



Panchip Microelectronics Co., Ltd.

pan221x download tool user's guide

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1.Summarize

The burning tool is used to burn the PAN221x OTP chip.

The burning tool includes two parts: **PC tool** and **PAN-LINK burning device**.

2.Function Introduction

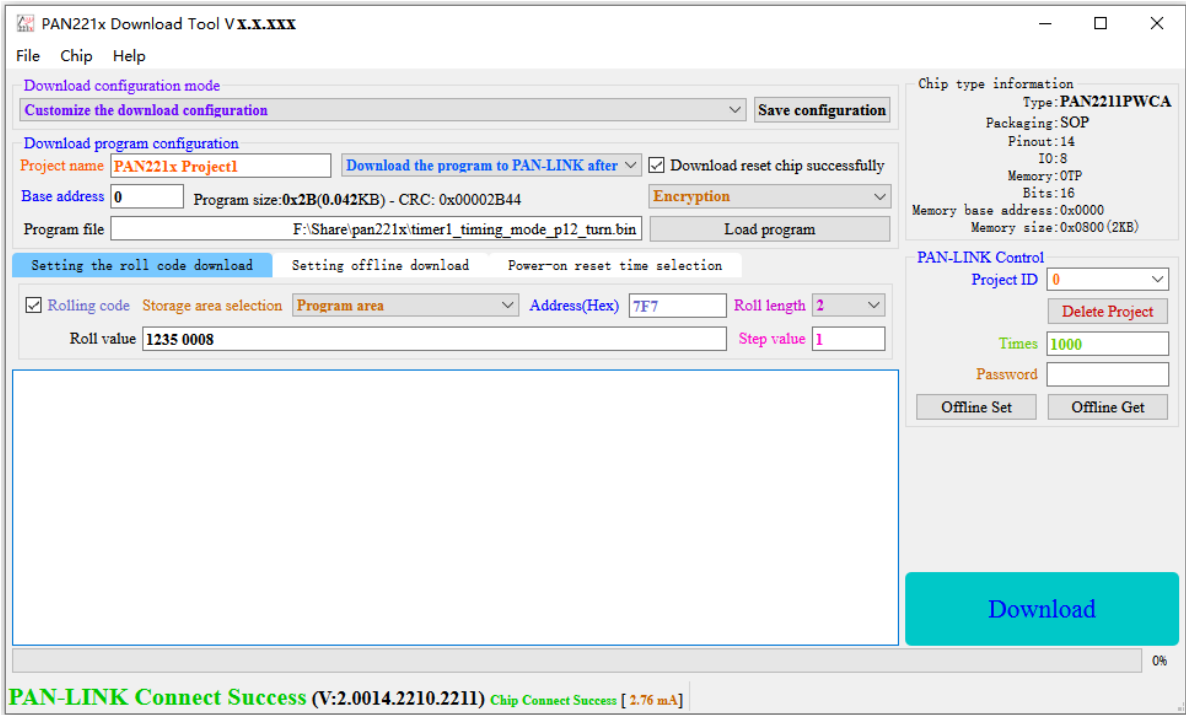


Figure 2-1 Upper computer interface of the PAN221x download tool

Figure 2-1 shows the upper computer interface of the PAN221x chip download tool.

2.1.Menu bar

The menu bar has three functions: **File**, **Chip**, **Connect**, and **Help**. As shown in Figure 2-1-1.

File Chip Connect Help

Figure 2-1-1 menu bar

2.1.1.File

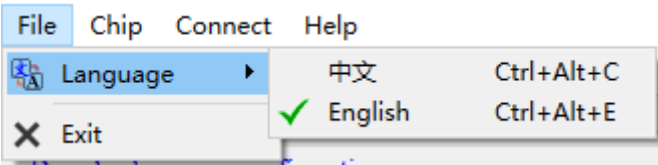


Figure 2-1-1-1 File menu

The file menu is shown in Figure 2-1-1-1, including **Language** and **Exit**.

Language: Both **Chinese** and **English** can be displayed.

中文: Display in Chinese.Shortcut key **Ctrl+Alt+C**.

English: Display in English.Shortcut key **Ctrl+Alt+E**

Exit: is the exit tool.

2.1.2.Chip

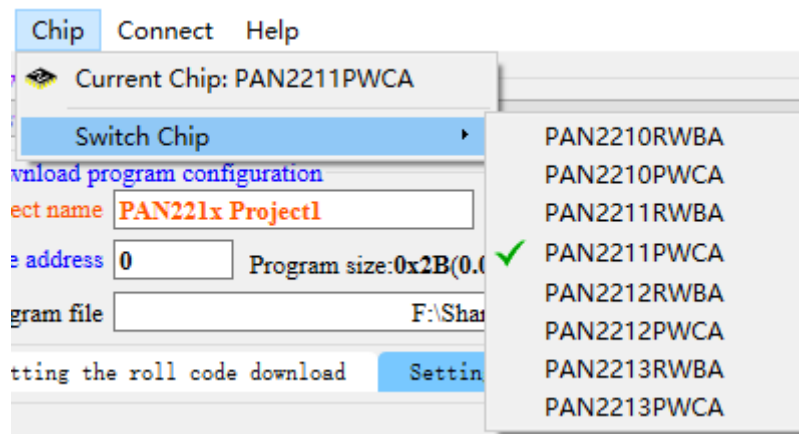


Figure 2-1-2-1 Chip menu

Figure 2-1-2-1 shows the chip menu, including the **Current chip**, **Switch chip**, etc.

Current chip: indicates the selected chip model name.

Switching chip: Select the supported chip models menu for the Settings. The submenu lists the supported chip models.

Note: **PAN2212RWBA/PAN2212PWCA** The 0, 1, 2, 4, 5, 6, 7 address values of the downloaded program file must be 0; And the tail has 5 word as the storage ID, can not download the program.

Note: If the download configuration mode is Import configuration mode, you cannot switch the chip model. The chip model is the chip model of the loaded configuration file.

2.1.3.Connect

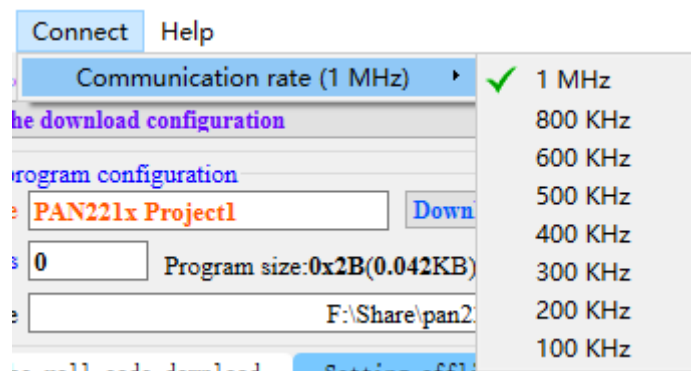


Figure 2-1-3-1 Connect menu

Figure 2-1-3-1 shows the connection menu. You can set the communication rate.

2.1.4.Help

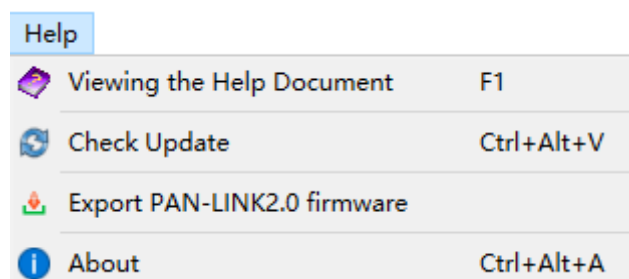


Figure 2-1-4-1 Help menu

Figure 2-1-4-1 shows the help menu, including **Viewing the Help Document**, **Check Update**, **Export PAN-LINK2.0 firmware**, **About**, and so on.

Viewing the Help Document: Large help documents for opening the view tool. The shortcut key **F1** is supported.

Check Update: Version detection for communication with our server. After successful detection, you can **Download** and **Update** the version. The shortcut key **Ctrl+Alt+V** is supported.

Export PAN-LINK2.0 firmware: To export PAN-LINK2.0 firmware program file corresponding to the version of the upper computer, which can provide firmware program for manually downloading PAN-LINK2.0 firmware.

About: To view information about the current tool. See Figure 2-1-4-2. The shortcut key **Ctrl+Alt+A** is supported.



Figure 2-1-4-2 Abort

2.2.Status bar

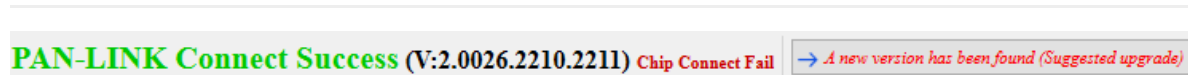


Figure 2-2-1 Status bar display

The status bar is displayed, as shown in Figure 2-2-1.

PAN-LINK connection status: The **PAN-LINK Connect Success** or **PAN-LINK Connect Fail**.

PAN-LINK version information: is displayed only after the PAN-LINK connection is successful. **V:** indicates the version. **V:2** indicates the PAN-LINK2.0 hardware version and **V: 2.xxxx** is PAN-LINK software version, v.2.xxxx. **2210.2211....** in **2210.2211** indicates the PAN221x chip model supported by PAN-LINK.

Chip connection status: is displayed only after the PAN-LINK connection is successful. **Chip Connect Success** or **Chip Connect Fail** or **Chip connection not detected, indeterminate state**.

Load current: is the output current value through PAN-LINK2.0 **VDD**. For reference only.

A new version has been found (Suggested update) : When an updated version of the program is queried and the updated version is a stable one, this prompt will be displayed..

When clicked: A prompt message for version upgrade will pop up, along with the update information of the updated version equivalent to the previous stable version. "**Suggested upgraded version**"

A new version has been found : When an updated version of the program is queried and this updated version is not the stable version, this prompt will be displayed.

When clicked: A prompt message for version upgrade will pop up, along with the update information of the updated version equivalent to the previous stable version.

Judge by yourself based on the update information description whether to upgrade the version.

2.3.Burning interface

2.3.1.Download configuration mode

2.3.1.1.Customize the download configuration

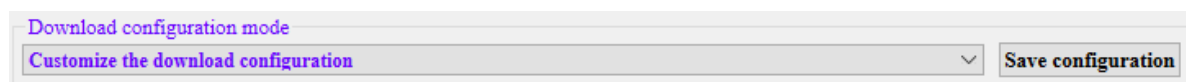


Figure 2-3-1-1-1 Customize the download configuration mode

Figure 2-3-1-1-1 shows the download configuration mode when selecting the **Customize the download configuration** mode.

In this mode, **Download program configuration**, **Setting the roll code download**, **Setting offline download** and so on are all edited by the user.

Save configuration: You can save the configuration information such as the configuration of the **Download program configuration**, the configuration of the **Setting the roll code download**, and the configuration of the **Setting offline download** to the configuration file for importing the configuration mode of the configuration file.

2.3.1.2.Import the configuration file configuration



Figure 2-3-1-1-2 Import the configuration file configuration mode

As shown in Figure 2-3-1-2-1, the download configuration mode is displayed when selecting the **Import the configuration file configuration** mode.

In this mode, **Download program configuration**, **Setting the roll code download**, **Setting offline download** are not allowed to edit configuration. The configuration information is imported from the loaded configuration information file.

Load configuration: Loads the configuration information file saved in the customized download configuration mode, and loads the information in the configuration information file to the configuration of the **Download program configuration**, **Setting the roll code download**, and **Setting offline download**.

Note: In this mode, the chip cannot be switched over and is imported from the loaded configuration file.

2.3.2.Download program configuration

As shown in Figure 2-3-2-1, the download configuration mode is displayed when **Import the configuration file configuration**. In this mode, only the download program configuration of the imported configuration is displayed.

Figure 2-3-2-1 Import the download program configuration for configuration file configuration mode

As shown in Figure 2-3-2-2, Download configuration mode is displayed when you **Customize the download configuration** mode. In this mode, you can edit the configuration by yourself.

Figure 2-3-2-2 Download program configuration in customized download configuration mode

Project name: The name of the project program to download for Settings.

The value can contain letters, digits, Spaces (" "), and underscores (".", "-", "_"). A maximum of 26 characters can be entered.

The project name is differentiated as a PAN-LINK multiproject program store.

Download Project mode: Download project mode for Settings.

Support: **Download the program to PAN-LINK after downloading the program to chip**, **Only download program to PAN-LINK**, **Only download the program to chip** and other three modes. See Figure 2-3-2-3.

Figure 2-3-2-3 Download the project program mode

Download the program to the PAN-LINK after downloading the program to the chip: After downloading the project program to the PAN-LINK successfully, read the project program from the PAN-LINK and download it to the chip.

Only Download the program to PAN-LINK: To download and store only the project program in PAN-LINK.

Only Download the program to the chip: Only the project program is downloaded to the chip, not stored in the PAN-LINK.

Note: To realize PAN-LINK offline download, you need to choose to **Download the program to the PAN-LINK after downloading the program to the chip** or **Only download the program to the PAN-LINK** download mode.

Download reset chip successfully: To set the option of whether to reset the chip after successfully downloading the program to the chip.

Select: Enable.

Deselect: indicates that the function is disabled.

Base address: Sets the base address value of the download program.

The base address is a hexadecimal value ranging from 0 to N. N Indicates the memory size of the selected chip model.

Note: The base address value + program file size must be within the memory size of the selected chip model.

Program size and CRC: To display program file data size, with CRC calculated according to program data.

To display the data of the loaded program file, the number of data corresponding to the selected chip model (bits /8).

CRC: CRC calculated according to an internal algorithm based on program data.

Encryption configuration: To set the encryption of the chip or not after downloading the program.

No encryption: Chip encryption is not configured.

Encryption: To set the chip encryption.

Load program: It is an loader file *.bin and *.hex formats.

If the loading succeeds, the data size of the loaded program file is displayed, and the path of the loaded program file is displayed in the program file.

Note: The loaded program file data size + base address value must be within the memory size of the selected chip model.

2.3.3.Setting the roll code download

As shown in Figure 2-3-3-1, the download configuration mode is displayed when **Import the configuration file configuration**. In this mode, only the imported configuration Settings are displayed.

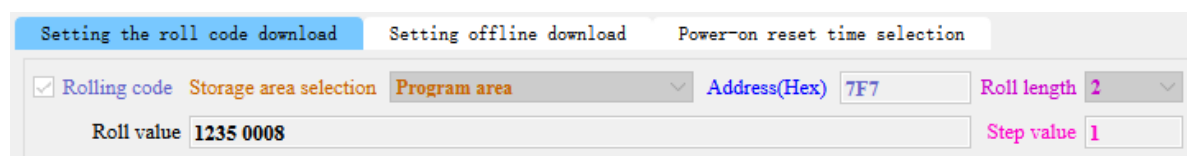


Figure 2-3-3-1 Import configuration file configuration mode Settings Roll code download configuration

As shown in Figure 2-3-3-2, the download configuration mode is **Customize the download configuration**. In this mode, you can edit the configuration.

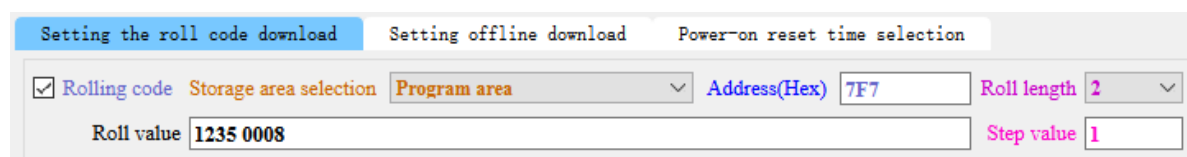


Figure 2-3-3-2 Customize the download configuration mode. Configure the roll code download

Rolling code: This parameter is enabled when it is selected and disabled when it is not selected.

Storage area selection: Select the storage area supported by the corresponding chip.

For example, if the chip supports EEPROM, you can select the **program area** or **EEPROM**.

Address (Hex): Start address for downloading roll codes. The value is in hexadecimal format.

Roll length: Set the length value of the roll data. The number of bits of data is 16 if the program area is selected and 8 if the EEPROM is selected.

Roll value: Set roll data value. If there is a space, the data is separated by a space. If there is no space, the data is calculated by the data bit. Data larger than 8 bits is stored as small-end data. The preceding data is placed at the low address.

Step value: To set the cumulative value of the next roll data after downloading the roll code to the chip successfully. Roll data accumulates from behind to carry forward.

Note: If you select the program area, you must ensure that it does not overlap with the downloaded program area.

2.3.4.Setting offline download

As shown in Figure 2-3-4-1, the download configuration mode is displayed when **Import the configuration file configuration**. In this mode, you cannot edit the imported configuration. Only the offline download configuration is displayed.

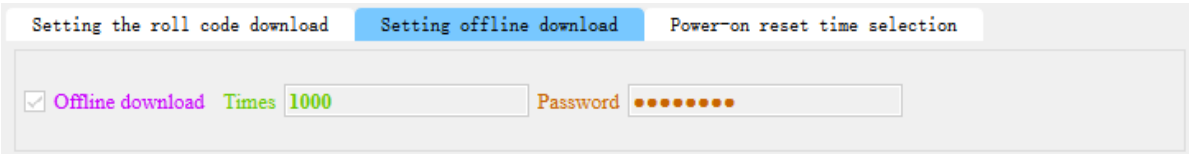


Figure 2-3-4-1 Importing a configuration file Setting the configuration mode for offline download

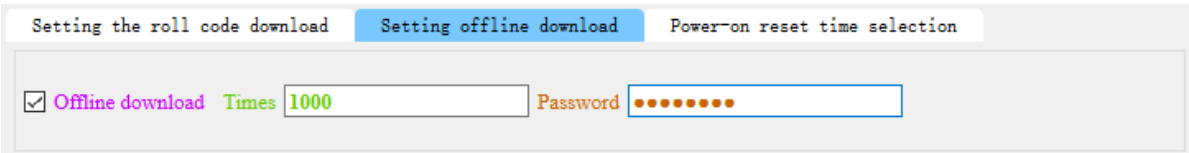


Figure 2-3-4-2 Setting the customized download configuration mode Configure the offline download mode

Offline download: Enable this function when it is selected and disable this function when it is not selected.

Times: indicates the number of offline downloads. The value ranges from 0 to 9999999

Password: Password for setting the offline download. The password contains 1 to 8 characters.

Note: If you need to reset the offline download after the offline times are used, you must enter the correct password to successfully set the offline download.

2.3.5.Power-onreset time selection

As shown in Figure 2-3-5-1, the display is displayed when the download configuration mode is **Import the configuration file configuration** mode. In this mode, no editing can be done, only the power on reset time of the imported configuration is displayed.

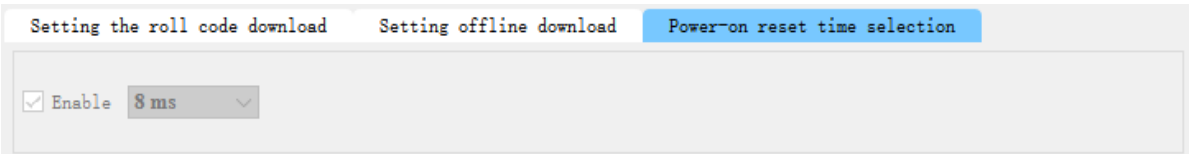


Figure 2-3-5-1 The power-on reset time selection configuration for the configuration mode of the import profile configuration

As shown in Figure 2-3-5-2, the download configuration is displayed in **** Custom Download Configuration **** mode, where users can edit the configuration themselves.

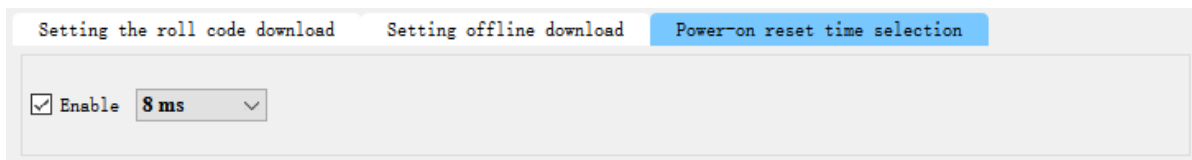


Figure 2-3-4-2: Configuring power-on reset time for custom download configuration mode

Enable: Enabled when checked, not enabled when unchecked.

time: It supports 16 ms, 200 us, 1 ms, 8 ms, 32 ms, 64 ms, 128 s, 256 s and other time Settings. The default is 16 ms.

2.3.6. Chip type information

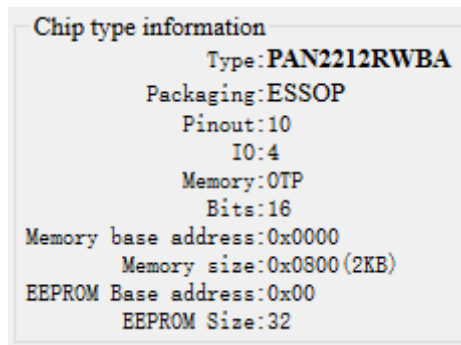


Figure 2-3-5-1 chip model information

As shown in Figure 2-3-5-1, the information about the chip model is displayed when you select the chip model.

2.3.7. PAN-LINK Control

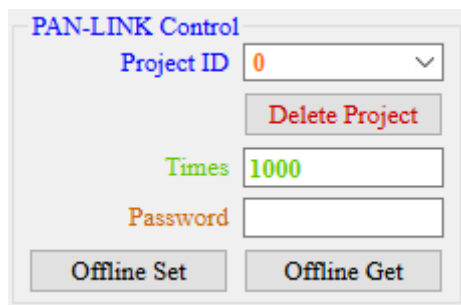


Figure 2-3-6-1 PAN-LINK control

As shown in Figure 2-3-6-1, to control the project program function in PAN-LINK.

Project ID: Select the item number parameter value.

Delete Project: Deletes the item program function stored in PAN-LINK.

When the project number is **0**, all project programs stored in PAN-LINK are deleted.

When the project number is **> 0** is used to delete the numbered items in PAN-LINK.

Times: Provides offline download times for offline Settings.

Password: Provides the offline download password parameter for offline Settings.

Offline Set: Sets the number of offline downloads of a specified project program.

When the project number is **0**, to set the number of offline downloads of the currently selected project program in PAN-LINK.

When the project number is **> 0** is used to set the number of offline downloads of the project program with a specified number in PAN-LINK.

Set this parameter based on the number of offline times entered and the password.

Offline Get: reads the number of offline downloads of the specified project program. And display print display.

2.3.8.Download button and download result

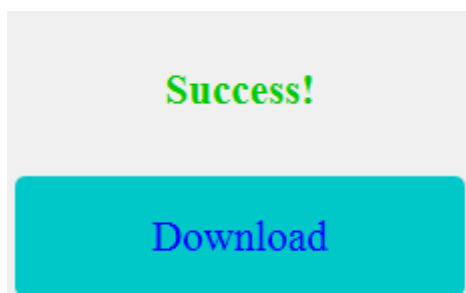


Figure 2-3-7-1 Download button and download result display

As shown in Figure 2-3-7-1, the download button and download result are displayed.

Download button: Download, Downloading..., Stop three kinds of display.

Download: Display when not idle. Click to enter the download process.

Downloading... : is displayed while downloading.

Stop: is the display when the mouse moves over the key while downloading. In this state, click to end the download.

2.3.9.Log display box

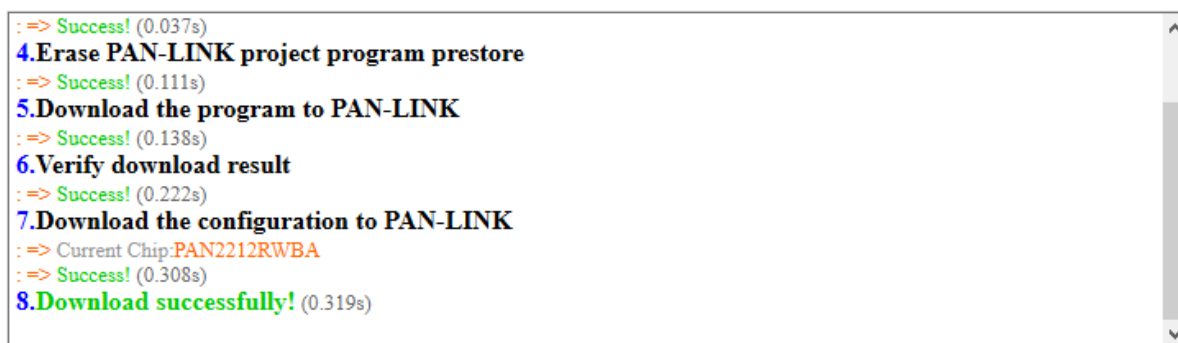


Figure 2-3-8-1 Log display box

As shown in Figure 2-3-8-1, is a log that shows the current process or operation control.

3.PAN-LINK burner

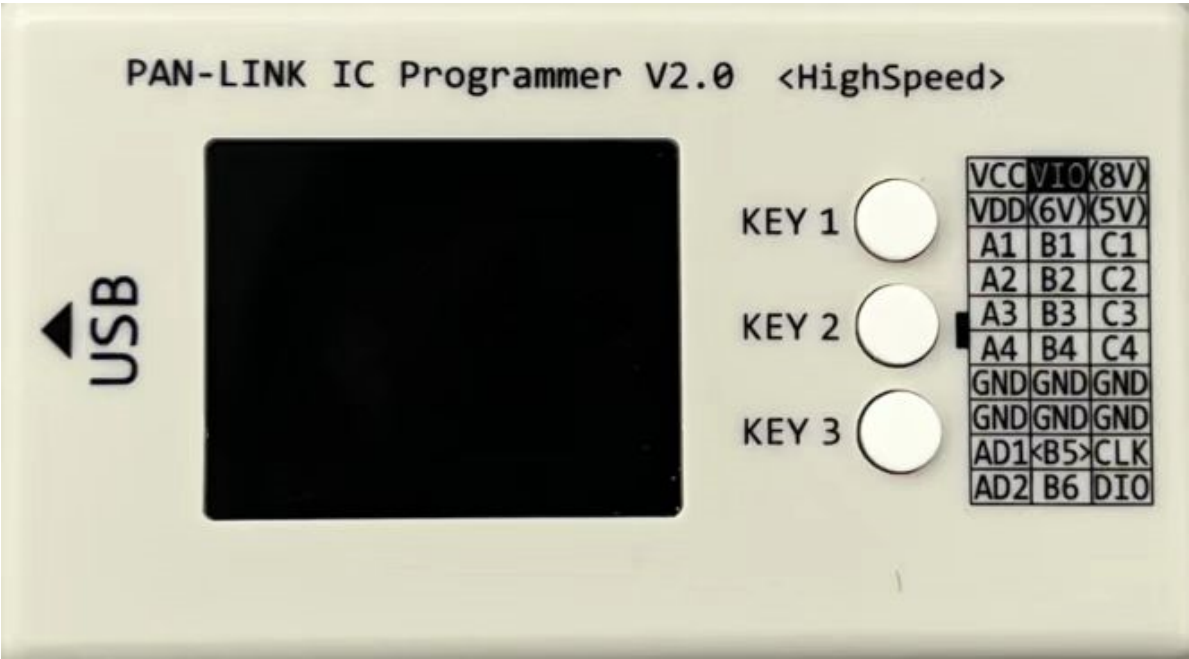


Figure 3-1 PAN-LINK burner

As shown in Figure 3-1, PAN-LINK burner includes USB interface, LCD display screen, button and interface.

3.1.USB interface

USB interface is MiniUSB interface, using MiniUSB data cable as shown in Figure 3-1-1.

It is recommended to use a data transfer cable with a shielded layer that is of reliable quality and less than 1.5m in length and can pass a current of more than 500mA to connect to a PC or other power supply. Otherwise, the burner may fail to work normally.



Figure 3-1-1 MiniUSB data cable

3.2.LCD display



Figure 3-2-1 shows the start screen

PAN-LINK For PAN221x: indicates that the PAN-LINK firmware of this version supports the burning of the PAN221x chip.

Version: indicates the version of the current PAN-LINK firmware.

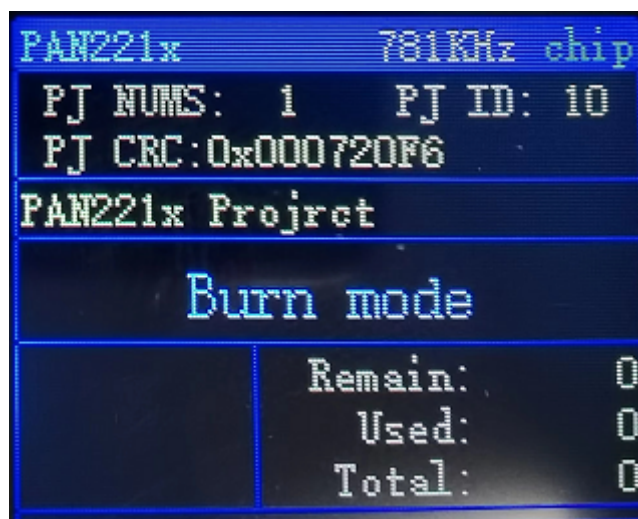


Figure 3-2-2 Main interface

The main interface of PAN-LINK is shown in Figure 3-2-2.

- 1) Supported chip model (PAN221x), communication rate (781KHz), chip connection status (**chip** : Chip Connect Success **chip** : Chip Connect Fail)
- 2) The total number of programs (displaying the total number of project programs stored by the current PAN-LINK), the current program (displaying the project program number displayed by the current PAN-LINK)
- 3) Program CRC(display the CRC value calculated internally by the current project program, only used to distinguish project program file data)
- 4) Name of the Project program (PAN221x Project is the name of the project program filled in when the corresponding host computer is downloaded)
- 5), pattern and result display.
- 6) Offline download times display, the left is the remaining read display, the right includes the remaining times, used times, the total number of offline display.

7) Progress bar display. Displays the offline download progress.

3.3.KEY

Is the control button of PAN-LINK. Including **KEY1**, **KEY2**, **KEY3** three keys.

Table 3-1 Key functions

KEY	Short press (> 100ms and < 1s)	Long press (>=1s)
KEY1	Burn mode: The start page is displayed	Burn mode: Enter the selector mode
	Select Project: Switch to the previous project program	Select Project: Save the current project program selection and return to test mode
	Setting Language: Switching language modes	
KEY2	Burn mode: Trigger to start offline burning	Burn mode: The setting language mode is displayed
		Setting Language: Save the current language display and return to test mode (Note: offline mode is valid)
KEY3	Burn mode: Send a reset chip	Burn mode: Enter set rate mode
	Select Project: Switch to the next project program	Set Rate Mode: Save the current rate selection and return to test mode
	Setting Language: Switching language modes	

Table 3-1 describes the short press and long press functions.

3.4.Interface

It is the wiring interface of PAN-LINK burning chip.

Table 3-2 Corresponding interface functions

Interface			Interface corresponding function		
VCC	VIO	(8V)	The voltage is the same as VDD	IO voltage input	8.5V voltage, not output by default
VDD	(6V)	(5V)	VDD (3.3V) chip power supply	6.5V voltage, not output by default	5V voltage
A1	B1	C1	--	Debugging serial port RX	--
A2	B2	C2	RST (chip RST)	Debug serial port TX	Offline download, low output level corresponds to busy download
A3	B3	C3	DAT (Chip DAT)	I2C_SDA (Reserved)	Offline download, the output low level corresponds to the wrong download result
A4	B4	C4	CLK (chip CLK)	I2C_SCL (Reserved)	Offline download, the output low level corresponds to the download result pair
GND	GND	GND	ground	ground	ground
GND	GND	GND	ground	ground	ground
AD1		CLK	--	Offline download is triggered externally. Procedure	PAN-LINK firmware download port SWDCLK
AD2	B6	DIO	--	--	PAN-LINK firmware download port SWDIO

Table 3-3 Port functions

Interface	Function description
VCC	The voltage value is the same as that of VDD, which is in the preceding stage of VDD and does not avoid the internal load detection circuit. is usually used to provide input power to the VIO. Use jumper caps to short connect the VCC to the VIO so that the level of A1~A4 and B1~B4 matches that of the VDD.
VIO	External power supply is required to provide power for A1~A4 , B1~B4 .
VDD	It is the output power supply and provides 3.3V power supply for the chip. The load current can be detected inside the output PAN-LINK from this power supply.
(6V) (8V)	Respectively output high voltage 6.5V and 8.5V , the default is not output, output is enabled by the same switch control. The PAN221x chip needs 6.5V to supply the burning power to the VPP of the chip for internal control during burning.
(5V)	To provide 5V power output.
GND	Is a ground port.
A1	reserve
A2	Is the output IO, and the output level is the same as the voltage input by the VIO. IO as control chip RST pin. To download and burn the PAN221x chip program, you need to connect the RST pin of the chip to the pin.
A3	Is the output IO, and the output level is the same as the voltage input by the VIO. The IO of the DAT signal foot that communicates with the chip. To download and burn the PAN221x chip program, you need to connect the DAT pin of the chip to the pin.
A4	Is I/O IO, and the level of I/O is the same as the voltage of the VIO input. As the IO of the CLK pin that communicates with the chip. To download and burn the PAN221x chip program, you need to connect the CLK pin of the chip to the pin.
AD1	ADC voltage acquisition, support 0V~3.3V voltage detection. (reserved)
AD2	ADC voltage acquisition, support 0V~3.3V voltage detection. (reserved)
B1	Is input IO, and the input level is the same as the voltage input by VIO. PAN-LINK RX pin for serial debugging, TTL level.
B2	Is the output IO, and the output level is the same as the voltage input by the VIO. PAN-LINK TX pin for serial debugging, TTL level.
B3	I2C_SDA (Reserved)
B4	I2C_SCL (Reserved)

Interface	Function description
	<p>Input IO, input level is 3.3V.</p> <p>When the input level is detected to flip from a high level to a low level and remain low >=100ms, it will trigger the start of offline burning. It can provide machine control to start off line burning to realize machine control automatic burning.</p> <p>When the power level is kept low, the chip will automatically trigger to start an offline burn if the connection from disconnection to successful connection.</p>
B6	Output IO, output level is 3.3V. (reserved)
C1	Input IO. (reserved)
C2	<p>Output IO, output level is 3.3V.</p> <p>is the busy state output of off-line burning, which can provide the machine station detection burning state to realize the machine station control automatic burning detection and burning results.</p> <p>When off-line burning, if C3 and C4 output high voltage at the same time, output low voltage at busy burning.</p> <p>When off-line burning, if C3 and C4 output low level at the same time, the output low level is offline download times 0, the off-line burning fails.</p> <p>When off-line burning, if the output levels of C3 and C4 are different, the output high level will complete the burning.</p>
C3	<p>Output IO, output level is 3.3V.</p> <p>is the output of off-line burning error state, which can provide machine station detection burning state to realize machine station control automatic burning detection and burning results.</p> <p>When offline burning, if C2 and C4 output high voltage at the same time, output low voltage will be burning failure.</p> <p>When offline burning, if C2 and C4 output low level at the same time, the output low level is offline download times 0, the offline burning fails.</p>
C4	<p>Output IO, output level is 3.3V.</p> <p>is the state output of off-line burning pair, which can provide the machine station detection burning state to realize the machine station control automatic burning detection and burning results.</p> <p>When offline burning, if C2 and C3 output high voltage level at the same time, output low voltage level will be considered as successful burning.</p> <p>During offline burning, if C2 and C3 output low voltage level at the same time, the output low voltage level is offline download times 0, the offline burning fails.</p>
CLK	To manually burn PAN-LINK firmware, a communication pin connected to the SWDCLK of JLink is required.
DAT	To manually burn PAN-LINK firmware, a communication pin connected to the SWDIO of JLink is required.

3.4.1.PAN221x chip burning connection

Note: The **VCC** and **VIO** of the PAN-LINK interface are short-circuited through the jumper cap.

Table 3-4 Wiring list of PAN221x chip burned by PAN-LINK

PAN-LINK Indicates the foot of the interface	connection	PAN221x chip pin
VDD	<--->	VDD
(6V)	<--->	P04/VPP
GND	<--->	GND
A2	<--->	NRST(P17)
A3	<--->	PDA(P11)
A4	<--->	PCL(P10)

3.4.2.Machine control PAN-LINK burning wiring

Note: First, you need to connect the PAN-LINK to the PAN221x chip according to [3.4.1.PAN221x chip burning connection](#).

Table 3-4-2-1 Connection table to PAN-LINK

PAN-LINK	connection	Machine
GND	<->	GND (common ground with machine)
	<->	Machine output control starts to burn foot. Switch from high (3.3V) to low and keep low > 100ms, trigger once to start burning.
C2	<->	Machine input to detect burn status foot. High (3.3V) After starting to burn, if C3 and C4 are in high normal hours at the same time, low normal hours are busy burning . After the burning starts, if C3 and C4 are in low power level at the same time, the number of offline downloads in low power level is 0, the offline burning fails . After starting burning, if C3 and C4 levels are different at the same time, the high power level is used to complete the burning .
C3	<->	Machine input test burn error result status pin. High (3.3V) After the start of burning, if C2 and C4 are at the same time at high power level, low power level is burning failure . After the burning starts, if C2 and C4 are at the same low power level, the low power level means that the number of offline downloads is 0, the offline burning fails .
C4	<->	The machine input detects the result status of the burn pair . High level (3.3V) After starting burning, if C2 and C3 are at the same time at high power level, low power level is successful burning . After starting burning, if C2 and C3 are at the same time in low power level, the number of offline downloads is 0 in low power level .

3.5.PAN-LINK manually updates the firmware program

3.5.1.Install the J-Flash driver

If the J-Flash driver has been installed, skip it.

If no, you are advised to install the **JLink_Windows_V632f** version. The **JLink_Windows_V632f** version is used as the actual description.

Download connection address: <http://bbs.panchip.com/forum.php?mod=viewthread&tid=7830&extra=>

3.5.2.Add HC32xxx J-Flash patch

1. Decompress the "HC32xxx J-Flash.zip " patch package, as shown in Figure 3-5-2-1.

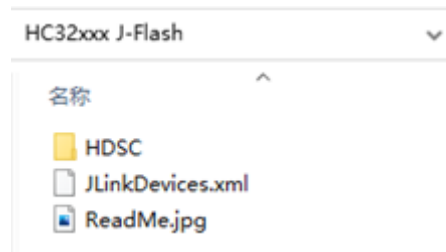


Figure 3-5-2-1 HC32xxx J-Flash Patch file

Download connection address: <http://bbs.panchip.com/forum.php?mod=viewthread&tid=7830&extra=>

2. Copy the "**HDSC**" folder shown in Figure 3-5-2-1 to the "**Devices**" folder in the J-Flash installation directory, as shown in Figure 3-5-2-2.

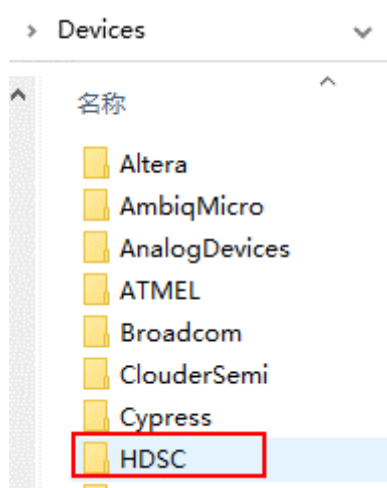


Figure 3-5-2-2 Copying HDSC to the Devices folder in the J-Flash installation directory

3. Edit the **JLinkDevices.xml** file in the J-Flash installation directory, as shown in Figure 3-5-2.

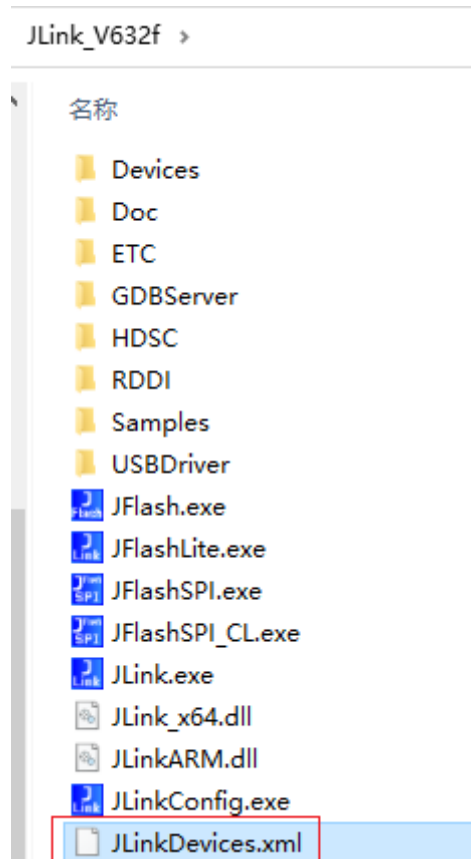


Figure 3-5-2-3 Editing JLinkDevices.xml

Copy the **HDSC(HC32)** device information from "**JLinkDevices.xml**" file in the directory shown in Figure 3-5-2 to "**JLinkDevices.xml**" file in the J-Flash installation directory.

3.5.3.Run J-Flash to set up the device and communication configuration

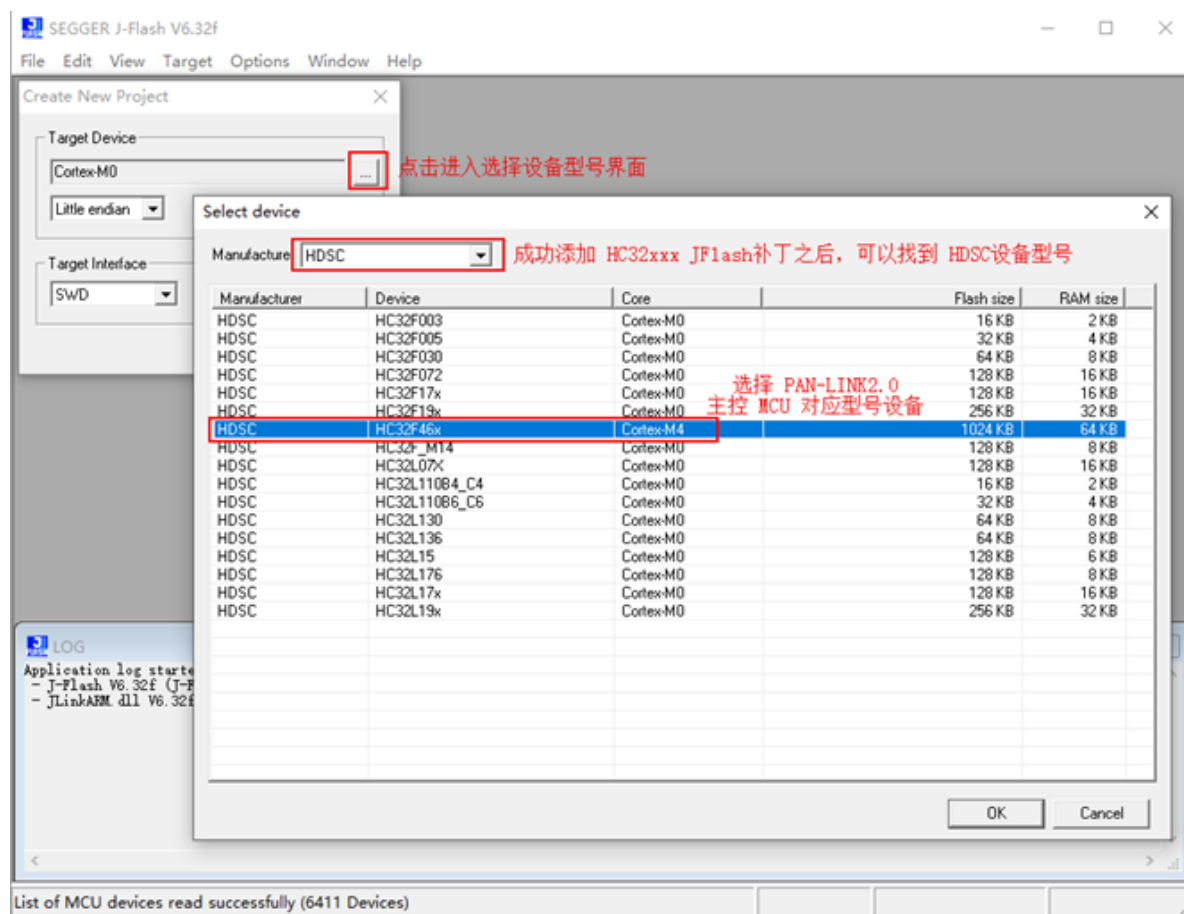


Figure 3-5-3-1 J-Flash device Settings

As shown in Figure 3-5-3-1, after running the installed J-Flash V6.3.2f, configure and select the device model.

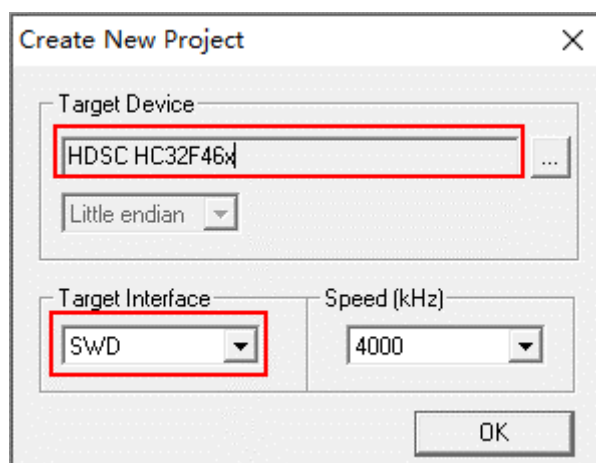


Figure 3-5-3-2 J-Flash Project Settings

As shown in Figure 3-5-3-2, equipment model "**HDSC HC32F46x**", communication mode "**SWD**", and communication rate 4000KHz by default. Then click "**OK**".

3.5.4. Load the Pan-Link 2.0 firmware program file

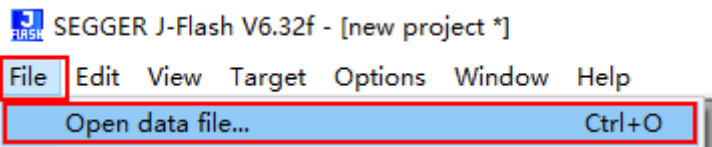


Figure 3-5-4-1 J-Flash open data file

As shown in Figure 3-5-4-1, open program data file selection for J-Flash.

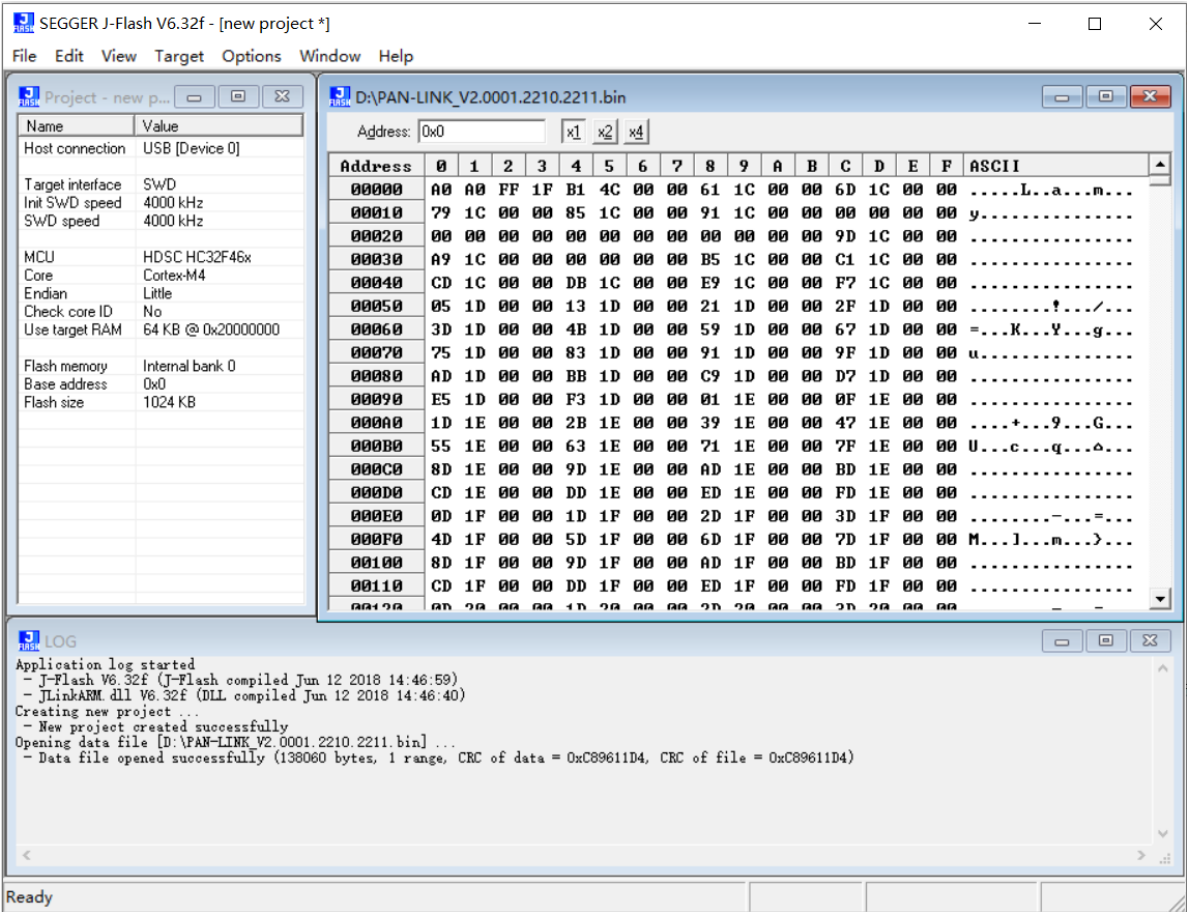


Figure 3-5-4-2 J-Flash loading PAN-LINK firmware successfully

As shown in Figure 3-5-4-2, the PAN-LINK firmware program file is successfully opened and loaded for J-Flash.

3.5.5. Run the download and update PAN-LINK firmware program

After the PAN-LINK2.0 firmware program file is successfully loaded in 3.5.4. Run the download and update Pan-Link firmware program.

3.5.5.1. J-LINK Hardware connection to PAN-LINK

PAN-LINK manual updates are connected through the SWD interface.

Table 3-5-5-1-1

J-LINK	connection	PAN-LINK
SWCK	<--->	Interface CLK (SWCLK)
SWIO	<--->	Interface DIO (SWDIO)
GND	<--->	GND

Table 3-5-5-1-1 shows the SWD hardware connection between J-LINK and PAN-LINK.



Figure 3-5-5-1-1 J-Flash loading PAN-LINK firmware successfully

Figure 3-5-5-1 shows the SWD hardware connection between J-LINK and PAN-LINK. It can be connected via Dupont wire.

3.5.5.2.The J-LINK connects to the PAN-LINK communication

Connect the J-LINK to the PC using a USB cable, and connect the PAN-LINK to the PC using a USB cable.

Then select in the J-Flash tool **Target -> Connect**, as shown in Figure 3-5-5-2-1, to establish a connection with the PAN-LINK.

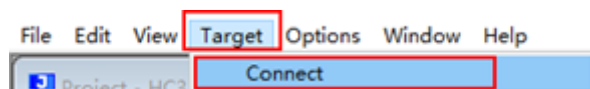


Figure 3-5-5-2-1 J-Flash Connect

If the connection succeeds, as shown in Figure 3-5-5-2-1.

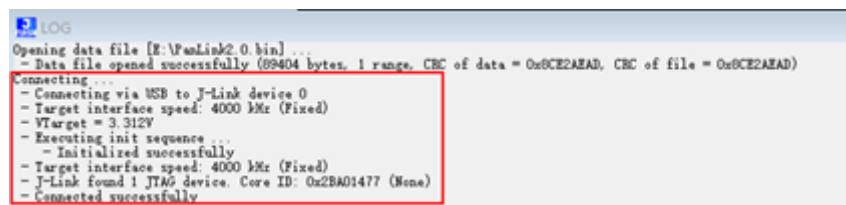


Figure 3-5-5-2-2 J-Flash Connect successfully

3.5.5.3.Erase PAN-LINK firmware program

Select J-Flash, as shown in Figure 3-5-5-3-1 **Target -> Manual Programming -> Erase Chip**, first erase the firmware program in PAN-LINK.

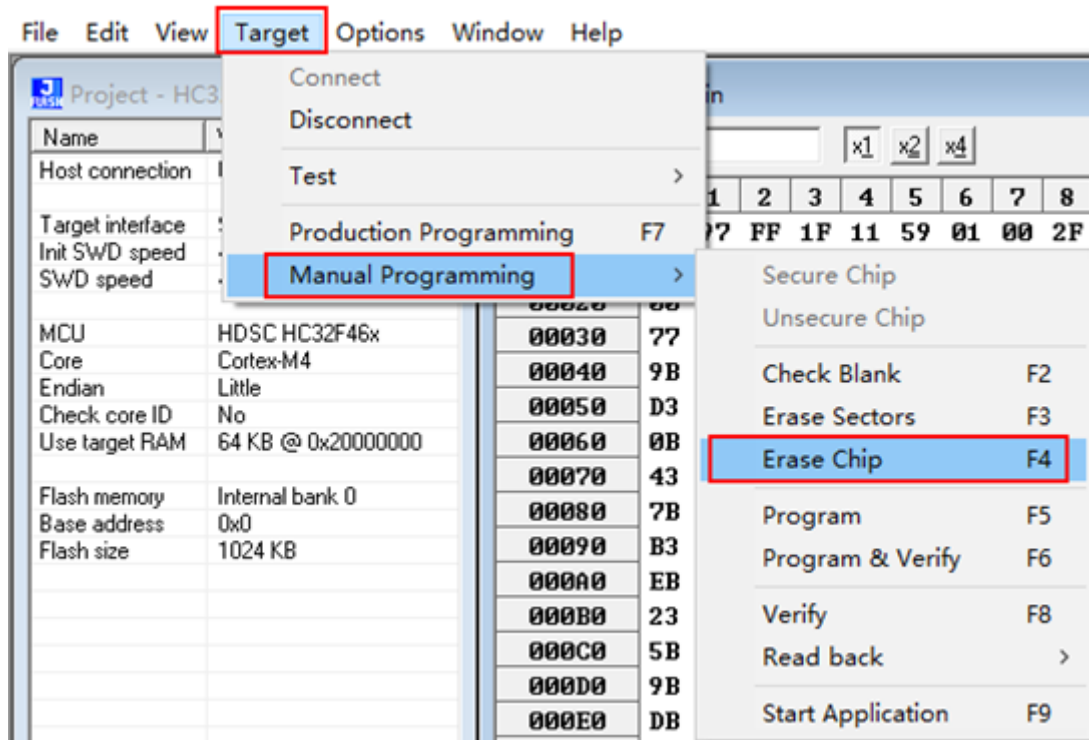


Figure 3-5-5-3-1 J-Flash Erase Chip

If the erasing succeeds, as shown in Figure 3-5-5-3-2.

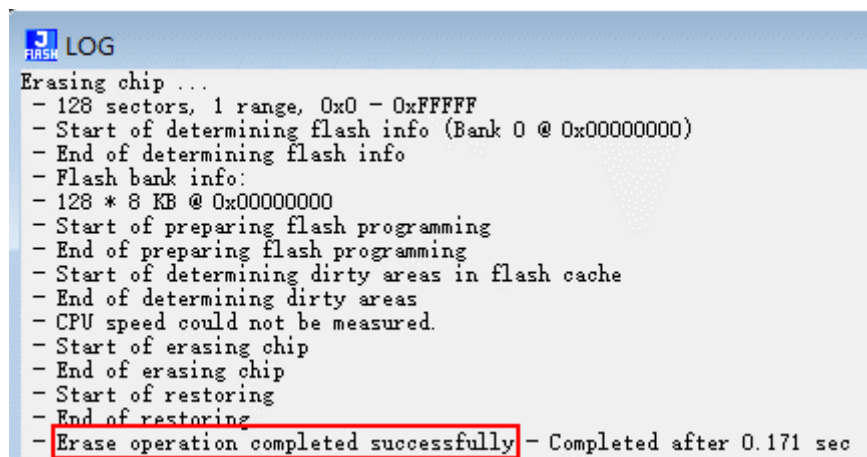


Figure 3-5-5-3-2 J-Flash Erase Chip successfully

3.5.5.4. Download firmware program and verify

As shown in Figure 3-5-5-4-1, select using J-Flash **Target -> Manual Programming -> Program & Verify**, download the firmware program to PAN-LINK and verify it.

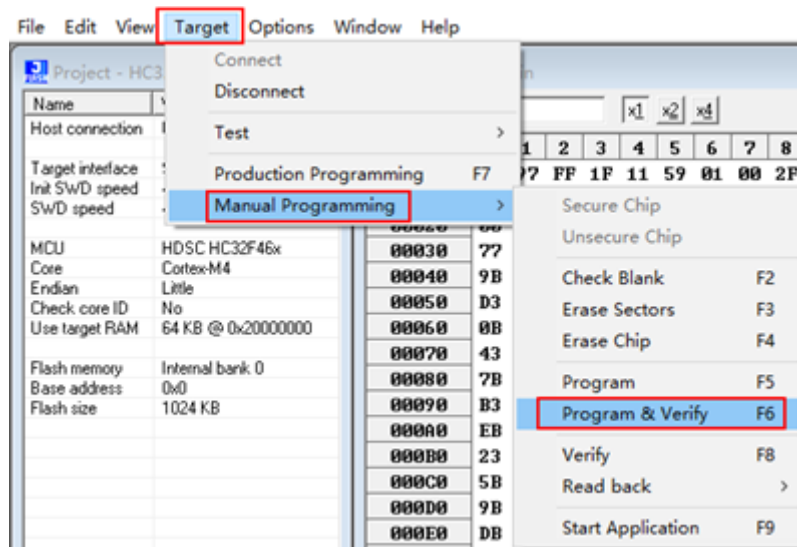


Figure 3-5-5-4-1 J-Flash Program & Verify

If the file is successfully downloaded and verified, see Figure 3-5-5-4-2.

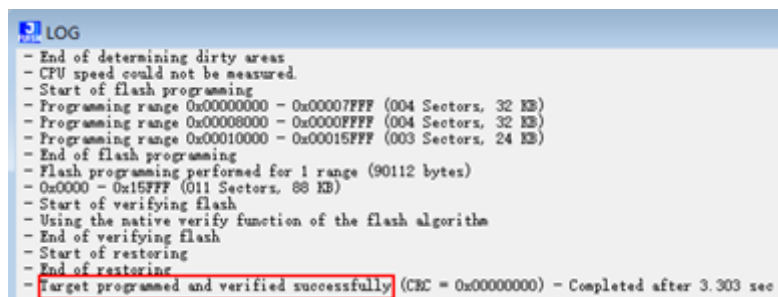


Figure 3-5-5-4-1 J-Flash Program & Verify successfully

3.5.5.5.Run updaters

Select J-Flash, as shown in Figure 3-5-5-5-1 **Target -> Manual Programming -> Start Application**, run the program after PAN-LINK update is successful.

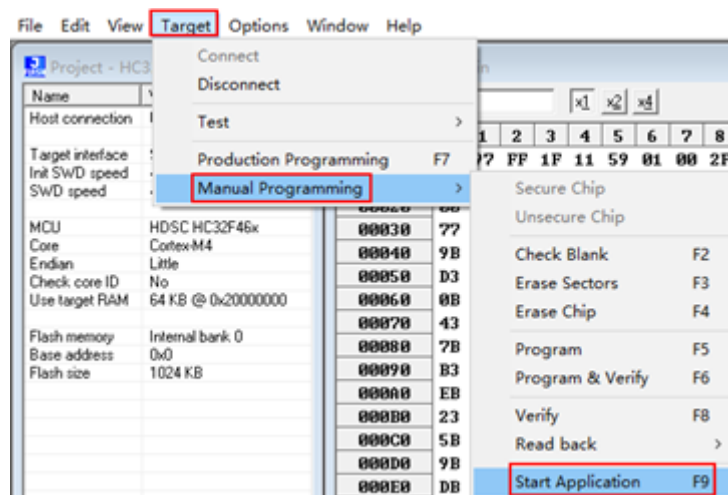


Figure 3-5-5-5-1 J-Flash Start Application

3.6.Off-line burning

Note:Offline burning must ensure that the number of remaining times in the current PAN-LINK and in the store of the project program to be downloaded and selected is greater than 0.

3.6.1. Select project program

1) Long press the **KEY1** button of PAN-LINK, hear the buzzer ring twice, enter the **selection program mode**.

2) Short press **KEY1** or **KEY2** key, switch project program selection, until switch to the project program you want to burn.

3) Long press the **KEY1** button of PAN-LINK, hear the buzzer ring twice, save the current project program select exit **select program mode** Return to **burning mode**.

3.6.2. Offline download Settings or reset

Ensure that the selected project program is set to offline burn times.

If no, open the upper computer tool, as shown in Figure 3-6-2-1. Ensure that the PAN-LINK is successfully connected to the upper computer.

1. Set the project number to 0.
2. Set offline times and password. If you want to reset the number of offline PAN-LINK downloads, you need to enter the same password as the last setting.
3. Click **Offline Settings** to set the offline test to the currently selected item of PAN-LINK.
4. The display is displayed successfully.



Figure 3-6-2-1 Setting the offline download

3.6.3. burn

After completing **3.6.1.** and **3.6.2.**, put the chip after **3.4.1.PAN221x chip burning connection**.

Short press **KEY2** of PAN-LINK to trigger offline burning.

It is also possible to trigger off-line burning by connecting the of the PAN-LINK via an external IO input by flipping from high level to low level and keeping the low level greater than 100ms.

4. Burning instance

4.1. Hardware connection preparation

Connect the PAN-LINK to the PC using a USB cable.

Ensure that the firmware program in the PAN-LINK matches the version of the upper computer tool.

By following instructions in **3.4.1. PAN221x chip burning connection**, connect the PAN-LINK to the PAN221x chip.

4.2. On-line burning

4.2.1. Select chip model

Select a chip model by referring to **2.1.2. Chip**. **Must set**

4.2.2. Setup download configuration

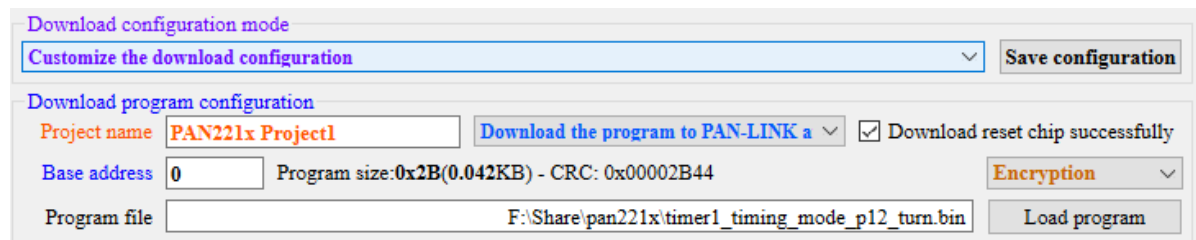


Figure 4-2-2-1 Downloading configuration Settings

As shown in Figure 4-2-2-1, set the download configuration.

1. Select the **Custom the download configuration** mode.
2. Enter the project name according to the customized setting of the project. For details, see Section **2.3.2. Download program configuration**. **Must set**
3. Choose download mode: you can choose to **Download the program to the PAN-LINK after downloading the program to the chip** or **Only download the program to the chip** two modes. **Must set**
4. download successful reset chip can be selected according to demand. This parameter is not selected by default. **optional**
5. Set the base address value. The default value is 0. **Must set**
6. **No Encryption** and **Encryption**. The value can be selected as required. The default value is not encrypted. **optional**
7. Load the program file. Load the program file you want to download. **Must set**

4.2.3. Other Configuration Settings

This section describes how to configure a roll code download based on requirements. For details, see **2.3.3. Setting the roll code download**. **optional**

If you choose to **Download the program to PAN-LINK after downloading the program to the chip** mode, you can follow **2.3.4. Setting offline download** as required. This section describes the Settings. **optional**

Follow **2.3.5. Power-on Reset Time Selection** to set the power-on reset time configuration as required. **Optional**

4.2.4.Ensure communication connection

Ensure that the PAN-LINK is successfully connected to the chip.**Must guarantee**

4.2.5.Download and burn

Click **Download** to download and burn the chip.

A successful download is shown in Figure 4-2-5-1.

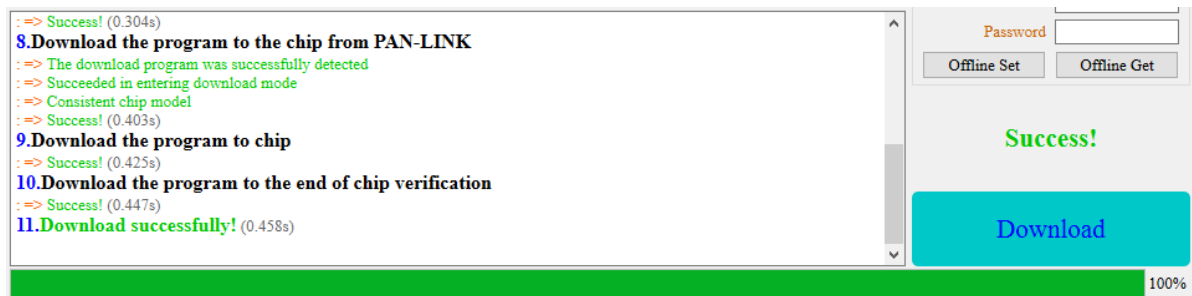


Figure 4-3-5-1 Successful download and burning

4.3.Off-line burning

4.3.1.Select chip model

Select a chip model by referring to 2.1.2.Chip. **Must set**

4.3.2.Setup download configuration

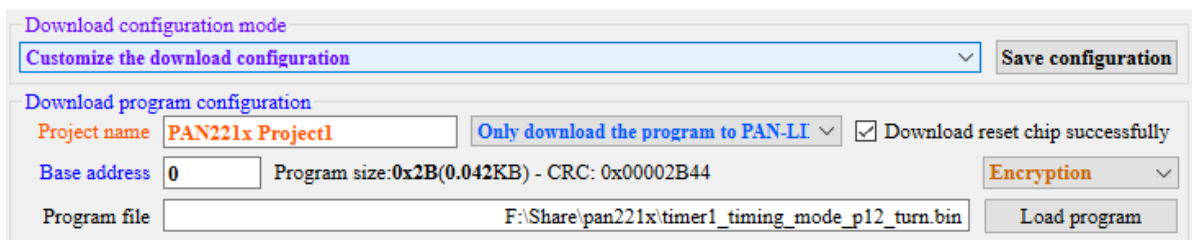


Figure 4-3-2-1 Downloading configuration Settings

Set the download configuration, as shown in Figure 4-3-2-1.

1. Select the **Custom the download configuration** mode.
2. Enter the project name according to the customized setting of the project. For details, see Section 2.3.2.Download program configuration. **Must set**
3. Select Download mode: Select **Only download the program to PAN-LINK** mode. **Must set**
4. Download successful reset chip can be selected according to demand. This parameter is not selected by default. **optional**
5. Set the base address value. The default value is 0. **Must set**
6. **No Encryption** and **Encryption**. The value can be selected as required. The default value is not encrypted. **optional**
7. Load the program file. Load the program file you want to download. **Must set**

4.3.3.Other Configuration Settings

This section describes how to configure a roll code download based on requirements. For details, see **2.3.3.Setting the roll code download.optional**

You can configure and enable offline download by following instructions in section **2.3.4.Setting offline download.Must set**

Follow **2.3.5. Power-on Reset Time Selection** to set the power-on reset time configuration as required. **Optional**

4.3.5.Ensure communication connection

Ensure that the PAN-LINK connection succeeds.**Must set**

4.3.6.Download and burn

Click **Download** to download and burn the chip.

A successful download is shown in Figure 4-3-6-1.

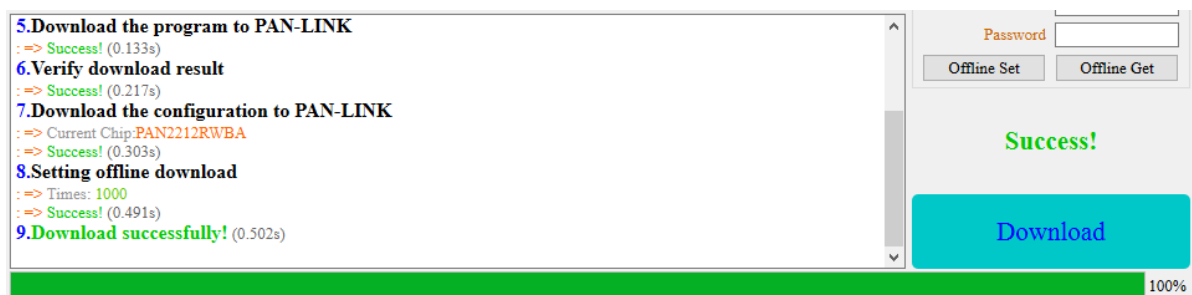


Figure 4-3-6- Successful download and burning

4.3.7.Off-line burning

After **4.3.6.Download and burn** PAN-LINK is ready for offline burning.

1. Connect the PAN-LINK to the PAN221x chip by following instructions in 3.4.1.
2. Use USB cable to connect to PAN-LINK to provide 5V power supply.
3. Short press the KEY2 button of PAN-LINK to realize offline burning.