	on switch	: From PW	LINK to	
≡	SN N	Quant	ity_Che	ck ț!† :	Signal o	utput	Certi	fication			04	15-10-09	36.938	> Writer	Info: hw	Ver:13	blVer:10	0.06 if/er	1 01 12	
											SN	1:4CEC76	5092D7	77C8EDE	32659F2	4B66ED	80 Targe	t:PWLINK2		
											04/	/15-10:09	36:970	> [07D4]	Current	device fi	mware t	ype : A		
	Write Nun	iber	1			□ H	lexadecir	nal displa	у		04/	/15-10:09	37:001	> Power	Writer®	is conne	cted			
											04/	/15-10:09	37:048	> Update	e burner	Settings	complet	e		
	Automatic	chin de	tection								04/	/15-10:09	.37.230	> Opdate	Writer®	is discon	nected	siully		
	Automatic	crip de	lection								04	/15-10:25	49.414	> Writer	Info: hw	Ver:10	blVer:1.0	0.02 ifVer	1 00 02	
									_		SN	1:0123456	789AB	CDEF01	2345678	90ABCD	E Target	:PWX1		
In	sert chip to	jitter tin	ne(ms):		2	.50					04/	/15-10:25	49:430	> [07D6]	Current	device fi	mware t	ype : Univer	sal	
					_				_		04/	/15-10:25	49:446	> Power	Writer®	is conne	cted			
											04/	/15-10:25	:49:462	Switch	version:	PWX1				
Un	plug Chip t	o Jitter 1	Time(ms	):	2	50					04/	/15-10:25	50:155	> Resou	rce versi	on:1.0.0	size:0xco	c5ac crc32:	0x750b0c6	9
					_				_		04/	/15-10:25	:50:170	> Synchr	onizing	device tir	ne succe	eded		
											04/	/15-10:25	50:204	> Update	e burner	Settings	complet	e		
Com	municatio	n confi	guratio	n							04/	/15-10:25	.00.234 ·54·022	> Update	online	ormation	success	siully		
Denti							_			-	04	/15-10:25	17.633	Power	Writer®	is discon	nected	-		
Devic	e: cor	/13	~	R	etresh		Connec	st	Auto	Connect	04			1 01101						
🖌 Tai	get: conn	ected	IC	NorkSho	p Techn	ology (	Shenzhe	n) Co.,	Ltd.All	Right Re	erved									
0.100.0	E DA FE P	10. 0		Tala Lake																





# 3.1.19 : Online Failure

## 1 : Impunity

**Descriptive: Error Write Flash Address The target write flash failed**<sub>o</sub>



# 2 : Handling

- Not erased before programming (programming): Please erase the chip first and retry.
- **The chip is (write) protected:** Please set the option byte to default, and then perform a reset after writing the default option word.

• **Other reasons:** Occasional reasons such as unstable communication, you can try to replace the cable and retry, if you can not identify the cause by yourself, please contact technical support and submit detailed information for processing.



# 3.1.20 : Failed W/R Option **Byte**

### 1 : Error message

During the process of reading and writing the Option Byte (OB) to the target chip, the following read/write errors may occur, as shown in the figure below:

Power Writer® 1.3.8	3.0 [Build:2024-04-10 19:4	0:33]						- 0	$\times$	
File( <u>F</u> ) Operation( <u>E</u> )	Tools( <u>T</u> ) Setting( <u>S</u> ) I	Help( <u>H</u> )								
68	2 🔊 🔊	Q 🐼 🐼	6	· C	D 💿		× 8	Device		
Open Save F-in	F-out PLoad PRead	Blank Erase Read	Write Verify	Auto Reset	ID AnyRD	Error Se	erial Wire	PWX1	~	
Writer Setting	Option bytes	Program Memory	🛄 ОТР Ме	emory						
Chip Select				04/15-10:26:1	17:633> Power	Writer® is di	sconnected			
MCU model: S	TM32G070xB	i Select	🗸 Apply	04/15-10:28:4	18:386> Error F	Read Addr: 0	8000000,[Please	connect		
Flash size: 128.00	)KB			04/15-10:28:5	levice first] 50:683>					
Error Turo	laterfees lavel	Mine		File:,address:	0x1fff7000,size	e:0x0000040	0,CRC32:0xB83A	<u>FFF4</u>		
Erase Type		Speed 10M bz	. ~	04/15-10:28:5	52:376> Please 53:923> Writer	e connect Po Info: hwVer:	werWriter device 1 1.0 blVer:1.00.02	rrst ! ifVer:1.00.02		
○ Don't erase	01.80		-	SN:01234567	789ABCDEF01	234567890A	BCDE Target:PW	X1		
Full Erase	<b>O</b> 3.3V	OptionByte Factory	=>Custom ~	04/15-10:28:5	53:939> [07D6] 53:954> Power	Current devi Writer® is co	ce firmware type	Universal		
O Sector Erase	0 5.0V			04/15-10:28:5	3:969> Switch	version:PW	K1			
O Sector Erase	O External input	Enable buzzer		04/15-10:28:5	54:661> Resou	rce version:1	1.0.0 size:0xcc5ac ce time succeede	crc32:0x750b0c69	9	
Write function config	uration			04/15-10:28:5	54:725> Update	e burner Sett	ings complete			
= SN N Quan	tity Check 11 Signal o	utput 🔍 Certification		04/15-10:28:5	54:757> Update 58:526>	e chip inform	ation successfully	l		
	TH Olghard			File:,address:	0x1fff7000,size	e:0x0000040	0,CRC32:0xB83A	FFF4		
_	1			04/15-10:28:5	58:823> OTP M	lemory Prog	ramming success	ful!		
U Write Number	1	Hexadecimal display		04/15-10:28:5	08:981>Target )6:802>	Unline				
				File:,address:	0x1fff7000,size	e:0x0000040	0,CRC32:0xD038	<u>2684</u>		
🗹 Automatic chip de	etection			04/15-10:29:0	07:098> 01 P № 10:358> Data	lemory Prog	ramming success	tul:		
				address:0x1ff	f7000,length:0	x00000400,0	CRC32:0xB83AFF	F4		
Insert chip to jitter ti	ime(ms): 2	50		04/15-10:29:10:374> OTP Memory Read successful!						
	_			File:,address:	0.0352 0x1fff7000,size	e:0x0000040	0,CRC32:0x5A3C	4A21		
Unplug Chip to Jitter	Time(ms): 2	50		04/15-10:32:1	4:546> Error V	Vrite Flash A	ddr: 1FFF7300,[[0	018] The target wri	ite	
				04/15-10:32:1	19:067> [086B0	C51A]:Option	byte has been re	ad successfully!		
Communication cont	figuration			04/15-10:32:2	21:543> [D1F3	16AB]:Option	byte was written	successfully!		
Device: 00M2				04/15-10:32:3	81:003> Target 83:452> [0009]	: Ottline The target d	hip is not connect	ed		
Device. COM3	Refresh	Disconnect	Auto Connect		[0000]					
X Target: disconnect	ICWorkShop Techno	ology (Shenzhen) Co.,	Ltd.All Right Res	erved						

### 2 : Possible causes

- **Discrepancy between the actual chip and the target chip**: Each model may have a different memory layout structure (memory map), which may result in undefined behavior if reading or writing in the wrong way. If you read or write in the wrong way, it may lead to undefined behavior and cause errors, please make sure the chip is the currently selected chip. -Please make sure the chip is the currently selected chip.
- Wiring is unstable: Replace wire, 'Re-plug and retry.
- **Other reasons:** Please provide feedback to our technical support.

 Tags:
 FAQ
 Option Byte

 Image:
 Edit this page

# 3.1.21 : USB not recognized

## 1 : Error message

When the device is connected to USB, it prompts for unrecognized USB devices. As shown in the figure below:



# 2 : Causes and solutions

- If you are using a cable that has only a power supply function but no communication function, you can replace the USB cable or use the USB cable that comes with the device.
- Using the host front USB interface, the front USB interface is wired from the motherboard to the chassis, the quality of the chassis on the market varies greatly, the

USB interface aging and other circumstances that lead to USB communication instability, this time you can connect the device to the host rear USB interface to try.

- If you are using a poor quality HUB extension cable or if you are using an extension cable that is too long and the communication is unstable, you can replace it with a high quality HUB or use the rear USB port.
- Damage to the device itself can be determined by observing the state of the device and, if necessary, contacting after-sales support and technical support.

Tags:	FAQ	USB
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Edit this pageLast updated on Apr 15, 2024 by Alan Chen

# 3.1.22 : Target not running

After programming the firmware (program), whether the chip operates or not depends on the settings and whether the programmed data is complete or not, please follow the flow as below.

## 1 : Manual reset in online mode

### **1.1** : Toolbar click on the reset button

 $\times$ File(F) Operation(E) Tools(T) Setting(S) Help(H) Q ÷ ۲ 8 Device ΡI  $\mathbf{K}$ -**\$0 x** 6 6 50 Reset ID AnyRD Error Serial PWX1 Open Save F-in F-out PLoad PRead Blank Erase Read Write Verify Auto Wire 🔹 Writer Setting 🛃 Option bytes 📗 Program Memory 📗 OTP Memory

### **1.2** : Reset button (shortcut) in the menu

E:	Offline load	(Ctrl+Shift+L)
R	Offline upload	(Ctrl+Shift+R)
۶	Read Program memory	(Ctrl+R)
٩Q	Blank check Program memory	(Ctrl+B)
	Erase Program memory	(Ctrl+E)
P	Program Program memory	(Ctrl+W)
°o	Verify Program memory	(Ctrl+V)
	Auto Program Memory programming	(Ctrl+P)
	Fully functional automatic programming	(Ctrl+Alt+P)
∢	Other data area operations	>
	Reset target chip	(Ctrl+D)
<b>□</b> -	Reset target chip Read option byte	(Ctrl+D) (Ctrl+M)
<b>ा</b> नि	Reset target chip Read option byte Write option byte	(Ctrl+D) (Ctrl+M) (Ctrl+N)
- - - - -	Reset target chip Read option byte Write option byte Read Union Chip ID	(Ctrl+D) (Ctrl+M) (Ctrl+N) (Ctrl+J)
- 7 8	Reset target chip Read option byte Write option byte Read Union Chip ID Read Data Anywhere	(Ctrl+D) (Ctrl+M) (Ctrl+N) (Ctrl+J) (Ctrl+K)

## 2 : Automatic reset in online mode

If you use online full-function auto-programming, before performing full-function autoprogramming operation, please check the box: Start the target chip after programming is completed in Signal Output Control, and then perform full-function auto-programming as follows:


## 3 : Automatic reset in offline mode

The setting of auto reset in offline mode is the same as that of auto reset in online mode: please check the box: Start the target chip after programming is completed in Signal Output Control.

# 4 : Still not working after reset

If the program still fails to run after a reset, the problem lies in the programmed file itself, which is roughly categorized as follows based on feedback:

 Very few manufacturers SDK compiled firmware, need to perform additional patches, such as interrupt entry error or missing, for example, SWM181x9 series chips, different version of the SDK compiled firmware, interrupt vector table entry is not correct, but instead in the programming process to patch.

57 58	; Vector Table	Mapped to Address O at	Reset	^
59 60 61 62 63 64		AREA RESET, DATA, R EXPORTVectors EXPORTVectors_End EXPORTVectors_Size	EADONLY	
65 66 67 68 69 70 71 72 73 74	Vectors	DCD Stack_Mem + Stack DCD Reset_Handler DCD NMI_Handler DCD HardFault_Handler DCD 0 DCD 0	_Size : Top of Stack : Reset Handler : NMI Handler : Hard Fault Handler	
75 76		DCD SRAM_SWITCH DCD SVC_Handler	: SVCall Handler	
77 78 79 80 81 82		DCD 0 DCD 0 DCD PendSV_Handler DCD SysTick_Handler	: PendSV Handler : SysTick Handler	
83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 90 100		DCD IRQ0_Handler DCD IRQ1_Handler DCD IRQ2_Handler DCD IRQ2_Handler DCD IRQ3_Handler DCD IRQ4_Handler DCD IRQ5_Handler DCD IRQ6_Handler DCD IRQ7_Handler DCD IRQ9_Handler DCD IRQ10_Handler DCD IRQ11_Handler DCD IRQ12_Handler DCD IRQ13_Handler DCD IRQ15_Handler DCD IRQ16_Handler DCD IRQ17_Handler		v
< 101		DCD TRO10 Uandlar		>

The marked position is the option word, which is only valid if it is 0xabcd1234; other values may cause problems that prevent operation.

• The compiled firmware contains SRAM firmware, but when programmed, only the flash firmware is programmed, resulting in incomplete firmware. To deal with this kind

of problem, please adjust the compilation settings (sct hash file), or consult with the manufacturer to compile a complete flash firmware and programming it.

• Firmware contains multiple segments, when programming, only add one of the segments, forget to add the other segments, you can merge to add the firmware, refer to the Multi-Zone Firmware Adding Method



# 3.1.23 : Unicode support

PowerWriter<sup>®</sup> supports Unicode accounts, Unicode installation paths.

## 1 : Unicode account

supported

### 2 : Unicode path

supported

## 3 : Promoting practices

#### 📿 тір

PowerWriter<sup>®</sup> supports full Unicode encoding, but it is recommended to keep the default installation path or customize the installation to the ASCII path to maintain good habits.



# **3.1.24 : Canceled on** operation?

### 1 : Error message

The following error message may appear when reading and saving data from the target chip:

🔘 Po	ower Write	r®1.3.8.	0 (Build	1:2024-(	04-10 1	9:40:33]													_		×
File(F	) Operat	ion( <u>E</u> )	Tools(	[) Set	ting( <u>S</u> )	Help(	<u>H</u> )														
ि Open	E Save	۲ F-in	F-out	store PLoad	Re PRe	ad Bla	ank	To Erase	Fo Read	E Write	E Co	fy Aut	o Res	et ID	AnyRD	U Error	Serial	Wire		Device PWX1	~
ö	Writer S	etting	1	Optio	n byte	s 🖪	Prog	gram N	1emory		ОТР	Memory	,								
-	DDRESS	00 0	1 02	03 0	4 05	06 07	08	09 0	4 0R	1C 0D	0F	OF	TEX	г			🗌 Flash	Map(All/Unall):	Er	ase-Sel	I <b>▼</b>
0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0	8000000 8000020 8000020 8000030 8000050 8000050 8000050 8000050 8000050 8000050 8000050 8000050 8000050 8000050 8000050 8000050 8000050	FF H H H H H H H H H H H H H H H H H H	TF FF F	FF FF FFF FFFFFFFFFFFFFFFFFFFFFFFFFFFF			F FF FFF FFF FFF FFF FFF FFF FFF FFF FF		F FF F FF F FF F FF F FF F FF F FF F F	AC OU FF FF FF	FF FF FF FF FF FF FF FF FF FF FF	FF FF FF FF FF FF FF FF	00C] The	arget rea	ad data		[000] [001] [002] [003] [006] [006] [007] [008]	Addr: 0x080000 Addr: 0x080000 Addr: 0x080000 Addr: 0x080010 Addr: 0x080020 Addr: 0x080020 Addr: 0x080020 Addr: 0x080030 Addr: 0x0800000 Addr: 0x080000000 Addr: 0x080000000	00 Size:2 00 Size:2	K K B K K B	
0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0 0x0	8000100 8000120 8000130 8000140 8000140 8000160 8000160 8000180 8000180 8000180 8000180	FF H FF H FF H FF H FF H FF H FF H FF H	T F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F F	FF F FF F FF F FF F FF F FF F FF F FF	F FF F FF F FF F FF F FF F FF F FF F F	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF	FFF FFF FFF FFF FFF FFF FFF FFF	·	F FF F FF F FF F FF F FF F FF F FF F F	77 77 77 77 77 77 77 77 77 77 77 77 77 77 77 77 77 77 77 77	FF	FF FF FF FF FF FF FF FF			OK		0118 0119 0201 0211 023 023 024 024 025 025	078 080 080 080 084 08080 080 080 080 080	00 Size:2 00 Size:2	KB KB KB KB KB KB KB KB KB KB KB	
Firmw	are Name					Start	Addr	Er	nd Addr	Fir	mware	Size	CF	C32			+ A + A X 0	dd firmware dd random Del firmware		Apply	
V Ta	arget: conn	ected	IC	NorkSh	op Tec	hnology	(She	nzhen	) Co.,	Ltd.All	Right I	Reserved									

# 2 : Handling

- Wrong selection of target chip type: Check whether the target chip is connected successfully, and when making sure that the chip is connected, pay attention to checking whether the type of your own chip is the same as the selected chip type.
- **Chip open read protection:** Chip open read protection can not be read on the chip after the operation, you can try to lift the read protection operation

The status of the read protection can be viewed before this by performing a read option byte first operation in the menu bar:

E3	Offline load	(Ctrl+Shift+L)
R	Offline upload	(Ctrl+Shift+R)
۶	Read Program memory	(Ctrl+R)
PQ	Blank check Program memory	(Ctrl+B)
	Erase Program memory	(Ctrl+E)
P>	Program Program memory	(Ctrl+W)
⁰⊙	Verify Program memory	(Ctrl+V)
۲	Auto Program Memory programming	(Ctrl+P)
	Fully functional automatic programming	(Ctrl+Alt+P)
4	Other data area operations	>
Ö	Reset target chip	(Ctrl+D)
<del>.</del>	Read option byte	(Ctrl+M)
$\mathfrak{P}$	Write option byte	(Ctrl+N)
ID	Read Union Chip ID	(Ctrl+J)
<b>%</b>	Read Data Anywhere	(Ctrl+K)
ଜ	Get Last Offline Error	(Ctrl+L)

#### How to remove read protection

📿 тір

When reading data after unprotecting the read protection, the internal memory data will be erased automatically, so please be careful with it.

 Tags:
 FAQ
 OPERATE-MISS

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Last updated on Apr 15, 2024 by Alan Chen

# 3.1.25 : OEM mismatch

#### 1 : OEM mismatch

When reading, writing, loading, loading orders from applets, loading orders from Core Workshop, etc., OEM errors, packet non-conformity, etc., may occur, all of which are caused by inconsistencies in the settings of the original project package, the target device, and the project file type.

#### 2 : Handling

After opening the project, in the upper right corner of the client software, modify the product type to the corresponding product type to save and republish, as shown in the following figure:

File( <u>F</u> )	Opera	ation( <u>E</u> )	Tools( <u>T</u>	) Setti	ng( <u>S</u> )	Help( <u>H</u> )														
B	B	Ľ		-	20	۹	<b></b>	Б	6	5	۰.	0	iD			Ň			Device	
Open	Save	F-in	F-out	PLoad	PRead	Blank	Erase	Read	Write	Verify	Auto	Reset	ID	AnyRD	Error	Serial	Wire		PWX1	$\sim$
\$	Writer	Setting	1	Option	bytes	P P	rogram N	1emory		OTP Me	emory								PW200 PW300	
Optio	Option Byte:         BB E1 FF DF 3F 00 00 00 3F 00 00 00         Size : 12 Byte         Reset         PWLIN PWLIN PWLIN							PWLINK2 PWX1												
Option	ption Name Option Value(Click the item with the mouse and select the parameters from the drop-							F												

Tags: FAQ OEM

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# 3.1.26 : Programming Speed

Clock speed is about 6.67Mhz (PW200/PW300/PWLINK2), 18.75Mhz (PWX1) of the actual speed, converted to the integrated programming speed of about 400Kbps~500Kbps, 1Mbps.

TIP

- PowerWriter<sup>®</sup> is optimized at a high level of programming speed, and PowerWriter<sup>®</sup> encrypts the data while achieving this speed.
- The programming speed will vary from chip to chip.
- In online mode, the speed is slightly lower compared to offline due to the presence of data interaction.

Tags: FAQ Speed

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# **3.1.27 : Motor drive**

The PowerWriter® (**PW200/PW300/PWLINK2**) has only a self-recovery fuse to prevent the device from being overloaded and programmed; generally, the peak current of a motor at startup may reach 3 to 5 times the rated operating condition of the motor, and this current has far exceeded the trigger threshold of the device's internal self-recovery fuse, and using the PowerWriter® to power a large load of devices may risk programming out the device, or even the USB port or computer motherboard. At the same time, using the PowerWriter® to supply power to large loads of equipment will risk programming the equipment, or even the USB port or the computer motherboard. Therefore, it is recommended to supply power to large loads separately, and isolate them if necessary, in order to ensure the safety of each device in use.

#### 🖓 ТІР

To drive motor type applications, please use **PWX1** (maximum drive current up to 3A) for driving and connect DC power supply at the same time.

 Tags:
 FAQ
 ELECTRIC

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# 3.1.28 : Automated machine

The **CTRL**, **OK**, **NG**, **GND**, **and 5V interface signals** need to be connected for coordinated programming.

- **CTRL**: Controls the start of low-pulse programming, which requires the input of a lowpulse signal of >=40ms to start offline programming once.
- **OK**: outputs high when the programming is successful, outputs 5V, and clears the state to low when there is a new operation.
- **NG**: Outputs high when the programming fails, outputs 5V, and clears the state to low when there is a new operation.
- 5V: Machine interface power supply pin (please do not connect VREF).
- **GND:** Ground.

Both OK and NG output low at 0V for idle and busy states.

CTRL and key logic are the same, when starting the CTRL signal is equivalent to manually pressing a key, the programmer enters the busy state, and the OK and NG lamps will go out.

ower Writer® Hardware Interface Viewer				>
		<u>ې الا</u>	植王坊	Power Writer®
劉田前丁坊	GND	NG/SWO		PW200 V
IC WONKSHOP	GND	ОК		Hardware version
POWER	GND	RST		1.4 ~
STATUS	GND	SWIM	_	
NG	GND	CTRL		
OK	GND	SWCLK		
	BOOTO	SWDIO		
	GND	RX	1.1	
PowerWriter	5V	ΤХ		
American and a second second	VIN	VREF		
hardware version:v1.4				ОК

#### 📿 тір

- PWLINK related series products do not have automated machine programming capabilities. If you need to use PWLINK for production, you can try to use in-line full-featured automated programming.
- For PWX1 devices, please check the interface signals, see <u>PWX1 Machine</u> Interface. (Same as PW200/PW300).



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# 3.1.29 : Serial port usage

#### Virtual serial port feature of PowerWriter®:

- Writer Functions for PowerWriter®
- General purpose serial port for debugger mode
- Can also be used directly as a regular serial port

The PowerWriter® client integrates a serial port assistant that can be accessed via the toolbar button



The built-in serial port assistant interface is as follows

Power Writer® Serial Assistant V1.1	×
Serial port Settings	
Baud rate: 115200 V	
Parity bit: None V	
Data bits: 8 bit V	
Stop bits: 1 bit	
© 0pen( <u>0</u> )	
Counter	
RX:0         Reset ( <u>R</u> )	
Receiving set	
Display format	
OHexadecimal	
O String	
$Clear data(\underline{C})$	
Save to $file(\underline{S})$	
Send setting	
Send format	
OHexadecimal	
String	
Load from file(L)	
Send(I)	

Open the serial port assistant to use as a normal serial port tool, wiring diagram reference:

Power Writer® Hardware Interface Viewer	×					
Sov TRST Sov TRST VN VREF	Power Writer® PWX1  v Hardware Version					
DC 电源	1.0 ~					
hardware version: v1.0						

#### 📿 тір

- Hardware version V1.0 does not support virtual serial ports.
- PWX1 Wiring reference **PWX1 connection scheme**.
- Other serial port assistant tools can be used.



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Last updated on Apr 15, 2024 by Alan Chen

# 3.1.30 : PWLINK device reboot

## **1** : Power reset for peripherals

Due to the hardware limitations of PWLINK itself, the output voltage is not isolated, which may cause PWLINK to reset when powering large load peripherals directly.

## 2 : Handling

Plug the PWLINK into a USB port with sufficient drive capability and use the external device's own power supply.

📿 тір

**PWLINK2 version**: The upgraded version of PWLINK2 is isolated on the power supply and supports 3.3V/ 5V outputs, and can also use an external reference voltage, so there is no reset phenomenon when PWLINK is connected to a large load.



# 3.1.31 : Offline package R/W

# 1 : Offline loading when project is not saved

When loading a project offline, if the current data is not saved as a project file, you will see the following message.



Consist of :

[Yes]: Save the project file to prevent data loss, select this option when you need to save it.

[No]: do not save the project file, this option will generate the cache without the need for the user to choose the save location, in order to prevent the data from being read, the

password will use a random password.

[No longer prompt]: Do not save the project file and do not prompt this option, other functions and [No] consistent.

# 2 : Adjustments to the Save and load project

PowerWrite	er® Encrypts data and sets file paths	×
	制模式坊	
Password		
Password	Please enter the project password, maximum 16 charae Generate	*
Tips : 1: You car improve p 2: If you v File path	n use the random generation function to generate random passwords to assword security. want to publish to the platform, you must set a password.	
	Select an open or save path and leave it blank will random generation.	
	Done	

**Project Password:** Project Password, will prompt for a maximum of 16 characters, can be left blank.

**Project Path:** When you open a project file, you must select the project path, and when you save the project, if you don't select the project path, the cache path will be randomly generated.

# 3 : Adjustments for reading offline project files



If the offline project file is successfully read, you will be prompted whether to load the project immediately to avoid overwriting the current project file and losing data.

# 4 : How to turn prompting back on after choosing not to prompt again

♥ 10101 11100	o loginalege i o i i o i si i									
File( <u>F</u> ) Operation( <u>E</u> )	Tools( <u>T</u> ) Setting( <u>S</u> ) H	Help( <u>H</u> )								
Open Save Frin	E-out Pload PRead		Ko Korify		iD		or Serial	Wire	Device PWX1	
Writer Setting	Option bytes	Program Memory		mory	set ib	Anyno en				
Chip Select				04/15-10	J:50:35:692	Power write Please con	ere is aisco nect Power	nnected Writer® first		
MCU model: ST	TM32G070xB	Select	🗸 Apply	04/15-10	):57:27:442	> Writer Info:	hwVer:1.0	blVer:1.00.02	ifVer:1.00.02	
Flash size: 128.00	KB			SN:0123 04/15-10	SN:0123456789ABCDEF01234567890ABCDE Target:PWX1 04/15-10:57:27:458> [07D6] Current device firmware type : Universal					
Erase Type	Interface level	Misc		04/15-10	):57:27:474	Power Writ	er® is conn	ected		
◯ Don't erase	O 1.8V	Speed 10M hz	· · · ·	✓         04/15-10:57:27:489> Switch version:PWX1           ○         04/15-10:57:28:177> Resource version:1.0.0 size:0xcc5ac crc32:0x750b0c69           04/15-10:57:28:193> Synchronizing device time succeeded           04/15-10:57:28:240> Update burner Settings complete           04/15-10:57:28:273> Update chip information successfully						
Full Erase	O 3.3V ○ 5.0V	OptionByte Factory	=>Custom ∨							
⊖ Sector Erase	Sector Erase O External input Pable buzzer 04/15-10:57:29:022 > Power Writer® is disconnected 04/15-10:57:29:022 > Writer Info: hwVer:1.0 blVer:1.00.02 ifVer:1.00.02						ifVer:1.00.02			
Write function configu	ration			SN:0123	04/15-10:57:44:748> [07D6] Current device firmware type : Universal					
	L Obert 11 Signal or	itout 🖲 Ossifastias		04/15-10:57:44:784> Power Write® is connected           04/15-10:57:44:780> Switch version:PWX1           04/15-10:57:45:75> Resource version:1.0.0 size:0xcc5ac crc32:0x750b0c69           04/15-10:57:45:73> Synchronizing device time succeeded           04/15-10:57:45:52> Update burner Settings complete						
	ty_Check 1#1 Signal of	Certification								
Run target firmwa	re when program done									
Turn off the power	r output after programming	)		04/15-10	04/15-10:57:45:554> Update chip information successfully					
Power on stability	v time(ms): 100	Hexadeo	imal display	04/15-10	J:57:47:255 1:00:48:397	> Larget Onli > Save succe	ne			
Dames off shall the	- K () 100			04/15-11	04/15-11:00:49:240> Load offline data successfully					
Power off stability	y ume(ms): 100			04/15-11	04/15-11:03:03:951> Failed to load offline data!					
- Donot modo aclastica				04/15-11	1:03:10:894	Load offline > Project file	e data succe password w	erification failed	1	
Reset mode selection				04/15-11	1:03:18:125	> Save succe	ss			
Hardware and syst	tem reset		~	04/15-11	1:03:18:982	2> Load offline	e data succe	essfully		
							e data succe ess	esstully		
	04/15-11	1:04:02:627	> Load offline	e data succe	essfully					
Communication contiguration 04/15-11:04:22:531> Save success							ss			
Device: COM3 V Refresh Disconnect Auto Connect 04/15-11:04:23:638> Load offline data successfully										



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# **3.1.32 : About Silk**

When you receive the device, due to a variety of production batches, there are equipment screen printing error printing probability, so about the pin distribution, we recommend that you client software query to the screen print shall prevail, the inconvenience caused to you, please forgive me! The query method is shown in the figure below:

ø	Serial Port Assistant	(Ctrl+T)
2	View the Power Writer® interface definition	(Ctrl+l)
	View the chip wiring diagram	(Ctrl+G)
ılı	Reserved data read-write	(Ctrl+H)
	Advanced setup for offline project	(Ctrl+X)
ダ	Exporting or load the UID authorization configuration	>
11	Test and Production	
	Super serial number	

Power Writer® Hardware Interface Viewer	×
	Power Writer® PWX1 ✓ Hardware Version
C 电源     USB Host     USB Device     DO eVice     DO eVice	1.0 ~
hardware version: v1.0	ок



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# 3.1.33 : Adapter knowledge

PowerWriter provides PW200, PW300, PWX1 adapter boards.

# 1 : Silkscreen and usage

The interface of the adapter board is shown below:





PW200/PW300 The adapter board is used as shown below:



# 2 : Versions Differences

Currently there are two versions of the adapter board, the main difference is that the new version has more 5V pins than the old version, as shown in the following figure. It should be noted that the new version of the adapter board is suitable for 1.3 and 1.4 hardware version of the programmer, that is, PW200 or PW300; the old version of the adapter board is suitable for 1.2 hardware version of the programmer below. If you use the old adapter boards for 1.3 or 1.4 hardware versions, there is a risk of shorting 5V and GND, so be careful.

In addition, the PowerWriter<sup>®</sup> interface definition can be viewed through the PowerWriter<sup>®</sup> software menu bar, Tools, to confirm the specific hardware version information of the programmer.







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# 3.1.34 : Stuck during installing

## 1 : Intend

Download: PowerWriter® For ARM

Because some anti-virus software will be misreported driver, it is recommended that you close 360 and other anti-virus software before installation.

### 2 : Stuck during installation

When installing the PowerWriter<sup>®</sup> client, there is a low probability that it will get stuck and not move, in fact, this time it is detected that it needs to be rebooted, and can be solved by rebooting the system and reinstalling it.

### 3 : Is it mandatory

- You may not install the software if you are only using it as a Debugger.
- For online operation of the chip, or for offline production configuration, the PowerWriter® software is required. This tool is similar to the ST-unity tool, but with more features, and will be expanded with more features in the future.



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# 3.1.35 : How to unlock the chip

When using PowerWriter<sup>®</sup> to programming firmware, an error may be reported: Error Write Flash Addr: The target write flash failed....

The reason for this error message may be:

- Not erased before programming (programming): Please erase the chip first and retry.
- The chip is (write) protected: Please set the option byte to default, and then perform a reset after writing the default option word.
- Other reasons: Occasional reasons such as unstable communication, you can try to replace the cable and retry, if you can not identify the cause by yourself, please contact technical support and submit detailed information for processing.

The second reason mentioned above is the need to do an unlock operation on the chip to remove the protection.

# 1 : Online Unlocking Chip

#### **1.1** : Restore Defaults to Unlock Chip

Switch to the option byte page, click on the right side of the restore default button, and then click on the top of the shortcut key write, you can unlock the chip; or operation of the menu bar in the execution of the write option byte, can be restored to the chip's option

byte status of the factory settings, the specific page is shown below:

(     Power Writer® 1.3.8.0 [Build:2024-04-10 19:40:33]	– 🗆 X
File(E) Operation(E) Tools(T) Setting(S) Help(H)	
Image: Constraint of the state of the st	Image: Weight of the second
🗱 Writer Setting 🛃 Option bytes 📳 Program Memory 🖺	OTP Memory
Option Byte: BB E1 FF DF 3F 00 00 00 3F 00 00 00	Size : 12 Byte Save Save Save Save Save Save Save Sav
Option Name 🔍	Option Value(Click the item with the mouse and select the parameters from the drop-c
>>>	Double-click to modify] Byte 0
RDP (	DxBB: Level 1, memories read protection active
>>>	Double-click to modify] Byte 1
nRST_STDBY 0	0x01: No reset generated when entering the Standby mode
nRST_STOP (	0x01: No reset generated when entering the Stop mode
>>>	Double-click to modify] Byte 2
RAM_PARITY_CHECK 0	0x01: SRAM parity check disable
WWDG_SW 0	0x01: Software watchdog
IWDG_STBY 0	0x01: Independent watchdog counter is running in Standby mode
IWDG_STOP 0	0x01: Independent watchdog counter is running in Stop mode
IWDG_SW 0	0x01: Software independent watchdog
>>>	Double-click to modify] Byte 3
nBOOT0 C	0x01: nBOOT0=1
nBOOT1 C	0x01: nBOOT1=1
nBOOT_SEL C	0x01: BOOT0 signal is defined by nBOOT0 option bit
>>>	Double-click to modify] Byte 4
WRP1A_STRT bit5 0	0x01: WRP1A_STRT bit5
WRP1A_STRT bit4 0	0x01: WRP1A_STRT bit4
WRP1A_STRT bit3 0	Dx01: WRP1A_STRT bit3
WRP1A_STRT bit2 0	Dx01: WRP1A_S1RT bit2
WRP1A_STRT bit1 0	Dx01: WRP1A_STRT bit1
WRPIA SIRTbit() (	DX01: WRP1A_STRT bit0
✓ Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All Ri	ght Reserved C:\Users\CSHSOFT\AppData\Local\Temp\YORx0I5ef3WF5iAD.pkg

Ľ,	Offline load	(Ctrl+Shift+L)
R	Offline upload	(Ctrl+Shift+R)
۶	Read Program memory	(Ctrl+R)
٩Q	Blank check Program memory	(Ctrl+B)
	Erase Program memory	(Ctrl+E)
<sup>P</sup>	Program Program memory	(Ctrl+W)
⁰⊙	Verify Program memory	(Ctrl+V)
6	Auto Program Memory programming	(Ctrl+P)
	Fully functional automatic programming	(Ctrl+Alt+P)
4	Other data area operations	>
Ö	Reset target chip	(Ctrl+D)
Ŧ	Read option byte	(Ctrl+M)
$\mathbb{P}$	Write option byte	(Ctrl+N)
ID	Read Union Chip ID	(Ctrl+J)
<b>%</b>	Read Data Anywhere	(Ctrl+K)
ଜ	Get Last Offline Error	(Ctrl+L)

#### 1.2 : Unlock Only

If you do not want to operate the other options in addition to read protection byte, you can double-click the option of read protection, and then click on the right side of the small drop-down arrow, you can see all the options about the protection, and then select the read protection off or protection off, and then write to the chip can be set up to write the protection of the operation is the same as the specific page is shown below:

File(F) Operation(E) Tools(I) Setting(S) Help(H)																					
6 6 6 5 × 1 × 1 × 1							50	۰ <u>۴</u> ۰	0	iD			Ň	S		De	evice				
Open	Save	F-in	F-out	PLoad	PRead	Blank	Erase	Read	Write	Verify	Auto	Reset	ID	AnyRD	Error	Serial	Wire		P\	VX1	$\sim$
🗱 Writer Setting 🛃 Option bytes 📳 Program Memory 🖺 OTP Memory																					
Option Byte: AA E1 FF DF 3F 00 00 00 3F 00 00 00													Size : 12	Byte	€Re	set	🖹 Load	Ð	Save	-	
Option	Name									Option Value(Click the item with the mouse and select the parameters from the drop-c										-c	
>>>										[Double-click to modify] Byte 0											
RDP										0xAA: Level 0, read protection not active 🗸 🗸											
>>>										0xAA: Level 0, read protection not active											
nRST_STDBY										0xBB: Level 1, memories read protection active											
nRST_STOP										UXUC: Level 2, chip read protection active(Note: The chip will be permanently locked)									<u>]</u>		

# 2 : Offline Batch Unlock Chip

#### 2.1 : Restore Defaults to Unlock Chip

Offline programming need to remove the read protection or write protection, first switch to the option byte page, and then click on the right side of the Restore Defaults button, you can see that the protection is turned off, offline programming settings are complete, click on the top of the shortcut key to load, or operation of the menu bar in the implementation of the offline load, load the file into the programmer, and then offline programming, you can unlock the chip in batch, the specific page is as follows As shown in the following page:

(     Power Writer®1.3.8.0 [Build:2024-04-10 19:40:33]	- O X											
File(E) Operation(E) Tools(I) Setting(S) Help(H)												
3 3 3 <b>0</b> 0 3 3 5 1 1												
Open Save F-in F-out PLoad PRead Blank Erase Read Write	Verity Auto Reset ID Anyko Error Serial Wire											
🔹 Writer Setting 🛃 Option bytes 📗 Program Memory 📗	OTP Memory											
Option Byte: BB E1 FF DF 3F 00 00 00 3F 00 00 00	Size : 12 Byte 📀 Reset 🗈 Load 🖺 Save 💌											
Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-c											
>>>	[Double-click to modify] Byte 0											
RDP	0xBB: Level 1, memories read protection active											
>>>	[Double-click to modify] Byte 1											
nRST_STDBY (	0x01: No reset generated when entering the Standby mode											
nRST_STOP (	0x01: No reset generated when entering the Stop mode											
>>>	[Double-click to modify] Byte 2											
RAM_PARITY_CHECK (	0x01: SRAM parity check disable											
WWDG_SW (	0x01: Software watchdog											
IWDG_STBY (	0x01: Independent watchdog counter is running in Standby mode											
IWDG_STOP (	0x01: Independent watchdog counter is running in Stop mode											
IWDG_SW (	0x01: Software independent watchdog											
>>>	[Double-click to modify] Byte 3											
nBOOT0 (	0x01: nBOO10=1											
nBOOT1 (	0x01: nBOOT1=1											
nBOOT_SEL (	0x01: BOOT0 signal is defined by nBOOT0 option bit											
	Double-click to modify] Byte 4											
WRPIA_SIRI bits	UXU1: WRPTA_STRT bits											
WRPIA_SIRI bit4	UXUT: WRPTA_STRT bit4											
	0x01: WRP1A_S1RT bit3											
WRPIA_SIRI DIZ												
Target connected ICWorkShop Technology (Shenzhen) Co., Ltd All D												
arget connected reworkshop rechnology (Shenzhen) Co., Etd.All Ki	ight heserved c. (osers (consort r)Appbata (cotar) temp (rotwobels) wrshAb.pkg											

-8 -8	Offline load	(Ctrl+Shift+L)
R	Offline upload	(Ctrl+Shift+R)
₽⊃	Read Program memory	(Ctrl+R)
٩Q	Blank check Program memory	(Ctrl+B)
	Erase Program memory	(Ctrl+E)
<sup>P</sup>	Program Program memory	(Ctrl+W)
⁰⊙	Verify Program memory	(Ctrl+V)
6	Auto Program Memory programming	(Ctrl+P)
	Fully functional automatic programming	(Ctrl+Alt+P)
4	Other data area operations	>
Ö	Reset target chip	(Ctrl+D)
€	Read option byte	(Ctrl+M)
$\mathbf{F}$	Write option byte	(Ctrl+N)
ID	Read Union Chip ID	(Ctrl+J)
፠	Read Data Anywhere	(Ctrl+K)
୯	Get Last Offline Error	(Ctrl+L)

#### 2.2 : Unlock Only

If you don't want to operate other option bytes except read protection, you can doubleclick the option of read protection, and then click on the right side of the small drop-down arrow, you can see all the options about the protection, and then select the protection off or no protection, and then click on the load, for offline programming, you can batch unlock the chip, and set up the operation of the write protection is the same as the specific page as shown below:

File(F)	File(F) Operation(E) Tools(I) Setting(S) Help(H)																				
07 07 07 07 10 10 10 10 10 10 10 10 10 10 10 10 10								50	( <b>*</b>	0	iD			Ň	S		De	evice			
Open	Save	F-in	F-out	PLoad	PRead	Blank	Erase	Read	Write	Verify	Auto	Reset	ID	AnyRD	Error	Serial	Wire		P۱	NX1	~
🗱 Writer Setting 🛃 Option bytes 📳 Program Memory 🛄 OTP Memory																					
Option Byte: AA E1 FF DF 3F 00 00 00 3F 00 00 00													Size : 12	Byte	€	set	🖹 Load	Ð	Save	-	
Optior	Name									Option Value(Click the item with the mouse and select the parameters from the drop-c										-c	
>>>										[Double-click to modify] Byte 0											
RDP										0xAA: Level 0, read protection not active 🗸 🗸										7	
>>>										0xAA: Level 0, read protection not active											
nRST_STDBY										0xBB: Level 1, memories read protection active											
nRST_STOP											UXCC: Level 2, only read protection active(Note: The only will be permanently locked) UXOT: NO reset generated when entening the Stop mode										

#### 

Individual chips that differ from mainstream chips, such as HC32 or CX32, need to be unlocked by pressing the key to turn on the ISP method once when unlocking the chip, see the specific operation flow:

HC32 unlock; CX32 unlock.



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# 3.1.36 : About Project Password

Based on the firmware delivery security considerations, we hope that many developers focus on their own firmware security, which can be referred to from several aspects:

- Chip: Try to use better security chip products.
- Key: One of the most basic and effective ways to verify code protection, PowerWriter<sup>®</sup> also has a variety of built-in signature mechanisms to meet the different needs of customers.
- Platform Delivery: ICWorkshop Cloud Platform provides firmware developers with a fast, easy-to-use and secure firmware protection and delivery model, so when generating delivery orders, you need to provide a project password to ensure developer rights and interests.

俞创植工坊	My Space Buyer Developer Tools 🞍 Help Center - 众 🐲 cshsoft 彛 中文 / EN
My Workshop >	Program Publish Back
Software Center     ~       My Program     Order List	Publish Setting     * Required Fields     * Project Name     2-60 characters limits
ICW Cloud Compile Cloud	★ Unit Price Please input the amount >0.0001. ¥ Free Sample ⑦
	Stock     Please input the stock volume >0.     Pcs
	* Push to
	Program Upload     IC Selection     IC Information     IC Information     IC Information
	ICW Cloud (2)       Enter iC series       Enter iC series       Enter iC varia       burner         Attachment       Upload zip, rar, pdf, xlsx, docx, jpg, png, gif format. Each attachment does not exceed 5M in size.       Upload
	Description

#### 1 : Project Password Setting

When programming and packing PKG files offline, a prompt box will pop up to remind the user to set the project password and save path, about this project password setting, in the menu bar -> Settings -> Preferences check the box to turn on the offline read/write save project prompt, this option will ensure that every time the project is loaded offline, the prompt box to set the password and save path will be popped up; if it is not checked, it will be only the first time to generate the PKG file, the If unchecked, it will only pop up a prompt when the PKG file is generated for the first time. Users need to note that, when remote firmware delivery is required with firmware, a password must be set when the file is created, and users need to save the password reasonably, and when remote firmware

delivery is carried out on the cloud platform, they need to enter the correct password for this project before uploading it successfully, or else it can't be uploaded; for the firmware recipients, when they download the order through the platform, it is a very simple operation without the need of password verification, and they won't see the project information in the programmer. If the customer tries to read out the project information in the programmer through PowerWriter® software, the password serves as the first line of defense to protect the intellectual property rights of the developer, and no information can be read out with a wrong password. A detailed prompt box is shown below:

Do you wa	ant to save the project to disk?	×							
?	The current item is not saved to the disk, do you need to save it to the disk first and then load it to the device?								
Tips: 1:Do not set the project password by saving the project, in order to protect the data will use random password, will cause the project can not be read back 2:After loading to the device, please disconnect before starting to programming									
	Yes No prompt								

ĺ	PowerWrite	er® Encrypts data and sets file paths	×						
		創黨工坊							
	Password								
	Password	Please enter the project password, maximum 16 charae Generate	***						
	Tips : 1: You can use the random generation function to generate random passwords to improve password security. 2: If you want to publish to the platform, you must set a password.								
ľ	File path								
		Select an open or save path and leave it blank will random generation.							
		Done							

The firmware password entered when uploading the platform is the same as the project password in the picture above.

olish Setting		* Requir
* Project Name	2-60 characters limits	
* Unit Price	Please input the amount >0.0001.	¥ 🗌 Free Sample 🕐
* Stock	Please input the stock volume >0.	Pcs
Allow Resell	🔾 Yes 🕜 🛛 💿 No	
* Push to 🕜	When specifying more than one pe	rson at the same time, please

* IC Selection	IC Information
ICW Cloud	Enter IC brand 🔻 Enter IC Series 🔻 Enter IC Numb 🔻 Burner
Attachment	Upload zip, rar, pdf, xlsx, docx, jpg, png, gif format. Each attachment does not exceed 5M in size. Upload
Description	<ul> <li>▲ • ▲ • ■ I U CustomStyle • Paragraph • Ⅲ ≜ • = •</li> <li>■ Arial • 16px • E = = = =</li> </ul>

If users want to know more about encryption mechanisms, PowerWriter® has a variety of built-in encryption mechanisms, among which ICWKEY Security Authorization Shield, as an auxiliary tool for the offline authorization of the PowerWriter® programmer of the PowerWriter®, provides two UIDs (Unique Chip ID) authorization algorithms, namely, Vector Matrix Encryption (Matrix) and Elliptic Curve Digital Signature (ECDSA), and also provides an SDK for users to develop custom authorization algorithms to meet the different needs of developers. Unique Chip ID) authorization algorithms, but also provides SDK for users to develop custom authorization algorithms to meet the different needs of developers, while ensuring that the target chip + PowerWriter ® + ICWKEY the entire link layer data security during production. ICWKEY's user manual and authorization videos are available at the link below:

#### **ICWKEY User Development Manual**

Another technical details welcome to visit B site "about programmer authorization" instructional video : **PowerWriter**® video tutorial

Tags: FAQ project\_password

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# 3.1.37 : Isolation adapter usage

#### 1 : Basic Information

Insulation voltage : 5000Vrms

Speed : 150Mbps (MAX) / Debugging Clock > 10Mhz

**Data latency** : 6.54us (typical values)

**VREF Voltage Range** : 2.5V ~ 5.5V

#### Supported Devices :

Power Debugger

PW200

PW300

PW400

PWX1

## 2 : PowerDebugger

Supported protocols: UART, SWJ, JTAG, wiring diagrams are referenced below:



#### 📿 тір

**VREF B** Requires power from the target board, voltage range 2.5V to 5.5V, Power Debugger IO voltage set to 3.3V or 5V, Serial port isolated, need to be accessed from the green independent 4PIN.

## 3 : PW200/PW300

Supported protocols: UART, SWJ, SWIM, ITM(SWO), wiring diagrams are referenced below:



#### 💭 ТІР

**VREF B** Requires power from the target board in the range of 2.5V to 5.5V, with the PowerWriter<sup>®</sup> IO voltage set to 3.3V or 5V (no external reference can be set).

#### 4 : **PW400**

Supported protocols: UART, JTAG, wiring diagrams are referenced below:



#### 💭 ТІР

**VREF B** Requires power from the target board in the range of 2.5V to 5.5V, with the PowerWriter<sup>®</sup> IO voltage set to 3.3V or 5V (no external reference can be set).

#### 

GND to L needs to be adjusted (see Change for PW400).

## 5 : **PWX1**

Supported protocols: UART, JTAG, SWJ, PWM, SWIM, wiring diagrams are referenced below:



#### 💭 ТІР

VREF B needs to be powered from the target board with a voltage range of 2.5V to 5.5V with the PowerWriter® VREF voltage set to 3.3V or 5V (no external reference can be set).

📿 тір

If you need to write STM8, you should short the green resistor bit as shown (see Short for SWIM).



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# 3.2.1 : Offline status reading

#### () INFO

**PWX1** The status of the device operation results are all displayed in the screen interface, without the need for client query.

# 1 : Read the results of an offline operation

You can reconnect to the PC software and click on the Log button to check the reason for failure when you encounter a programming failure during offline programming:

Power Writer®1.3	.8.0 [Build:2024-04-10 19:4	0:33]								_		Х
le(F) Operation(E)	Tools( <u>T</u> ) Setting( <u>S</u> )	Help( <u>H</u> )										
> A 🗹	🕐 🚳 📚		6	( <b>a</b>	<b>i</b> D			X	<b>S</b>		Device	
pen Save F-in	F-out PLoad PRead	Blank Erase Read	Write Verify	Auto Re	et ID	AnyRD	Error	Serial	Wire		PWX1	```
Writer Settin	Option bytes	Program Memory	отр м	emory			2					
Chip Select	_			SNULL	100 /89/06		3/100 /80		E Larger BW			
				04/15-14	:02:00:11	6> [07D6]	Current of	device fi	mware type	: Universal		
MCU model:	STM32G070xB	Select	Apply	04/15-14	:02:00:14	B> Power	Writer® i	s conne	cted			
Flash size: 128.0	OKB			04/15-14	:02:00:164	4> Switch	version:F	PWX1	···· 0	22.0.75	010-00	
				04/15-14	02:00:84	3> Resour	ce versio	on: 1.0.0 Ievice tir	size:uxccoad	crc32:0x75	ODUCOS	9
Erase Type	Interface level	Misc		04/15-14	02.00.00	6> Undate	burner (	Settings	complete			
0.0	O 1 8V	Speed 10M hz	~	04/15-14	02:00:93	B> Update	chip info	ormation	successfull	(		
O Don t erase				04/15-14	:02:04:90	B> Target	 Online					
Eull Erase	<b>0</b> 3.3V	OptionByte Factory	=>Custom ~	04/15-14	:02:08:11	6> [FFFE]	Writer Su	iccesses	S.			
	○ 5.0V			04/15-14	:02:12:90	3> Power	Writer® i	s discon	nected			
O Sector Erase	O External input	Enable buzzer		04/15-14	:02:47:31	5> Writer I	nfo: hw\	/er:1.0	blVer:1.00.02	2 ifVer:1.00	.02	
	Catomarinpar			SN:0123	456789AE	BCDEF012	345678	90ABCD	E Target:PW	X1		
Nrite function confi	auration			04/15-14	02:47:34	5> [07D6]	Current	device fil	rmware type	: Universal		
White function conin	guiauon			04/15-14	02:47:30	2> Power	vvriter@1	s conne	cted			
E SN N Qua	ntity_Check 👯 Signal o	utput 🔍 Certification		04/15-14	02.47.39	> Switch	version.r	- VVA I	eize:0xcc5ac	oro32:0v75	060-60	•
				04/15-14	02.40.00	R> Synchr	onizina d	levice tir	ne succeede	d	0000003	°
				04/15-14	02.48.12	9> Update	burner (	Settinas	complete	·u		
SN Start:	0x0000000	Enable SN		04/15-14	02:48:16	1> Update	chip info	ormation	successfull	<i>I</i>		
		<u> </u>		04/15-14	:02:50:13	7> [FFFE]	Writer Su	iccesses	s			
				04/15-14	:02:52:90	6> Target	Online					
				04/15-14	:02:56:13	1> Power	Writer® i	s discon	nected			
SN Step:	0x00000001			04/15-14	:03:05:584	4> Writer I	nfo: hw\	/er:1.0	blVer:1.00.02	2 ifVer:1.00	.02	
		Decimal display		SN:0123	456789AE	CDEF012	345678	90ABCD	E Target:PW	X1		
				04/15-14	:03:05:60	)> [07D6]	Current	levice fi	mware type	: Universal		
				04/15-14	:03:05:61	> Power	Writer® i	s conne	cted			
	0+02015550			04/15-14	03:05:64		version.i	100		22.0.75	0-0-00	_
SN Addr:	UXU601FFFC	Big end model		04/15-14	03:00:33	2> Resour	ce versio	on: 1.0.0	size:Uxccoad	crc32:0x75	ODUCOS	2
				04/15-14	03.00.34	> Undate	burner 9	Settinge	complete	u		
				04/15-14	:03:06:41	1> Update	chip info	ormatior	successfully	(		
Communication co	nfiguration			04/15-14	03:08:91	Targer	Online					
Device: COM3	V Refreeb	Disconnect	Auto Connect	04/15-14	:03:10:92	[0009]	The targe	et chip is	not connect	ed 3		
001/10		Disconnect	Auto connect									

#### 2 : Read device project file

Via Menu->Execute->Read Offline and Save, or the Offline Read button on the toolbar.



# 3 : How to configure the number of writer

See Offline config

#### 4 : How to read the remaining count

See Query method

# 5 : Repeat programming occurs when auto-programming is turned on

Some chips open SWD multiplexing, offline programming, there is a choice to write the option byte, or turned on the completion of programming to start the chip, or selected the output reset, and turned on the automatic chip detection function (as shown in the figure), may cause the possibility of repeated programming, to detect the chip as far as possible, so that the chip is programmed in the time to be connected to the chip, will not be mistakenly judged as taking open the chip.

(	Pow	ver Write	er®1.3.8	.0 (Build	1:2024-0	4-10 19:4	0:33]												_		×
F	File(F)	Opera	tion( <u>E</u> )	Tools(	<u>I)</u> Sett	ing( <u>S</u> )	Help( <u>H</u> )														
	6	B	Ľ	Ľ	\$	to	Q	<b>i</b> ×	5	6	50	÷	0	iD	∎		Ň	S		Device	
0	Open	Save	F-in	F-out	PLoad	PRead	Blank	Erase	Read	Write	Verify	Auto	Reset	ID	AnyRD	Error	Serial	Wire		PWX1	~
e	\$	Writer	Setting	1	Optior	bytes		rogram	Memory		отр м	emory									
1	Chip	Select										SIN	0123400	0789AB	UDEFUT	2340078	SUARCD	E Target:	PWAT		
1	MCU	model	: S	TM32G	070xB			🔅 se	elect	<ul><li>✓</li></ul>	Apply	04/	15-14:02 15-14:02	:00:116 :00:148 :00:164	> [07D6] > Power > Switch	Current Writer®	device fil is conne	rmware ty cted	pe : Universa	I	
	Fla	sh size:	128.00	KB								04/	15-14:02	00.104	> Resou	rce versi	on:100	size:0xcc	5ac crc32:0x7	750b0c69	
i.	-	-										04/	15-14:02	:00:859	> Synchr	onizing	device tir	ne succe	eded	0000000	
	Eras	se Type		Inte	face lev	el	Misc					04/	15-14:02	:00:906	> Update	e burner	Settings	complete			
-	0	Don't e		01	.8V		Spe	ed	10M h	z	~	04/	15-14:02	:00:938	> Update	chip inf	formation	success	fully		
	<u> </u>	Donito	400	0.2	21/				_			04/	15-14:02	:04:908	> Target	Online					
	0	Full Era	se				Opti	onByte	Factory	/=>Cust	om 🗸	04/	15-14:02	:08:116	> [FFFE]	Writer S	uccesse	S.			
				05	5.0V							04/	15-14:02	:12:903	> Power	Writer®	is discor	inected			
	0	Sector E	Erase		External	input	- E	nable b	uzzer			04/	15-14:02	:47:315	> Writer	nto: hw	Ver:1.0	blVer:1.00	0.02 ifVer:1.0	0.02	
4												SN:	0123456	789AB	CDEF012	2345678	SOURCE	E larget:	PWX1		
	Write	function	configu	ration								04/	15-14:02	47:340	> [0706]	Current	device ti	rmware ty	pe : Universa	1	
	winte	Turrettor	reoninge	aration								04/	04/15-14:02:47:362> Power Writer® is connected								
(	$\Xi$	SN 🔊	Quant	ity_Che	ck îłî	Signal o	utput (	Certi	ification			04/	15-14.02	-47.393	> Resou	version.	op:100	eize:0vcc	5ac crc32:0v3	75060-60	
1							_					04/	15-14:02	48.092	> Synchr	onizina	device tir	ne succe	eded	0000000	
		Run taro	et firmwa	are when	program	n done						04/	15-14:02	48.129	> Undate	burner	Settings	complete			
												04/	15-14:02	48:161	> Update	chip inf	formation	success	fully		
		Turn off	the powe	er output	t after pr	ogrammin	g					04/	15-14:02	50:137	> (FFFE)	Writer S	uccesse	3.			
	_					-	-					04/15-14:02:52:906> Target Online									1
		Power o	n stabilit	y time(m	s):	100		0	Hexade	cimal disp	olay	04/	15-14:02	:56:131	> Power	Writer®	is discor	nected			
		_				100						04/	15-14:03	:05:584	> Writer	nfo: hw	Ver:1.0	blVer:1.00	0.02 ifVer:1.0	0.02	
		Power o	ff stabilit	time(m	is):	100						SN:	0123456	6789AB	CDEF012	2345678	90ABCD	E Target:	PWX1		
												04/	15-14:03	:05:600	> [07D6]	Current	device fi	rmware ty	pe : Universa	l i	
1	Re	set mod	e selectio	n								04/	15-14:03	:05:615	> Power	Writer®	is conne	cted			
	_											04/	15-14:03	:05:647	> Switch	version:	PWX1				
	н	ardware	and sys	tem rese	et						$\sim$	04/	15-14:03	:06:332	> Resou	rce versi	on:1.0.0	size:0xcc	5ac crc32:0x7	750b0c69	
2	н	ardware	reset ke	ep low								04/	15-14:03	:06:348	> Synchr	onizing	device tir	ne succe	eded		
1.	H	ardware	reset dis	abled								04/	15-14:03	:06:380	> Update	burner	Settings	complete	e		
	CorH	ardware	reset									04/	15-14:03	:06:411	> Update	chip inf	formation	1 success	tully		
	H	ardware	and sys	tem rese	t							04/	15-14:03	:08:915	<ul> <li>Target</li> <li>TODOOT</li> </ul>	Unline	And and stars to				
ł.	Dev 5	ector res	et								ect	04/	15-14:03	10:929	~ [0009]	i ne targ	let chip is	not conn	iecied		
14	P	ower on	reset																		
	л т D	isable po	rt then p	ower on	reset						Pa	- her red									
Ľ	ang	jet: con	nected	i C	workshi	p lecun	ology (	menzne	iii) co.,	Ltu.All	rught Ke	serveu									



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# 3.2.2 : HC32 connection failure

The HC32 chip requires an additional processing flow when programming due to some of the differences in the chip, as detailed below.

# 1 : Offline programming

If the option byte of the chip is set to primary or secondary protection, the chip will automatically turn off the SWD after programming, and can only be unlocked by pressing the key to enable the ISP method once before continuing to programming, even if the auto-programming enabled.

# 2 : Online programming

To unlock the chip, you need to set the option byte to unprotected and click on write.

## 3 : Setting reference

Power Writer® 1.3.8.0 [Build:2024-04-10 19:40:33]	– 🗆 X
File(E) Operation(E) Tools(T) Setting(S) Help(H)	
Image: Constraint of the state       Open     Save     F-in     F-out     PLoad     PRead     Blank     Erase     Read     Write	Image: Weifig: Auto     Device
🕸 Writer Setting 🛃 Option bytes 📳 Program Memory	OTP Memory
Option Byte: AA E1 FF DF 3F 🦺 0 00 3F 00 00 00	Size : 12 Byte 💽 Reset 🗈 Load 🖺 Save 🔻
Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-c
>>>	[Double-click to modify] Byte 0
RDP	0xAA: Level 0, read protection not active
>>>	0xAA: Level 0, read protection not active 2
nRST_STDBY	0xBB: Level 1, memories read protection active 0xCC: Level 2, chip read protection active/Nets: The chip will be permanently locked
nRST_STOP	uxu 1: No reset generated when entering the Stop mode
>>>	[Double-click to modify] Byte 2
RAM_PARITY_CHECK	0x01: SRAM parity check disable
WWDG_SW	0x01: Software watchdog
IWDG_STBY	0x01: Independent watchdog counter is running in Standby mode
IWDG_STOP	0x01: Independent watchdog counter is running in Stop mode
IWDG_SW	0x01: Software independent watchdog
>>>	[Double-click to modify] Byte 3
nBOOT0	0x01: nBOOT0=1
nBOOT1	0x01: nBOOT1=1
nBOOT_SEL	0x01: BOOT0 signal is defined by nBOOT0 option bit
>>>	[Double-click to modify] Byte 4
WRP1A_STRT bit5	0x01: WRP1A_STRT bit5
WRP1A_STRT bit4	0x01: WRP1A_STR1 bit4
WRP1A_STRT bit3	0x01: WRP1A_STRT bit3
WRPIA_SIRI bit2	0x01: WRPTA_STRT bit2
Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All F	Right Reserved

## 4 : Connection Diagram Reference



Tags:FAQHC32

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# 3.2.3 : CX32 connection failure

When burning the CX32 chip, due to some differences between the chip and the mainstream chip, additional processing methods are required, as described below.

# 1 : Offline programming

CX32 option byte is set to one level of protection or two levels of protection, the chip will automatically turn off the SWD after programming, you can only press the button to turn on the ISP mode once to unlock before continuing to programming, even if the automatic programming is turned on.

## 2 : Online Programming

To unlock the chip, you need to set the option byte to unprotected and click on write.

## 3 : Setting reference

Power Writer® 1.3.8.0 [Build:2024-04-10 19:40:33]	– 🗆 X
File(E) Operation(E) Tools(T) Setting(S) Help(H)	
Image: Constraint of the state       Open     Save     F-in     F-out     PLoad     PRead     Blank     Erase     Read     Write	Image: Weifig: Auto     Device
🕸 Writer Setting 🛃 Option bytes 📳 Program Memory	OTP Memory
Option Byte: AA E1 FF DF 3F 🦺 0 00 3F 00 00 00	Size : 12 Byte 💽 Reset 🗈 Load 🖺 Save 🔻
Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-c
>>>	[Double-click to modify] Byte 0
RDP	0xAA: Level 0, read protection not active
>>>	0xAA: Level 0, read protection not active 2
nRST_STDBY	0xBB: Level 1, memories read protection active 0xCC: Level 2, chip read protection active/Nets: The chip will be permanently locked
nRST_STOP	uxu 1: No reset generated when entering the Stop mode
>>>	[Double-click to modify] Byte 2
RAM_PARITY_CHECK	0x01: SRAM parity check disable
WWDG_SW	0x01: Software watchdog
IWDG_STBY	0x01: Independent watchdog counter is running in Standby mode
IWDG_STOP	0x01: Independent watchdog counter is running in Stop mode
IWDG_SW	0x01: Software independent watchdog
>>>	[Double-click to modify] Byte 3
nBOOT0	0x01: nBOOT0=1
nBOOT1	0x01: nBOOT1=1
nBOOT_SEL	0x01: BOOT0 signal is defined by nBOOT0 option bit
>>>	[Double-click to modify] Byte 4
WRP1A_STRT bit5	0x01: WRP1A_STRT bit5
WRP1A_STRT bit4	0x01: WRP1A_STR1 bit4
WRP1A_STRT bit3	0x01: WRP1A_STRT bit3
WRPIA_SIRI bit2	0x01: WRPTA_STRT bit2
Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All F	Right Reserved

## 4 : Connection Diagram Reference



Tags:FAQCX32

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# 3.2.4 : Remote Assistance

Since the ordinary remote function is not stable enough, and secondly, there will be administrator privilege problem in the system above Windows 7, so it is necessary to use the third-party professional remote analysis tool.

- The Fast Remote Desktop Application AnyDesk
- TeamViewer The Remote Connectivity Software

#### 1 : Install AnyDesk

Thank you for downloading AnyDesk

https://anydesk.com/en/dow	nloads/thank-you?dv=win_	exe					A <sup>N</sup> 100 ☆	🧠 🖬 С 🗆 Ф	¢ @ %
Light Mo	ode				Mad	e in <b>Europe</b> : 🚫 84	489 2928 🕐 💻 🗸		
<b>◆&gt;</b> AnyDe	Sk Why AnyD	esk $\lor$ Solutions $\lor$	Company $\lor$	Support ∨ Buy N	low		my.anydesk	Downloads	
		Get o	ur quick start gi	uide and make th	e most out of AnyE	Desk.			
Ente	er your e-mail address	÷			进行人机身份	分验证 CER	Get the G	uide	
	ć	ı <b>ğı</b> ı		€tv	R	<b>S</b>	₿ Ŝ	0	
Windows	macOS	Android	iOS	Apple TV	Linux	FreeBSD	Raspberry Pi	Chrome OS	
v8.0.9 (5.3 MB)	v8.0.1 (14.5 MB)	v7.1.0 (21.4 MB)	v7.1.1 (35 MB)	v7.1.0 (21.1 MB)	v6.3.1 (5.6 MB - 7.1 MB)	v6.1.1 (4.9 MB)	v6.3.0 (6 MB)	v7.1.0 (21.4 MB)	

## 2 : AnyDesk Usage

Copy Your Address and send it to Customer Service.



### 3 : Secure Exit

After analyzing the problem, the technician will disconnect the user and send the cause of the error and the solution to the user. In order to minimize the disturbance or concern to the user, it is recommended to enable automatic update verification after the remote, as shown below:





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# **3.2.5** : Handling **disconnections**

If you experience, occasional failures during use, you can try the following to troubleshoot

- Attempt to reduce the communication clock speed.
- Trying to **replace the cable with a better one or shorten the length of the cable** can also improve better stability.

#### 📿 тір

Users in the actual product may be JTAG, SWD and other debugging interfaces multiplexed into the product's ordinary function pins, in this case, may also lead to abnormal protocols, for this case, it is recommended to do isolation design on the IO, can reduce interference.



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# 3.2.6 : VREF setting

#### 1 : About VREF Output Jump

#### 

PowerWriter<sup>®</sup> products, when starting the process of connecting the target chip, if the connection to the target chip fails, including but not limited to no connection to the target chip, wiring errors, can not be recognized, etc., it will try to perform a POR (Power On Reset) power-on reset of the target chip, so the phenomenon in the output power supply will appear, the output (VEXT, VREF) power supply Charging and discharging behavior, there is a jump, so the purpose of processing can solve the following similar problems:

- If some chips are protected, not executing POR may result in not being able to connect to the target chip.
- If the debug port is disabled on some chips (including the reason of the program of the target chip), the execution of POR can precisely control the time control point of the connection request to ensure that it can be connected to the target chip, so as to carry out the operation of erasing and re-programming.

2	2 : Settir	ig metho	bd									
Ι.			I		,							
	Writer Setting	Option bytes	Program	Memory	OTP Mer							
	Chip Select											
	MCU model: S	TM32G070xB	🔅 Select 🗸 Apply									
c	Flash size: 128.00	KB										
t	Erase Type	Interface level	Misc									
v	◯ Don't erase	○ 1.8V	Speed	10M hz	~							
2	Full Erase	O 3.3V	OptionByte	Factory=>0	ustom 🗸							

External input

Output power supply is optional:

O Sector Erase

- 1.8V : When 1.8V is selected, the IO signal output ports DIO/CLK, etc. are 1.8V.
- 3.3V(Default) : When 3.3V is selected, the signal output ports DIO/CLK, etc. are 3.3V.

Enable buzzer

- 5.0V: When 5.0V (5V) is selected, the signal output ports DIO/CLK, etc. are 5.0V.
- **External input** : When an external reference is selected, the PowerWriter® needs to be externally supplied with a reference voltage in the range of 1.2V to 5.5V, while the PowerWriter® still needs to be powered by USB, and the external input is only supplied with the reference voltage.

## 3 : Voltage switching

During debugging, the default output voltage is 3.3V. If you need to switch to other voltages, please set the target voltage through the PowerWriter® software, and then start debugging again to enter the set voltage:

**О** ТІР

In debugging mode, the system outputs 3.3V by default, if you need other voltages, please set and apply them manually through the client software.

# 4 : Selection Recommendations

Refer to the chart below:



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 $3: FAQ Contents \rightarrow 3.2: Standard \rightarrow 3.2.7: Bluetooth applet tutorial$ 

Version: Next

# 3.2.7 : Bluetooth applet tutorial

PW300 has a built-in Bluetooth module, which allows you to connect the burner via Bluetooth + cell phone WeChat applet to download the firmware order to PW300 from Gencore Workshop cloud for offline burning. ↓ In addition to firmware orders sold or gifted by others, users can also upload firmware to Genesis Cloud Disk by themselves, and then select the files in Genesis Cloud Disk through WeChat applet to select burning. The specific operation process is as follows:

#### 1 : WeChat Scan



#### 2 : Device Power On

Use the USB cable to power the device if using the PW300, or plug the USB wireless adapter into the host USB port of the PWX1 if using the PWX1.

#### 3 : Connected device

When connecting the device, you need to open the Bluetooth of the phone as well as the positioning authority in advance, and allow the applet to use the Bluetooth service, when the Bluetooth is not opened, there will be a prompt as follows:



Select the searched PowerWriter<sup>®</sup> device, and when the programmer has a new firmware version available for upgrade, a pop-up prompt will appear, which needs to be upgraded via the PowerWriter<sup>®</sup> PC software. The following figure shows that two PW300 devices are recognized, and the log message output when the PW300 device is connected.





#### 4 : Programming Order Selection

Order details here can be found via ICW Cloud-ICWORKSHOP For a more detailed view, the Cloud Disk in the Files are uploaded by individuals to the program.




#### 5 : Order Configuration

When you click on the download button, you will be prompted with a pop-up window to configure the number of programmer.

15:23 👁 🕱 🕯	<b>A</b> 0	119 🙃 4	f.al 💷 80%
合 蓝牙烧器	录-创芯工坊		••• 0
			8
	我的订单	创芯云盘	
文件夹/pw	/300		离线授权
项目名称: st	m32f105xb		
- 程序文件・「e	tm32f105xb.nkc 丙フ	。 罟	
编程模式:	Offline		
烧录次数:	1		
序列号:	00000000		
进制数:	● 十六进制		
	确定	返回	
Copyri	ight ©2017-202	3 All Rights Reser	ved.
	创芯工坊 粤ICP督	至15084377号-5	

When loading a program into the programmer, a progress bar will be displayed on the top page of the applet, and when 100% is displayed, the program has been loaded into the PowerWriter®.



#### 6 : Video tutorial

**Bluetooth Download Video Tutorial** 

 Tags:
 FAQ
 PowerWriter®
 Bluetooth\_applet

Edit this page

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Version: Next

# 3.2.8 : Verify chip data

#### 1 : Connecting the programmer with target chip



Skip to main content



#### 2 : Add data to be verified, click Verify

```
04/15-14:50:57:629> Power Writer® is disconnected...
04/15-14:50:58:131> Writer Info: hwVer:1.0 blVer:1.00.02
ifVer:1.00.02
SN:0123456789ABCDEF01234567890ABCDE Target:PWX1
04/15-14:50:58:147> [07D6] Current device firmware type : Universal
04/15-14:50:58:179> Power Writer® is connected...
04/15-14:50:58:194> Switch version:PWX1
04/15-14:50:58:884> Resource version:1.0.0 size:0xcc5ac crc32:0x750b0c69
04/15-14:50:58:90> Synchronizing device time succeeded...
04/15-14:50:58:950> Update burner Settings complete...
```

#### 3 : Operational Demonstration

Pietry Optability Dots(1) Jealing(3) Piep(rf)     E E E E E E E   Open Save F-in F-out PLoad PRead Black Erase Read Write Verify Auto Rest ID AnyRD Error Serial Wire PWX1   Image: Strain Strain Strain Strain Strain Strain Image: Strain Stra	Power Writer®1.3.8	8.0 [Build:2024-04-10 19:40	33] 	- 🗆 ×
Cipen Save F-in F-out PLoad PRead Blank Ersse Read Write Verify Auto Rest ID AnyRD Error Serial Wire PWX1   Writer Setting Option bytes Program Memory OTP Memory   Chip Select MCU model: STM32G070x8 Serial Wire PWX1   Flash size: 128.00KB Imerface level Misc OptionByte Program Memory   Chorn terase 0.33 OptionByte Factory=>Custom   Sector Erase Imerface level Misc   Sector Erase External input Enable buzzer   Write function configuration   SN Step: 0x00000001   SN Step: 0x00000001   Decimal display   SN Add:: 0x0001FFFC   Big end model				Device
Writer Setting               Option bytes             Program Memory               Chip Select               MCU model:             STM320070xB               Erase Type             Interface level               Don't erase             1.8v               Option Byte             Factory=>Custom               Sector Erase             0.3.3V               OptionByte             Factory=>Custom               Sector Erase             0.5.0V               Sector Erase             0.5.0V               Sector Erase             0.5.0V               Start:             0x00000000               SN Start:             0x00000001               Decimal display               SN Addr:             0x0000001               Decimal display               SN Addr:             0x0000001               Big end model               Communication configuration               St Addr:             0x00000001               Big end model               Communication configuration               St Addr:               0x00000001               Big end model	Open Save F-in	F-out PLoad PRead	Blank Erase Read Write Verify Auto Reset ID AnyRD Error Serial Wire	PWX1 v
Chip Select         MCU model:       STM32G070xB         Flash size:       128.00KB         Erase Type       Interface level         Onon't erase       1.8V         OptionByte       Factory=>Custom         OptionByte       Factory=>Custom         Sector Erase       External input         Write function configuration       Enable buzzer         SN Start:       0x00000000         Enable SN       SN Start:         0x00000001       Decimal display         SN Addr:       0x00000001         Big end model       Communication configuration	Writer Setting	Option bytes	Program Memory 📳 OTP Memory	
MCU model:       STM32G070xB         Flash size:       128.00KB         Erase Type       Interface level         Don't erase       1.8V         Speed       10M hz         OptionByte       Factory=>Custom         Full Erase       5.0V         Sector Erase       External input         Enable buzzer       Write function configuration         SN Start:       0x00000001         Decimal display         SN Step:       0x00000001         Decimal display         SN Addr:       0x00000001	Chip Select			
Flash size: 128.00KB         Erase Type       Interface level       Misc         Don't erase       1.8V       Speed       10M hz         OptionByte       Factory=>Custom       0         Sector Erase       5.0V       External input       Enable buzzer         Write function configuration       External input       Certification         SN Start:       0x00000000       Enable SN         SN Start:       0x00000001       Decimal display         SN Addr:       0x00000001       Big end model	MCU model: S	STM32G070xB	😳 Select 🗸 Apply	
Erase Type       Interface level       Misc         Don't erase       1.8V       Speed       10M hz         OptionByte       Factory=>Custom       OptionByte       Factory=>Custom         Sector Erase       External input       Enable buzzer         Write function configuration       Esternal input       Certification         SN Start:       0x0000000       Enable SN         SN Start:       0x00000001       Decimal display         SN Addr:       0x0000001       Big end model	Flash size: 128.00	ОКВ		
Opon't erase       1.8V       Speed       10M hz         O Full Erase       3.3V       OptionByte       Factory=>Custom         Sector Erase       External input       Enable buzzer         Write function configuration       Enable buzzer         SN N Quantity_Check       111 Signal output       Certification         SN Start:       0x0000000       Enable SN         SN Step:       0x00000001       Decimal display         SN Addr:       0x0801FFFC       Big end model	Erase Type	Interface level	Misc	
Or Full Erase 0.3.3V   OptionByte Factory=>Custom    Ostor Erase External input     Write function configuration     Image: SN N Quantity_Check 11 is Signal output   Certification   SN Start:   0x00000001   Decimal display     SN Addr:   0x0801FFFC   Big end model   Communication configuration	O Don't erase	O 1.8V	Speed 10M hz V	
Sector Erase       External input       Enable buzzer         Write function configuration       Image: SN N Quantity_Check î!i Signal output       Certification         SN Start:       0x0000000       Image: Enable SN         SN Step:       0x00000001       Image: Decimal display         SN Addr:       0x0801FFFC       Big end model	• Full Erase	• 3.3V • 5.0V	OptionByte Factory=>Custom	
Write function configuration         Image: SN N Quantity_Check i i i Signal output         SN Start:       0x00000000         Image: SN Start:       0x00000001         Image: SN Step:       0x00000001         Image: SN Addr:       0x0801FFFC         Image: Big end model	O Sector Erase	O External input	C Enable buzzer	
SN Start: 0x0000000 Enable SN SN Step: 0x00000001 Decimal display SN Addr: 0x0801FFFC Big end model Communication configuration	Write function config	juration		
SN Start:       0x0000000       Enable SN         SN Step:       0x00000001       Decimal display         SN Addr:       0x0801FFFC       Big end model         Communication configuration       Enable SN	_ SN N Quan	tity_Check [+] Signal of	Itput V Certification	
SN Step:     0x00000001     Decimal display       SN Addr:     0x0801FFFC     Big end model	SN Start:	0×0000000	Enable SN	
SN Addr: 0x080 1FFFC Big end model	SN Step:	0x00000001	Decimal display	
Communication configuration	SN Addr :	0x0801FFFC	Big end model	
	Communication con	figuration		
Device: COM3 V Refresh Connect Auto Connect	Device: COM3	<ul> <li>✓ Refresh</li> </ul>	Connect Auto Connect	



Edit this page

Last updated on Apr 15, 2024 by Alan Chen

Version: Next

# 3.2.9 : Nuvoton Chip Extension

Since Nuvoton chips have some special features, such as M481xG with KPROM, XOM, security secret key, etc., the PowerWriter® software puts them under Plug-in Functions, see below:

Skip to main content

setting(s) i	iciþ(i i)				 
ower Writer® -	Nuvoton Extends Se	R R I			× Plugin
	副版工作		Too	-	
	CWORKSHO				hanged. The Se
KPROM Setting	XOM Setting Secure	Key			vice first
					sfully
_					0.02 ifVer:1.0
Update k	(PROM	KPROM U	nlock Key		t:PWX1
Key 0:	OVEEEEEE	Key 0.	OVEFFFFFF		type : Universal
Key of	U.A.T.T.T.T.T.	Key o.	0,111111		
Key 1:	0xFFFFFFF	Key 1:	0xFFFFFFF		c5ac crc32:0x7
Key 2:	0xFFFFFFF	Key 2:	0xFFFFFFF		te
					sfully
$\sim$					r firmurra, play
			1 (1 7) 2		ta editor buffer.
Maximur	m number of power - or	attempts for incorrect pas	swords(1~/): 2		sful!
Maximun	n number of incorrect p	assword attempts per pow	er-on (0-31): 3		.00KB
					10
Data wri	ite protection area: 💽	KPROM, LDROM, APROM		SPROM	sfully
			_	_	
					te
					sfully
			<u> </u>		
		山山	<del>ت</del>		
			1		

P	ower Writer® - Nu	uvoton Extends Setti	ng			×
		随主辩	NU	νοτοι		
	KPROM Setting XC	DM Setting Secure Ke	ey			
1	Zone	Base Address	Page size	End Address	Debug mode	t
3	□ XOM0:	0xFFFFFFF	0			я
E	XOM1:	0xFFFFFFF	0			e
	XOM2:	0xFFFFFFF	0			H
•	□ хомз:	0xFFFFFFF	0			t
2						b
	Min Address	s: 0x000010	00			đ
	Max Addres	ss: 0x000400	00			
	Sector infor	mation: 0x000010	00(63)			
-						a a
			Ø	确定		

Corresponding to official tools

(P) 芯片(C)	IR(1)	语言(L) 说明	1(H)	11 古村協校				×
	101			Configuration >ON Set	ing			
創井	已经通过	Nu-Link (ID: 100	200154)这倍5					
艺片型号	M4815G8	VE2A LDRD	elec.APROM CID:	C15	基地址	页数大小	國民權民	KE: [0/2] KP: [0/2]
入文件			_	0 20M02 @x	REFERENCE			
LDROM	文件名:	CNLDROM M	54					
APROM	文件名:	E.NDWSH0P	Whip_text@l	NOM1: 0x	11111111	0		基地址: 0x 0
多文件			_					□多文件構式
計調Flash	交件名:	E.NDWSH0P	whip_text@d	20M2 0x	ITTITT	0		
SPROM	文件名:	C/SPROM.M	N	DX0M3: 0x	REFERENCE	0		最后字节 De FF
SPI Rech	文件条:	END/SHOP	电静作艺种					数量: 0e 0000000 数本点い 260 水平
安全全相	文件条:	ENDVSHOP	\chip_text@f					albélie - mo dela
812			-					SPIFIew
说堂	配置值0.	OFILLER.	商图目1:					SPI金額0.0x 0000000
	政務値と	OuFTFF5A5A	高速(E)2					SP1全相1.0x 0000000
ROM APRO	M STORE	ak SPROM S	PI Rash LD					SPROM SPLEND (RD)
								● 802 ○ 1602 ○ 3802
			l			WE	102A	8197
1								
LDROM	APRIO	M □約援	Rah 🗆			开始		
	1.1.0000000000			4-0.034 V00044	100			

## 1 : KPROM Config

#### **1.1** : KPROM status reading

Connecting the chip and reading the option byte allows you to get the status of the KPROM.

Power Writer® 1.3.8.0 [Build:2024-04]	4-10 19:40:33] —		×
File( <u>F</u> ) Operation( <u>E</u> ) Tools( <u>T</u> ) Setti	ting( <u>S</u> ) Help( <u>H</u> )		
6 8 2 8		Device	
Open Save F-in F-out PLoad	I PRead Blank Erase Read Write Verify Auto Reset ID AnyRD Error Serial Wire Plugin	PVVXI	
Writer Setting 🛃 Option	i bytes 📳 APROM   Data Flash 💾 LDROM 💾 OTP		
Option Byte: FF FF FF FF FF FF	FF 5A 5A FF FF 00 00 00 00 01 F 00 00 00 07 00 00 00 00 00 00 Size : 28 Byte 📀 Reset 🗈 Load	🖹 Save	: <b>  -</b>
Option Name	Option Value(Click the item with the mouse and select the parameters from	the drop	)-c
>>>	[Double-click to modify] Byte 12		
CFGFLAG	0x00: CONFIG write-protection Disabled		
KEYFLAG	0x00: Security Key protection Disabled		1
FORBID	0x00: KEY comparison is not forbidden		
Reserved	(3) 0x00: Set to 0		
KEYLOCK	0x00: KPROM, LDROM and APROM (not include Data Flash) i	s not ir	
Reserved	0x00: Set to 0		
>>>	[Double-click to modify] Byte 13		
Reserved	0x00: Set to 0		
Reserved	0x00: Set to 00		-
>>>	[Double-click to modify] Byte 14		
Reserved	0x00: Set to 00		
>>>	[Double-click to modify] Byte 15		
Reserved	0x00: Sot to 00		- II
>>>	[Double-click to modify] Byte 16		
KPKECNT	(A) 0x00: 00		TU
>>>	[Double-click to modify] Byte 17		
KPKEMAX	0x1F: 31		T
	Double-uiuk to modify] Dyte 16		
Reserved	0x00: Set to 00		
>>>	[Double-click to modify] Byte 19		
Deconrod	0v00- Sat to 00		
Target: connected ICWorkSho	op Technology (Shenzhen) Co., Ltd.All Right Reserved		

#### 1.2 : KPROM Unlock Password Setting

When the security key protection is enabled, the LDROM and APROM are in writeprotected state, and if you want to write to them, you must enter the correct KPROM unlock password, or report an error. When the option byte CONFIG write protection is enabled and the option byte is to be written, an incorrect entry of the KPROM unlock password triggers a full chip erase.

wer Writer® - Nuvoton Extends Setting	×
新聞語王斯 nuvoTon	
TROM Setting IKOM Setting Secure Key	
□更新orom Interom 最短度時	
宮時は Currenter 宮時に Currenter	
王明a survey 王明1 aurean	2/06-16:08:00:246> M481xG Flash 大小: 256.0083
王明2: Currentere 密码2: Currentere	2/06-16:08:00:247> M481xG Data Flash size: 4.00 KB
記書示字元	2/06-16:08:00:251> M481xG LDROM size: 4.00 KB
空洞線開始的最大量級上和次数(1~か) 2	2/06-16:08:00:253> M481xG OTP size: 3.00 KB
每次上电的艺巧和描述过最大次的0~20 3	2/06-16:08:00:484> Change bank: Single bank
	2/06-16:08:00:667> 更新烧录器设置完成
REARCHICKS EXPRONUDRONUPRON CONFIS SPRON	2/06-16:08:00:907> 更新芯片信息成功
	2/06-16:08:02:086> 目标芯片已连接
	2/06-16:08:02:143> 选项字节已经成功读取!
	2/05-16:15:19:923> 更新饶录器设置完成。
	2/06-16:15:20:166> 更新芯片信息成功
Ø ₩dz	2/06-16:15:24:323> [003E] Target KPROM password error

#### 1.3 : Update KPROM password

When you want to update the KPROM, you must check both Update KPROM and Security Key Enable, the KPROM is written with the option byte, and clicking Write Option Byte will operate the KPROM; the

Power Writer® - Nuvoton Extends Set	ting	×
俞即读工坊	ηυνοΤοη	
KPROM Setting XOM Setting Secure H	Key	
Update KPROM	KPROM Unlock Key	
Key 0: 0xFFFFFFF	Key 0: 0xFFFFFFF	
Key 1: 0xFFFFFFF	Key 1: 0xFFFFFFF	
Key 2: 0xFFFFFFFF	Key 2: 0xFFFFFFFF	
	•	
Maximum number of power - on	attempts for incorrect passwords(1~7): 2	
Maximum number of incorrect pa	assword attempts per power-on (0-31): 3	
Data write protection area: 🔽		м
	通 确定	

Bower Writer®1.3.8.0 [Build:2024-04-10 19:40:33]	– – ×
File( <u>F</u> ) Operation( <u>E</u> ) Tools( <u>T</u> ) Setting( <u>S</u> ) Help( <u>H</u> )	5
67 67 67 0 68 🖄 🔟 🖪 🖻	🕫 😨 🖸 💽 🚺 🖄 🛐 🗗 🔤
Open Save F-in F-out PLoad PRead Blank Erase Read Write	Verify Auto Reset ID AnyRD Error Serial Wire Plugin PWX1 ~
🗱 Writer Setting 🛃 Option bytes 📗 APROM   Data Flash 📱	LDROM POTP
Option Byte: FF FF FF FF FF FF FF FF 5A 5A FF FF 00 00 00 00 00 1F 00 00	00 07 00 00 00 00 00 00 Size : 28 Byte 📀 Reset 🗈 Load 🖺 Save 💌
Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-
>>>	[Double-click to modify] Byte 12
CFGFLAG	0x00: CONFIG write-protection Disabled
KEYFLAG	0x00: Security Key protection Disabled
FORBID	0x00: Security Key protection Disabled
Reserved	0x01: Security Key protection Enabled
KEYLOCK	0x00: KPROM, LDROM and APROM (not include Data Flash) is not in v
Reserved	0x00: Set to 0
>>>	[Double-click to modify] Byte 13
Reserved	0x00: Set to 0
Reserved	0x00: Set to 00
>>>	[Double-click to modify] Byte 14
Reserved	0x00: Set to 00
>>>	[Double-click to modify] Byte 15
Reserved	0x00: Set to 00
>>>	[Double-click to modify] Byte 16
KPKECNT	0x00: 00
>>>	[Double-click to modify] Byte 17
KPKEMAX	0x1F: 31
>>>	[Double-click to modify] Byte 18
Reserved	0x00: Set to 00
>>>	[Double-click to modify] Byte 19
Dosoniod	NVNN: Sat to NN
✓ Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All F	light Reserved

# 2 : XOM Config

#### 2.1 : XOM status reading

You can get the activation status of the XOM by selecting the corresponding chip model, connecting the chip and reading the option byte:

lead and a contract (0.13) [Build:2024-04-10 19:40:33]	_	
File( <u>F</u> ) Operation( <u>E</u> ) Tools( <u>T</u> ) Setting( <u>S</u> ) Help( <u>H</u> )		
5 5 5 2 5 5 5 🖄 🖄 🖰 🔁	6 🛉 🖸 🔟 🖸 🚺 🖉 🗗	Device
Open Save F-in F-out PLoad PRead Blank Erase Read Write	e Verify Auto Reset ID AnyRD Error Serial Wire Plugin	PWX1 $\sim$
🗱 Writer Setting 🌠 Option bytes 📳 APROM   Data Flash	LDROM OTP	
Option Byte: FF FF FF FF FF FF FF 5A 5A FF FF 00 00 00 00 00 1F 00 0	0 00 07 00 00 00 00 00 00 Size : 28 Byte 📀 Reset Load	🖹 Save
Option Name	Option Value(Click the item with the mouse and select the parameters from	the drop-c
>>>	[Double-click to modify] Byte 19	
Reserved	0x00: Set to 00	
>>>	[Double-click to modify] Byte 20	
KPCNT	0x00: 00	
>>>	[Double-click to modify] Byte 21	
KPMAX	0x07: 07	
>>>	[Double-click to modify] Byte 22	
Reserved	0x00: Set to 00	
>>>	[Double-click to modify] Byte 23	
Reserved	0x00: Set to 00	
	[Double click to modify] Byte 24	
XOMR3ON	0x00: No active	_
XOMR2ON 3	0x00: No active	_
XOMR1ON	0x00: No active	_
XOMROON	0x00: No active	
>>>	Double-click to modify Byte 25	
Reserved	0x00: Set to 00	
	[Double-click to modify] Byte 26	
Keservea		
	Double-click to modify Byte 27	
Reserved	UXUU: Set to UU	1
Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All	Right Reserved	

#### 2.2 : XOM Configuration Write

Fill in the address to be read-protected, you must check both the enable area and the XOM area to enable, and finally click the write option byte.

Power	Writer® - Nu	voton Extends Sett	ing				×
		减式物	ດບາ	νοτοη		X	
KPROM	M Setting XO	M Setting Secure K	ey				
l	Zone	Base Address	Page size	End Address	Debug mode		
	XOM0:	0xFFFFFFF	0				
	XOM1:	0xFFFFFFFF	0				
	XOM2:	0xFFFFFFFF	0				
	XOM3:	0xFFFFFFF	0				
	Min Address	:: 0x000010	00				
	Max Addres	s: 0x000400	00				
I	Sector infor	mation: 0x000010	00(63)				

Power Writer® 1.3.8.0 [Build:2024-04-10 19:40:33]	
File(E) Operation(E) Tools(I) Setting(S) Help(H)	
E E 🗹 🚺 🔕 🚳 🙃 🐻 🐻 🐨 🖸 🚺 🚺	Device
Open Save F-in F-out PLoad PRead Blank Erase Read Write Verify Auto Reset ID AnyRD Error Serial Wire Plugin	PWX1 ~
🏟 Writer Setting 🛃 Option bytes 📳 APROM   Data Flash 📳 LDROM 📳 OTP	
Option Byte: FF FF FF FF FF FF FF FF FF 5A 5A FF FF 00 00 00 00 01 F 00 00 00 07 00 00 01 00 00 00 Size : 28 Byte	🖺 Save 🔻
Option Name Option Value(Click the item with the mouse and select the parameters	from the drop-c
>>> [Double-click to modify] Byte 19	
Reserved 0x00: Set to 00	
>>> [Double-click to modify] Byte 20	
KPCNT 0x00: 00	
>>> [Double-click to modify] Byte 21	
KPMAX 0x07: 07	
>>> [Double-click to modify] Byte 22	
Reserved 0x00: Set to 00	
>>> [Double-click to modify] Byte 23	
Reserved 0x00: Set to 00	
>>> [Double-click to modify] Byte 24	
XOMR3ON 0x00: No active	
XOMR2ON 0x00: No active	
XOMR10N 0x00: No active	
XOMR0ON 0x01: XOM region 0 is active	
>>> [Double-click to modify] Byte 25	
Reserved 0x00: Set to 00	1
>>> [Double-click to modify] Byte 26	
Reserved 0x00: Set to 00	
>>> [Double-click to modify] Byte 27	
Reserved 0x00: Set to 00	
▼ Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All Right Reserved	

## 3 : Security key

#### 3.1 : Import of security keys

Import the security secret key in Secure Key, the procedure can be found in: Nuvoton NuMicro ICP Programmer User Guide.pdf.

Nuvot	ton Nul	vicro ICP	Program	ming Tool	3.07	- M480薫	列												-				×		
项目(P) 7	芯片(C)	工具(T)	语言(L)	说明(H)							14			0.2.0	0.7	12024		20.4		~~~	_	_	_		
nuv	vo	Ton		_	-					→ #2/8	werv	(Inter	01.2 T	0.2 J	204	12021 1(5)	and the	30 H	01431	00]					
连线状态	的检测										7 24	1(6)				1,0)				-	-		_	-	
佳所:	<del>Л</del>	已经通过	Nu-Link (I	D: 18000154	這權	到芯片				B	B		18	2	₹0	۶I E	0	Q	IL	0	R	2	ю	Ð	9
芯片	겠号	M481SG0	CAE2A	DROM: 4K, /	PRON	4:256K, D a	ar OK, R	AM: 128K		0	(编录)	50E		;	ŧij	₽#	P	AP	ROM			Data	Flas	h	
航入文件	+								Powe	er Writer®	0 - Nu	voto	n Exte	nds	Sett	ing						-			
LDR	MOM	文件名:	C:\LDR	OM.hex					-	•															
APR	MOR	文件名:	E:NDW	SHOP\B_备	个芯片	資料/新聞	例程い	M480,	t	S	Ð١)	茴	Т	tħ		n	U	v	01	Гс	or	h.	-		
\$3	て件									<b>QV</b>	IC W	0 8		0 9		1	_					3			2
救援	Flash	文件名:	E:NDW	SHOP\chip_	lest'@)	jj⊈bir\2k.b	in		KPR	OM Setting	XOM	Settin	g Se	cune K	ieγ	1									
SPR	NOM.	文件名:	C:\SPR	OM.hex						λ.					_							_			_
SPL	Flash	文件名:	E:NDW	SHOP\B_둅	个芯片	資料/新農	心芯片的	「「本学			E2 AA D7	2C 34	15 28 D7	5A 7 06 9	1 6 9 I	3 8F 5 D4 3 00	4A 32 83	41 9F	78 3E 94	53 5Å 90	95 F0 77	75 19 43	0F 38 22	22 5B E8	C5 75 83
安全	金钥	文件名:	E:VDw	SHOP\chip_	teot'@)	ígtbin∧ECC	bin				3D 00	BA 00	47	76 7	9 F	D 73	74	B4 00	D7 00	5E 00	91	F1 00	13	C4	91
配置位								_			00	00	00				00	00	00	00	00	00	00	00	00
- igo	定	配置値0:	0xFFFFf	FFDB RC	1:	0xFFFFF	FFFF	<更新历	i oxo			00	00		10 1	0 01	00	00	00	00	00	00	00	00	00
		配置值2	OwFFFFF	545A R.2	f <b>ā</b> 3.	OwFFFFFF	FCC																		
文件數排	E.				×	上 Flash																			
LDROM	APRO	M 動語Fie	sh SPRC	M SPI Fla	h L	ROM AP	ROM	數据Flash																	

#### 3.2 : Configuration and write security keys

Check BootLoader Boot and Secure Boot Encryption, then click Write Options Byte, you can add firmware and then click Fully Automatic Programming;

ю	Power Writer@1.2.0.2 [Build:2021-11-30 10:43:00]
■ 芯汁造成	× 支持(F) 执行(E) 工具(T) 役置(S) 編約(H)
Configuration XDM Setting	🔍 🚺 🖸 🕤 🐨 🗔 🗟 🔍 💩 🖄 🖄 🖰 🚍
欠压电压值设定	A 43978 2 31540 D 1000 D 00 D4 D 1000 D 00
@30V O28V O28V O24V	「 第二字書 A A A A A A A A A A A A A A A A A A A
022V 020V 01.8V 01.6V	选项家书: DF FF
□欠压检测 □欠压算位	选项名称 选项值(用鼠标点击项,从下拉列表选择参数)
自动选择	>>>  双击可修改]字节0
OLDROM @APROM	CBS 0x03:由APROM启动不支持IAP功能
○LDROM (含体P功能) ○ APROM (含体P功能) ☑ Boot Loade	MBS 0x00:从Boot Loader启动,忽略CBS设置
HKT模式选择	CWDTE[1:0] 0x03: 设置为03
OARRAND CARE	Decented 0x01, 2019 4:1

欠压电压管发管			
⊛10/	02.97	028/	024/
022/	O 2.0V	01.8V	01.8V
□欠压检测		□欠匠要位	
扁动造绎			
OLDROM	APR	OM	
O LORDM (\$0	4P功能I 〇 APR	CM (含WPD)能)	E Boot Loader
HXT模式选择			
○外翻[]#預	現式	●晶原模式	
启动后的10初始	状态		
⑧三志協入標:	π.	○北辺内積式	
数据Flash选择			
□数部Plach		数据Flash基地	FFFFF
		数据Flash大小:	0.00K 🔅
0609		□治电模式下	前门务时钟
□ 安全加密		ICEI的な	
回安全自动的	ŧ		
<b>取</b> 回道	_		
間壁値2 (	WFFFFFFD8	高田田1: 0.FI	FFFFFF
62B(02)	DEFFERING		

Power Writer@1.2.0.2 [Build:2021-11-30 10:43:00]	
文件(F) 执行(E) 工具(T) 设置(5) 報助(H)	
	6 6 🖷 🕐 🖸 🖬 🚯 👪
🔅 统荣器设置 🎇 法领学节 🎴 APROM 🎴	Data Flash 🔛 LDROM 🏩 OTP
透现字节: DF FF FF FF FF FF FF FF SA 00 FF FF 12 02 0	0 00 00 03 00 00 00 02 00 00 01 C 大小 : 28 Byte ②仮現我は、 🗈 talk
选项名称	选项值(用就标点击项,从下拉列表选择参数)
Reserved	0x0F:设置为0F
DFBA bit19	0x01: 设置为1
DFBA bit18	0x01: 设置为1
DFBA bit17	Ox01: 设置为1
DFBA bit16	0x01: 设置为1
>>>	[双击可修改] 字节 7
Reserved	0xFF: 设置为FF
>>>	[双击可修改] 字节 8
ALOCK	0x5A: 如果LOCK (CONFIG0[1])为1, 闪存内容未锁定
***	1双击可修改1字节 9
SBLOCK	0x00: 安全引导功能使能和LOCK/ALOCK被锁定
>>>	[双击可修改]字节 10
Reserved	0xFF: 设置为FF

E. Offline load (Ctrl+Shift+L) R Offline upload (Ctrl+Shift+R) P٦ Read Program memory (Ctrl+R) PQ Blank check Program memory (Ctrl+B) 8 Erase Program memory (Ctrl+E) ₽</>> Program Program memory (Ctrl+W) °o Verify Program memory (Ctrl+V) ⊚ Auto Program Memory programming (Ctrl+P) Real Fully functional automatic programming (Ctrl+Alt+P) > 4 Other data area operations Ö Reset target chip (Ctrl+D) ÷ Read option byte (Ctrl+M)  $\mathcal{P}$ Write option byte (Ctrl+N) Read Union Chip ID ID (Ctrl+J) ፠ Read Data Anywhere (Ctrl+K) Get Last Offline Error (Ctrl+L) ଜ

### 4 : Secure Setting

#### 4.1 : Secure config

Here we take the **M2351** as an example, open Extended Settings, select Start Non-Safe Area, write the Non-Safe Area address, and turn on the Safe Area setting in the Options byte:



#### 4.2 : Secure Area Unlocking Method

After locking the setting settings, the chip will not be connected, you need to click on

Restore Defaults to write the option byte



### 5 : MTP Configuration

#### 5.1 : MTP Notes

MTP setting belongs to the specific function of NUC505, when the burner is connected to the chip, the PB.3 of the chip needs to be pulled down to make the chip start from the ICP mode; after the burner is finished, the PB.4,PB.3,PA.10,PA.9 can not be pulled down for the program to start normally.

#### 6.2.3 系统上电设置

当芯片上电或是复位时需要配置上电设置让芯片进入指定状态。由于在复位期间每个引脚在上电设 置时都有对应的内部上拉电阻,如果应用需要设置为0,那么在对应的引脚上需要增加合适的下 拉。

	PB.4	PB.3	PA.10	PA.9	推述	有存着映射	
	1	1	1	1	从内部的 MCP SPI Flash 启动	SYS_BOOTSET[3:0]	
	1	1	1	0	从USB启动	SYS_BOOTSET[3:0]	
	1	1	0	1	从外部 SPI Flash 启动	SYS_BOOTSET[3:0]	
L	1	0	1	1	从 ICP 模式启动	SYS_BOOTSET[3:0]	
	0	1	1	1	內部SPIFlash SWD/ICE 模式	SYS_BOOTSET[3:0]	
	0	1	1	0	外部SPIFlash SWD/ICE 模式	SYS_BOOTSET[3:0]	

表 6.2-1 系统上电设置指南

#### 5.2 : MTP status reading

Connect the chip and read the option byte to get the activation status of the MTP:

Power Writer® 1.3.8.0 [Build:2024-04-10 19:40:33]	–
File(E) Operation(E) Tools(I) Setting(S) Help(H)	
Open Save F-In F-Out PLOAd Pread Blank Erase Read White	verify Auto Reset ib Anyko Error Senai wire Piugin
Writer Setting Z Option bytes Internal SPI Flash	External SPI Flash
Option Byte: 00 00 00 00 1	Size:5Byte Save ▼ r
Option Name	Option Value/Click the item with the mouse and select the parameters from the drop-
>>>	[Double-click to modify] Byte 0
MTP Locked status	0x00: MTP programmable
MTP non-program status	0x00: MTP programmed
MTP KEY status	0x00: no Key in MTP
MTP Enable status	0x00: MTP is not enable
>>>	[Double-click to modify] Byte 1
Reserved	0x00: Set to 00
>>>	[Double-click to modify] Byte 2
Reserved	0x00: Set to 00
MTP program counts(Max program counts is 15)	0x00: MTP Program Count:0
>>>	[Double-click to modify] Byte 3
Reserved	0x00: Set to 00
>>>	[Double-click to modify] Byte 4
Cipher option	0x00: Enable Cipher
MTP program	0x00: MTP no-program
<b>9</b>	
4	
X Target: disconnect ICWorkShop Technology (Shenzhen) Co., Ltd.All	Right Reserved

#### 5.3 : MTP Config

Fill in the correct value in MTP Setting in Nuvoton Extended Settings, and when you need to update MTP, you need to check both Write MTP and MTP Programming.

```
MTP 秘钥: 0x53215751 -0x32432356 //This is filled in randomly, with non-
all zeros and non-all ff
const uint32_t signature __attribute__((at(0x00000d00))) =
0x34333231;//The program firmware needs to be customised by setting the
signature at the offset address
```

連載技力检测		I TEWERKENED
	Florida MTP Set	ting
艺片型号 NUC505 R4M128K, SPI Raik 2M, MTF	Phogram Count 8/15 0 分部	
#2 +H	M	IP <u>유</u>
SLATE SATISFY SATISFY EVENTS AND	11/20/5 b.b.	团每入MTP
	0.0000	MTP 检御:0x53215791 ·0x32432358
MTPER	×	MTD 12.4
MTP378		
□ IN THE STATE OF THE STAT	記記型和可知識	至名 0×94333231
MTP KEY [Hist] 00000000] - 00000000 (7 etc)	her is all '0' or 'F', HTP Key is invalid.)	(集時 0×000
MTP Signature (Hex)		MTP 选择: 0x00
Signature 34333231		
MTP Difast 00.00		LI数国MP (NO 数量之后将无法再次需要(P)
3 MTR 0		
文件 (HP Datan (Hes) DD		
代码 (Be careful MTP carnot be programmed o	#her lock.	
008 32.9	RA	
0001	6 31 00 50	
00000040: 07 01 00 00 07 01 00 00 07 01 00 00 0 00000060: FD 00 00 07 01 00 00 07 01 00 00 0	7 01 00 00 032 <u>1</u> 2 7 01 00 00	C Wetz
NDv/5H0Pschp_tee/Navdov/NUC505.5in		nternal SPI Flash 📓 External SPI Flash
NDwSH0Psolip_testNewston/NUC305.bin 小:32.009时5.根始语:5716	◆ 株市活会長 22 送送本市 20 5 送売年代 03 00 03 00 01 第15 5 25	nternal SPI Flash
ND#SHIPLoby_ter/Www.to/WUCK6.tin 小: 32.045世.根始道: 5716 期大小: 22758 非性	◆ 株理器设置 器 出版本市 ● 3 出版本料 03 50 03 50 01 透版名称	hternal SPI Flash 透示値(用紙板点击流从下 1993年17月2日) 201号 1
NDx/5H3Pxblg_ber/NewtowWUC555.bin 小: 3200時代.税始道: 5716 取大小 2200 学作 NDx5H0Pxblg_ter/ME(bin/45.bin		nternal SPI Flash 透液值(用紙标点击流从下 IIIX击可能的) 学带 0 Obd0: MTP 可以/编辑
NDw/SH3P-cale_ter/Mavenew/MUC505.bin 小: 32009世8.根始道: 5716 取大小: 22209 学节 V/WSH0P-cale_ter/編成2in/46.bin 小: 42552节5. 保始論: 4220	株理器安置 2 出版本市 2 3 メ教学科 03 50 03 50 01 法原名称 STP Locked status MTP non-program status	rtamal SPI Flash 透漆循(用紙板点主流从下 II)以击可能的) 学術 0 0x00: MTP 可以编辑 0x00: MTP 已写入
NDw5H3Publiq_textMavement/NDC505.bin 小、32.045mb.根始道: 5716 取大小・ 22250 字节 VDw5H0Publiq_textMB式bin445.bin 小・4585年代 長雄道: 6230 地址 av 000000	株理器安置 2 出版本市 2 3 場所本株 03 60 03 60 01 送版名称 S>> MTP Locked status MTP non-program status MTP KEY status	rtamal SP1 Flash 逸塚儀(用紙板点主地从下 (双击可能校)学術 0 0x00- MTP 可以編編 0x00- MTP 已写入 0x01- MTP 砂街有效
NDw5H3Public_textMavarawNUC326.bin 小、32.00時や、機能道、5716 取大小・ 22.25回 事件 NDw5H0Public_text例算法ini/44.bin イー・4585年代、税能道、6230 単大小・ 4055年 2010		htemai 521 Flash 意味值(用紙作点主味从下 )次告可發行)学年0 0x00: MTP 可以编辑 0x00: MTP 包写入 0x00: MTP 包写入 0x00: MTP 包括有效 0x00: MTP 包括有效
NDx/5H3Publiq_Jest/Mavdow/NUC005.bin 小、22005中た 想動量量 57% 取力小、 22783 学作 NDx/5H0Publiq_test/Mill_Size 小、4985年代、伝動量、6278 地社 & 0000000 地大小、 4238 字作		nternal SPI Flash 空球値(用紙板点击球从下 数球値(用紙板点击球从下 数击可能的学者 0 0x00: MTP 可以编程 0x00: MTP 利利有效 0x01: MTP 起動有效 0x01: MTP已使能 取击可能的架字节 1 0x02: 段子
NDW5H3Publiq_Jasr/NavdiswWU0005.5in 4: 3200字称. 板油道: 5716 取大小: 2009 水市 NDW5H0Publiq_ter/MB式Sin/44.bin 4: 4090字节, 板油道: 4200 単大小: 4000 字节		rternal SPI Flash 遊塚値(用紙板成正成从下 )双击可能的学年 0 0x00: MTP 可以編編 0x00: MTP 已写入 0x01: MTP 已写入 0x01: MTP 已使能 IIX1: 新作的者效 0x01: MTP已使能 IIX1: 新作的者效 0x01: MTP 日 (非常
NDWSH3Public_Jasr/NavdrowWU0205.bin 小: 32003から、物設着: 5716 取力小: 23250 かや NDWSH0Public_ter/Mildler 小: 4255574、低設盤: 4228 地址: Ga. 000000 取力小: 42555 なや	◆ 執理器必要 2 地球本市 2 a 単数学校 20 00 20 001 支援名称 >>> MTP Locked status MTP Locked status MTP KEY status MTP Enable status >>> Reserved	rternal SPI Flash 選擇備(用紙标成主張从下 認定可能的字筆 0 0x00: MTP 可以編編 0x00: MTP 可以編編 0x00: MTP 已写入 0x01: MTP 已得於 10x1: MTP 已保能 10x1: MTP 已保能 10x1: MTP 已保能 10x1: MTP 日子 0x00: 设置为 00 10x1: 研答 2 0x00: 设置为 00
NDW5H3Publiq_Jast/Navdow/NUC055.bin 小 2200字位: 現設道: 5776 取大小: 2200 字作 NUW5H0Publiq_ter/ME(Sim/45.bin 小 4200字作, 供給道: 4220 地址: Ga 000000 取大小: 4235 字作 展現(Flash		htemai SPI Flash 選擇備(用紙标点击成从下 認知可能的容量 0 0x00: MTP 可以编辑 0x00: MTP 可以编辑 0x00: MTP 已写入 0x00: MTP 已写入 0x00: MTP 已写入 0x00: 位置为 00 認知可能的 学节 2 0x00: 设置为 00 次() 0x00: MTP已编程次数 8
NDw75H2Public_ber/HavdrawWiLC005.bin 小: 2009年他、概知道: 5776 取大小: 2029日年中 (Vu/SH0Public_ter/Mit/Line 小: 400年中、低敏速: 6220 地址: Ga: 000000 取大小: 4036 年中 展現/Yauh E: 化存用E: 新規E: 集集		hternal 521 Flash 意味值(用紙作成五速从下 (双击可能的) 学单 0 0000: MTP 可以编辑 0000: MTP 已写入 0001: MTP 已每入 0001: MTP已接路 1000: 设置为 00 1000: 设置为 00 1000: 设置为 00 1000: 设置为 00 1000: 设置为 00 1000: 设置为 00 1000: 数置为 00 1000: 数 1000: 数 1000: 00 1000:
NDw5HDPublic_ter/HavdrawWiLC025.bin 小: 2005年8. 板始道: 5776 取大小: 27205年年 (VUSHDPublic_ter/Withfam/AL.bin 小: 4755年代、板始道: 4220 東大小: 4226年年 単規パaub E 代5時度: 時間度: 後間 1000000000000000000000000000000000000		hternal 521 Flash 意味信(用紙标点击成从下 数击可發起) 学年 0 0x00- MTP 可以编辑 0x00- MTP 可以编辑 0x00- MTP 已写入 0x01- MTP 经结有效 0x01- MTP 经结有效 0x01- MTP 经结有效 0x01- MTP 经结有效 0x01- MTP 经结有效 0x01- MTP 经结有效 0x01- MTP 经结查 2 0x00- 设置为 00 120- 120- 120- 120- 120- 120- 120- 120-
SEArSHDPublic_bar/Mavdow/BUC305.bin         ()           1:2005年秋、街台道:57%         第方           和大力:         2000           第方         10000           和大力:         2000           第方         100000           和大力:         400000           日代科区:         第第第           10000000         1000000           日代科区:         第第第           10000000         10000000           日代科区:         第10000000           日代科区:         第10000000           日代科区:         第10000000           日代科区:         第1000000000           1000000000000000000000000000000000000	◆ 執理要改善 副 地球本本 ● a 副本本株 23 00 03 00 01 支援名称 325 MTP Locked status MTP KEY status MTP KEY status MTP Enable status 555 Reserved MTP program counts(最多可编程155 555 Reserved 555 Reserved 555 Reserved 555	hternal 571 Flash 型球値(用紙板心击球从下 )双击可能如字节 0 0x00: MTP 可以编幅 0x00: MTP 可以编幅 0x00: MTP 经租有效 0x01: MTP 经租有效 0x01: MTP 经租有效 0x01: MTP已使能 IIII: IIII: III: IIII: III: IIII: III: III: III: IIII: IIII: III: III: III
UCW5H0Public_Jest/Naveron/NUC205.tin (~ 12003中か. 板油道 5715 東大小: 2003 字作 UCW5H0Public_test/最近はM45.bin (~ 42053中小. 板油道 4220 常士 42053中小. 板油道 4220 東大小: 42053 字作 単大小: 42053 字作 単大小: 42053 字作 単大小: 42053 字作 単大小: 42053 字作 単大小: 42053 字作 単元: 42053 字作 42053 ? 42053 ?		hternal 521 Flash 透明値(用紙板成正成从下 )双面面像的字管 0 0x00: MTP 可以编程 0x00: MTP 可以编程 0x00: MTP 已写入 0x01: MTP 已接入 0x01: MTP 已接接 IIXL 可能的字节 1 0x00: 设置为 00 IIXL 可能的字节 3 0x00: 设置为 00 IIXL 可能的 字节 4 0x00: 收置为 00 IIXL 可能的 字节 4 0x00: 收置为 00
NDw75H3Pcdkq_bar/NavenovWUC205.5in (+: 2205字5: 現金道 5715 取力す: 2205 字节 NDw5H0Pckkq_ter/MB(5)r/45.bin (-: 4205字5: 代始達 4225 然起: 0: 00000 取力す: 4205 字节	◆ 執理器必要 2 地球本市 2 a 単原本性 25 00 02 00 01 支援名称 >>> MTP Locked status MTP Locked status MTP Locked status MTP Locked status MTP Enable status >>> Reserved >>> Reserved >>> Cober option MTP program	hternal SPI Flash 選擇値(用紙板成正成从下 )双击可能的字章 0 0x00: MTP 可以編幅 0x00: MTP 可以编幅 0x00: MTP 已写入 0x01: MTP 已得入 0x01: MTP 已保護 IIX工程能的 字节 1 0x00: 设置为 00 IIX工程能的 字节 3 0x00: 设置为 00 IIX工程能的 字节 4 0x00: 设置为 00 IIX工程能的 字节 4 0x00: 设置为 00 IIX工程能的 字节 4 0x00: 设置为 00
NDw75HDP-ckie_ter/HavdrowWiUC205.tin (+ 22003Pts.現金道 5715) 取力す: 23203 字节 NDw5HDP-ckie_ter/新史道: 4225 地址 0 00000 取力す: 42352节, 低敏速 4225 地址 0 00000 取力す: 42352 字节 		hternal 521 Flash 意味值(用紙作点击流从下 双击可能的) 学节 0 0x00: MTP 可以编辑 0x00: MTP 已写入 0x01: MTP 已解析效 0x01: MTP已接接 1次击可能的) 学节 1 0x00: 设置为 00 12次击可能的) 学节 1 0x00: 设置为 00 12次击可能的) 学节 3 0x00: 或置为 00 12次击可能的) 学节 3 0x00: 或置为 00 12次击可能的) 学节 3 0x00: 或置为 00 12次击可能的) 学节 4 0x00: 编译的 学节 4
NDw15H3Public,Jast/NavenovWIUC205.bin           小 22063年5.時始後5575           現大小         2326           加力小         2326           水小         4056           水水小         4056           東大小         4056           東北         500000           東山         50000	◆ 執理器会長 2013年末 ● 2 家族学校 03 00 03 00 03 高振名校 >>> MTP Locked status MTP Locked status MTP REY status MTP Enable status >>> Reserved >>> Reserved MTP program counts(最多可编程15) >>> Reserved MTP program ×	hternal 521 Flash 意味信(用紙作点击成从下 )双击可整约(学年0 0x00: MTP 可以编辑 0x00: MTP 可以编辑 0x00: MTP 已編入 0x01: MTP 段明有效 0x01: MTP已使能 10x00: 设置为 00 10x1: 所TP已编程次数 8 10x1: 可能到 学节 2 0x00: 设置为 00 10x1: 可能到 学节 3 0x00: 设置为 00 10x1: 可能到 学节 4 0x00: 或量均衡] 学节 4 0x00: 或量均衡] 学节 4 0x00: 或量均衡]
SUCurSHOPPublic_text/Navelan/NUCCOS.tan           第七日の日本の「日本の日本の「日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日	◆ 執理要必要 副 地球本本 ● a 地球中株 03 00 03 00 01 支援名称 >>>> MTP Locked status MTP NEY status MTP KEY status MTP KEY status MTP KEY status MTP KEY status Peserved >>> Reserved >>> Reserved >>> Reserved >>> Reserved >>> Reserved >>> Reserved >>> Reserved >>>	hternal 521 Flash 意味信(用紙标点击成从下 )双击可發起(学年 0 0x00: MTP 可以编辑 0x00: MTP 2号人 0x01: MTP 经短有效 0x01: MTP2使能 )双击可發起(学年 1 0x00: 设置为 00 汉法司發起(学年 2 0x00: 设置为 00 汉法司發起(学年 3 0x00: 设置为 00 汉法司發起(学年 3 0x00: 设置为 00 汉法司發起(学年 3 0x00: 设置为 00 汉法司發起(学年 4 0x00: 设置为 00 汉法司發起(学年 4 0x00: 设置为 00

Code Verification is automatically activated when the MTP is programmed. The code on the Flash (or file to be written to SPIFlash) must pass through the Code Verification stream. The NUC505 searches the 0 to 16 KBSPIFlash of the offset address (or file to be written to SPIFlash) to check that the correct signature is present on the offset address (compare to the data in the NUC505 MTP). data for comparison, see Figure 2-1). If there is no signature, the boot or programming operation will fail. This protection mechanism is called off-chip memory protection, so to program the encryption, it is necessary to add no less than 16K of firmware, but not to program the encryption:



Figure 2-1 Code Validation Flow

Add plaintext firmware when using programmed encryption.



When not encrypted by programming, you can read the encrypted firmware save as first, then add it.

# 6 : SPI Flash encryption settings

#### 6.1 : SPI Flash Encryption Setting

Select the corresponding chip, for example, **M485xI**, open the extended settings and select SPI Setting, fill in the non-zero values for secret key 0 and secret key 1, and then the chip will be encrypted and burned automatically when you are sure to burn it.

Power Writer® - Nuvoton Extends Setting	×
劉朝堂王恭	ΠυνοΤοη
KPROM Setting SPI Setting Secure Key	
SPI Additional Settings	
SPI Key0: 0x0000000	
SPI Key1: 0x00000000	
Disable Cipher	
SPI Verify	
	通 确定



Edit this page

Last updated on Apr 15, 2024 by Alan Chen

Version: Next

# 3.2.10 : Chip Data Export

#### 1 : Connecting the programmer with target chip



Skip to main content

#### 2 : Read chip data



### 3 : Store to local disk



Randomly intercept the read back data to save, right click on both ends of the data to be intercepted to set the start address and end address, and then export the data.

18 100 100 105 195 195	54 29 00 29 29 29 29 29 29 29	02 00 00 00 00 00 00 00 00	20 00 00 00 00 00 00 00	ED ED 00 00 55 55 55 55 55	29 29 00 29 29 29 29 29 29	00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00	09 00 00 20 55 95 95 95	71 29 00 28 29 29 29 29 29		00 00 00 00 00 00 00 00 00	ED       29       00       00       .Z)q)         FD       29       00       00       .)))         75       23       00       00      u(         8B       6F       00       00      u(         95       29       00       00      u(         95       29       00       00      u(         95       29       00       00
												Copy Paste Jump to address
95 95 95 95 4F	29 29 29 29 29 29 29 29 50	00 00 00 00 00 FF	00 00 00 00 00 00 31	95 95 95 95 95 53 4F	29 29 29 29 29 29 89 F0	00 00 00 00 00 4A FF	00 00 00 00 00 89 30	95 95 95 95 95 00 00	29 29 29 29 29 29 29 29 50	01 01 01 01 01 08 70	BF B9	Set the selection start address Set the selection end address Export selection data 00 28 1C BF .). S.J .). ( AD F1 08 0C 0. 10.0 .p.

## 4 : Operational Demonstration

#### 4.1 : Read the whole area

Image: Solution of the second of the seco	Power Writer®1.3.8 File(F) Operation(E)	3.0 [Build:2024-04-10 19:40 Tools(T) Setting(S) F	):33] Help(H)	- 0 >
Writer Setting       Option bytes       Program Memory         Chip Select       MCU model:       Image: Select       Apply         Flash Size:       xxxxx       xxxxx         Erase Type       Interface level       Misc         O bont erase       0 18.V       Speed       10M hz         O full Erase       0 3.3 V       OptionByte       Factory=>Custom         O full Erase       0 5.0 V       Enable buzzer       Image: Communication configuration         SN Stert:       0x00000000       Enable buzzer       Image: Communication configuration         SN Addr:       0x00000000       Enable buzzer       Image: Communication configuration         SN Stert:       0x00000000       Enable buzzer       Image: Communication configuration         O communication configuration       Big end model       Image: Communication configuration         O communication configuration	Dpen Save F-in	F-out PLoad PRead	Q Fo Fo Fo Fo Fo	Auto Reset ID AnyRD Error Serial Wire Device
WCU model:       Image: Select       ✓ Apply         MCU model:       Image: Select       ✓ Apply         Flash Size:       xxxxx         Erase Type       Interface level       Misc         O Don't erase       0.1.8V       Speed       10M hz         O Poul terase       0.1.8V       Speed       10M hz         O Poul terase       0.1.8V       OptionByte       Factop=>Custom         O Full Erase       0.5.0V       Image: Sector Erase       OptionByte       Factop=>Custom         Sector Erase       Ox00000000       Image: Sector Erase       Image: Sector Erase       Image: Sector Erase         Sin Start:       0x00000000       Image: Sector Erase       Image: Sector Erase       Image: Sector Erase         Sin Start:       0x00000000       Image: Sector Erase       Image: Sector Erase       Image: Sector Erase         Sin Start:       0x00000000       Image: Sector Erase       Image: Sector Erase Sector Erase       Image: Sector Erase Sector Erase         Sin Start:       0x000000001       Image: Sector Erase Sector Erase Sector Erase       Image: Sector Erase Sector	Writer Setting	Option bytes	Program Memory	
Flash Size:       xxxxxx         Erase Type       Interface level       Misc         O Don't erase       0 18 V       Speed       10 M hz         O Full Erase       0 3.3 V       0 ptionByte       Factory=>Custom         O Sector Erase       0 External input       It is is in addition to the user manual open the user ma	MCU model:		🔅 Select 🗸 Apply	(Notes: I his specification is not limited to the current version, for the version under development or already released,Such as:Stand/Wireless/MP/PRO/RISC-V/Link/Specific Version also works)
Erase Type       Interface level       Misc         O Don't erase       0.18V       Speed       10M hz         O Full Erase       0.3.3V       OptionByte       Factory=>Custom         O Full Erase       0.5.0V       © Enable buzzer         Write function configuration       © External input       © Certification         SN Start:       0x00000000       Enable SN         SN Step:       0x000000001       Decimal display         SN Addr::       0x00000000       Big end model         Communication configuration       Emable SN         SN Addr::       0x000000000         Big end model       Emable SN         Communication configuration       Big end model         Communication configuration       Emable SN         SN Addr::       0x00000000         Big end model       Emable SN         Communication configuration       Big end model         Communication configuration       Big end model         Communication configuration       OptionExtraction         Device:       COM3       Refresh         Connect       Auto Connect	Flash Size: xxx	oox		and flexible platform support ability, before the formal use PowerWriter system
O Don't erase       0 1.8V       Speed       10M hz         O Full Erase       0 3.3V       OptionByte       Factory=>Custom         O Sector Erase       0 5.0V       External input       Enable buzzer         Write function configuration       External input       Certification         SN N Quantity_Check       1/1 Signal output       Certification         SN Start:       0x00000000       Enable SN         SN Step:       0x00000000       Enable SN         SN Step:       0x00000000       Big end model         Communication configuration       Decimal display         SN Addr:       0x00000000       Big end model         Communication configuration       Decimal display         SN Addr:       0x00000000       Big end model         Communication configuration       Decimal display         Device:       COM3       Refresh         Connect       Auto Connect       Auto Connect	Erase Type	Interface level	Misc	products, we recommend that you read the first PowerWriter user manual, you can through the menu - > help - > user manual open the user manual
O Full Erase       0.3.3V       OptionByte       Factory=>Custom          O Sector Erase       0.5.0V       © External input       @ Enable buzzer         Write function configuration       @ Enable buzzer       @ Diana III for the user manual, other development materials will be updated from time to time and released through official channels. Please pay attention to the user manual, other development materials will be updated from time to time and released through official channels. Please pay attention to the user manual, other development materials will be updated from time to time and released through official channels. Please pay attention to the following distribution channels:         Image: SN N Quantity Check IIII Signal output       Certification         SN Start:       0x00000000         SN Step:       0x00000000         Big end model       Image: SN Refresh         Connect       Auto Connect	O Don't erase	O 1.8V	Speed 10M hz ~	document, in view of the secondary development of the user, based on the
O Sector Erase       ○ External input       Image: Control input       Image: C	Full Erase	● 3.3V ○ 5.0V	OptionByte Factory=>Custom <	SDN need to read about secondary development project documentation and tutorials. In addition to the user manual, other development materials will be updated from time to time and released through official channels. Please pay
Write function configuration <ul> <li>SN M Quantity_Check 1!! Signal output © Certification</li> <li>SN Start:</li> <li>Ox0000000</li> <li>Enable SN</li> </ul> SN Step:       Ox00000001       Decimal display         SN Addr:       Ox00000000       Big end model         Communication configuration       Big end model       Image: Connect         Device:       COM3       Refresh       Connect	O Sector Erase	O External input	Enable buzzer	attention to the following distribution channels:
E       SN       N       Quantity_Check       i i i Signal output       Certification         SN Start:       0x0000000       Enable SN         SN Step:       0x00000001       Decimal display         SN Addr:       0x0000000       Big end model         Communication configuration       Big end model       Nover Debugger - Wireless Debugger New Arrival.         Device:       COM3       Refresh       Connect       Auto Connect	Write function config	uration		劉创芯工坊
SN Start: 0x0000000   SN Start: 0x0000000   SN Step: 0x0000000   Decimal display   SN Addr: 0x0000000   Big end model     Communication configuration   Device: COM3   Refresh Connect     Auto Connect     Website: <a href="https://www.icworkshop.com">https://www.icworkshop.com</a> Contact:   400-1568-598   Email:   csi   Contact:   0x00000000     Big end model     Connect     Auto Connect     Website:   https://www.icworkshop.com     Contact:   400-1568-598   Email:   csi   csi <td>= SN N Quan</td> <td>tity_Check 111 Signal ou</td> <td>utput 🔍 Certification</td> <td>ICWORKSHOP Technology (Shenzhen) Co., Ltd.</td>	= SN N Quan	tity_Check 111 Signal ou	utput 🔍 Certification	ICWORKSHOP Technology (Shenzhen) Co., Ltd.
SN Start:       0x00000000       Enable SN         SN Step:       0x00000001       Decimal display         SN Addr:       0x00000000       Big end model         Communication configuration       Big end model         Device:       COM3        Refresh         Connect       Auto Connect				Website: https://www.icworkshop.com
SN Step:       0x00000001       Decimal display         SN Addr:       0x00000000       Big end model         Communication configuration       Big end model       Image: Communication configuration         Device:       COM3       Refresh       Connect	SN Start:	0x0000000	Enable SN	Email: cs@icworkshop.com
SN Addr:       0x00000000       Big end model       Image: Communication configuration         Device:       COM3       Connect       Auto Connect	SN Step:	0x00000001	Decimal display	
Communication configuration         Device:       COM3          Refresh       Connect         Auto Connect       04/15-15:35:25:881> Detected that the driver is installed	SN Addr :	0x0000000	Big end model	
Device: COM3 V Refresh Connect Auto Connect 04/15-15:35:25:881> Detected that the driver is installed	Communication con	figuration		NEW: PowerDebugger - Wireless Debugger New Arrival.
	Device: COM3	✓ Refresh	Connect Auto Connect	04/15-15:35:25:881> Detected that the driver is installed

#### 4.2 : Reading a specific region





Edit this page

Last updated on Apr 15, 2024 by Alan Chen

Version: Next

# 3.2.11 : STM32WB stack upgrade

## 1 : Introduces

PowerWriter<sup>®</sup> support for manufacturer-specific features, are using the plug-in mode, you can support the specific features required by any manufacturer, the method of entry and other brands of the support method is consistent, in the selection of the chip, such as in the toolbar on the right side of the most a plug-in support icon appears, the currently selected chip has a plug-in support function, as shown below:



After selecting the STM32WB family of chips, an Extended Functions button appears on the right side of the toolbar, defined as Vendor Specific Plug-In Functions, which can be clicked to enter the STM32WB Protocol Stack programming configuration page, as shown in the figure: Skip to main content

ower Writer® - S	M32WB Stack Updater[STM32WB55xG]		
		ed	
FUS Operator FUS	Stack Firmware		
FUS Operator	./resource/plugin/stm32wb/0x495_FUS_Operator.bi	in	3.1
Stack			
Stack address:	0xFFFFFFF		
FUS			
FUS Address:	0xFFFFFFF		
Online Upgrade			
First install			
Verify download		Stack Firmware Up	ograde
Start FUS(stack)	after upgrade	FUS Firmware Up	grade
Online extend com	ands		
FUS Status:		Read infos	
FUS Version:		Start FUS	
Stack Version:		Start Wireless S	tack
		Delete Firmwa	are
Offline Upgrade			
Enable Stack Off	ne Upgrade		
Enable FUS Offlin	e Upgrade		
	Confirm		

### 2 : Firmware Import

#### 2.1 : FUS Operator (Version 3.1 inside)

FUS Operator is configured as version 3.1 on the PowerWriter® side by default. If you need to change it to another version, please import the specified version manually, and

you will see the version number of the FUS Operator on the right side of the screen after the import is completed.

FUS Operator

./resource/plugin/stm32wb/0x495\_FUS\_Operator.bin

3.1

#### 🗘 тір

- The FUS Operator PowerWriter<sup>®</sup> comes by default with version V3.1 with STMWB1x, STM32WB3x, STM32WB5x versions and automatically selects the version with the prefix 0x495 or 0x494 depending on the chip used for selection.
- FUS Operator is recommended to use the latest version, the official ST release path is: STM32CubeProgrammer installation path\ FlashLoader\ below, such as: C:\Program Files\STMicroelectronics\STM32Cube\ STM32CubeProgrammer\bin\ FlashLoader path.
- PowerWriter<sup>®</sup> maintains updates to the built-in FUS Operator.

#### 2.2 : Stack firmware

Stack refers to the protocol stack part of the firmware, the way to get the files of the protocol stack, please refer to the official release channel of ST, it is recommended to use STM32CUBEMX package manager to install the latest SDK, and get the latest Stack files from the SDK installation directory, such as:

```
C:\Users\CSHSOFT\STM32Cube\Repository\STM32Cube_FW_WB_V1.13.1\Projects\
STM32WB_Copro_Wireless_Binaries\
```

Path to get

stm32wb5x\_BLE\_Thread\_dynamic\_fw.bin
Select the Stack file corresponding to the target chip to load, and refer to Release\_Notes.html , set the correct firmware address as follows:,

Cnown Limitations Anti-Rollback needs to be activated, please make sure to activate it only after installing the latest. US version (== V1.2.0) and after successfully installing a wireless stack (without deleting it). therwise, further wireless stack installation will be blocked.	Ligoee updates:     Zigbee stack patches in     BLE THREAD Dynamic upda     ID 112393: Correct low Firmware Upgrade Services B	order to solve R22 security vulner ates: power consumption issue inary Table: Provides Install addre	ability reported by the CSA (Secur	ity Incident Number: 2021-ZP-040 ed in flash procedure "STEP 5/6"	umber: 2021-ZP-0401) rocedure 'STEP 5/6' via USB or via SWDUTAG.			
dipose	Wireless Coprocessor Binary	STM32WB5xxG(1M)	STM32WB5xxY(640k)	STM32WB5xxE(512K)	STM32WB5xxC(256K)	Version		
his release covers the delivery of STM32WB Coprocessor binaries.	stm32wb5x_FUS_fw_for_fus_0_5	0x080EC000	0×0809A000	0x0807A000	0×0803A000	V1.2.0		
ere is the list of references to user documents:	stm32wb5x_FUS_fw.bin	0x080EC000	0×0809A000	0x0807A000	0x0803A000	V1.2.0		
AN5185 : ST FW upgrade services for STM32WB	•					,		
UM2237 : STM32CubeProgrammer User Manual	Wireless Coprocessor Binary	Table: Provides Install address for	the targeted binary to be used in	flash procedure "STEP 7" via USE	or via SWD/JTAG.			
ere is the list of the supported binaries:	Wireless Coprocessor Binary	STM32WB5xxG(1M)	STM32WB5xxY(640k)	STM32WB5xxE(512K)	STM32WB5xxC(256K)	Version		
stm32wb5x BLE HCI AdvScan fw.bin	stm32wb5x_BLE_HCILayer_fw.bin	0x080DC000	0×08088000	0x08068000	0x08028000	V1.13.0		
<ul> <li>HCLI aver only mode 5.2 certified : Link Laver HCL</li> </ul>	stm32wb5x_BLE_HCI_AdvScan_f.	. 0x080EB000	0×08097000	0x08077000	0x08037000	V1.13.0		
BT SIG Certification listing : Declaration ID D042213	stm32wb5x_BLE_LLD_fw.bin	0x080ED000	0×08099000	0x08079000	0x08039000	V1.12.0		
<ul> <li>To be used for advertising and scanning through HCI interface</li> </ul>	stm32wb5x_BLE_Mac_802_15_4	0x080B1000	0×0805D000	0x0803D000	NA	V1.13.0		
stm32wb5x_BLE_LLD_fw.bin	stm32wb5x_BLE_Stack_basic_fw	. 0x080D1000	0x0807D000	0x0805D000	0x0801D000	V1.13.0		
<ul> <li>BLE LLD (Low Level Driver) Radio Transparent firmware</li> </ul>	stm32wb5x_BLE_Stack_full_fw.bin	0x080C7000	0×08073000	0×08053000	0x08013000	V1.13.0		
<ul> <li>To be used for direct access on BLE LLD features and API</li> </ul>	stm32wb5x_BLE_Stack_full_exten.	0x080C7000	0×08073000	0x08053000	0x08013000	V1.13.1⊕		
stm32wb5x BLE_Stack_full_fw.bin	stm32wb5x_BLE_Stack_light_fw.bit	0x080D7000	0x08083000	0x08063000	0x08023000	V1.13.0		
<ul> <li>Full BLE Stack 5.2 certified : Link Laver HCL L2CAP ATT SM_GAP and GATT database</li> </ul>	stm32wb5x_BLE_Thread_dynami	0x0806D000	0×08019000	NA	NA	V1.13.1 O		
<ul> <li>BT SIG Certification listing : Declaration ID D042164</li> </ul>	stm32wb5x_BLE_Thread_static_f	0x0806F000	0x0801B000	NA	NA	V1.13.0		
Collected for the set lead	stm32wb5x_BLE_Zigbee_FFD_dy.	. 0x08071000	0x0801D000	NA	NA	V1.13.0		
<ul> <li>Pollowing leatures are kept.</li> </ul>	stm32wb5x_BLE_Zigbee_RFD_dy.	0×08080000	0×0802C000	0x0800C000	NA	V1.13.0		
<ul> <li>GAP peripheral, central (LL Master up to 6 links with Slave up to 2 links/ Master</li> </ul>	stm32wb5x_Mac_802_15_4_fw.bin	0×080E3000	0×0808F000	0x0806F000	0x0802F000	V1.13.0		
up to 7 links with Slave up to 1 links/ Master up to 8 links )	stm32wb5x_Phy_802_15_4_fw.bin	0x080DE000	0x0808A000	0x0806A000	0x0802A000	V1.13.0		
GAT I Server, citetit     Data length extension	stm32wb5x_Thread_FTD_fw.bin	0x08097000	0×08043000	0x08023000	NA	V1.13.0		
2Mbit PHY / PHY undate	stm32wb5x_Thread_MTD_fw.bin	0x080AA000	0×08056000	0x08036000	NA	V1.13.0		
<ul> <li>Privacy</li> </ul>	stm32wb5x_Thread_RCP_fw.bin	0x080DA000	0×08086000	0x08066000	0x08026000	V1.13.0		
<ul> <li>White list</li> </ul>	stm32wb5x_Zigbee_FFD_fw.bin	0x080A4000	0×08050000	0×08030000	NA	V1.13.1 🧿		
<ul> <li>Legacy Pairing, LE secure connections</li> </ul>	stm32wb5x_Zigbee_RFD_fw.bin	0×080B3000	0×0805F000	0x0803F000	NA	V1.13.1 O		

When completed, it resembles the following:

Stack	\$TM32WB_Copro_Wireless_Binaries\\$TM32WB5x\\$tm32wb5x_BLE_Thread_dynamic_fw.bin	1.13.1
Stack address:	0x0806D000	

#### 📿 тір

- The stack file has a specific format, and PowerWriter® reads the stack version information correctly and displays it on the right.
- If the selected file is not the stack firmware, it cannot be loaded (and no error message is reported!)

#### **2.3** : FUS firmware (non-essential)

The FUS firmware is an optional upgrade, check whether you need to upgrade the FUS stack according to the official release. The way to get the files for the FUS stack is in the same path as the Stack stack, it is recommended to use the STM32CUBEMX package manager to install the latest SDK, and to get the latest FUS files from the SDK installation directory, for example:

```
C:\Users\CSHSOFT\STM32Cube\Repository\STM32Cube_FW_WB_V1.13.1\Projects\
STM32WB_Copro_Wireless_Binaries\
```

Path to get

stm32wb5x\_FUS\_fw.bin

Select the FUS file corresponding to the target chip to load, and refer to Release\_Notes.html to set the correct firmware address as shown below:

Fi	Firmware Upgrade Services Binary Table: Provides Install address for the targeted binary to be used in flash procedure "STEP 5/6" via USB or via SWD/JTAG.					
Wi	reless Coprocessor Binary	STM32WB5xxG(1M)	STM32WB5xxY(640k)	STM32WB5xxE(512K)	STM32WB5xxC(256K)	Version
str	n32wb5x_FUS_fw_for_fus_0_5	0x080EC000	0x0809A000	0×0807A000	0×0803A000	V1.2.0
str	n32wb5x_FUS_fw.bin	0x080EC000	0x0809A000	0x0807A000	0×0803A000	V1.2.0

When completed, it resembles the following:

FUS	CubeWB\Projects\STM32WB_Copro_Wireless_Binaries\STM32WB5x\stm32wb5x_FUS_fw.bin	1.2.0
FUS Address:	0x080EC000	

#### 💭 ТІР

- FUS files have a specific format, and PowerWriter® reads the FUS version information correctly and displays it on the right.
- If the selected file is not the FUS firmware, it cannot be loaded (and no error message is reported!)

## 3 : Online Upgrade

### 3.1 : Upgrade FUS online

After importing the FUS file designation and filling in the address correctly, the FUS stack can be upgraded by clicking the FUS Firmware Upgrade button as shown in the figure below, and if the upgrade is completed you will see the following result:

Unline Upgrade		
First install		
Verify download		Stack Firmware Upgrade
Start FUS(stack) after upgrade		FUS Firmware Upgrade
Online extend comm	ands	
FUS Status:	FUS running	Read infos
FUS Version:	1.2.0	Start FUS
Stack Version:	0.0.0	Start Wireless Stack
		Delete Firmware
Offline Upgrade		
Enable Stack Offli	ne Upgrade	
Enable FUS Offlin	e Upgrade	
Done		

#### 

- If First install is unchecked, it will automatically delete the stack before updating it.
- Upgrading the FUS stack may break the Stack stack, meaning that, after upgrading the FUS stack, the Stack stack still needs to be installed.

#### 3.2 : Upgrade Stack Online

After importing the Stack file designation and filling in the address correctly, you can upgrade the Stack stack by clicking the Stack Firmware Upgrade button as shown in the following figure, and you will see the following result if the upgrade is completed:

Stack					
	STM32WB_Copro_Wire	STM32WB_Copro_Wireless_Binaries\STM32WB5x\stm32wb5x_BLE_Thread_dynamic_fw.bin			
tack address:	0x0806D000				
FUS	CubeWB\Projects\STM3	2WB_Copro_Wireless_Binaries\STM32WB5x\stm32wb5x_FUS_fw.bin	1.2.0		
US Address:	0x080EC000				
Inline Upgrade					
) First install					
Verify download		Stack Firmware Li	oorade		
Start FUS(stack) a	fter upgrade	FUS Firmware Up	grade		
Inline extend comma	ands				
US Status:	Stack running	Read infos			
US Version:	1.2.0	Start FUS			
Stack Version:	1.12.0	Start Wireless S	Stack		
		Delete Firmwa	are		
)ffline Upgrade					
) Enable Stack Offlin	e Upgrade				
Enable FUS Offline	Upgrade				



• If First install is unchecked, it will automatically delete the stack before updating it.

• Upgrading the Stack stack does not destroy the FUS stack, so upgrading the Stack stack is placed after upgrading the FUS stack.

#### 3.3 : Other online features

#### 3.3.1 : Read Infos

You can click on this function to see the current version information and whether you are currently running FUS or Stack, as shown below:

Online extend comm	ands		
FUS Status:	Stack running		Read infos
FUS Version:	1.2.0		Start FUS
Stack Version:	1.12.0		Start Wireless Stack
		•	Delete Firmware

#### 📿 тір

If there is no user firmware, it may show Not running and the version is empty.

#### 3.3.2 : Start FUS

You can switch to FUS stack operation by clicking on this function.

#### 3.3.3 : Start Wireless Stack

You can switch to Wireless Stack operation by clicking this function.

#### 3.3.4 : Delete Firmware

You can click this function to realize the protocol stack deletion operation.

## 4 : Offline programming configuration

PowerWriter<sup>®</sup> supports offline installation (upgrade) of FUS and Stack protocol stacks. After correctly importing FUS and Stack protocol stacks and filling in the addresses, you can enable them in the Offline Upgrade configuration.

- Enable Stack Offline Upgrade
- Enable FUS Offline Upgrade

#### As shown below:

Done	Offline Upgrade Enable Stack Offline Upgrade Enable FUS Offline Upgrade		
Confirm	Done	Confirm	

#### 🗘 тір

Please add the user firmware in Program Memory when you are offline.

## 5 : Notes

 Upgrading the FUS, Stack, switching the operation of the stack, deleting the stack and other operations will destroy the user firmware, so after upgrading the stack online, you need to re-programming the user firmware. To burn the user firmware, please add the user firmware on the Program Memory page of the PowerWriter<sup>®</sup> main page and programming it.

- The order in which the PowerWriter® upgrades the stack when burning offline is:
  - Upgrade FUS stack (if required)
  - Upgrade the Stack stack , and switch to the Stack stack to run.
  - Programming user firmware, other page data, other configuration information such as OTP, signature information, etc.
  - Programming user option bytes (if enabled)



#### Edit this page

## 3.2.12 : ICWorkshop Error

### 1 : No device found

"No PowerWriter<sup>®</sup> device found ..." Failed to connect to PowerWriter<sup>®</sup>...

#### 📿 тір

- When burning PowerWriter<sup>®</sup> orders with ICWorkshop, the order-specified programmer needs to be connected to the PC, and order data cannot be burned if the programmer is not connected.
- This error occurs even though the PowerWriter<sup>®</sup> has been connected to the PC, refer to the <u>Common solutions to driver problems</u>
- Contact Technical Support

## 2 : Please power it on again and try again...

```
OS Version : >= Windows 8
Write information:
    hwVer:1.1
    blVer:1.00.02
    ifVer:1.00.30
```

#### 💭 ТІР

The Please power it on again prompt indicates that the PowerWriter® firmware upgrade process has not been completed, please power off and restart the PowerWriter® and try to upgrade the firmware again. During the PowerWriter® firmware upgrade process, there may be a framework update that requires an update to the underlying driver, which will need to be re-energized by powering off the system. Please follow the prompts to power off the PowerWriter® and try again to complete the firmware upgrade.

### 3 : The target chip not online!

```
OS Version : >= Windows 8
Write information:
 hwVer:1.1
 blVer:1.00.02
 ifVer:1.00.36
 SN:86CCD4B0C92BDF8B164AD5FE2D3981D5
Firmware is newest
Try reconnect target....
"The target not online!"
```

💭 ТІР

- The Target not online error indicates that the current order is written in online mode, which requires the PowerWriter® to be connected to the target chip in order to programming firmware data.
- To check if the target chip is properly linked to the PowerWriter<sup>®</sup> device please refer to <u>About Wiring</u>.

## 4 : PowerWriter® project file password error

```
OS Version : >= Windows 8
"PowerWriter<sup>®</sup> project file password error"
Failed to connect to PowerWriter<sup>®</sup>...
```

#### 🗘 тір

 When PowerWriter<sup>®</sup> project is saved as Pkg, you can choose to input userdefined saving password or leave it blank. Pkg needs to fill in the corresponding Pkg password when it is released through SMART Platform, if the password filled in when the pkg project is saved is not the same as that filled in when the SMART order is released, this error will be prompted, please refer to it:

#### **About Project Password**

### 5 : Can't load PowerWriter® project from

```
OS Version : >= Windows 8
"Can't load PowerWriter® project from [PW200] to [PW300]..."
Failed to connect to PowerWriter®...
```

#### 📿 тір

. . .

- Please check the OEM type of the host first, you can inquire through the purchasing channel, or you can use the PowerWriter<sup>®</sup> client software to read the PowerWriter<sup>®</sup> product type, such as PW200, then you need to set the project to PW200 when packing the PowerWriter<sup>®</sup> project pkg.
- When packaging PowerWriter<sup>®</sup> project data, you need to switch the product type to the corresponding type in the PowerWriter<sup>®</sup> software.

### 6 : PowerWriter® project file invalid...

```
OS Version : >= Windows 8
"PowerWriter<sup>®</sup> project file invalid"
Failed to connect to PowerWriter<sup>®</sup>...
```

#### 💭 ТІР

• The prompt file invalid indicates that the PowerWriter® pkg project file

published by ICWORKSHOP is illegal, and you need to check whether the published file format is correct and has not been tampered with.

 If the file is normal but still prompts Error size , please contact our technical support in time...

### 7 : Error Write Flash Addr...

```
OS Version : >= Windows 8
Write information:
hwVer:1.1
blVer:1.00.02
ifVer:1.00.36
SN:475E1B25ED3180BCA4547B58CEC24490
Firmware is newest
Try reconnect target....
Online Programing...
Online Programing checking config...
Online Programing no lisence warning...
Online Programing procssing data, this will take a long time, please be
patient ...
Online Programing erase flash data ...
Online Programing processing...
"Error Write Flash Addr: 0801D700, [[0009] The target chip is not
connected...]"
```

#### 🖓 ТІР

The reason for this problem is that the target chip is offline while the order is programming target chip, and the data can not be programming, please keep the target chip connected when using online programming target chip.

### 8 : timed out!

```
OS Version : Windows 7 SP1
Write information:
hwVer:1.2
blVer:1.00.02
ifVer:1.00.36
SN:EF8437289F5B86A6A5A411722888B50C
Firmware is newest
"PowerWriter® timed out and did not respond!"
```

#### 

- You can try to change the USB connection port, switch to another system (e.g., the host computer has multiple systems), and try to change to a direct connection if you are using a USB-HUB.
- The probability of such a problem is high and cannot be solved, please contact our technical support staff in time to give us feedback.



#### Edit this page

# 3.2.13 : Offline project reading

See Read device project file method.



Edit this page

Last updated on Apr 15, 2024 by Alan Chen

## 3.2.14 : Programming Count Set

## 1 : Configuration

Function Configuration: Burner Setting->Programming Function Configuration->Quantity Setting and Chip Detection->Limit the number of burning times to be turned on, and fill in the set number of times.

Power Writer® 1.3.8.0 [Build:2024-04-10 19:40:33]	– 🗆 X
File(F) Operation(E) Tools(T) Setting(S) Help(H)	
Open Save F-in F-out Pload PRead Blank Frase Read Write	Image: Weight of the section of th
🗛 Writer Setting 🚰 Option bytes 💾 Program Memory 🎦 C	TP Memory
Chip Select	Efficil: CSW1CWOrKSLOP.COm
MCU model: STM32G070xB	
Flash size: 128.00KB	
Erase Type Interface level Misc	
Opon'terase 1.8V Speed 10M hz	
Full Erase     O 5.0V     OptionByte     Factory=>Custory	
◯ Sector Erase ◯ External input	NEW: PowerDebugger - Wireless Debugger New Arrival.
Write function configuration         Image: SN Image: SN Image: SN Image: Signal output Image: Sign	04/15-15:36:52:660> Detected that the driver is installed 04/15-15:37:11:157> STM32G070x8 Flash size: 128.00KB 04/15-15:37:11:173> STM32G070x8 DTP Memory size: 1.00 KB 04/15-15:37:11:237> Change bank: Single bank 04/15-15:37:11:237> Please connect PowerWriter device first 04/15-15:37:11:239> Operation cancelled 04/15-15:37:11:239> Operation cancelled! 04/15-15:37:13:8727> Writer Info: hwVer:1.0 blVer:1.00.02 ifVer:1.00.02 SN:0123456789ABCDEF01234567890ABCDE TargetPWX1 04/15-15:37:18:773> Power Writer @ is connected 04/15-15:37:18:773> Power Writer @ is connected 04/15-15:37:19:503> Witch version:PWX1 04/15-15:37:19:512> Synchronizing device time succeeded 04/15-15:37:19:533> Update unner Settings complete 04/15-15:37:19:593> Update chip information successfully 04/15-15:37:19:593> Update chip information successfully 04/15-15:37:19:593> Update chip information successfully 04/15-15:37:24:214> Data
Communication configuration	04/15-15:37:24:231> Program Memory Read successful! 04/15-15:37:28:227> Target Online
✓ Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All Rig	ht Reserved

## 2 : Read method

In the process of using the offline programming function, you may need to read or check back the remaining offline programming count. Since some PowerWriter® products do not have a screen, there is no visual display of the information, however, we provide an auxiliary function to read the number of remaining offline programming counts, the steps are as follows:

- Run the PowerWriter® software and connect to the programmer.
- Choose any chip.
- Execute the Read Current Page button in the toolbar on the Programmer Setup page.

Power Writer®1.3.8	3.0 [Build:2024-04-10 19:40	33]	- 0 ×
File( <u>F</u> ) Operation( <u>E</u> )	Tools( <u>1</u> ) Setting( <u>S</u> ) H		
Open Save F-in	F-out PLoad PRead	C E E E E E E E E E E E E E E E E E E E	Device PWX1
Writer Setting	Option bytes	Program Memory     OTP Memory	
Chip Select		ETTIdii: CSW10WOrKSDOD. COm	
MCU model: S	STM32G070xB		
Flash size: 128.00	жв 🚹		
Erase Type	Interface level	Misc	
O Don't erase	O 1.8V	Speed 10M hz V	
• Full Erase	● 3.3V ○ 5.0V	OptionByte Factory=>Custom ~ QQ 說本支持群 製借公众号	
◯ Sector Erase	O External input	Enable buzzer     INEW: PowerDebugger - Wireless Debugger New Arriv	<u>al.</u>
Write function config	uration htity_Check   ี่!ุ่่า่ี Signal ou	04/15-15:36:52:660> Detected that the driver is installed           04/15-15:37:11:157> STM326070xB Flash size: 128.00KB           04/15-15:37:11:173> STM326070xB OTP Memory size: 1.00           04/15-15:37:11:237> Change bank: Single bank           04/15-15:37:11:237> Please connect Power/Writer device first.	КВ
Write Number	etection 3	Hexadecimal display         04/15-15:37:11:302> Update chip information successfully           04/15-15:37:17:398> Operation cancelled!         04/15-15:37:17:398> Operation cancelled!           04/15-15:37:18:727> Writer Info: hwVer:1.0 bIVer:1.00.02 ifV         SN:01234567890ABCDEF01234567890ABCDE TargetPWX1           04/15-15:37:18:743> [07D6] Current device firmware type : Un         04/15-15:37:18:743> [07D6] Current device firmware type : Un	/er:1.00.02 iversal
Insert chip to jitter time(ms): 250		04/15-15:3/18:7/3> Power Write® is connected 04/15-15:37:18:8/05> Writch version:PWX1 04/15-15:37:19:496> Resource version:1.0.0 size:0xcc5ac crc 04/15-15:37:19:512> Synchronizing device time succeeded	32:0x750b0c69
Unplug Chip to Jitter Time(ms) : 250		0 04/15-15:37:19:563> Update burner Settings complete 04/15-15:37:19:593> Update chip information successfully 04/15-15:37:24:214> Data	
Communication con	figuration	address:0x08000000,length:0x00020000,CRC32:0xF20F3045 04/15-15:37:24:231> Program Memory Read successful!	D
Device: COM3	<ul> <li>✓ Refresh</li> </ul>	Disconnect Auto Connect 04/15-15:37:28:227> Target Online	1
Target: connected	ICWorkShop Techno	ogy (Shenzhen) Co., Ltd.All Right Reserved	

Perform the above steps to read back the configuration information of the offline production profile to see the number of offline programmer remaining.

#### 💭 ТІР

For security: When reading offline production data configuration information, no sensitive information will be read back, such as SN, UID signature information, firmware data will not be read back.

#### () INFO

**PWX1** Device with screen device, the remaining number of times can be seen on the screen.



## 3.2.15 : Remaining Count Qurey

See How to read the remaining count.



Edit this page

Last updated on Apr 15, 2024 by Alan Chen

## 3.2.16 : ICWorkshop unstarted

## 1 : Reasons for failure to start

The client comes with a driver service, this driver service is WHQL certified, in some cases, there may be a startup failure problem, similar to the error shown below:



### 2: Emergency repair methods

#### 2.1 Add installation directory whitelisting

The reason for this situation is that the driver service is usually blocked, please add the

installation directory of ChuangxinWorkshop to the whitelist, the operation procedure is as follows:

Step 1: Locate the ICWorkshop installation directory



Step 2: Memorize the mounting location

ICWorkShop				
🕀 New - 🔏 🔲 🛅	E]) 🖾 🔟 î∿ Sort ∽	$\equiv$ View $\cdot$		
$\leftarrow$ $\rightarrow$ $\checkmark$ $\uparrow$ $\blacksquare$ > CSHSOFT	> AppData > Local > ICWorkShop			
🖂 📩 Quick access	Name ^ 🕲 eprcore60.dll	Date modified 2019/3/29 16:02	Type Application exten	Size 106 KB
🖌 🛄 This PC	er521icp.s19	2003/11/19 18:27	S19 File	1 KB
> 📒 Desktop	er561icp.s19	2003/11/19 18:27	S19 File	1 KB
> 📱 Documents	eraicpmc.s19	2003/11/19 18:28	S19 File	1 KB
> 🛓 Downloads	erf62icp.s19	2003/11/19 18:27	S19 File	1 KB

Step 3: Add the installation directory to the whitelist of your security software and restore driver self-boot.

#### 2.3 Reboot after operation completed

After completing the whitelist addition and restoring the blocked driver services, reboot the system and log in again.

## 2: Notes

#### 📿 тір

If the system can normally use the client software of ICWorkshop, the above operation can be dispensed with. The performance is not exactly the same in different systems, different protection software, different versions and feature libraries of the same software.



## 3.2.17 : Online Automatic

### 1 : Software setup

Enter the Preferences setting from the menu in turn, and check the automatic programming function after the chip is connected successfully, as shown below:

Power Writer® Settings	×
<b>N 19</b>	ġ <b>Ţ</b> ţ
Standard settings	
MessageBox	0: Prompt all message boxes <
Automatically chec	ks for updates at startup
Behavior	
Synchronization op	tion bytes after successful chip connection (default enabled)
Auto onlie smart pr	ogramming when the chip connection is successful (default off)
Automatic synchro	nization vendor signature
Automatic save an	d load last recent projects
Automatically selec	ted last selected chip
🗹 Enable offline read	/write save project prompt
	Save Set

After the chip is successfully connected, automatic reading option byte and automatic programming can only be one or the other, the reason is that if the automatic reading option byte is checked, it may lead to the current user's settings, depending on the different chips, which to a certain extent will produce inconsistent results, in order to avoid possible problems, this function is mutually exclusive.

### 2 : Operational Demonstration

Power Writer® 1.3.8.0	0 [Build:2024-04-10 19:40:	33]						-		X
File( <u>F</u> ) Operation( <u>E</u> )	Tools( <u>T</u> ) Setting( <u>S</u> ) H	elp( <u>H</u> )								
Open Save F-in	F-out PLoad PRead	Q E Fo Read	Fo Fo Write Verify	Auto Reset	iD ID	AnyRD Erro	r Serial	<b>Wire</b>	Device PWX1	~
Writer Setting	Option bytes	Program Memory	🛄 ОТР Ме	nory						
Chip Select				Ettidii: 05%	CWORKSRO	op. com				
MCU model: ST	FM32G070xB	Select	V Apply	6	Definition	的脱回		140723461		
Flash size: 128.00k	KB				80		ā			
Erase Type	Interface level	Misc		8	£1 🔇		- <u>S</u>	() ()		
O Don't erase	○ 1.8V	Speed 10M hz	~	à			- 22			
• Full Erase	• 3.3V • 5.0V	OptionByte Factory=	>Custom ~		QQ 技术3	2.16 21 2.16 21		银信公众号 		
O Sector Erase	O External input	🗹 Enable buzzer		NEW: Powe	rDebugg	er - Wirel	<u>ess Debug</u>	ger New Arrival.		
Write function configu	ration			04/15-15:36	6:52:660>	Detected that	at the driver	is installed		
≡ SN N Quanti	ity_Check †‡† Signal out	tput 🦁 Certification		04/15-15:37	7:11:157> 7·11·173>	STM32G070 STM32G070	)xB Flash si	ize: 128.00KB emory size: 1.00 KB		
				04/15-15:37	7:11:237>	Change ban	k: Single ba	ank		
🖌 Write Number	1	Hexadecimal display		04/15-15:37	/:11:28/> 7:11:302> 7:17:398>	<ul> <li>Please conn</li> <li>Update chip</li> <li>Operation ca</li> </ul>	iect PowerV information	Vriter device first n successfully		
Automatic chip det	tection			04/15-15:37 SN:012345 04/15-15:37 04/15-15:37	7:18:727> 6789ABC 7:18:743> 7:18:775>	• Writer Info: 1 DEF0123456 • [07D6] Curre • Power Write	hwVer:1.0 57890ABCD ent device fi r® is conne	blVer:1.00.02 ifVer: DE Target:PWX1 rmware type : Univer ected	1.00.02 sal	
Insert chip to jitter tin	ne(ms): 25	0		04/15-15:37 04/15-15:37 04/15-15:37	7:18:806> 7:19:496> 7:19:512>	Switch version Resource ve	on:PWX1 ersion:1.0.0	size:0xcc5ac crc32:0	x750b0c69	
Unplug Chip to Jitter 1	Time(ms) : 25	0		04/15-15:37 04/15-15:37 04/15-15:37	7:19:563> 7:19:593> 7:24:214>	• Update burn • Update chip • Data	information	complete n successfully		
Communication config	guration			address:0x0 04/15-15:37	08000000 7:24:231>	),length:0x00 • Program Me	020000,CR mory Read	C32:0xF20F3045		
Device: COM3	<ul> <li>✓ Refresh</li> </ul>	Disconnect	Auto Connect	04/15-15:37	7:28:227>	• Target Onlin	e			
Target: connected	ICWorkShop Technol	ogy (Shenzhen) Co., L	td.All Right Rese	rved						



## 3.2.18 : ISP Support

Skip to main content

The serial port of PowerWriter<sup>®</sup> can be used for ISP programming, but you need to use specific serial port programming software, such as Flymcu to support STM32, etc. In addition, major MCU manufacturers have provided ISP (IAP) tools, according to their own use of the MCU model, from the official and reliable channels to obtain the serial port (ISP) tools.

The serial port of the PowerWriter<sup>®</sup> can also be used to burn ESP32 firmware, here are the test screenshots (vscode).

问题 46 输出 调试控制台 终端 MEMORY XRTOS	
Compressed 709280 bytes to 441348	
Writing at 0x00030000 (3 %)	
Writing at 0x0003be88 (7 %)	
Writing at 0x00047154 (11 %)	
Writing at 0x00050455 (14 %)	
Writing at 0x000564e2 (18 %)	
Writing at 0x0005bfc9 (22 %)	
Writing at 0x00062497 (25 %)	
Writing at 0x00068c01 (29 %)	
Writing at 0x0006e6fc (33 %)	
Writing at 0x00074485 (37 %)	
Writing at 0x00079ba8 (40 %)	
Writing at 0x0007f471 (44 %)	
Writing at 0x00084d55 (48 %)	
Writing at 0x0008a8b3 (51 %)	
Writing at 0x0008fc8d (55 %)	
Writing at 0x00094c41 (59 %)	
Writing at 0x00099c87 (62 %)	
Writing at 0x0009f124 (66 %)	
Writing at 0x000a4432 (70 %)	
Writing at 0x000a9d01 (74 %)	
Writing at 0x000af587 (77 %)	
Writing at 0x000b510f (81 %)	
Writing at 0x000bb4f0 (85 %)	
Writing at 0x000c1b6b (88 %)	
Writing at 0x000cbdbf (92 %)	
Writing at 0x000d19f0 (96 %)	
Writing at 0x000d75dd (100 %)	
Wrote 709280 bytes (441348 compressed) at 0x00030000 in 10.4 seconds (effective 548.1 kbit/s)	
Hash of data verified.	
Compressed 30/2 bytes to 192	
Writing at Ux00007000 $(100 )$	
Wrote 30/2 Dytes (192 compressed) at 0x00001000 in 0.1 seconds (effective 3/6.8 kbit/s)	
Compared 900 bits to 21	
Uniting at 9/9014000 (100 %)	
Writing at $0.00014000$ (100 %) where $0.00011000$ is 0.1 seconds (affective 927.0 khit/s)	
Hach of data vanifiad	
Leaving	
Hard resetting via RTS pin	
Done	

#### 💭 ТІР

If you encounter a chip or brand that the PowerWriter® cannot burn via ISP, please provide prompt feedback to technical support.



## 3.2.19 : IO multiplexing

If there is a multiplexing problem in the communication interface, it may not be able to connect to the chip properly, or it may lead to an increased probability of failure, at this time, you can use the RESET pin for assistance.

## 1 : Using the RESET pin

In the chip multiplexed programming interface, generally select the chip type and connect the chip, click on the application settings will be normally connected to the chip, if still not connected to the reset pin, and then re-apply the settings can be normally connected to the target chip, as shown below:

## 🔅 Select 🗸 Apply

## 2 : Offline Mode Settings

When burning offline with the reset pin connected, set the reset mode to **Hardware Reset Disable**.

	Reset mode selection	
	Hardware and system reset $$	
	Hardware reset keep low	1
_	Hardware reset disabled	
Cor	Hardware reset Hardware and system reset	-
)ev	System reset Vector reset Power on reset	ec
Ta	Disable port then power on reset arget: connected ic workshop rechnology (Shenzhen) co., Lta.Ali Kign	t R

#### 🖓 ТІР

When burning data in projects that require multiplexed programming or debugging interfaces, you need to be aware of interference with the bus when designing the hardware.



## **3.2.20 : PowerWriter® FAQ**

## 1 : Communications error

Error message : The communication port send package error

Possible causes and solutions are as follows:

- Communication is not good, we suggest to unplug the burner again, change the USB port and restart the client.
- If the machine has antivirus software, it is recommended to close and exit and retry.
- The FLASH algorithm may be selected incorrectly, reselect the model.
- Replacing the USB port
- Try to avoid the Hub

### 2 : Shorted power supply

Error message : The voltage error(abnormal power supply.

```
04/15-16:30:44:508> [0031] The voltage error (abnormal power supply)...
04/15-16:30:44:524> Target Offline...
```

When this prompt appears, please check the circuit of the development board, there is a short-circuit condition, disconnect the device and reconnect it after adjustment.

## 3 : Periodic reset

Periodic reset phenomenon, every 4 seconds, at this time should check whether there is a reset source, such as the presence of an external door opener dog, turn it off.



## 3.2.22 : STM32H5 Extends

## 1 : Function Entrance

PowerWriter<sup>®</sup> support for manufacturer-specific features, are using the plug-in mode, you can support the specific features required by any manufacturer, the method of entry and other brands of the support method is consistent, in the selection of the chip, such as in the toolbar on the right side of the most a plug-in support icon appears, the currently selected chip has a plug-in support function, as shown below:



After selecting the STM32H5 family of chips, an Extensions button appears on the right side of the toolbar, defined as Vendor Specific Plug-In Functions, which can be clicked to enter the STM32H5 Security Extensions screen as shown below:

Power Writer® - STM32H5 security feature extension[ST	M32H562xG] ×
	a.augmented
Security configuration	
Enable security configure	
Authentication method(H50x use password, h56x/h57x use o	ıbk file)
obk file (*.obk)	
Please enter password:	Export password (*.bin)
Security fecture rollback (DA)	
Identity authentication mode	
O Password (TrustZone disable)	ate (TrustZone enable)
Password file (*.bin)	
CERT file (*.b64)	
Key file (*.pem)	

## 2 : Safety Function Configuration

Click "Enable security configure" button, it will start the security configure function, the security configure supports \*.OBK file mode (STM32H56/STM32H57) and password mode (STM32H50), the plug-in automatically selects the appropriate mode according to the current chip, for example, selecting the chip for STM32H50 series. The plug-in automatically selects the appropriate mode according to the current chip, such as selecting the STM32H50 series chip. In addition to setting the password, it can export the

PASSWORD.bin file for unlocking the chip to be used in the regression.

## 3 : Debug authentication

Click "Enable debug authentication(DA)" button, it will start the function of security function regression (debug authentication of the chip, in order to analyze or unlock the chip), the configuration of security function regression supports \*.bin file mode (Trust Zone is not turned on), and the certificate mode (Trust Zone is turned on), the password mode regression, import bin file, certificate mode import b64 file and PEM key file, import b64 file and PEM key file. Import bin file, import b64 file and PEM key file in certificate form.

#### 🗘 тір

- As of now (2024/02/29) the current security features configuration and return to support the form of password, does not support the form of certificates, the future will be updated to support certificates, if there is an update, please pay attention to the detailed changelog, or consult technical support and customer service.
- **STM32H50x series** Only support password form, STM32H56x, STM32H57x support both password and certificate form (currently Trust Zone is not supported to open, please choose password form).

 Tags:
 FAQ
 STM32WB
 STACK

Edit this page

## 3.3.1 : UID Signature

## 1 : About placeholders

**UID\_KEYADDR\_PLACEHOLEDR\_EN** When not masked, an overflow error is reported no matter how the address is changed.

Treatment:

- The first method is to mask out the placeholders so that there will be no reserved space in the program space.
- The second method is to move the signature address toward the front address of the flash.

#### 

If the first method is used, masking the placeholder space for the signature data means that the compiler's automatic checking will be skipped, and the actual signature address that is written, must not have any data or it will be overwritten by the signature.

## 2 : Verify signature

This can be done by adding test code to the code, such as IO output signals, or by adding a logging feature to the developer version of the firmware to output the signature results to the log port.

## 3 : Write Signature

- In online mode: Use full-featured automatic programming.
- In offline mode: Use offline mode normally.

**TIP** If you use ICWKEY for signing, you can only use offline mode.


## **3.3.2 : EEPROM(OTP)** tutorials

The functions of the EEPROM and OTP pages are equivalent to a subset of Program Memory, and the usage flow is similar to that of Program Memory.

	<b>О тір</b> The availability of EEPROM/OTP pages depends on the target chip.
Тас	gs: FAQ EEPROM OTP
Last	Edit this page t updated on <b>Apr 15, 2024</b> by <b>Alan Chen</b>

## 3.3.3 : Option Bytes Swing

# 1 : Option bytes swing when auto programmed

Very few chips have online functions that rely on the real-time status of the target chip, so by default the chip's option bytes will be automatically read into the client when the chip is connected. If you need to update the user-defined option bytes in the batch online auto-programming, you can disable the function of auto-synchronization of the option words in the setup, see below:

Power Writer®1.3.8.	.0 [Build:2024-04-10 19:4	0:33]							_		×
File( <u>F</u> ) Operation( <u>E</u> )	Tools( <u>T</u> ) Setting( <u>S</u> ) I	Help( <u>H</u> )									
Dpen Save F-in	F-out PLoad PRead	Q   Image: Constraint of the second	d Write Verify	Auto Reset	ID AnyR	D Error	Serial	Wire		Device PWX1	
Writer Setting	Option bytes	Program Memor	у 📗 ОТР Ме	mory							
Chip Select				04/1010.0	1.10.1212 WHI	a mo. nw	vei. 1.0	DIVEL 1.00	J.UZ IIVEI. I	.00.02	31829
	TM220070-D	- <u> </u>		SN:012345	6789ABCDEF	1234567	B90ABCE	E Target:	PWX1		
MCU model: S	TM32G070XB	ter Select	Apply	04/15-15:3	7:18:743> [07D	6] Current	device fi	rmware ty	pe : Univers	al	
Flash size: 128.00	KB			04/15-15:3	7:18:7752 Pow 7:19:9065 Swit	er writer®	IS CONNE	ectea			
				04/15-15:3	7·19·496> Res	Durce vers	ion:100	size:0xcc	5ac crc32:0	750b0c6	9
Erase Type	Interface level	Misc		04/15-15:3	7:19:512> Sync	hronizina	device ti	me succe	eded		Ŭ
0.5	O 1.8V	Speed 10M	hz 🗸	04/15-15:3	7:19:563> Upd	ate burner	Settings	complete			
O Don't erase	01.00			04/15-15:3	7:19:593> Upd	ate chip in	formatio	n success	fully		
O Full Frase	O 3.3V	OptionByte Facto	rv=>Custom ~	04/15-15:3	7:24:214> Data	1					
	O 5.0V			address:0x08000000,length:0x00020000,CRC32:0xF20F3045							
O Sector Erase	O External input	Enable buzzer		04/15-15:3	7:24:231> Prog	ram Mem	iory Read	d successf	ful!		
	CExternal input			04/15-15:3	7:28:227> Targ	et Online.					
Nrite function configu	uration			04/15-16:24	4:50:650> Pow	er Writer®	is discor	nnected	0.00 :0/1	00.00	
white fulleation conliga				SNI-012245	4.51.1972 WIN	1224567		Diver. 1.00	DWY1	.00.02	
🗏 SN N Quanti	ity_Check It Signal o	utput 🦁 Certification		04/15-16:2	4·51·228> IO7D	61 Current	device fi	rmware tv	ne:Univers	al	
				04/15-16:24	4:51:242> Pow	er Writer®	is conne	ected	pe : onivers	ui i	
Run target firmwa	re when program done			04/15-16:24:51:258> Switch version:PWX1							
				04/15-16:24:51:946> Resource version:1.0.0 size:0xcc5ac crc32:0x750b0c69					9		
Turn off the powe	r output after programming	3		04/15-16:24:51:977> Synchronizing device time succeeded							
Devices an at-Litt	. Emp(mp) . 100	0		04/15-16:24:52:024> Update burner Settings complete							
Power on stability	vune(ms): 100	Hexad	ecimal display	04/15-16:24	4:52:056> Upd	ate chip in	formatio	n success	fully		
Power off stability	v time(ms): 100			04/15-16:24	4:56:429> Targ	et Online.					
. eer off blability	,,.			04/15-16:24	4:56:4/6> Save	success	A.11. A				
				04/15-16:24	4:50:5072 POW	er writere	-fully fund	cuonal on	ine program	iming	
Reset mode selection	n			04/15-16:24	4:50:556< Write	alculate P	ogram M	 Aemony da	ata		
			San Alas and	04/15-16:2	4:57:404> Sm=	rt online e	rase chir	normory de n			
Hardware and syst	tem reset		~	04/15-16:24	4:57:482> Write	e chip data	nuae eng				
				04/15-16:24	4:57:512> Write	user cus	tom OB				
0.000		When we	https://www.com/colligence.com/	04/15-16-2	4-58-3455 All d	nnel					



Edit this page

Last updated on Apr 15, 2024 by Alan Chen

## 3.3.4 : Super SN Tutorial

### 1 : Entrance

See the menu Tools->Super Serial Number, as shown below:

ø	Serial Port Assistant	(Ctrl+T)
S2	View the Power Writer® interface definition	(Ctrl+l)
	View the chip wiring diagram	(Ctrl+G)
ılı	Reserved data read-write	(Ctrl+H)
	Advanced setup for offline project	(Ctrl+X)
₽ ₽	Advanced setup for offline project Exporting or load the UID authorization configuration	(Ctrl+X)
** *	Advanced setup for offline project Exporting or load the UID authorization configuration Test and Production	(Ctrl+X)

### 2 : Supported Features

- Supports writing serial number to any Flash block, such as Flash Memory, EEPROM, OTP, etc.
- Big number support 1~64 (not enough can continue to increase) bytes of sequence number writing, you can freely configure the length of the write.
- Big number supports end-of-serial number setting to avoid duplicate serial numbers during the production process.
- Support serial number file import (xlsx table parsing, support more than 1 million

lines).

- Serial number file import does not limit the length of the serial number.
- Serial number file import supports big number writes.
- Serial number file import supports writing of very long strings of serial numbers.
- Serial number file import supports setting the offset address, and the number of single imports.

#### ) TIP

When importing from a file, the default is to import using the small end mode, with the low address on the left.

## 3 : Big number

rial number mode:	С	) Disa	ble				0	) Big i	nterg	jer				O	mpor	t from	file	
erial number write a	addres	s:	0x	0000	0000			S	erial	numb	er ler	ngth:		64				
etail Serial number star	t:																	
0x000000000 0x000000010 0x000000020 0x000000030	00 00 00 00																	
Serial number step	:																	
0x000000000 0x00000010 0x00000020 0x00000030	01 00 00 00	00 00 00 00																
Serial number end:																		
0x000000000 0x000000010 0x000000020 0x000000030	FF FF FF FF																	

Serial Number Write Address: Set the write address of the serial number, which can be freely configured.

Serial Number Length: supports 1~64 bytes length, freely configurable.

Serial Number Starting Value (Small End Mode): Sets the starting value of the serial number.

Step of sequence number (small end mode): Sets a single increment of the sequence number.

Sequence Number End Value (Little Endian Mode): Sets the end value of the sequence number.

### 🗘 ТІР

Big number is an enhancement to Power Writer's default 4-byte serial number to compensate for the following shortcomings of the default serial number:

- Default Serial Number Function: the length is limited to four bytes.
- Default sequence number function: no end value judgment.
- Default Serial Number Function: No arbitrary region can be set.

## 4 : External File Import

erial number mode: O	Disable	O Big interger	<ul> <li>Import from file</li> </ul>
isic ierial number write address Detail	s: 0x0000000	Serial number length:	0
Import			
Serial Number Total	0		
Serial Numer offset	0		
Import total count	0		
Serial number type:	O Interger type	O String type	
First serial number:			

External file import supports xlsx table, when importing table, you need to set the rows and columns for serial number reading, the default is to start reading from 0 rows and 0 columns.

## 5 : Notes

- When importing from an external file, the cells must all be strings, if they are not strings, an error will be reported.
- When importing serial numbers from external files, you need to ensure that the serial number length is uniform.
- External serial number import defaults to the little endian.



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## **3.3.5 : Automatic start/stop**

Some chips open SWD multiplexing, offline programming, there is a choice to write the option byte, or turned on the completion of programming to start the chip, or selected the output reset, and turned on the automatic chip detection function (as shown in the figure), may cause the possibility of repeated programming, to detect the chip as far as possible, so that the chip is programmed in the time to be connected to the chip, will not be mistakenly judged as taking open the chip.

1 Idolf 5/26. 120.000	<sup>1</sup> D			
Erase Type	Interface lev	vel	Misc	
O Don't erase	○ 1.8V		Speed	10M hz 🗸 🗸
• Full Erase	O 3.3V ○ 5.0V		OptionByte	e Factory=>Custom ∖
O Sector Erase	O External	input	Enable	buzzer
rite function configu	ration			
E SN 🖪 Quantit	y_Check 111	Signal ou	tput 🛡 Ce	rtification
Run target firmwar	e when program	n done		
	e men program			
U Turn off the power	output after pr	ogramming		
Power on stability	time(ms):	100		Hexadecimal display
Power off stability	time(ms):	100		
-Reset mode selection	1			
Hardware and syste	em reset			~
Hardware reset kee	o low			
Hardware reset disa	bled			
Hardware reset				
"Hardware and syste	em reset			
System reset				ect
Vector reset				COL
Power on reset				
Targer: disconner	wer on reset		IDDV UNEDZI	Reserved to the All Num Reserved



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## 3.3.6 : Variable Monitor

#### () INFO

**PowerDebugger** Provides **RTT Viewer, RTT Scope** functions to read and write runtime data, and recommends its use.

Currently, PowerWriter does not provide any monitoring software like J-Scope, if you need to monitor the real-time variable data of the target chip, you can use a third party or the monitoring tool provided by the chip manufacturer, for example, FreeMASTER provided by NXP is a good choice, the download address of FreeMASTER is as follows:

• FreeMASTER Run-Time Debugging Tool | NXP Semiconductors

💭 ТІР

The rights to this software are owned by NXP.

### 1 : FreeMaster quick start

### 1.1 : Project Settings

Project -> Options to open project settings

Project - FreeMASTER		
File Edit View Explorer	Project Tools Help	
i 🚅 🔒 🚳 🗰 🗝 🖪 🖻	Variables	3
Project Tree	Enumerations	
🗊 New Project	Commands	
	Reload Symbol File Ctrl+M Ctrl+M Ctrl+M Ctrl+M Ctrl+M	
	Resource Files	
	Options Ctrl+T 0. Click Options	
	Project Set more information	

On the Comm Tab page, select the Plug-in module as FreeMASTER CMSIS-DAP Communication Plug-in, as shown below:

Ve	elcome	options >	< _	
et	more inf	Comm       MAP Files       Pack Dir       HTML Pages       Demo Mode       Views & Bars         Communication <ul> <li>RS232:</li> <li>Port:</li> <li>COM1</li> <li>jeficiji (COM1)</li> <li>Speed:</li> <li>9600</li> <li>Timeouts and Retries</li> </ul> Image: Transport of the state on the state on project file in the state on the state o	R	Fre
oject Wat	Read mor foatures i tch lame	<ul> <li>○ Open port at startup</li> <li>○ Do not open port at startup</li> <li>○ Store port state on exit, apply it on startup</li> <li>□ Store port state to project file when saving, apply upon its load</li> <li>▲ Advanced</li> <li>确定 取消 应用(A)</li> </ul>	s and	Comment

On the Map Files Tab page, follow the flow as shown in the figure, and select the file

compiled by MDK or IAR, GCC: axf , elf, map, and so on.



After importing the file and selecting the correct format for parsing the file

	Comm MAP Files	Pack Dir HTML Pages Demo Mode Views & Bars	1. 1/2 1.
?	Default symbol	C:\Users\CSHSOFT\Desktop\debug\var_watch_check\MDK-A	
	File format:	▼ Edit Del	ЭV
	List of all valid symbol files:	Binary ELF with DWARF2/DWARF4 dbg format. Hiware MAP File509; SmartLinker v5.0.9 >> Define new regular expression-based parser	-
		1 Select file format <sub>View</sub>	
		Note: The file selected in the list will be used as default symbol file when the project is opened	

#### 

You need to select the file with symbol signal, such as axf, elf, map, etc. The purpose is to get the information of the symbol name, format, address, etc., which needs to be monitored, and you can't import bin, hex, etc. After the setting is finished, you can click View to check the information of the symbols, and if it is parsed correctly, it

### **1.2 : Adding Monitoring Variables**

You can quickly create a variable watch by right clicking Create New Watched Var... in the Variable Watch window. in the Variable Watch window, as shown in the following figure:



Setting Monitoring Properties



Change other settings as required

	vanable	^
	Definition Modifying Comments	● 采样频率
	Variable powerwriter_var	Sam <u>p</u> ling fastest ▼ Sho <u>w</u> as: HEX ▼
n	Variable [0x20000000]	Bit fields Show
	Address: powerwriter_var	When the value is received,
	<u>I</u> ype: unsigned int ▼ <u>S</u> ize: 4 ▼	shift it: 0 + bits right,
	Format: Fixed point number	mask with: no mask (-1)  ▼
	Real type t <u>r</u> ansformation	Text enumeration (after transform)
	None <u>U</u> nit: unit	<b>☐ Enu<u>m</u>eration enabled ☐</b> Always show <u>n</u> umeric value
		· · · · · · · · · · · · · · · · · · ·
_		default: unknown 🔽 Show number
h me	<ul> <li>Use 'Moving Averages' filter</li> <li>Reset history on manual modify</li> </ul>	mm
	History 5000 ms	
		<b>确定 取消</b> 应用(A)

When finished, click OK.

### 1.2 : Activate

Connect the PowerWriter to the target chip with the target chip correctly, click the Go button on the toolbar to start the monitoring, as shown in the following figure.



You can see the real-time changing values of the variables as shown below:



#### 🗘 ТІР

FreeMASTER will not perform firmware download action, so you need to make sure that the set symbol file and the actual running firmware are matched, otherwise it will lead to wrong monitoring results.

## 2 : Notes

For detailed tutorials on how to use FreeMASTER, please refer to the official documentation and other related information.



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## 3.3.7 : NRF stack upgrade

### 1 : Entrance

PowerWriter support for manufacturer-specific features, are using the plug-in mode, you can support any manufacturer requires a specific function, the method of entry and other brands of the support method is consistent with the selection of the chip, such as in the toolbar on the right side of the most a plug-in support icon, the current selection of the chip has a plug-in support function, as shown below:



After selecting the Nordic family of chips, an Extended Functions button appears on the right side of the toolbar, defined as Vendor Specific Plug-In Functions, which can be clicked to enter the configuration page of the NRF Protocol Stack Burn-in, as shown in the figure:

Power Writer® - Nodic Modem Updater[nRF9160]	×
創	
Nodic nrf modem import Modem zip package E: WainProjects \2022 \nrf_stack \nRF9160 modem更新需求(内附1.3.3版固件更新包) \mfw Package informations	_nrf916
[0]Modem file digest all segment : ->[0.0]Segment address:0x59602000 ->[0.0]Segment drc32:0x8291481a ->[0.0]Segment size :0x0000918 ->[0.0]Segment size :0x0000918 ->[0.0]Segment size :0x00000918 ->[0.0]Segment size :0x00006000 ->[1.0]Segment address:0x00006000 ->[1.0]Segment address:0x00006000 ->[1.0]Segment size :0x00000000 ->[1.0]Segment size :0x00000000 ->[1.1]Segment size :0x00000000 ->[1.1]Segment address:0x000050000 ->[1.1]Segment address:0x000050000 ->[1.1]Segment address:0x000050000 ->[1.1]Segment address:0x00010000 ->[1.1]Segment address:0x00027000 ->[1.1]Segment size :0x001e0000 ->[1.2]Segment size :0x00127000 ->[1.2]Segment size :0x00004000 ->[1.2]Segment size :0x00004000 ->[1.2]Segment size :0x00004000	
Upgrade settings	
Confirm D	ocument

### 2 : Firmware Import

### 2.1 : Modem zip package

Download the latest modem upgrade firmware package from the official website, which is in zip format and contains all the files required for upgrading the stack. PowerWriter supports parsing all the information required for upgrading from the zip package without unzipping it, and after importing it, it will automatically start parsing the zip package, and if the parsing is successful, it will display the corresponding information in the log box, as shown below:

```
-----information-----
DFU address:0x2000000c
DFU crc32:0x84fbec7c
DFU sha256 digest:72B3D7C
DFU file name:72B3D7C.ipc_dfu.signed_1.1.0.ihex
DFU file size:0x00001290
DFU version:1.1.0
[0]Modem file:firmware.update.image.segments.0.hex
[0]Modem file segment count :1
[0]Modem file digest all segment :---
  ->[0.0]Segment address:0x59602000
  ->[0.0]Segment crc32:0x8291481a
  ->[0.0]Segment size :0x00000918
  ->[0.0]Segment sha256 digest :---
[1]Modem file:firmware.update.image.segments.1.hex
[1]Modem file segment count :3
[1]Modem file digest all segment
:5A14526C47947C99DB4B69E0FE7B0959CB32281211FC1D06546223655E8AB4B1
  ->[1.0]Segment address:0x00006000
 ->[1.0]Segment crc32:0x803ecacc
  ->[1.0]Segment size :0x0000a000
  ->[1.0]Segment sha256 digest
:3E7ABC4F40119BDFA2BBF3881909832BE9404CDD7678948049AE976C670C23D9
  ->[1.1]Segment address:0x00050000
  ->[1.1]Segment crc32:0x7d083f13
  ->[1.1]Segment size :0x001e0000
  ->[1.1]Segment sha256 digest
:63FA227FEBCAAB85749F11EFB9354B44EA7933C5D55B03A86C8ED254429A138F
  ->[1.2]Segment address:0x0027c000
  ->[1.2]Segment crc32:0x98032895
 ->[1.2]Segment size :0x00004000
  ->[1.2]Segment sha256 digest
```

#### 🖓 ТІР

• The latest modem of Nordic NRF series chips can be downloaded from the official website, such as NRF9160 download address is:

Compatible Downloads - nordicsemi.com.

 After importing the zip package, if the parsing fails, it will prompt the corresponding tips, do not decompress and modify the official release of the original zip package data, in order to prevent the information can not complete the automatic parsing, such as parsing the time of the error, contact us in time, with the error message tips and upgrade packages zip file.

## 3 : Offline Upgrade Stack Enable

• Enable modem offline upgrade

As shown below:

Upgrade settings

< Enable modem offline upgrade

#### 🖓 ТІР

PWLINK2(Lite) and other products do not support stack upgrade, but products with offline support this function.





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## 3.3.8 : ZPKG usage

### 1 : What is zpkg?

zpkg is the secondary package of pkg file, on the basis of pkg file, package more information as a separate file, through this file, the developer can directly send zpkg file to the end-user by e-mail or other means, or burn manufacturers, in addition to the developer who packaged this file, other members will not be able to see any data in this file, to a certain extent, you can Meet the special needs.

Although zpkg can be useful in some specific scenarios, there are some limitations that require special attention, as summarized below.

#### 

- Because the file can be reloaded repeatedly: this means that the limit on the number of times the pkg file itself will be invalidated, and if you need to control the number of burns, you will need to control the permissions with the icwkey device.
- Because passwords and data are packaged as a whole, which means there is a certain risk of being attacked, PowerWriter will try its best to prevent the zpkg file from being attacked, leading to leakage. Except for some special scenarios where the zpkg format must be used, most common scenarios still recommend the use of the zpkg file for security and privilege control.
- Please be strictly aware of the above defects and do not use this feature if you are not aware of them.

## 2 : How to save as zpkg?

The method of saving a zpkg file is the same as saving a pkg file, as shown in the following animation:



### 3 : How to load zpkg to Writer?

The flow of loading zpkg file to burner and loading pkg to writer is demonstrated in the animation below:

Power Writer®1.3.8 File(E) Operation(E)	.0 [Build:2024-04-10 19:40 Tools( <u>T</u> ) Setting( <u>S</u> ) H	:33] lelp( <u>H</u> )		-		×				
Dpen Save F-in	F-out PLoad PRead	Blank Erase Read	Write Verify	Auto Reset ID AnyRD Error Serial Wire	Device PWX1					
Writer Setting	Option bytes	Program Memory		nory						
Chip Select				04/15-16:24:56:5072 Power writer® fully functional online programm	ning					
MCU model: S	TM32G070xB	i Select	🗸 Apply	04/15-16:24:56:538> Write factory default OB 04/15-16:24:57:374> Recalculate Program Memory data						
Flash size: 128.00	KB			04/15-16:24:57:404> Smart online erase chip 04/15-16:24:57:492> Write objected						
				04/15-16:24:57:512> Write user custom OB						
Erase Type	Interface level	Misc		04/15-16:24:58:345> All done!						
O Don't erane	O 1.8V	Speed 10M hz	~	04/15-16:30:44:508> [0031] The voltage error (abnormal power supp	ily)					
ODdiffelase	0.0.01/			04/15-16:30:44:524> Target Offline						
Full Erase	0 3.30	OptionByte Factory=	⇔Custom ~	04/15-17:02:20:167> nRF9160 Flash size: 1024.00KB						
	○ 5.0V			04/15-17:02:20:199> nRF9160 OTP Memory size: 0.74 KB						
O Sector Erase	O External input	Enable buzzer		04/15-17:02:20:278> Change bank: Single bank						
				04/15-17:02:20:326> Update burner Settings complete						
Write function configu	uration			04/15-17:02:20:3562 Opdate chip information successfully	out					
	211			04/15-17:02:21:0272 The communication port waiting response time out						
SN N Quant	tity_Check Ĩ‡Ĩ Signal ou	tput 🦁 Certification		04/15-17:05:58:263> STM32G070xB Flash size: 128 00KB						
				04/15-17:05:58:295> STM32G070xB OTP Memory size: 1.00 KB						
🔽 Run target firmwa	are when program done			04/15-17:05:58:359> Change bank: Single bank						
				04/15-17:05:58:409> The communication port send package error						
Turn off the powe	er output after programming			04/15-17:05:58:424> The communication port send package error						
Damas as abability				04/15-17:06:01:706> The communication port send package error						
Power on stability	y ume(ms): 100		mal display	04/15-17:06:01:722> Power Writer® is disconnected		- 21				
Power off stabilit	ty time(ms): 100			04/15-1/:06:02:262> Writer Into: hwVer:1.0 bIVer:1.00.02 ifVer:1.00	J.02					
				SN:0123450789ABCDEF01234507890ABCDE Target:PWX1		- 361				
				04/15-17:06:02:2542 [07:06] Current device infinwate type : Oniversal						
Reset mode selectio	n			04/15-17:06:02:341> Switch version:PWX1						
Hardware and eve	tem recet			04/15-17:06:03:022> Resource version:1.0.0 size:0xcc5ac crc32:0x7	50b0c69					
	nem reset			04/15-17:06:03:054> Synchronizing device time succeeded						
				04/15-17:06:03:104> Update burner Settings complete						
Communication conf	iguration			04/15-17:06:03:135> Update chip information successfully						
Communication Com	iguradon	-) ()		04/15-17:06:04:775> Target Online						
Device: COM3	Refresh	Disconnect	Auto Connect	04/15-17:06:34:150> Save success						
Target: connected	ICWorkShon Techno	logy (Shenzhen) Co	td All Right Rec	nyed						
anger connected	Cerronismop reening	ing (onenencity contra	in right hes		and and all	- Silver				



#### Edit this page

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## 3.3.9 : Adjust Default OB

### 1 : Usage

PowerWriter chip adaptation process, the chip's default option bytes are adapted and serialized for use in some scenarios, you can restore the chip's factory settings, in most scenarios, the native default option bytes can meet the requirements, while in some special scenarios, the default option bytes need to be adjusted to meet some of the special application scenarios.

### 2 : Setting

The method of adjusting the built-in default option byte is as follows, and the animation demonstrates it as follows:

Power Writer®1.3.8.0 [Build:2024-04-10 19:40:33]	– 🗆 X
File(F) Operation(E) Tools(I) Setting(S) Help(H)	
Copen     Save     F-ini     F-out     PLoad     PRead     Q     Eo     Eo     Eo	Verify Auto Reset ID AnyRD Error Serial Wire Device
🗱 Writer Setting 🛃 Option bytes 📳 Program Memory 🏢	OTP Memory
Option Byte: AA E1 FF DF 3F 00 00 00 3F 00 00 00	Size : 12 Byte Save Save V
Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-
>>>	[Double-click to modify] Byte 0
RDP	0xAA: Level 0, read protection not active
>>>	[Double-click to modify] Byte 1
nRST_STDBY	0x01: No reset generated when entering the Standby mode
nRST_STOP	0x01: No reset generated when entering the Stop mode
>>>	Double-click to modify] Byte 2
RAM_PARITY_CHECK	0x01: SRAM parity check disable
WWDG_SW	0x01: Software watchdog
IWDG_STBY	0x01: Independent watchdog counter is running in Standby mode
IWDG_STOP	0x01: Independent watchdog counter is running in Stop mode
IWDG_SW	0x01: Software independent watchdog
>>>	[Double-click to modify] Byte 3
nBOOT0	0x01: nBOOT0=1
nBOOT1	0x01: nBOOT1=1
nBOOT_SEL	0x01: BOOT0 signal is defined by nBOOT0 option bit
>>>	Double-click to modify] Byte 4
WRP1A_STRT bit5	0x01: WRP1A_STRT bit5
WRP1A_STRT bit4	0x01: WRP1A_STRT bit4
WRP1A_STRT bit3	0x01: WRP1A_STRT bit3
WRP1A_STRT bit2	0x01: WRP1A_STRT bit2
WRP1A_STRT bit1	0x01: WRP1A_STRT bit1
✓ Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All R	ight Reserved

### 3 : Reset

Customized default option byte clearing can be performed by clicking the Restore Defaults button, as demonstrated in the animation below:

lead of the second seco	– 🗆 X
File(E) Operation(E) Tools(T) Setting(S) Help(H)	
Image: Constraint of the sector of	Verify Auto
🗱 Writer Setting 🛃 Option bytes 🏢 Program Memory 🏢	OTP Memory
Option Byte: BB E1 FF DF 3F 00 00 00 3F 00 00 00	Size : 12 Byte 📀 Reset 🕒 Load 🖺 Save 💌
Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-
>>>	[Double-click to modify] Byte 0
RDP	0xBB: Level 1, memories read protection active
>>>	[Double-click to modify] Byte 1
nRST_STDBY	0x01: No reset generated when entering the Standby mode
nRST_STOP	0x01: No reset generated when entering the Stop mode
>>>	[Double-click to modify] Byte 2
RAM_PARITY_CHECK	0x01: SRAM parity check disable
WWDG_SW	0x01: Software watchdog
IWDG_STBY	0x01: Independent watchdog counter is running in Standby mode
IWDG_STOP	0x01: Independent watchdog counter is running in Stop mode
IWDG_SW	0x01: Software independent watchdog
>>>	[Double-click to modify] Byte 3
nBOOT0	0x01: nBOOT0=1
nBOOT1	0x01: nBOOT1=1
nBOOT_SEL	0x01: BOOT0 signal is defined by nBOOT0 option bit
	Double-click to modify Byte 4
WRP1A_STR1 bit5	0x01: WRP1A_STRT bit5
WRPIA_SIRI bit4	UXUI: WRPTA_STRT bit4
WRPIA_STRI bit3	0x01: WRPTA_STRT bit3
Iarget: connected ICWorkShop lechnology (Shenzhen) Co., Ltd.All	Right Reserved

## 4 : Limitations

- Currently available in full-featured mode in online mode, disabled when software is turned off.
- Currently valid for saving to an offline writer, invalid after reopening the project.

### 

Valid only for full-featured online programming and saving to writer before the software is closed, and will expire after reopening the project (automatically resynchronizes default option bytes).



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