

Abstract

HC-ISP is a new generation ISP download tool of Xinsheng, which is suitable for burning flash MCU of core 8051 series. This document mainly introduces the use of the tool to help customers improve the speed of product development.

- Currently supported chips are: hc89f0411p, hc89f0421, hc89f0431, hc89s003f4, hc89f0531, hc89f0541, hc89s103k6, hc89s105c8, hc89s105k8, hc89s105s8, hc89s105s8, hc89s001p
- Relevant data manuals, tools and technical documents can be downloaded from [www. http://www.holychip.cn/](http://www.holychip.cn/)

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1. Brief Introduction

Hc-isp is a download tool for the development and debugging of Xinsheng flash products. Users can use this tool to improve the speed of product development.

Note:

Hc-isp v1.0.0.apk is an Android version of app. Mobile phones that support OTG can use this app to download client programs.

This app only supports ISP auto programmer or usb-ttl download, not hc-link.

This app only supports downloading client applications, not option.

- ◆ Connect the user application board through ISP auto programmer or usb-ttl tool to debug
- ◆ Through hc-link V3.0, hc-link v4.0 and SDK development board, ISP download can be realized by connecting user application board
- ◆ The state change of each download channel can be observed in real time
- ◆ Select ISP auto programmer 3.3V power supply or 5.0V power supply
- ◆ You can save the option settings when you last opened it
- ◆ Resettable option settings
- ◆ Fast burning and writing speed
- ◆ Support multi-channel simultaneous Download
- ◆ Support code option selection, FLASH read and erase protection, customer information settings, burn write page, erase page selection
- ◆ Supports loading and saving HCF files (pm51 burner burning files)

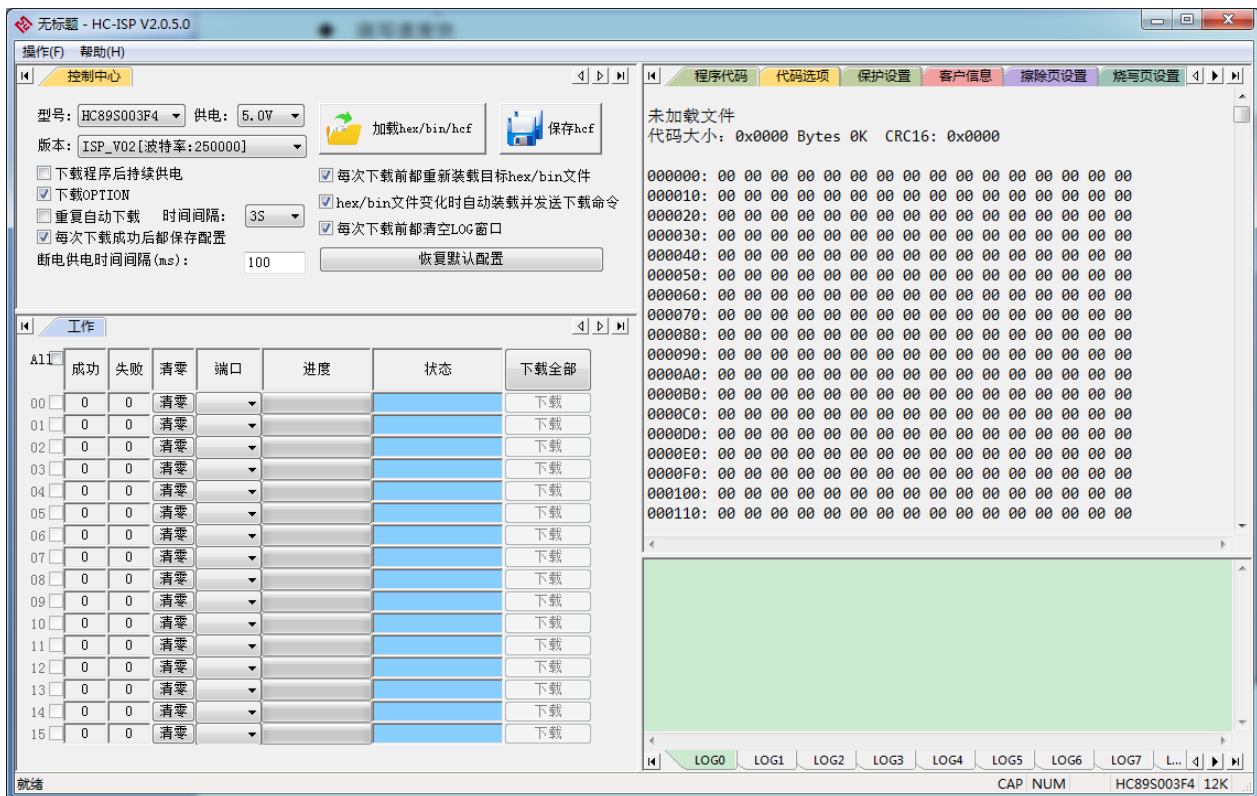


Figure 1-1 HC-ISP

2. Hardware Connection



Figure 2-1 hardware connection (HC ISP auto programmer)



Figure 2-2 hc-link V3.0 (tk-rx is the RX of hc-link, tk-tx is the TX of hc-link)

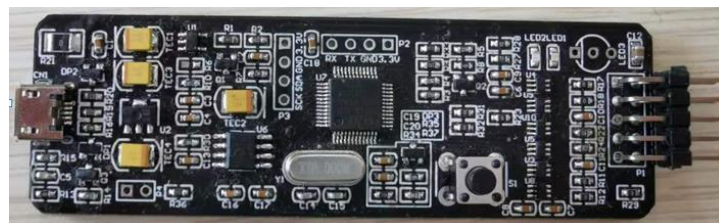


Figure 2-3 hc-link v4.0

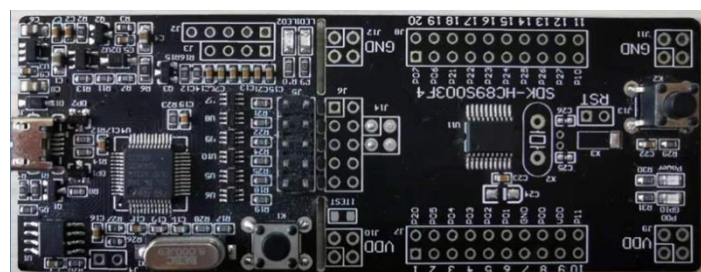


Figure 2-4 SDK development board

When HC ISP auto programmer is used for downloading, the TXD of HC ISP auto programmer is connected to ISP of MCU_RXD port, RXD connects to ISP of MCU_TXD port, and then connect

GND and VDD of HC ISP auto programmer to GND and VDD of MCU respectively.

When the usb-ttl tool is used to download, the TXD of usb-ttl is connected to the ISP of MCU_RXD port, RXD connects to ISP of MCU_TXD port, then connect the GND of usb-ttl to the GND of MCU, and then click download to power up the VDD of MCU.

When hc-link (including hc-link V3.0, hc-link v4.0, SDK development board) is used for downloading, connect the TX of hc-link to ISP of MCU_RXD port, RX connects to ISP of MCU_TXD port, and then connect GND and VDD of hc-link to GND and VDD of MCU respectively.

At present, the model of MCU supporting ISP corresponds to ISP_TXD、ISP_The RXD pin and the customer's maximum ROM capacity are shown in the following table:

MCU model	ISP_TXD pin	ISP_RXD pin	Customer ROM maximum capacity	MCU model
HC89S003F4	P2.1	P0.3	12K	HC89S003F4
HC89S001P	P0.2	P0.1	12K	HC89S001P
HC89F0431	P1.0	P1.1	12K	HC89F0431
HC89F0421	P1.0	P1.1	12K	HC89F0421
HC89F0411P	P0.0	P0.1	12K	HC89F0411P
HC89S105C8	P4.3	P3.7	60K	HC89S105C8
HC89S105K8	P4.3	P3.7	60K	HC89S105K8
HC89F0541	P2.1	P2.2	28K	HC89F0541

Form 2-1 MCU model pin and ROM capacity

3. Operation Process

This chapter will take hc89s003f4 as an example and introduce the operation process with HC ISP auto programmer

1、 After connecting the hardware, open the control center, click load hex / bin / HCF, select the hex / bin / HCF file to download, select the MCU model, power supply voltage, whether to continue power supply after downloading the program, whether to download option, whether to repeatedly download the program and its time, whether to save the configuration after each download, and the power-off time interval (MS). If not, you can click restore defaultRecognize.

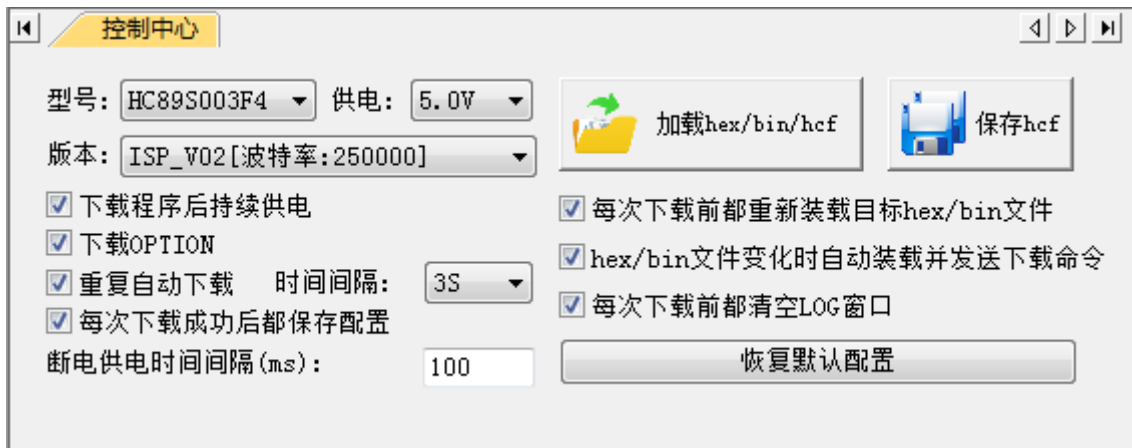
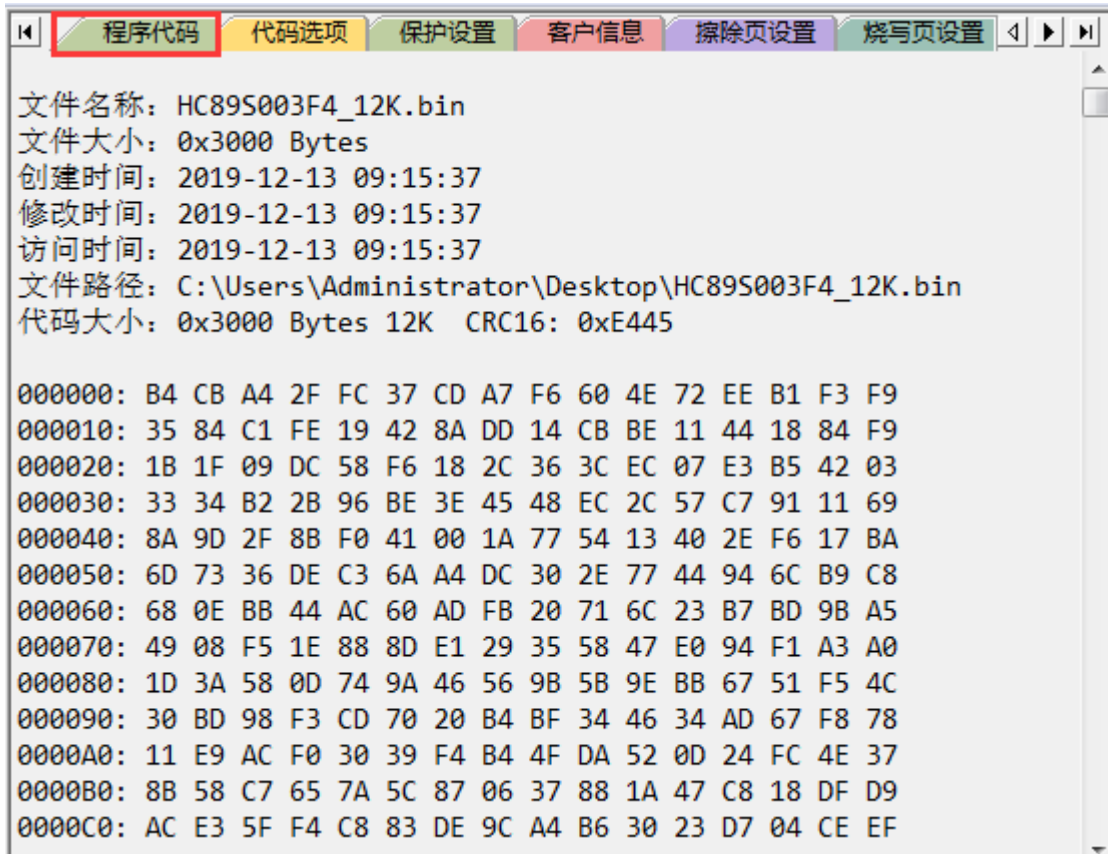


Figure 3-1 control center

2. You can observe whether the code path, check code and size are correct in the program code options



The screenshot shows a software window with several tabs: "程序代码" (Program Code), "代码选项" (Code Options), "保护设置" (Protection Settings), "客户信息" (Customer Information), "擦除页设置" (Erase Page Settings), and "烧写页设置" (Burn Page Settings). The "程序代码" tab is selected. The main area displays the following information:

```
文件名称: HC89S003F4_12K.bin
文件大小: 0x3000 Bytes
创建时间: 2019-12-13 09:15:37
修改时间: 2019-12-13 09:15:37
访问时间: 2019-12-13 09:15:37
文件路径: C:\Users\Administrator\Desktop\HC89S003F4_12K.bin
代码大小: 0x3000 Bytes 12K CRC16: 0xE445
```

Below this information is a hex dump of the code:

```
000000: B4 CB A4 2F FC 37 CD A7 F6 60 4E 72 EE B1 F3 F9
000010: 35 84 C1 FE 19 42 8A DD 14 CB BE 11 44 18 84 F9
000020: 1B 1F 09 DC 58 F6 18 2C 36 3C EC 07 E3 B5 42 03
000030: 33 34 B2 2B 96 BE 3E 45 48 EC 2C 57 C7 91 11 69
000040: 8A 9D 2F 8B F0 41 00 1A 77 54 13 40 2E F6 17 BA
000050: 6D 73 36 DE C3 6A A4 DC 30 2E 77 44 94 6C B9 C8
000060: 68 0E BB 44 AC 60 AD FB 20 71 6C 23 B7 BD 9B A5
000070: 49 08 F5 1E 88 8D E1 29 35 58 47 E0 94 F1 A3 A0
000080: 1D 3A 58 0D 74 9A 46 56 9B 5B 9E BB 67 51 F5 4C
000090: 30 BD 98 F3 CD 70 20 B4 BF 34 46 34 AD 67 F8 78
0000A0: 11 E9 AC F0 30 39 F4 B4 4F DA 52 0D 24 FC 4E 37
0000B0: 8B 58 C7 65 7A 5C 87 06 37 88 1A 47 C8 18 DF D9
0000C0: AC E3 5F F4 C8 83 DE 9C A4 B6 30 23 D7 04 CE EF
```

Figure 3-2 program code

3. Click the code option and select the corresponding configuration in the code option



Figure 3-3 code options

6In the protection configuration tab, different sectors can be protected



Figure 3-4 protection settings

7In the customer information tab, you can set the Data and ID_Data

The screenshot shows a software interface with a tabbed menu at the top. The '客户信息' (Customer Information) tab is selected and highlighted in red. Below the tabs, there are three main sections for configuration:

- SN_DATA**: Contains two input fields. '初始号 [HEX]:' is set to '0000000000000000' and '步长 [DEC]:' is set to '0'.
- ID_DATA**: Contains two input fields. '初始号 [HEX]:' is set to '0000000000000000' and '步长 [DEC]:' is set to '0'.
- 烧录器烧录芯片限制次数:** The input field is set to '0'.
- 烧录器下载烧录文件限制次数:** The input field is set to '0'.

Figure 3-5 customer information

9In the setting of erase page, the user can select the desired address for erasing. By default, full erasure is recommended. When burning, full erasure is also recommended.



Figure 3-6 erase page settings

10 In the setting of burning page, the user can select the desired address to burn. By default, the corresponding sector is burned according to the code capacity, which can reduce the burning time.



Figure 3-7 burning page setting

11After configuration, select the port and click download. The burning status can be displayed in the status window and log window.



Figure 3-8 Work UI

4.Attention

1. When the capacitance on the user's target board is large, please adjust the resistance value of the resistance in the red box below. The greater the capacitance, the smaller the resistance of welding. It is better to make the $R * C$ value within 0.2S, for example: 220uf welding below 100 Ω .

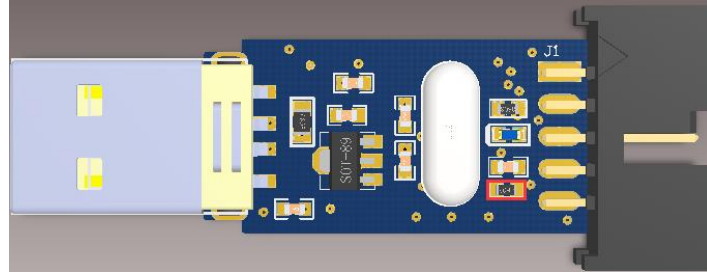


Figure 4-1 HC ISP Auto Programmer

5. Version Description

Version	Date	Description
V1.00	2018/5/24	First edition
V1.01	2018/8/22	Rewrite for hc-isp v2.0.0.0
V1.02	2018/9/13	Rewrite for hc-isp v2.0.1.0
V1.03	2018/10/18	Add MCU model of ISP Add configuration save
V1.04	2018/11/13	Increase power off interval configuration
V1.05	2019/12/13	Rewrite for hc-isp v2.0.4.0 and hc-isp v2.0.5.0 Add ISP_V01、ISP_Two versions selection function of V02 Increased support for hc-link Add the function of loading and saving HCF file

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