

## TL0402

## 8051 PROGRAM-HC-PM51-V5\_User Manual

#### Abstract

#### 8051 PROGRAM HC-PM51-V5

- It adopts USB2.0 interface, plug and play
- Support JTAG (4-wire) offline burning
- Support SWD (double line) offline burning
- Support ISP offline burning
- The chip can be encrypted
- Strict protection of customer source program
- Support machine burning
- Support offline button free automatic burning
- Support firmware upgrade
- It supports loading and saving files in \*. Hex, \*. Bin, \*. HCF



HC-PM51-V5



## Contents

| 1 | SOFTWARE INSTALLATION  | 4  |
|---|--|----|
| 2 | HARDWARE CONNECTION  | 4  |
| 3 | MASS PRODUCTION  | 5  |
|   | 3.1 Open Program File  | 5  |
|   | 3.2 DOWNLOAD PROGRAM FILE  | 6  |
|   | 3.3 MANUAL PROGRAM   | 7  |
|   | 3.4 READ CODE CRC  | 8  |
|   | 3.5 MACHINE PROGRAM  | 8  |
| 4 | R&D MODE   | 9  |
|   | 4.1 Select MCU   |    |
|   | 4.2 LOAD CODE/EEPROM   | 11 |
|   | 4.3 MCU PROTECTION   |    |
|   | 4.4 SELECT JTAG/SWD  |    |
|   | 4.5 PROGRAM VOLTAGE  | 14 |
|   | 4.6 OFFLINE AUTO PROGRAM   | 14 |
|   | 4.7 PROGRAM SETTINGS   | 14 |
|   | 4.8 SAVE PROGRAM FILE  |    |
|   | 4.9 DOWNLOAD AND PROGRAM   |    |
|   | 4.10 ONLINE OPERATION  |    |
|   | 4.11 READ MCU  |    |
|   | 4.12 EDIT  |    |
|   | 4.15 OFFLINE PROGRAM ISP FIRMWARE  |    |
|   | 4.14 RESTORE FACTORT SETTINGS  |    |
|   | 4.15 CALIBRATION SETTINGS  | 17 |
| F | THE COETWARE AND EIDAWARE LIDDATE  |    |
| 0 | 5.1.0 cmmun = Une une  |    |
|   | 5.1 SOFTWARE UPDATE  |    |
| c | 5.2 FIRMWARE OPDATE  |    |
| o | PROGRAM SOCKET BOARD   |    |
|   | 6.1 HC89S001P-SOP8-ISP   |    |
|   | 6.2 HC89S003F4-TSSOP20-ISP&JTAG  |    |
|   | 6. 3 HC89S003F4-QFN20-ISP&JIAG   |    |
|   | 0. τ ΠC075105K0-LQFF32-ISF&SWD&JIAO<br>6 5 HC80\$105K8_J OFP32_I\$P&ITΔC |    |
|   | 6.6 HC89S105S8J OFP44JSP&ITAG  |    |
|   | 6.7 HC89S105C8-LQFT4+-IST&GTAG   |    |
|   | 6.8 HC89F0411P-SOP8-ISP  |    |
|   | 6.9 HC89F0421-SOP16-ISP&JTAG   | 28 |
|   |  |    |



| 6. | . 10 | HC89F0431-SOP20/TSSOP20-ISP&JTAG | 29 |
|----|------|----------------------------------|----|
| 6. | . 11 | HC89F0431-QFN20-JTAG             | 30 |
| 6. | . 12 | HC89F0531-SOP20/TSSOP20-SWD&JTAG | 31 |
| 6. | . 13 | HC89F0531-SSOP24-SWD&JTAG        | 32 |
| 6. | . 14 | HC89F0531-QFN24-SWD&JTAG         | 33 |
| 6. | 15   | HC89F0541-SOP28/SSOP28-SWD&JTAG  | 34 |
| 6. | . 16 | HC89F0541-LQFP32/QFN32-SWD&JTAG  | 35 |
| 6. | . 17 | HC89F0650-LQFP44-ISP&JTAG        | 36 |
| 6. | . 18 | HC89F0650-LQFP48-ISP&JTAG        | 37 |
| 6. | . 19 | HC8M602-SOP16-SWD                | 38 |
| 6. | . 20 | HC89F301-SOP16-SWD               | 39 |
| 6. | . 21 | HC89F301B-SOP16-SWD              | 40 |
| 6. | . 22 | HC89F302-SOP20/DIP20-SWD         | 41 |
| 6. | . 23 | HC89F302-SOP24-SWD               | 42 |
| 6. | . 24 | HC89F302B-SOP20/DIP20-SWD        | 43 |
| 6. | . 25 | HC89F302B-SOP24-SWD              | 44 |
| 6. | . 26 | HC89F303-SOP28-SWD               | 45 |
| 6. | . 27 | HC89F303B-SOP28-SWD              | 46 |
| 6. | . 28 | HC89F3421-SOP16-SWD              | 47 |
| 6. | . 29 | HC89F3421-SOP16-JTAG             | 48 |
| 6. | . 30 | HC89F3531-SOP20/DIP20-SWD        | 49 |
| 6. | . 31 | HC89F3531-SOP20/DIP20-JTAG       | 50 |
| 6. | . 32 | HC89F3531-SOP24-SWD              | 51 |
| 6. | . 33 | HC89F3531-SOP24-JTAG             | 52 |
| 6. | . 34 | HC89F3541-SOP28-SWD              | 53 |
| 6. | . 35 | HC89F3541-SOP28-JTAG             | 54 |
| 6. | . 36 | HC89F3541-LQFP32-SWD             | 55 |
| 6. | . 37 | HC89F3541-LQFP32-JTAG            | 56 |
| 6. | . 38 | HC89F3650-LQFP44-JTAG            | 57 |
| 6. | . 39 | HC89F3650-LQFP48-JTAG            | 58 |
| 7  | VEI  | RSION DESCRIPTION                | 59 |
| -  |      |                                  |    |

# 1 Software Installation

Please refer to  $(\underline{TL0001 \text{ Driver Install Manual}})$  and  $(\underline{TL0401 \text{ 8051 PROGRAM HC-PM51-V5 Install}})$  .

# 2 Hardware Connection



Figure 2-1 HC-PM51-V5 hardware pin diagram

Accessories: A shielded USB A-type male to USB B-type male data cable A 15V DC power adapter

JTAG simulation burn pin: VDD, GND, TCK, TDO, TMS, TDI。

SWD simulation burn pin: VDD, GND, SCK, SDA $_{\circ}$ 

ISP burn pin: VDD, GND, TX, RX。

Machine pin: NG, BUS, START, GND, OK, STANDBY, VCC3V5V。

# **3 Mass Production**

| File Mode Edit Firm                  | ware MCU Devic             | e Language H         | elp                     |  |
|--------------------------------------|----------------------------|----------------------|-------------------------|--|
| Device                               | evice Comm Port Settings   |                      |                         |  |
| HC-LINK ~                            | STMicroelectronics Vir     | tual COM Port (COM9) | ~                       | Save 00 01 02 03 04 05 06 07 08 09 0a 0b 0c 0d 0e 0f |
| HC89                                 | S003F4                     | 1 CODE               | CRC: 0x0000             |  |
| File Name:                           | HC895003F4                 | HCF                  | CRC: Øx2DCB             | *****  |
| Program Files                        |                            |                      |                         | *****  |
| Download hcf                         | op Op                      | en hcf               | Save hcf                | *****  |
| MCU Settings                         | Open Hex/Bin               | MCU Protect          | PM51/LINK Settings      | ***************************************              |
| Mcu Select                           | CODE                       | FLASH_SC             | JTAG/SWD: JTAG          | ******   |
| OPTION SN/ID                         | EEPROM                     | Program Limit        | Off-lin Auto Pro        |  |
| Download Settings                    |                            | PM51-V6              |                         | ***************************************              |
| Erase Progra                         | Blank Verify               | 00 V Clear           | the Single Program File | *****  |
| Erase&Blank Settings                 | Run after Auto             | Clear Al             | Program Files           | ***************************************              |
| Online Operate                       |                            | Read M0              | 20                      | ***************************************              |
| Erase Blank Pr                       | rogram Verify              | Auto CODE            | OPTION EEPROM           | ***************************************              |
| 17:16:20 OPTION0<br>17:16:20 OPTION1 | CRC: 0xD637<br>CRC: 0x0000 |                      | ^                       |  |
|                                      |                            |                      |                         |  |
|                                      |                            |                      |                         | ******   |
|                                      |                            |                      |                         | ******   |
|                                      |                            |                      | ~                       | < >  |

Figure 3-1 main interface of mass production mode software

#### 3.1 Open Program File

| Program Files |          |          |
|---------------|----------|----------|
| Download hcf  | Open hcf | Save hcf |

Figure 3.1-1 click "Open hcf" to load the configured burning file

| 🗞 Open                               |                      |          |         |                     | ×      |
|--------------------------------------|----------------------|----------|---------|---------------------|--------|
| e -> - 🛧 📙 > 1                       | 我的电脑 > 桌面 > 8051     | ~        | Ö       | . / 搜索"8051"        |        |
| 组织▼ 新建文件夹                            |                      |          |         | -                   |        |
| 🔹 烛海访问                               | 名称 ^                 | 修改日期     |         | 类型                  | 大小     |
|                                      | HC89S003F4.hcf       | 2020/11/ | 13 17:1 | 8 HCF 文件            | 1      |
| <ul> <li>我的电脑</li> <li>例格</li> </ul> |                      |          |         |                     |        |
| File                                 | <                    |          |         | Program File(* hcf) | ~      |
| File                                 | name: HC895003F4.hcf |          | ~       | Open                | Cancel |

Figure 3.1-2 open the file dialog box, select the burning file to be loaded, and click the "open (o)" button

#### HC89S003F4

Figure 3.1-3 confirm chip model

| CODE | CRC: | 0x5634 | 0       |
|------|------|--------|---------|
| MCU  | CRC: | 0xD868 | $\circ$ |
| HCF  | CRC: | 0x282E | ۲       |

Figure 3.1-4 confirmation of code CRC, MCU CRC and HCF CRC

#### 3.2 Download Program File



Figure 3.2-1 hc-pm51-v5 is connected to the computer through USB cable. Select "hc-pm51" to confirm the device port



Figure 3.2-2 software main interface, click "download HCF" button to start downloading burning files



Figure 3.2-3 burning file downloading, please wait patiently



Figure 3.2-5 hc-pm51-v5 display screen confirms chip model and CRC, and LED lights up green

۱e

#### 3.3 Manual Program

1. Referring to "2 hardware connection", connect hc-pm51-v5 with the burning pin of the chip through DuPont wire or directly through the burning adapter board. Please refer to "6 burning adapter board" for the description of burning adapter board.

2. Power on hc-pm51-v5 through 15V DC power adapter.

3. Press the white button on the front of hc-pm51-v5 and wait for the burning to complete.

4. the burning is successful, the LED indicator is green, the buzzer sounds, and the display screen shows "pass".

3. if the burning fails, the LED indicator is red, the buzzer sounds twice, and the display screen displays the burning error message.

| Display characters | The meaning of representation                          |
|--------------------|--|
| Self_test_fail     | Self test error  |
| Error_nochip       | No chip detected                                       |
| Error_chipID       | Chip ID error  |
| PCOnLine           | Online operation mode                                  |
| PCOffLine          | Offline operation mode                                 |
| Nosupport_chip     | Unsupported chip signal                                |
| Error_EE           | EE data error  |
| Error_verify       | Flash data error                                       |
| Error_Power        | External power detection error                         |
| Error_rBlank       | Error in receiving data of space checking instruction  |
| Error_rVerify      | Error in receiving data of verification instruction    |
| Error_rCheck       | MCU check sum error                                    |
| Error_inISP        | Error in entering ISP command to receive data          |
| Error_tHands       | Handshake command timeout                              |
| Error_tErase       | Erase instruction timeout                              |
| Error_rErase       | Error in receiving data of erase instruction           |
| Error_tProgrom     | Burn command timeout                                   |
| Error_rProgrom     | Error in receiving data of burning instruction         |
| Error_tHardwar     | Hardware configuration instruction timeout             |
| Error_rHardwar     | Hardware configuration command received data error     |
| Error_tProtect     | Protection configuration command timeout               |
| Error_rProtect     | Protection configuration instruction accept data error |
| Error_tGuest       | Customer information instruction timeout               |
| Error_rGuest       | Customer information command accept data error         |
| Error_tOutisp      | Quit ISP command timeout                               |
| Error_rOutisp      | Exit ISP instruction receive data error                |
| Error_Limit        | Burn times overflow instruction                        |
| PASS               | Burning successful command                             |

Table 3.3-1 HC-PM51-V5 display prompt information

## 3.4 Read CODE CRC

After the chip has been set with ICP read protection, it can not read the burned program code.Users can click the "option" button of "Read MCU" in the main interface.

| Read MC | Read MCU |        |  |  |  |  |
|---------|----------|--------|--|--|--|--|
| CODE    | OPTION   | EEPROM |  |  |  |  |

Figure 3.2-1 read chip option

| 13:40:52 | Start Read OPTION             |
|----------|-------------------------------|
| 13:40:52 | SN_DATA[HEX]:000000000000000  |
| 13:40:52 | ID_DATA[HEX]:0000000000000000 |
| 13:40:52 | CHIP_ID[HEX]:F537740000260038 |
| 13:40:52 | CODE CRC: Øx8EA6              |
| 13:40:52 | Read OPTION Success           |

Figure 3.4-2 read chip option successfully, code CRC is 0x5634, which is consistent with code CRC in burning file

#### 3.5 Machine Program

| Burn   | Effective | Burner    | Jinchuangt | Merico  | Lu's    |
|--------|-----------|-----------|------------|---------|---------|
| signal | level     | interface | u machine  | machine | machine |
| VDD    | 3.3V∖5V   | PIN1      | PIN1       | PIN1    | PIN9    |
| GND    | GND       | PIN5      | PIN2       | PIN2    | PIN5    |
| BUSY   | "Н"       | PIN8      | PIN3       | PIN5    | PIN1    |
| OK     | "Н"       | PIN3      | PIN4       | PIN4    | PIN3    |
| NG     | "H"       | PIN9      | PIN5       | PIN3    | PIN2    |
| START  | "L"       | PIN7      | PIN9       | PIN9    | PIN4    |

Table 3.5-1 HC-PM51-V5 common machine burning pin comparison table, other machines please refer to "2 hardware connection" machine pin diagram

# 4 R&D Mode

| Engineering mode | JTAG / SWD mode              | ISP_V01/ISP_V02 mode                          |  |  |
|------------------|------------------------------|---|--|--|
|                  | JTAG:                        |   |  |  |
| Hardware         | VDD, GND, TCK, TDO, TMS, TDI | VDD, GND, ISP_TX, ISP_RX                      |  |  |
| connection       | SWD: VDD, GND, SCK, SDA      |   |  |  |
| Chip settings    | support                      | Option cannot set rvcfg (second reset vector) |  |  |
| Loading code     | ХКВ                          | Х-4 КВ  |  |  |
| Chip protection  | support                      | Flash is not supported_SC and ICP (ICP        |  |  |
|                  |                              | compulsory protection)                        |  |  |
| Communication    | JTAG/SWD                     | ISP   |  |  |
| mode             |                              |   |  |  |
| Burn settings    | support                      | I won't support it                            |  |  |
| Online operation | support                      | Not supported (please use hc-isp              |  |  |
|                  |                              | software)                                     |  |  |
| Read chip        | support                      | I won't support it                            |  |  |
| Offline burning  | support                      | п   |  |  |
| ISP firmware     |                              |   |  |  |
| Restore factory  | support                      | п   |  |  |
| settings         |                              |   |  |  |
| Calibration      | Currently only hc89s003f4 is | I won't support it                            |  |  |
| settings         | supported                    |   |  |  |

Table 4-1 JTAG / SWD mode and ISP\_V01/ISP\_Comparison table of V02 model difference

| File    | Mod | de Edi | t   | Firmware    | MCU    | Device    | Language    | Help |
|---------|-----|--------|-----|-------------|--------|-----------|-------------|------|
| De      | ~   | JTAG/9 | w   | D           |        |           |             |      |
| Н       |     | ISP_V0 | 1   |             |        |           |             |      |
| ISP_V02 |     |        |     |             |        |           |             |      |
|         |     | Produc | tic | n Mode      |        |           |             |      |
|         |     | Auto E | nte | r Productio | on Mod | e After O | pen PM File |      |

Figure 4-1 menu bar switch to JTAG / SWD mode (according to actual needs)

| File | Mo           | de  | Edit   | Firmware     | MCU    | Device    | Language    | Help |
|------|--------------|-----|--------|--------------|--------|-----------|-------------|------|
| De   |              | JTA | G/SW   | D            |        |           |             |      |
| н    | $\checkmark$ | ISP | V01    |              |        |           |             |      |
| Г    |              | ISP | _V02   |              |        |           |             |      |
|      |              | Pro | ductio | on Mode      |        |           |             |      |
|      |              | Aut | o Ente | er Productio | n Mode | e After O | pen PM File |      |

Figure 4-2 menu bar switching to ISP\_V01 mode (according to actual needs)

| File | Мо | de  | Edit    | Firmware     | MCU    | Device    | Language    | Help |
|------|----|-----|---------|--------------|--------|-----------|-------------|------|
| De   |    | JT  | AG/SW   | /D           |        |           |             |      |
| н    |    | ISF | P_V01   |              |        |           |             |      |
|      | ~  | ISF | _V02    |              |        |           |             |      |
|      |    | Pre | oductio | on Mode      |        |           |             |      |
|      |    | Au  | to Ent  | er Productio | on Mod | e After O | pen PM File |      |

Figure 4-3 menu bar switching to ISP\_V02 mode (according to actual needs)

## 4.1 Select MCU

| MCU Settings |        |
|--------------|--------|
| Mcu S        | Select |
| OPTION       | SN/ID  |

Figure 4.1-1 select MCU interface

| MCU Settings —   |   |            |
|--|---|------------|
| HC88F1 Series     HC88F6 Series     HC89F0 Series     HC89F0 Series     HC89F3 Series     HC89F3 Series     HC88L Series | ^ | HC89S003F4 |
| - HC895 Series<br>HC895003F4<br>HC895103K6<br>HC895105K8<br>HC89510558   |   | OK         |
| HC89S105C8   | ¥ | Cancel     |

Figure 4.1-2 chip model selection dialog box, select chip model and click "OK" button to exit

| PTION |             |              | - | × |
|-------|-------------|--------------|---|---|
| 4     | OPTION_ITEM | OPTION_VALUE |   |   |
| 1     | ERST_EN     | Enable       |   |   |
| 2     | WAIT_TS     | 8ms          |   |   |
| 3     | BORVS       | 2.4V         |   |   |
| 4     | RVCFG       | 0x0000       |   |   |
|       |             |              |   |   |
|       |             |              |   |   |
|       |             |              |   |   |
|       |             |              |   |   |
|       | OK          | Cancel       |   |   |

Figure 4.1-3 option settings. Please refer to the chip data manual for details

| SN_DATA,ID_DATA           |   | -          |   | × |
|---------------------------|---|------------|---|---|
| SN_DATA                   | 888888888888888888888888888888888888888 | Step[DEC]: | 0 |   |
| ID_DATA<br>Init Nr.[HEX]: | 000000000000000000000000000000000000000 | Step[DEC]: | 0 |   |
|                           | OK                                      | el         |   |   |

Figure 4.1-4 SN\_DATA, ID\_Please refer to the chip data manual for details

## 4.2 Load CODE/EEPROM



Figure 4.2-1 Load CODE/EEPROM

| 🗞 Open  |                 |          |         |     |                 |          | ×   |
|---|-----------------|----------|---------|-----|-----------------|----------|-----|
|   | 的电脑 > 桌面 > 8051 | ~        | ō       | P   | 搜索*8051*        |          |     |
| 组织 ▼ 新建文件夹  |                 |          |         |     | 8               | •        | • • |
| ▲ 快速运河  | 名称              | 修改日期     |         |     | 美型              |          | 大小  |
| COAL 401-0  | Test.hex        | 2020/11/ | 16 13:4 | )   | HEX 文件          |          | 3   |
| <ul> <li>▲ WPS网盘</li> <li>● 我的电脑</li> <li>● 网络</li> </ul> |                 |          |         |     |                 |          |     |
|   | <               |          |         |     |                 |          |     |
| File na   | me: Test.hex    |          | ~       | Hex | /Bin Files(*.he | x;*.bin) | ~   |
|   |                 |          |         |     | Open            | Can      | cel |

Figure 4.2-2 file open dialog box, select the target \*. Hex file generated by keil software

| 4  | Page  | Address       |                       |  |
|----|-------|---------------|-----------------------|--|
| 0  | 00-11 | 0x0000-0x2FFF |                       |  |
| 1  | 00    | 0x0000-0x03FF | Y                     |  |
| 2  | 01    | 0x0400-0x07FF | Y                     |  |
| 3  | 02    | 0x0800-0x0BFF |                       |  |
| 4  | 03    | 0x0C00-0x0FFF |                       |  |
| 5  | 04    | 0x1000-0x13FF |                       |  |
| 6  | 05    | 0x1400-0x17FF | Y                     |  |
| 7  | 06    | 0x1800-0x1BFF | Y                     |  |
| 8  | 07    | 0x1C00-0x1FFF | Y                     |  |
| 9  | 08    | 0x2000-0x23FF | Y                     |  |
| 10 | 09    | 0x2400-0x27FF | <ul> <li>✓</li> </ul> |  |
| 11 | 10    | 0x2800-0x2BFF | <ul> <li>✓</li> </ul> |  |
| 12 | 11    | 0x2C00-0x2FFF | <ul> <li>✓</li> </ul> |  |
|    |       |               |                       |  |
|    |       |               |                       |  |
|    |       |               |                       |  |
|    |       |               |                       |  |

Figure 4.2-3 select which address codes to load (without special requirements, it is recommended not to modify this configuration, all codes are loaded by default)

| CODE | CRC: | 0x5634 | Ο |
|------|------|--------|---|
| MCU  | CRC: | 0xD868 | 0 |
| HCF  | CRC: | 0x282E | ۲ |

Figure 4.2-4 CRC window to confirm whether "code CRC" is consistent with code CRC in keil software output window

## 4.3 MCU Protection

| MCU Protect   |
|---------------|
| FLASH_SC      |
| IAP ICP       |
| Program Limit |

Figure 4.3-1 chip protection interface

| FLASH_SC |    | _     |       | $\times$ |
|----------|----|-------|-------|----------|
| Old SC:  |    | 00000 | 000   |          |
| New SC:  |    | 00000 | 000   |          |
|          | OK | Ca    | ancel |          |

Figure 4.3-2 flash\_SC configuration dialog box, hexadecimal input, please refer to the chip data manual for details

| 4      |       |               |
|--------|-------|---------------|
| Δ      | Page  | Address       |
| 0      | 00-15 | 0x0000-0x3FFF |
| 1      | 00-03 |               |
| 2      | 04-07 |               |
| 3<br>4 | 12-15 |               |
| -      | 12 10 |               |
|        |       |               |
|        |       |               |
|        |       |               |
|        |       |               |
|        |       |               |
|        |       |               |
|        |       |               |
|        |       |               |
|        |       |               |
|        |       |               |

Figure 4.3-3 IAP and ICP configuration dialog box, please refer to chip data manual for details

| rogram Limit                |             | -      |             |
|-----------------------------|-------------|--------|-------------|
| Program file name:          |             | HC8956 | )03F4       |
| Program file password[HEX]: |             | 0000   | 1000        |
| Max program timesDEC]:      |             | 0      |             |
| Max download times[DEC]:    |             | 0      |             |
| Binding programmer U_ID     |             |        |             |
| Clear                       |             |        |             |
| Cica                        | Open Config |        | Save Config |
| U_ID                        | Open Config |        | Save Config |
| U_ID                        | Open Config |        | Save Config |
| U_ID                        | Open Config |        | Save Config |
| U_ID                        | Open Config |        | Save Config |
| U_ID                        | Open Config |        | Save Config |

Figure 4.3-4 "burn limit" setting

"Burning file name":

After the burning file is downloaded to the burner, the project file name displayed on the burner display screen.

"Burn file anti change password [hex]":

Hc-pm51 software will switch to the mass production mode after loading the burning file. This mode does not allow customers to modify the configuration. It needs to switch to JTAG / SWD / ISP mode to modify. This password needs to be verified when switching mode. Hex means hexadecimal.

"Chip burn limit [Dec]":

The maximum number of times to burn a chip is Dec, and O is no limit.

"File download limit"

The maximum allowable number of times to download the burners for burning files is Dec, and O means that the downloading times are not limited.

"Binding device u\_ID":

Burning files are only allowed to be downloaded to these burners in the list. You can query the device u through the "device" menu bar\_ID".

#### 4.4 Select JTAG/SWD



Figure 4.4-1  $\rm pm51$  / link setting, JTAG / SWD communication mode selection button

| JTAG/SWD | - |      | $\times$ |
|----------|---|------|----------|
| JTAG/SWD |   | JTAG | ~        |
| OK       |   | Canc | el       |

Figure 4.4-2 JTAG / SWD communication mode selection dialog box

#### 4.5 Program Voltage



Figure 4.5-1 pm51 / link setting, reset and power setting buttons

| Reset Mode, Power Supply Mode, Time Settings — |    | X      |
|--|----|--------|
| Reset Mode and Power Supply Mode Settings      |    |        |
| POR, PM51/LINK 5.0V PoE                        |    | $\sim$ |
| POR Time(ms) or Reset Level Time(ms) Settings: | 50 | ~      |
| OK   | ]  |        |

Figure 4.5-2 dialog box of reset mode, power supply mode selection, power down time / reset level duration (MS)

If there is a large capacitance on the board, please adjust the power down time / reset level duration (MS) according to figure 4.5-2

#### 4.6 Offline Auto Program

| PM51/LINK Settings |
|--------------------|
| JTAG/SWD: JTAG     |
|                    |
| Reset,Power        |

Figure 4.6-1 setting of offline burning. When the chip is connected with the burner, it will be automatically burned. There is no need to press the key, so it is easy to operate If there is a large capacitance on the board, please adjust the power down time / reset level duration (MS) according to figure 4.5-2

#### 4.7 Program Settings

| Download S | Settings    |            |         |
|------------|-------------|------------|---------|
| Erase      | Progra      | 🗹 Blank    | Verify  |
| Erase&Bla  | nk Settings | 🗌 Run afte | er Auto |

Figure 4.7-1 burning settings Configure whether to "erase", "burn" and "verify" Erase can be set to "full erase" or "erase by page" Power on after automatic operation: use hc-link-v4, click the "auto" button, and power on the chip after successful online burning

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| ⊿  | Page  | Address       |                       |  |
|----|-------|---------------|-----------------------|--|
| 0  | 00-15 | 0x0000-0x3FFF | Y                     |  |
| 1  | 00    | 0x0000-0x03FF | <ul> <li></li> </ul>  |  |
| 2  | 01    | 0x0400-0x07FF | <ul> <li>✓</li> </ul> |  |
| 3  | 02    | 0x0800-0x0BFF | <ul> <li></li> </ul>  |  |
| 4  | 03    | 0x0C00-0x0FFF | <ul> <li>✓</li> </ul> |  |
| 5  | 04    | 0x1000-0x13FF | <ul> <li></li> </ul>  |  |
| 6  | 05    | 0x1400-0x17FF | <ul> <li>✓</li> </ul> |  |
| 7  | 06    | 0x1800-0x1BFF | <ul> <li>✓</li> </ul> |  |
| 8  | 07    | 0x1C00-0x1FFF | <ul> <li>✓</li> </ul> |  |
| 9  | 08    | 0x2000-0x23FF | <ul> <li>✓</li> </ul> |  |
| 10 | 09    | 0x2400-0x27FF | <ul> <li></li> </ul>  |  |
| 11 | 10    | 0x2800-0x2BFF | <ul> <li></li> </ul>  |  |
| 12 | 11    | 0x2C00-0x2FFF | <ul> <li></li> </ul>  |  |
| 13 | 12    | 0x3000-0x33FF |                       |  |
| 14 | 13    | 0x3400-0x37FF |                       |  |
| 15 | 14    | 0x3800-0x3BFF | <ul> <li>✓</li> </ul> |  |
| 16 | 15    | 0x3C00-0x3FFF |                       |  |

Figure 4.7-2 setting of erasing blank page  $% \left( {{{\rm{Figure}}} \right)$ 

#### 4.8 Save Program File



Figure 4.8-1 "save HCF" button in main interface



Figure 4.8-2 save file dialog box, select the save path and click the "save (s)" button to save the burned file to the local disk

#### 4.9 Download And Program

Please refer to "3.2 download burning file", "3.3 manual burning", "3.4 read code CRC", "3.5 machine burning".

## 4.10 Online Operation

| Online Ope | erate |         |        |      |
|------------|-------|---------|--------|------|
| Erase      | Blank | Program | Verify | Auto |

Figure 4.10-1 online operation, single operation of erasing, checking, burning and verifying

#### 4.11 Read MCU

| Read MCU |        |        |  |  |  |  |  |  |  |  |
|----------|--------|--------|--|--|--|--|--|--|--|--|
| CODE     | OPTION | EEPROM |  |  |  |  |  |  |  |  |

Figure 4.11-1 reads the chip code, option and EEPROM. After the chip is set with read protection, the read code data window displays all 0  $\,$ 

#### 4.12 Edit

| File | Mode    | Edit | Firmware     | MCU | De | vice    | Langua   | ge Hel | lр |
|------|---------|------|--------------|-----|----|---------|----------|--------|----|
| De   | evice   |      | Reset Config | 9   |    |         |          |        |    |
| Н    | IC-PM51 |      | Edit CODE    |     |    | Virtual | COM Port | (COM9) |    |
| Г    |         |      | Edit EEPROI  | N   |    |         | [        | CODE C | CR |

Figure 4.12 - 1 restore the default configuration, edit code and edit  $\mbox{EEPROM}$ 

| 000000h : | 66 | 86 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | ····· ^                               | Set Random Data   |
|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------------------------------|-------------------|
| 000010h : | 99 | 86 | 66 | 66 | 99 | 99 | 99 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       |                   |
| 000020h:  | 66 | 99 | 66 | 66 | 66 | 99 | 66 | 99 | 99 | 99 | 99 | 66 | 66 | 66 | 66 | 66 |                                       |                   |
| 000030h : | 66 | 66 | 86 | 56 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       | Set 0x00          |
| 000040h : | 99 | 99 | 66 | 66 | 99 | 99 | 66 | 99 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       |                   |
| 000050h:  | 66 | 99 | 66 | 66 | 66 | 99 | 66 | 99 | 99 | 99 | 99 | 66 | 66 | 66 | 66 | 66 |                                       |                   |
| 000060h : | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       | C-10-FF           |
| 000070h:  | 66 | 66 | 66 | 66 | 86 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       | Set UXFF          |
| 000080h:  | 66 | 55 | 96 | 55 | 99 | 55 | 55 | 55 | 96 | 96 | 96 | 66 | 66 | 55 | 66 | 66 |                                       |                   |
| 000090h : | 66 | 55 | 66 | 66 | 66 | 55 | 66 | 55 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       |                   |
| 0000A0h : | 66 | 99 | 66 | 66 | 99 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       | Set 0x55          |
| 0000B0h : | 66 | 66 | 99 | 66 | 66 | 99 | 66 | 99 | 90 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       |                   |
| 0000C0h : | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       |                   |
| 0000D0h:  | 88 | 55 | 86 | 66 | 88 | 66 | 66 | 66 | 99 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       | Set 0xAA          |
| 0000E0h:  | 66 | 66 | 66 | 56 | 66 | 66 | 66 | 66 | 96 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       |                   |
| 0000F0h:  | 66 | 66 | 55 | 66 | 66 | 66 | 66 | 66 | 55 | 66 | 66 | 55 | 55 | 66 | 55 | 66 |                                       |                   |
| 000100h : | 88 | 99 | 66 | 66 | 88 | 99 | 66 | 99 | 66 | 99 | 99 | 66 | 66 | 66 | 66 | 66 |                                       | Set 0.5566        |
| 000110h:  | 66 | 66 | 86 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       | 3600033444        |
| 000120h:  | 88 | 55 | 86 | 66 | 66 | 86 | 88 | 66 | 66 | 66 | 66 | 88 | 88 | 66 | 88 | 66 |                                       |                   |
| 000130h:  | 66 | 99 | 66 | 66 | 66 | 99 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       |                   |
| 000140h : | 66 | 66 | 86 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       | Set UxAA55        |
| 000150h:  | 88 | 86 | 86 | 66 | 66 | 86 | 86 | 66 | 66 | 66 | 66 | 88 | 88 | 66 | 88 | 66 |                                       |                   |
| 000160h:  | 66 | 99 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       |                   |
| 000170h:  | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       | Set Diagonal 0x5  |
| 000180h:  | 66 | 66 | 66 | 66 | 88 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 |                                       |                   |
| 000190h:  | 88 | 86 | 88 | 56 | 66 | 99 | 66 | 99 | 88 | 99 | 99 | 66 | 66 | 99 | 66 | 00 |                                       |                   |
| 0001A0h:  | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | 66 | · · · · · · · · · · · · · · · · · · · | Set Diagonal 0xAv |

Figure 4.12-2 edit data dialog box, the data in the black window can be modified directly, and copy and paste operations are supported

## 4.13 Offline Program ISP Firmware

| File Mode Edit | Firmware                    | MCU Device Language Help     |
|----------------|-----------------------------|------------------------------|
| Device         | Comm                        | Offline Program ISP Firmware |
| HC-PM51        | <ul> <li>✓ STMic</li> </ul> | Factory Reset                |
|                |                             | Calibration                  |

Figure 4.13-1 check this configuration when offline burning ISP firmware

#### 4.14 Restore Factory Settings

| File | Mode   | Edit | Firm   | ware  | MCU | Device     | Language     | Help  |
|------|--------|------|--------|-------|-----|------------|--------------|-------|
| De   | vice   |      |        | Comm  | O   | ffline Pro | gram ISP Fir | mware |
| Н    | C-PM51 |      | $\sim$ | STMic | Fa  | actory Re  | set          |       |
|      |        |      |        |       | С   | alibration | n            |       |

Figure 4.14-1 restore factory settings

Only "full erase" can be selected for erasing, which is applicable to the following two situations:

1. When the chip burning ISP firmware offline wants to use JTAG / SWD burning port again

2. Forget flash\_SC, when you want to burn again

#### 4.15 Calibration Settings

| Calibration | ×      |
|-------------|--------|
| Vref        |        |
| IRC         |        |
| OS          |        |
| ОК          | Cancel |

Figure 4.15-1 calibration settings dialog box

#### 4.16 Query Device U\_ID

| File      | Mode | Edit | Firr   | nware | MCU      | Devi | ce   | Lan   | guage   | Help |
|-----------|------|------|--------|-------|----------|------|------|-------|---------|------|
| De        | vice |      |        | Comm  | Port Set |      | Get  | t Dev | ice U_I | 2    |
| HC-PM51 ~ |      |      | $\sim$ | STMi  |          | Rep  | pair |       |         |      |
|           |      |      |        |       | ~        | n    |      |       |         |      |

Figure 4.16-1 Query Device U\_ID

#### 14:46:59 U\_ID: 56 FF 71 06 66 72 54 53 59 38 22 87

Figure 4.16-2 Query Device U\_ID

## 5 Software And Firmware Update

#### 5.1 Software Update

Each time the upper computer software is opened, it will automatically connect to the Xinsheng official website. If the official website software is updated, the upper computer software will automatically pop up the software update prompt window, and the user can go to the Xinsheng official website (http://www.holychip.cn) Download the latest software.

#### 5.2 Firmware Update

When downloading burning files in 3.2, the upper computer software will automatically check whether the firmware of the lower computer is the latest version. If the firmware does not match, the upper computer software will prompt the user to update the firmware.

Before firmware update, please connect the USB of hc-pm51-v5 to the computer. Refer to figure 3.2-1 to check whether the device port is correctly selected.



Figure 5-1 menu bar "firmware", "update firmware"



Figure 5-2 firmware update, running

| 14:12:19 | Update | Success  |          |       |     |     |      |
|----------|--------|----------|----------|-------|-----|-----|------|
| 14:12:19 | Update | firmware | success, | power | off | the | pm51 |
| please!  |        |          |          |       |     |     |      |

Figure 5-3 firmware update is successful. Please wait patiently for hc-pm51-v5 hardware reset, and the burner firmware is updated successfully after the buzzer "drops"

## 6 Program Socket Board

1. The red wire in the wiring diagram indicates that the user needs to connect the two pins of the red wire with a 0 ohm resistor.

2. Users can also weld all the pins on the adapter board with a row of pins, and use the jumper cap to short circuit according to the schematic diagram when burning different models.

Users can use this burning adapter board to connect the burners to chips with any pin position.

When using, please insert the double row female socket on the adapter board into the adapter of the burner (pay attention to the direction of the concave and convex port), and insert the chip socket adapter into the 48pin locking seat on the adapter board.

The mapping principle and schematic diagram of adapter board pin position are as follows:

The p1-p48 pins of the locking seat are respectively connected with the pins 1-48 screen printed on the adapter plate. For example: P1 pin of locking base is connected with three pins with screen printing of 1, p2-p48 and pins with screen printing of 2-48, and so on.

VDD, GND, TCK, TMS, TDI, TDO, TX and Rx on the adapter board are respectively connected with VDD, GND, TCK / sck, TMS, TDI, TDO / SDA, TX and Rx on the burner.

The TDI / TX and TDO / RX pins on the adapter board can be connected to the corresponding TDI, TX, TDO and Rx pins on the burner according to the JTAG / ISP dual channel code pulling switch. For example: when the switch is pulled to JTAG, the TDI / TX pin on the adapter board is connected with the TDI pin on the burner, and the TDO / RX pin on the adapter board is connected with the TDO on the burner; when the switch is pulled out to ISP, the TDI / TX pin on the adapter board is connected with the TDI pin on the TDI pin on the burner, and the TDO / RX pin on the adapter board is connected with the TDI pin on the burner.

| VDD | 1 - | GND | TCK | 1   | TMS | and the second value of th | 1  | -      | ₱1   | P48 < | -       | 48 | -      | TMS | 48 | TCK | CND | 48 | VDD        |
|-----|-----|-----|-----|-----|-----|--|----|--------|------|-------|---------|----|--------|-----|----|-----|-----|----|------------|
| VDD | 2   | OND | TCK | 2   | TMS | -  | 2  | -      | ► P2 | P47 < |         | 47 | -      | TMC | 47 | TCK | CND | 47 | VDD        |
| VDD | 3   | GND | TCK | 3   | TMS | TDI/TX   | 3  | TDO/RE | P3   | P46   | TDO/RE  | 46 | TDI/TX | TMS | 46 | TCK | GND | 46 | VDD        |
| VDD | 4   | GND | TCK | 4   | TMS | TDI/TI   | 4  | TD0/RX | P4   | P45   | TDO/RI  | 45 | TDI/TI | TMS | 45 | TCK | GND | 45 | VDD        |
| VDD | 5   | GND | TCK | 5   | TMS | TDI/TX   | 5  | TDO/RI | P5   | P44   | TDO/RX  | 44 | TD1/TX | TMS | 44 | TCK | GND | 44 | VDD        |
| VDD | 6   | GND | TCK | 6   | TMS | TDI/TK   | 6  | TDO/RX | P6   | P43   | TD0/RX  | 43 | TDI/TX | TMS | 43 | TCK | GND | 43 | VDD        |
| VDD | 7   | GND | TCK | 7   | TMS | TDI/TX   | 7  | TD0/RX | P7   | P42   | TDO/RI  | 42 | TDI/TX | TMS | 42 | TCK | GND | 42 | VDD        |
| VDD | 8   | GND | TCK | 8   | TMS | TDI/TH   | 8  | TD0/RI | P8   | P41   | T90/RX  | 41 | TDI/TX | TMS | 41 | TCK | GND | 41 | VDD        |
| VDD | 9   | GND | TCK | 9   | TMS | TDI/TX   | 9  | TDO/RE | P9   | P40   | TDO/RX  | 40 | TDI/TX | TMS | 40 | TCK | GND | 40 | VDD        |
| VDD | 10  | GND | TCK | 10  | TMS | TDI/TX   | 10 | TDO/RE | P10  | P39   | TDO/RX  | 39 | TDI/TX | TMS | 39 | TCK | GND | 39 | VDD        |
| VDD | 11  | GND | TCK | 11  | TMS | TDI/TX   | 11 | TD0/RI | P11  | P38   | TD0/RE  | 38 | TDI/TX | TMS | 38 | TCK | GND | 38 | VDD        |
| VDD | 12  | GND | TCK | 12  | TMS | TDI/TX   | 12 | TDO/RX | P12  | P37   | TDO/RX  | 37 | TDI/TX | TMS | 37 | TCK | GND | 37 | VDD        |
| VDD | 13  | GND | TCK | 13  | TMS | TDI/TH   | 13 | TDO/RI | P13  | P36   | TDO/RI  | 36 | TDI/TI | TMS | 36 | TCK | GND | 36 | VDD        |
| VDD | 14  | GND | TCK | 14  | TMS | TDI/TX   | 14 | TD0/RT | P14  | P35   | TDO/RE  | 35 | TDI/TX | TMS | 35 | TCK | GND | 35 | VDD        |
| VDD | 15  | GND | TCK | 15  | TMS | TDI/TX   | 15 | TDO/RE | P15  | P34   | TDO/RI  | 34 | TDI/TX | TMS | 34 | TCK | GND | 34 | VDD        |
| VDD | 16  | GND | TCK | 16  | TMS | TDI/TX   | 16 | TD0/RI | P16  | P33   | TDO/RI  | 33 | TDI/TI | TMS | 33 | TCK | GND | 33 | VDD        |
| VDD | 17  | GND | TCK | 17  | TMS | TDI/TX   | 17 | TDO/RX | P17  | P32   | TDO/RX  | 32 | TDI/TX | TMS | 32 | TCK | GND | 32 | VDD        |
| VDD | 18  | GND | TCK | 18  | TMS | TD1/TX   | 18 | TD0/RE | P18  | P31   | TDO/RE  | 31 | TDI/TE | TMS | 31 | TCK | GND | 31 | VDD        |
| VDD | 19  | GND | TCK | 19  | TMS | TDI/TH   | 19 | IDO/RE | P19  | P30   | TDO/RE  | 30 | TDI/TI | TMS | 30 | TCK | GND | 30 | VDD        |
| VDD | 20  | GND | TCK | 20  | TMS | TDI/TX   | 20 | TDO/RI | P20  | P29   | TDO/RI  | 29 | TDI/TX | TMS | 29 | TCK | GND | 29 | VDD        |
| VDD | 21  | GND | TCK | 21  | TMS | TDI/TX   | 21 | TDO/RI | P21  | P28   | TDO/RIL | 28 | TDI/TX | TMS | 28 | TCK | GND | 28 | VDD        |
| VDD | 22  | GND | TCK | 22  | TMS | TDI/TX   | 22 | TD0/RX | P22  | P27   | TDO/RE  | 27 | TDI/TE | TMS | 27 | TCK | GND | 27 | VDD        |
| VDD | 23  | GND | TCK | 23  | TMS | TDI/TI   | 23 | TDO/RI | P23  | P26   | TDO/RX  | 26 | TDI/TI | TMS | 26 | TCK | GND | 26 | VDD        |
| VDD | 24  | GND | TCK | 24  | TMS | 101.00   | 24 | -      | P24  | P25   | -       | 25 |        | THS | 25 | TCK | GND | 25 | <b>WDD</b> |
| 4   |     |     |     |     |     |  |    |        |      |       |         |    |        |     |    |     |     |    |            |
|     |     |     |     |     |     |  |    |        |      |       |         |    |        |     |    |     |     |    |            |
| VDD | RX  | TX  | NG  | NG  |     |  |    |        |      |       |         |    |        |     |    |     |     |    |            |
| TMS | TCK | TDO | TDI | GND |     |  |    |        |      |       |         |    |        |     |    |     |     |    |            |

Figure 6-1 schematic diagram of burning adapter board

#### 6.1 HC89S001P-SOP8-ISP



#### 6.2 HC89S003F4-TSSOP20-ISP&JTAG

A RX UN 48 . 0 0 0 0 0 0 0 0 0 44 C . ...... 0 0 0 0 0 0 0 0 0 34 0 0 0 0 0 0 0 0 32 22 6 6 6 23 6 6 6 6 C 24 6 6 6 25 8 H G JTAG/SU SP

#### 6.3 HC89S003F4-QFN20-ISP&JTAG

TA B RX UN 48 RR 0 0 48 . . 0 0 0 0 0 0 0 0 46 ..... 0 0 0 0 0 0 0 0 0 32 G 22 6 6 6 23 6 6 6 6 G G 24 6 6 6 G GNI 25 C G ITAG/SI ISP

## 6.4 HC89S103K6-LQFP32-ISP&SWD&JTAG

RX . . e 0 0 0 0 0 0 0 37 0 0 0 0 0 0 0 0 35 19 0 0 0 0 0 G 22 6 6 23 6 6 6 6 C 24 6 6 6 G G C THE NΘ G JTAG/SHI ISP

### 6.5 HC89S105K8-LQFP32-ISP&JTAG

RX × い 48 20 6 48 . ...... . 0 0 0 0 0 0 0 0 0 3319 0 0 0 0 0 22 6 6 23 6 6 6 6 C 24 6 6 6 G C THE NΘ G JTAG/SHI ISP

#### 6.6 HC89S105S8-LQFP44-ISP&JTAG

(B) è UN 48E - 20 19 6 6 6 6 6 6 C 22 6 6 6 6 - 63 23 6 6 6 6 G G 24 6 V18 TAG-SU ISP

## 6.7 HC89S105C8-LQFP48-ISP&JTAG

(B) è UN 48E - 20 C 22 6 6 6 6 - 63 23 6 6 6 6 G G 24 6 V18 TAG-SU ISP

#### 6.8 HC89F0411P-SOP8-ISP



## 6.9 HC89F0421-SOP16-ISP&JTAG

(B) RX è V 48 15 🔘 0 0 0 0 0 0 0 0 32 19 0 0 0 0 21 🔘 22 6 -63 23 6 6 6 24 6 G 25 g THE G JTAG/SU SP

## 6.10 HC89F0431-SOP20/TSSOP20-ISP&JTAG

(B) RX è O 48 2 e 13 🔘 15 🔘 0 0 0 0 0 0 0 0 32 19 0 0 0 0 21 @ • 22 6 23 6 6 6 24 6 . G 25 g THE G JTAG/SU SP

#### 6.11 HC89F0431-QFN20-JTAG

(B) RX È S 48 22 . . ..... C 6.6 C 22 6 6 23 6 6 6 6 C 24 6 6 6 THE **N B** G JTAG/SHI ISP

## 6. 12 HC89F0531-SOP20/TSSOP20-SWD&JTAG

R. è 48 R ົດ . Ð . 0 0 0 0 0 0 0 0 0 35 22 6 6 6 6 - 63 0 0 0 0 0 0 0 0 0 27 23 0 0 0 0 24 0 **N8** TAG/SUI ISP

#### 6.13 HC89F0531-SSOP24-SWD&JTAG

R. è S . Ð . 0 0 0 0 0 0 0 0 0 35 22 6 6 6 6 G 0 0 0 0 0 0 0 0 0 27 23 0 0 0 0 24 0 **N8** TAG/SUI ISP

#### 6.14 HC89F0531-QFN24-SWD&JTAG

RX JO 48 22 0 48 0 0 0 0 0 0 0 0 0 3319 0 0 0 0 0 22 6 6 23 6 6 6 6 C 24 6 6 6 G C THE NΘ G JTAG/SH ISP

## 6.15 HC89F0541-SOP28/SSOP28-SWD&JTAG

R. è 48 R ົດ . Ð . 0 0 0 0 0 0 0 0 0 35 22 6 6 6 6 - 63 0 0 0 0 0 0 0 0 0 27 23 0 0 0 0 GG 24 0 V18 TAG/SUI ISP

## 6.16 HC89F0541-LQFP32/QFN32-SWD&JTAG

RX ົດ 0 0 48 . 0 0 0 0 0 0 0 0 0 42 0 0 0 0 0 0 0 0 37 0 0 0 0 0 0 0 0 0 36 0 0 0 0 0 0 0 0 0 34 0 0 0 0 0 0 0 0 0 32 C 22 6 6 23 6 6 6 G G 25 6 AG/SI ISP

#### 6.17 HC89F0650-LQFP44-ISP&JTAG

. RX è S 48 22 . ..... -0 160 0-0 0 0 0 0 0 0 19 6 6 6 6 6 6 6 6 20 6 6 6 6 6 6 6 C 22 6 6 23 6 6 6 6 24 6 6 6 25 6 THS N8 G JTAG/SH ISP

#### 6.18 HC89F0650-LQFP48-ISP&JTAG

The second RX è O 48 RR 0 0 48 .  $\mathbf{D}$ 0 0 0 0 0 0 0 0 0 35 0 0 0 0 0 0 0 0 0 0 3317 0 0 - 0 0 0 0 0 0 0 0 20 6 6 6 6 6 6 22 6 6 6 6 6 23 9 9 9 9 9 9 9 9 9 9 24 6 6 6 6 V18 G JTAG SU ISP

#### 6.19 HC8M602-SOP16-SWD

RX UN 48 22 000-00000 18 0 0 0 0 0 0 0 0 0 22 6 6 6 23 6 6 6 6 G GNI 25 UD N8 G TAG/SUI ISP

#### 6.20 HC89F301-SOP16-SWD

È O 48 RR . **CHOOOOOOOO**OOOOO 22 6 6 6 6 G. C 23 6 6 6 6 C 24 6 6 6 6 THS NΘ JTAG/SU SP

. RX **い** 48 第216 C GO 22 6 6 6 23 6 6 6 6 GO C 24 6 6 6 IN V8 C TAG/SU ISP

#### 6. 22 HC89F302-SOP20/DIP20-SWD

A RX UN 48 RR 0 0 0 0 0 0 0 0 0 34 22 6 6 6 23 6 6 6 6 6 6 G G 24 6 6 6 6 6 6 7 25 ES GNI 25 C NΘ G ITAG/SH ISP

#### 6.23 HC89F302-SOP24-SWD

A RX B UN 48 22 О . . 0.0 22 6 6 6 23 6 6 6 6 6 C 24 6 6 6 G THS 25EX **N**8 e JTAG/SHE ISP

#### 6.24 HC89F302B-SOP20/DIP20-SWD

눰 S 4888 ....... 15 🔘 0 0 22 🔾 G 23 6 6 6 G 24 0 0 0 125 國 NΘ G JTAG/SU ISP

#### 6.25 HC89F302B-SOP24-SWD

A RX è UN 48 22 . . -0 20 6 6 6 6 6 6 G 22 6 6 6 23 6 6 6 6 24 6 6 6 6 GN 25 6 H V19 G JTAG SU ISP

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#### 6.26 HC89F303-SOP28-SWD

A RX UN 48 RR . . 130 0-0 0 0 0 0 0 0 0 G 22 6 6 6 6 6 6 230 0 0 0 0 0 0 0 24 6 6 6 6 6 6 **NB** G G AG/SH ISP

#### 6.27 HC89F303B-SOP28-SWD

RX 48× の 48 日本 48 C 14 0 0 0 0 0 0 0 0 0 22 6 6 6 23 6 6 6 6 6 G G C 24 6 6 6 6 G GNI 25 UD TMS **N8** e JTAG/SHE ISP

#### 6.28 HC89F3421-SOP16-SWD

è UN 48 RR 0-0  $\mathbf{n}$ . e 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 33 22 6 6 6 23 0 0 0 0 G 175 25 EE NΘ G JTAG/SH ISP

## 6. 29 HC89F3421-SOP16-JTAG

RX UN 48 RX 0 0 48 n . . 0 0 0 0 0 0 0 0 45 22 6 6 6 -61 G G 24 6 6 6 6 6 6 6 G G 25 g Ins G JTAG/SH ISP

#### 6.30 HC89F3531-SOP20/DIP20-SWD

. RX G 48 民活 6 48 C 0 0 0 0 0 0 0 0 0 34 19 0 0 0 0 0 0 21 0 0 0 0 0 22 0 0 0 23 6 6 6 6 6 C 24 6 6 6 6 TH25 展 GN 25 C NΘ G JTAG/SHD ISP

### 6. 31 HC89F3531-SOP20/DIP20-JTAG

A RX S 48 88 0 0 48 0 0 0 0 0 0 0 0 45 0 0 0 0 0 0 0 0 34 22 6 6 6 6 6 6 G 24 @ NΘ G JTAG/SUI SP

#### 6.32 HC89F3531-SOP24-SWD

. RX G 48 民間 G 48 C 0 0 0 0 0 0 0 0 0 34 22 6 6 6 23 6 6 6 6 6 24 6 6 6 6 G C TH25 展 GN 25 C **N 8** G JTAG/SHD ISP

### 6.33 HC89F3531-SOP24-JTAG

RX S 48 88 0 0 48 0 0 0 0 0 0 0 0 45 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 34 22 6 6 6 6 6 6 6 NB G JTAG/SUI [SP

#### 6.34 HC89F3541-SOP28-SWD

A RX È UN 48 RR n . . 130 00000000 14 6-6 6 6 6 6 6 6 6 0 0 0 0 0 0 0 0 0 3322 6 6 6 23 6 6 6 6 6 G 0.0 C 24 6 6 6 6 6 THE VI Ð e JTAG/SHE ISP

### 6.35 HC89F3541-SOP28-JTAG

A RX S 48 22 0 0 48 D 0 0 0 0 0 0 0 0 45 130 000000000 G 22 6 6 6 6 6 C 23 6 6 6 6 6 6 24 6 6 6 G NΘ G G AG-SU SP

## 6.36 HC89F3541-LQFP32-SWD

è O 48 22 . - D 0 0 0 0 0 0 0 0 0 37 0 0 0 0 0 0 0 0 0 36 0 0 0 0 0 0 0 0 33 G 22 6 6 6 23 6 6 6 6 G 24 6 6 6 6 THE **VB** JTAG/SH ISP

#### 6.37 HC89F3541-LQFP32-JTAG

RX 48× の 48民党合 0 0 0 0 0 0 0 0 42 0 0 0 0 0 0 0 0 0 0 36 G 22 6 6 6 23 6 6 6 6 6 6 G 24 6 6 6 6 GN 25 C SULL JTAG/SHI ISP

### 6.38 HC89F3650-LQFP44-JTAG

. È **い** 48 民兄 . ..... 1600-000000000 22 6 6 6 23 6 6 6 6 24 6 6 6 6 TH25 GN 25 C **N**8 e JTAG/SH ISP

## 6. 39 HC89F3650-LQFP48-JTAG

RX è S 48 22 . ..... -0 20 0 0 0 0 0 0 G 22 @ @ @ 0.0 23 6 6 6 6 6 0.0 24 6 6 6 25 6 THS N8 G JTAG/SH ISP

## 7 Version Description

| Version | Date      | Describe      |
|---------|-----------|---------------|
| Ver1.00 | 2020/11/6 | First edition |

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