

Mini TL866 Universal Programmer ->AVR microcontroller software encryption

AVR microcontroller has an RC Calibration (calibrate bytes). Only one of dozens of chips may have the same bytes value and it cannot be modified. Microcontroller software can read this value and determine whether the code is used by other chips. Through custom encryption algorithm, it can stop those who decrypt chips with ulterior motives from directly using. The encryption algorithm is so complex that it is not easy to decrypt. But, about "encryption", there is a problem for developers - each chip is different - it is impossible to manually calculate one by one and respectively compile source code if the algorithm is complex. This programmer can automatically read into RC bytes before programming. The developer can get the bytes value of the chip in the DLL dynamic function and then automatically calculate the encrypted data according to the request and put it in the memory, efficiently completing mass production.

(A detailed encrypted instance of the ATMEGA8 in the installation package is available for reference)

The operation is the same as **<Set Auto Serials>**,
view > [Set Auto Serials](#)

The contents of instance: By encryption algorithm, programmed chip can be normally run. While the copied program from the chip to another chip cannot be run. The function of this programmer is that the chip can be quickly encrypted in mass production.

 Related Topics:

- > [Quick Guide](#)
- > [Complete Operations Guide](#)

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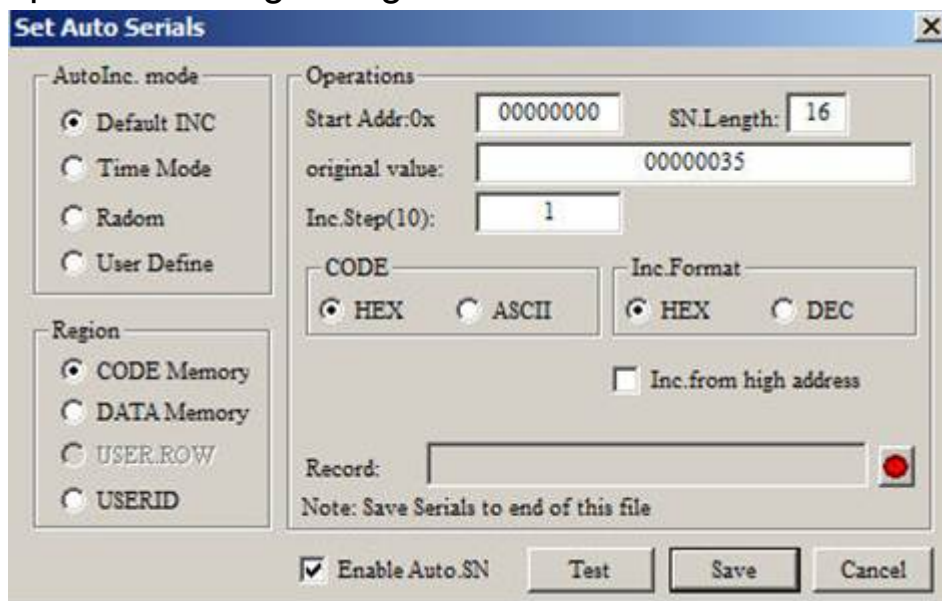
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Mini TL866 Universal Programmer -> Set Auto Serials

<Set Auto Serials>: A IC serial number is automatically added to a certain buffer when programming. It is convenient to the chip programming settings, time settings or unique serial number settings at factory. The programmer has many kinds of numbering algorithms that can meet the needs of users.

Click <main menu>--- <Device> --- <Serials Number> to pop up the following dialog box:



Firstly select the Auto Inc. mode. There are four algorithm modes to choose from the dialog box and the detailed instructions are as below:

1. The default increment algorithm <Default INC.>

This algorithm interface is shown above, a set length of number is placed in the start address and the number will be increased according to the <Inc. Step>. After setting the parameters, click <Test> to start testing and check the change regularity of different set parameters. <original Value> and <Inc. Step> can be set in the above dialog box.

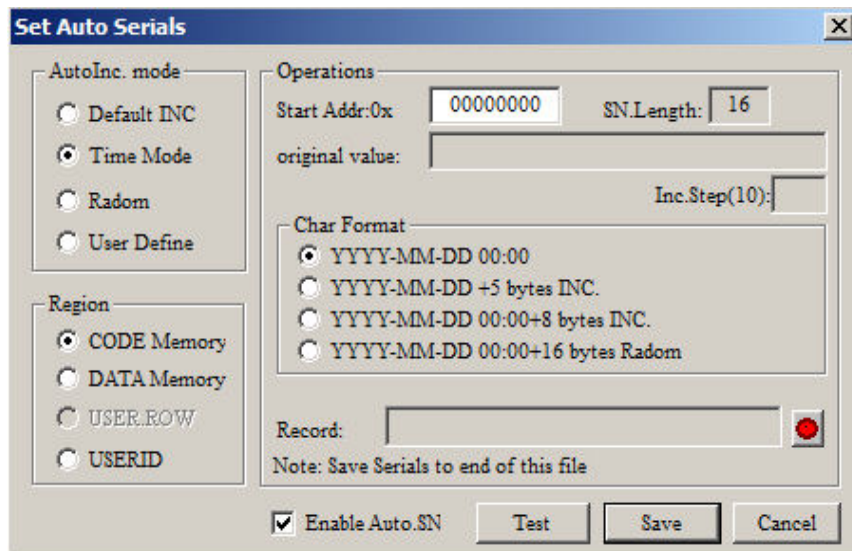
You can set <record> file after the parameters are set and the testing result is correct. If blank, the record file is invalid and the data cannot be recorded into the file when

programming; If the <record>file is set, the set serial number will be added at the end of the record file after programming.

Finally, tick off <Enable Auto. SN> and click <Save> button.

2. time algorithm <Time Mode>

Time algorithm dialog interface is as shown below:



There are four time encoding format as below:

(1) date + time Total Length: 16 bytes

The date and time will be added in the specified place, total length is 16bytes.

(2) The date +5 bytes increment Total Length: 16 bytes

The incremental parts can be set original value and step.

(3) Date + time + 8 bytes increment Total Length: 24 bytes

The incremental parts can be set original value and step.

(4) Date + time + 16 bytes random number Total Length: 32 bytes

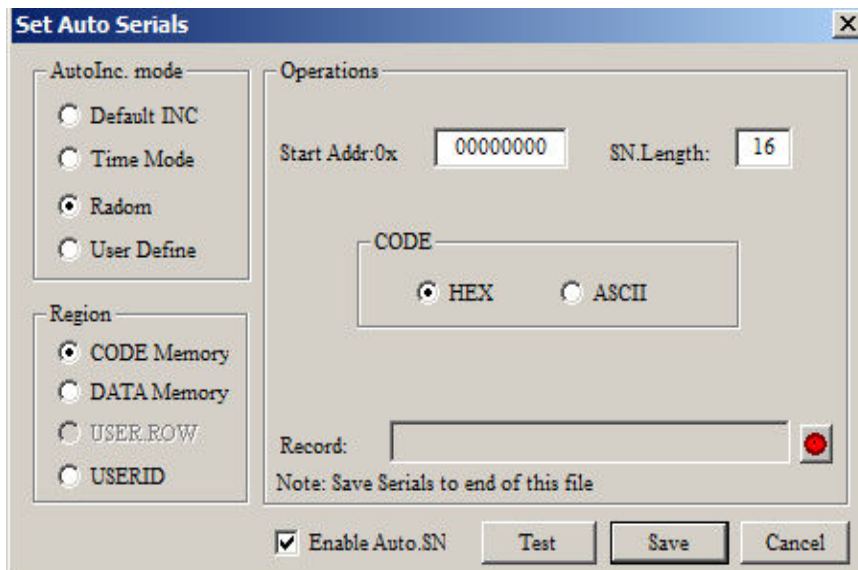
The 16 bytes are random and it can generate a unique product serial number. In this way, the <Record> file must be set so that the generated code can be recorded in the file. Otherwise, you don't know what is the product serial number.

The following operating steps are the same as the above

<Default INC.>

3. the random sequence number algorithm <Random>

The algorithm generates a specified length of random number, as shown below:

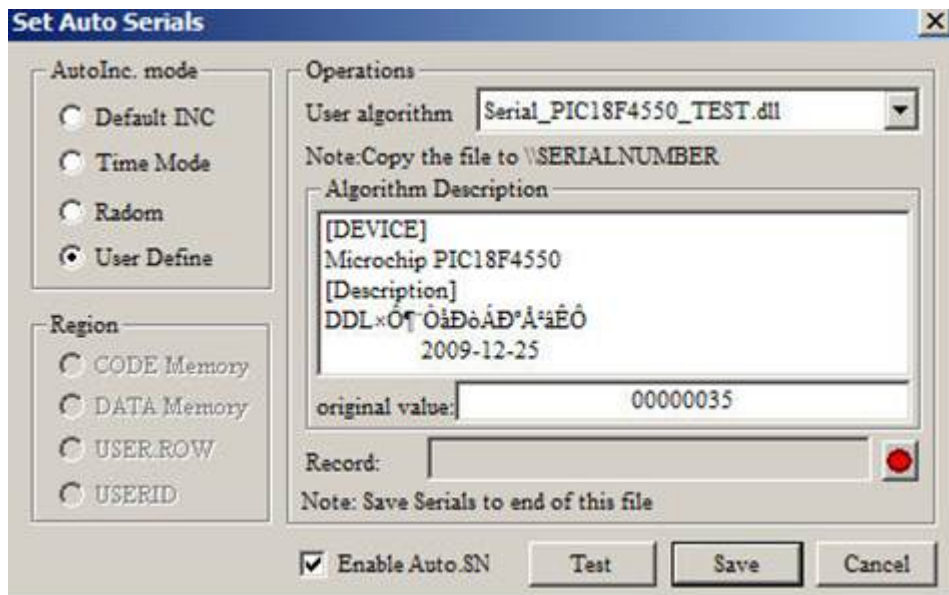


4. user-defined algorithm <user define>

This user-defined algorithm has great flexibility. You can set any ways of numbering algorithms, for the detailed usage, see the directory:

MiniPro\Serialnumber\SOURCE_DLL. The interface is as below:

For AVR Microcontroller, encryption of RC verified byte can be fully achieved by invoking the DLL dynamic link library. Here are all source program and testing ways, see the directory: MiniPro\ATMEGA8_LED



After making DLL file, you copy them to the application directory : MiniPro\Serialnumber, that's OK. You can select your algorithm file in the <user algorithm> list.

The following operating steps are the same as other algorithms.

----- **Important note:** -----

1. After setting the above, the programmer will not automatically add the serial number you set to the chip when programming, unless you tick off <Auto Serials No.> in the main interface Options.

2. Please firstly set algorithm and tick off <Enable Auto SN> (setting path: <main menu>-<Device>-<serials number>) and then the <Auto Serials No.> option can be ticked off.

3. After <Auto Serials No.> option is ticked off, if you reset the numbering algorithm, in main interface <Auto Serials No.> option must be ticked off again.

4. You must reset the numbering algorithm if the chip model is changed.

5. In the project mode, the algorithm can be saved in the

project file. You can directly open the project file, and automatically invoke the automatic numbering algorithm. Therefore, it is easier and more convenient to use for the mass production in the project mode.

 Related Topics:

- > [Quick Guide](#)
- > [Complete Operations Guide](#)

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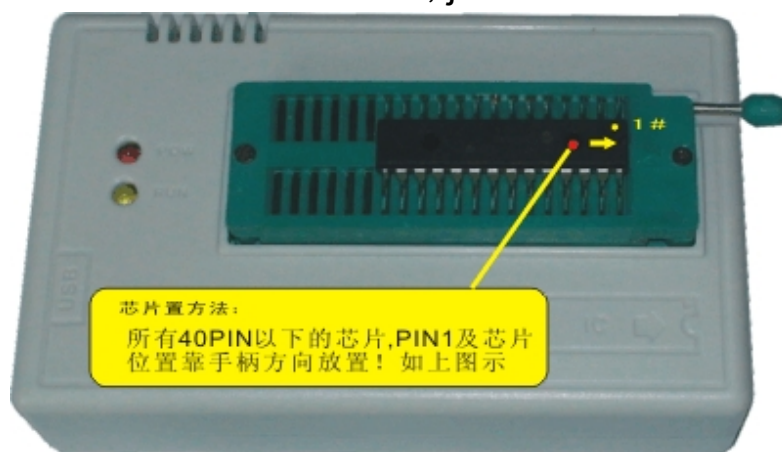
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Mini TL866 Universal Programmer -> Concise Operating Guide

◆ Be ready for the hardware

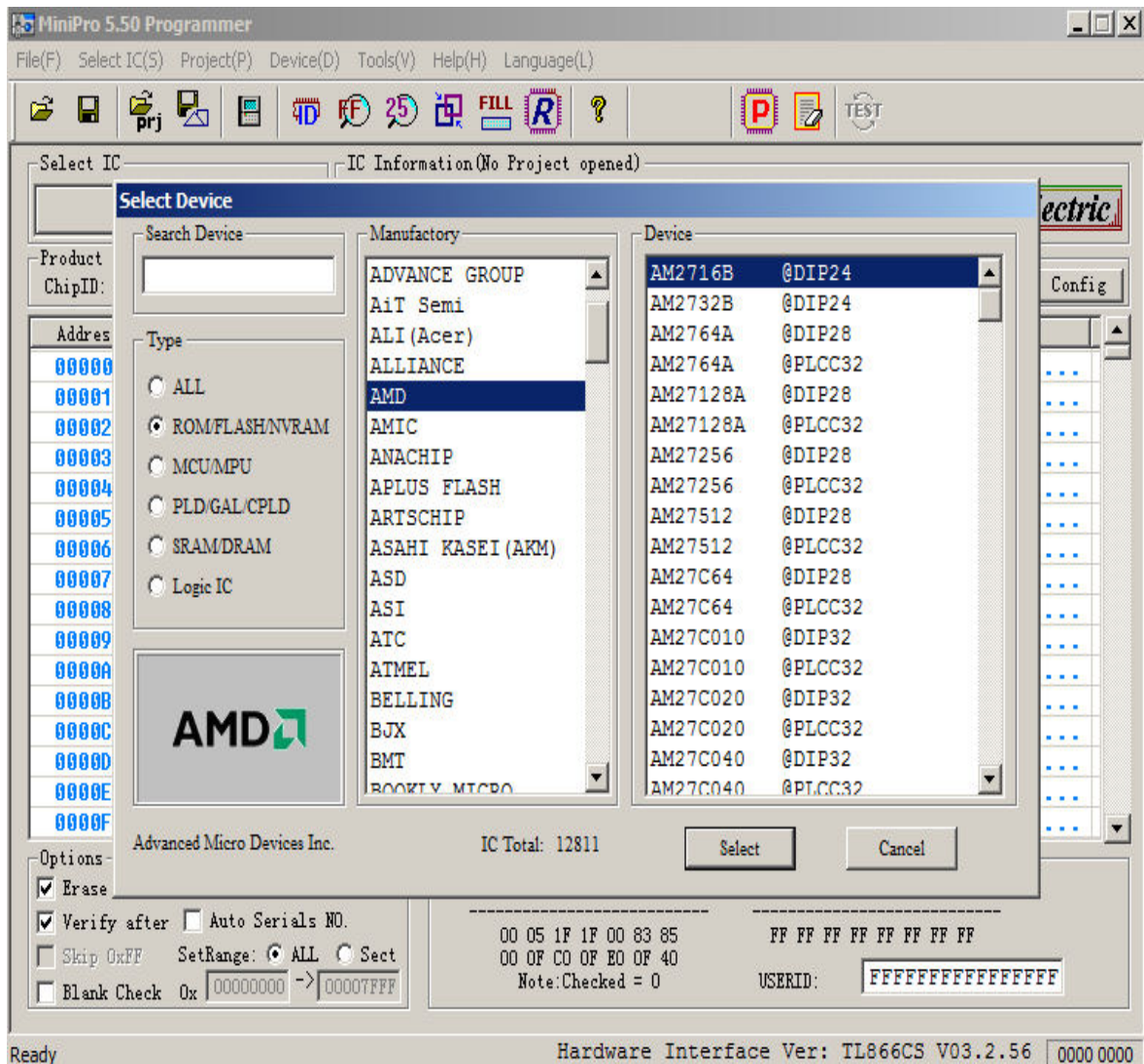
Please make sure properly installed the application software and USB driver of the universal programmer before connecting the USB communication line. At this time, the red power supply indicator shows proper connection (lights up) and the yellow power supply indicator goes out waiting for programming. (If the yellow power supply indicator flashes at all times, it indicates that the USB driver installation is wrong or there is no installation of the USB programmer device driver). You can continue to do the next one if the programmer application software displays the firmware version number in the lower right.

Chip Place Way : PIN1 of the within-40-pins chips should be placed near the ZIF socket handle, just as illustrated:



◆ select the programmed chip

Click “Select IC” to select the present chip model you need to program, as below:

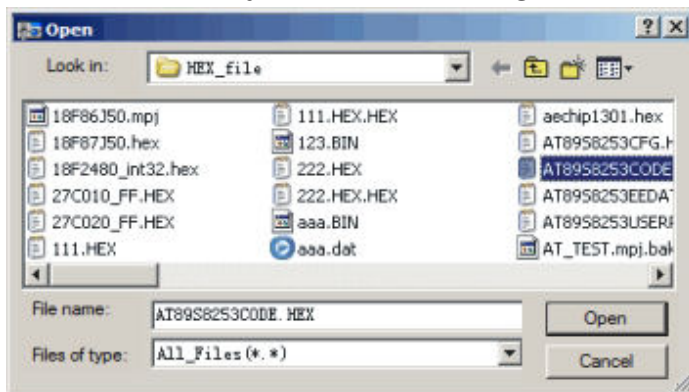


Please note: if some type of packages are not listed in the menu or the present chips are non-DIP packages, you can program by checking the IC product instruction and directly connecting the one-to-one pin.

◆ Load the buffers data

Programming operation can be performed only when the present chip data is loaded to the buffers. Click “Open file” and open the present chip data file and then bring out the dialogue box as below:

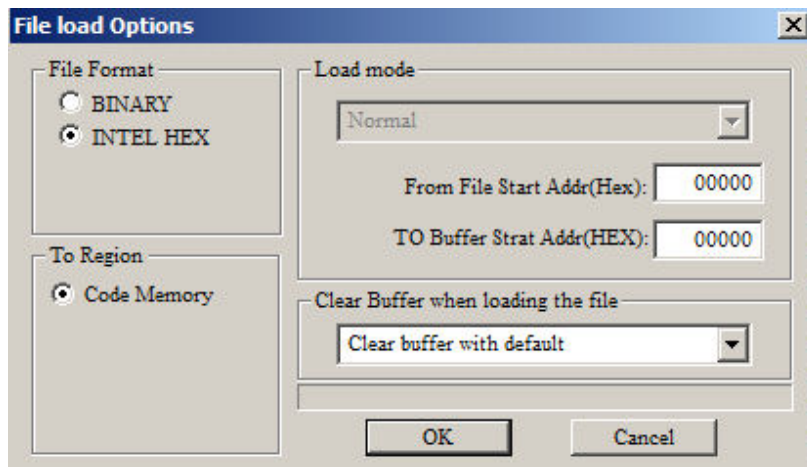
1. select the file you want to program



2. Select the load mode: generally, specifying the buffer is okay if there are multiple buffers, others are default.

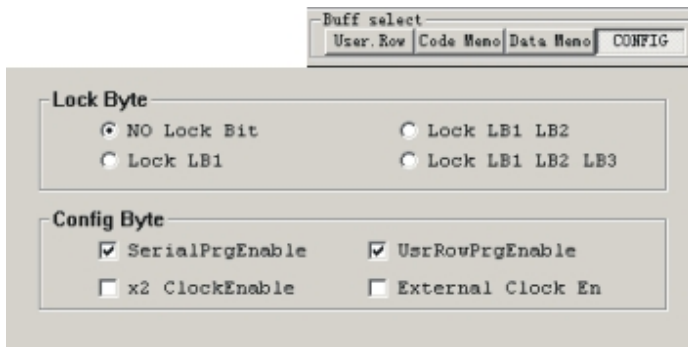
Load all the data to the specified buffer in the same way.

For Microchip PIC microcontroller, HEX file can be once loaded to all buffers if it is in accord with MICROCHIP IDE environment, including configuration information.



◆ set chip configuration information and lock option

Please press “CONFIG” button in the Buffer select if you need to protect the chip or do other config operations. And then bring out the config dialogue box. The config information is different from the chip model. For example, if you select as AT89S8253, the below dialogue box will be brought out:

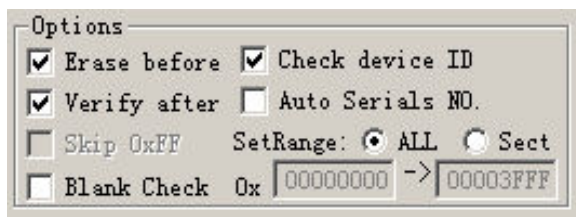


Do the next one after setting up the configuration information and protection option

◆ programming set

In most cases, the Default Settings is ok. You can tick off “Auto Serials No.” if you need to number chip.

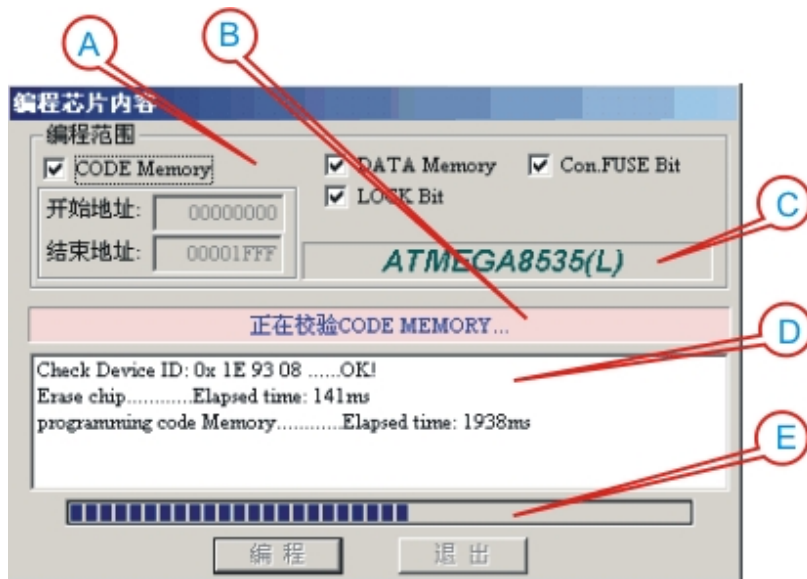
The specific method reference: <programming details> - <set IC serials number>



Please note: these options, such as “Erase Before”, “Blank Check”, “Skip 0xFF”, “Check device ID”, can be ticked off according to your needs.

“Verify After”: most of programmers contain the inner verify check, but you’d better perform the “Verify After” operation in order to make sure the proper programming.

◆ Program: click “Read” button to bring out the dialog box, as show below:



- A. select programming buffer, default as all buffers
- B. Present operating state prompt area
- C. Present chip model
- D. Programming operation information: you can see the programming time of every step. Units: MS
- E. progress bar

Prompt: the above-mentioned operation is indispensable to programming a chip. The operations are different from the chip model.

 Related Topics:

- > [Quick Guide](#)
- > [Complete Operations Guide](#)

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Mini TL866 Universal Programmer -> Detailed Description

This chapter mainly describes the features and the specific operation of MiniPro programmer programming software.

Menu command
◆ File menu Open, save, buffer operation functions, exit
◆ Chip-select menu select programmed chip according to menu list
◆ Project menu Open Project, Save Project, Save Project As, close project, project attrib, modify password
◆ Device menu Read..., Read ID, Verify, Program, Erase, Blank Check, Serials Number, Testing
◆ System Tools menu Calculator, System Self- check, Refresh flash firmware
◆ Help menu Help files, About MiniPro
detailed description of editing buffer
◆ Edit buffer Find the corresponding hexadecimal value or ASCII character strings in the buffer, data, copy, paste, fill, Block Save As
detailed operating description
◆ Select chip select programmed chip according to menu list
◆ Read the chip Read into the chip to the PC buffer.
◆ Program chip Cure the contents of buffer into the chip.
◆ Erase chip

Completely erase the data of the chip (Some microcontroller clock calibration bytes can be erased according to the needs, the default is not erased).

◆ [Chip Blank](#)

Check whether the current chip is programmed

◆ [Chip Verify](#)

Verify whether the chip data is the same as the buffer, can be marked "verify in a different place" .

◆ [Set the chip configuration information](#)

mainly set the microcontroller fuse byte, lock bit byte, etc.

◆ [Set Chip Serial number](#)

a variety of file format can be opened

◆ [Programmer self-test](#)

check whether the programming port function is normal.

◆ [ICSP programming](#)

ICSP serial programming function interface, and the usage

◆ [RAM test](#)

Test the common static RAM chips

◆ [Digital logic circuit test](#)

Test 54 74 series, CMOS4000/MC14xxx series digital integrated circuit

 Related Topics:

➤ [Quick Guide](#)

➤ [Complete Operations Guide](#)

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MiniPro programmer -> Menu -> File menu

- ◆ File menu items are as follows:

Open(O)	Ctrl+O
Save(S)	Ctrl+S
Copy	Ctrl+C
Paste	Ctrl+V
Block Save As(S)	txt
Define Block	Ctrl+B
Fill Block(F)	
Clear current buffer(C)	
Clear all buffer(A)	
Find	Ctrl+F
Find Next	F3
Goto(G)	Ctrl+G
Exit(X)	

- ◆ Open file

Load the hexadecimal file or binary file to the specified buffer, GAL chip should be loaded JED format file.

- ◆ Save file

Save the present buffer as the HEX file of hexadecimal format or BIN file of binary format. Save as JED format file when programming GAD chip.

Note: MICROCHIP MCU can be loaded the HEX file generated by MICROCHIP IDE development environment to all buffers and all the buffers can be saved to HEX file. At the same time it is fully compatible with MICROCHIP IDE development environment.

- ◆ Copy, Paste, Block Save As, Define Block, Fill Block, Clear current buffer, Clear all buffer

You can use shortcut keys or right-click menu to realize these menu functions.

See the detailed functions of editing file --->[Edit buffer](#)

- ◆ Find, Find Next, address, Goto

You can use shortcut keys or right-click menu to realize

these menu functions.

See the detailed functions of editing file --->[Edit buffer](#)

◆Exit

Exit MiniPro programming application program

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> [Quick Guide](#)

> [Complete Operations Guide](#)

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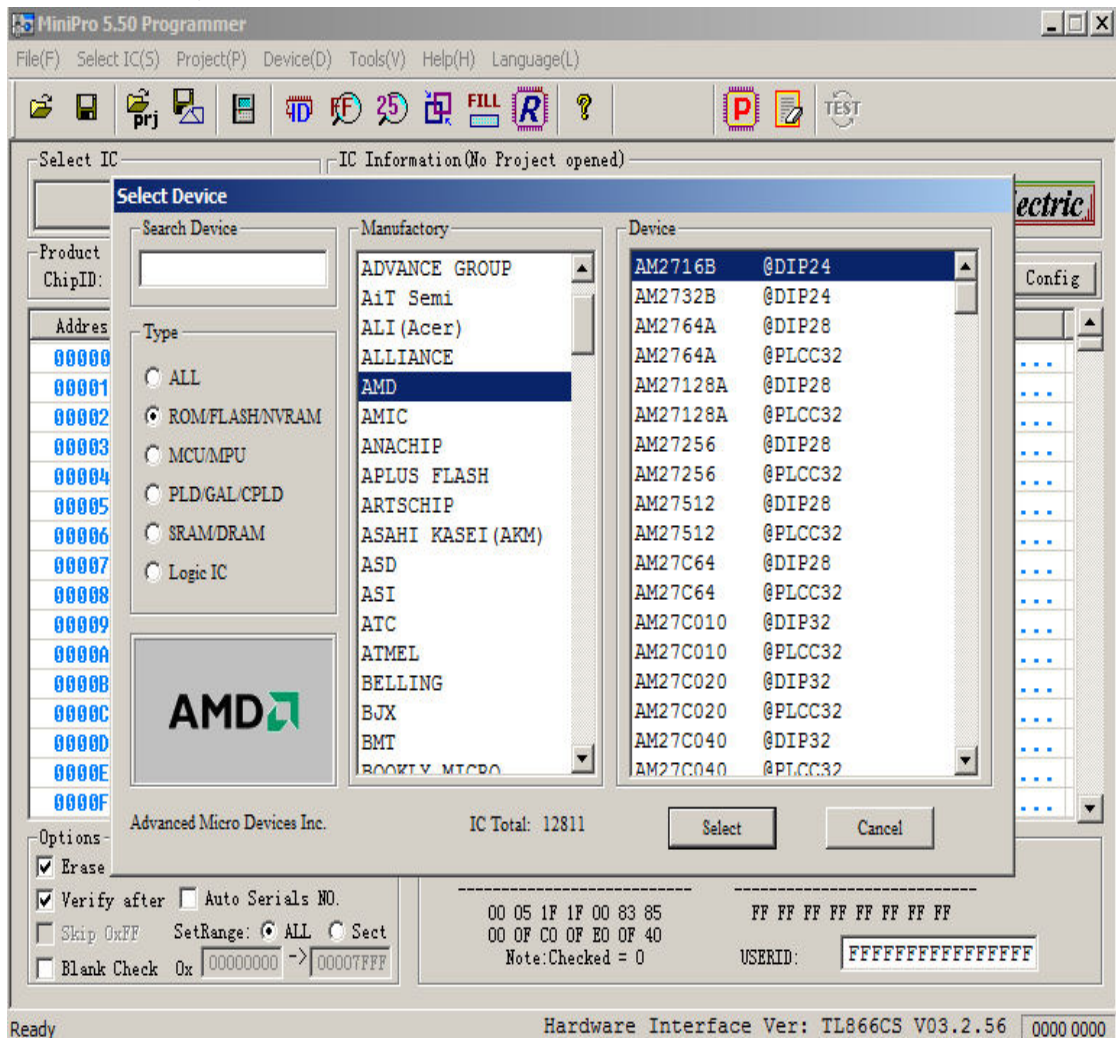
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Mini TL866 Universal Programmer -> Chip select menu

Directly select the chip you want to program according to the IC type that is easy and convenient to operate.



Note: For the IC with same model but different package, if all of the packages (no including DIP package) cannot be listed, you can directly connect the corresponding pins to program by referring to the IC product manual.

 Related Topics:

- [➤ Quick Guide](#)
- [➤ Complete Operations Guide](#)

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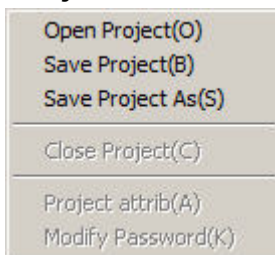
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Mini TL866 Universal Programmer -> Project menu

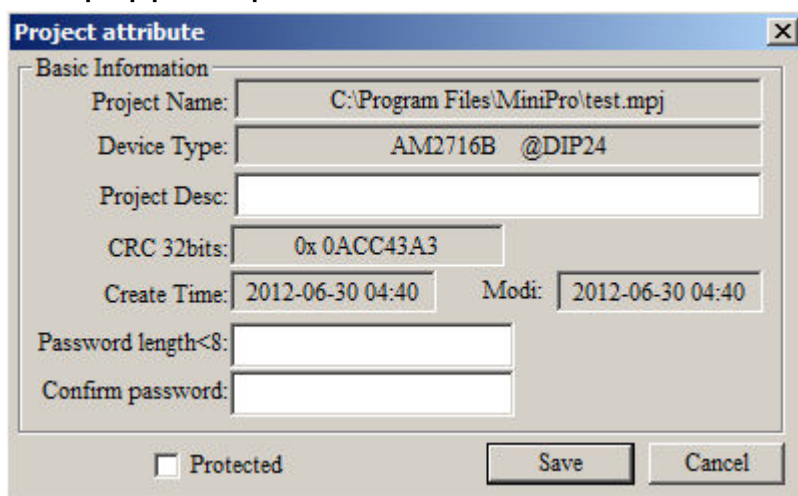
In order to make the chip programming process more reliable, the project file needs to be set up. This file has the current buffer data and working environment settings, including the current device information, all Options settings and related settings of automatic numbering. It is convenient to use for daily mass production. The password-protected project can be set, that can protect the security of the product program to some extent.

◆ Project menu items are as follows:



◆ Save project

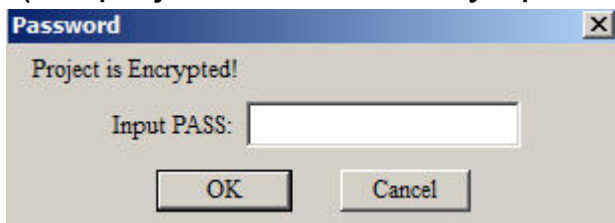
Select [Project] - [Save Project] to set up a project after setting parameters of the chip in the application program. The project information can be shown. Click [Save Project], input the project name and then click OK. The following dialog box will be popped up:



1. The password can be emptied, that means the password-protected project is not set.
2. The password must be inputted if the project is set as protected mode. The related data of the project cannot be modified after setting protected mode. In addition, partial functions of programmer are not allowed to use.

◆Open Project

Open an current project, select [Project] - [Open Project], select the project name in the window and click OK. If the project is password-protected, the following dialog box will pop up. (the project can be directly opened if no password)



◆Save Project As:

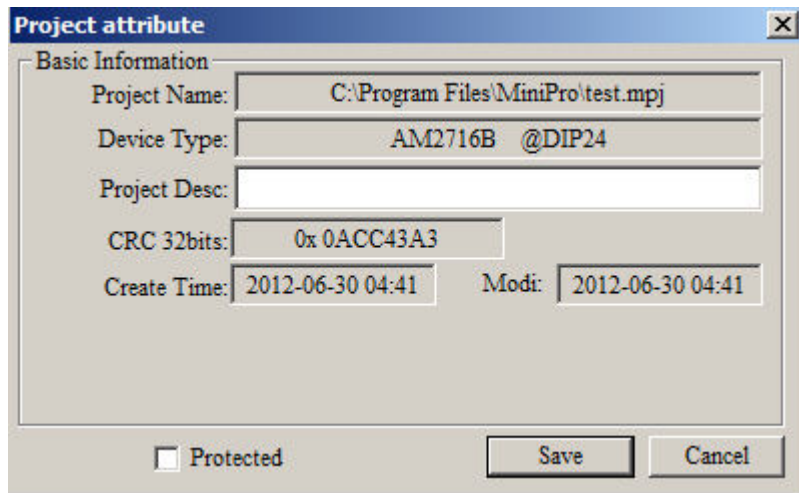
Save the current project as another project name. Refer to [Save project].

◆Close project

Close the current project. Switch to the normal programming mode and clear the current buffer data.

◆Project Attrib

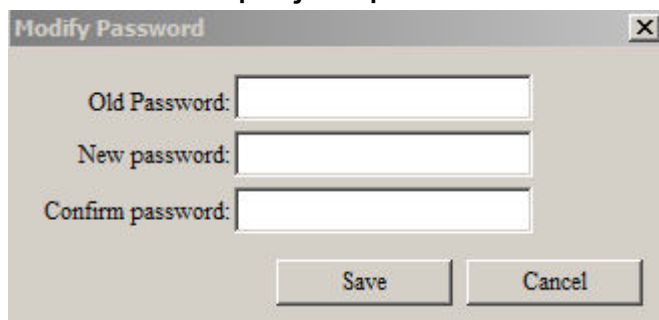
Select [Project] - [Project Attrib], project attribute dialog box pop up.



The Project attribute dialog box can change the project description and project protection mode. The project password needs to be inputted when saving.

◆ modify password

Re-set the project password



Prompt:

1. An exact description of the project can distinguish from a large number of projects. The project mode is suitable for mass production.
2. The project file has been encrypted. Proper protection of the project password can stop from copying. It can protect data to some extent.
3. The project file includes 32-bit

CRC check information when saving or opening. It can avoid damage of the file or other uncertainties.

 Related Topics:

- > [Quick Guide](#)
- > [Complete Operations Guide](#)

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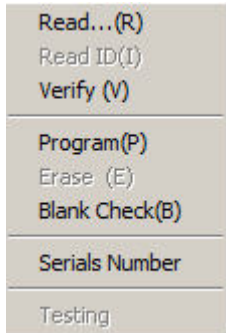
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Mini TL866 Universal Programmer -> Device menu

The menu functions are for the chip programming operation.

- ◆ Device menu items are as follows:



- ◆ Read...: View: <detailed description> -<[Read the chip](#)>
- ◆ Read ID: simply read the chip ID and display information in the ID display area.
- ◆ Verify: View: <detailed description> -<[Check chip](#)>
- ◆ Program: View: <detailed description> -<[Program](#)>
- ◆ Erase: View: <detailed description> -<[Chip Erase](#)>
- ◆ Blank Check: View: <detailed description> -<[Blank check](#)>
- ◆ Serials Number: View: <detailed description> -<[Serials Number](#)>
- ◆ Testing: View: <detailed description> -<[Testing](#)>

 Related Topics:

- > [Quick Guide](#)
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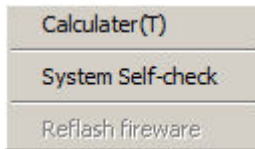
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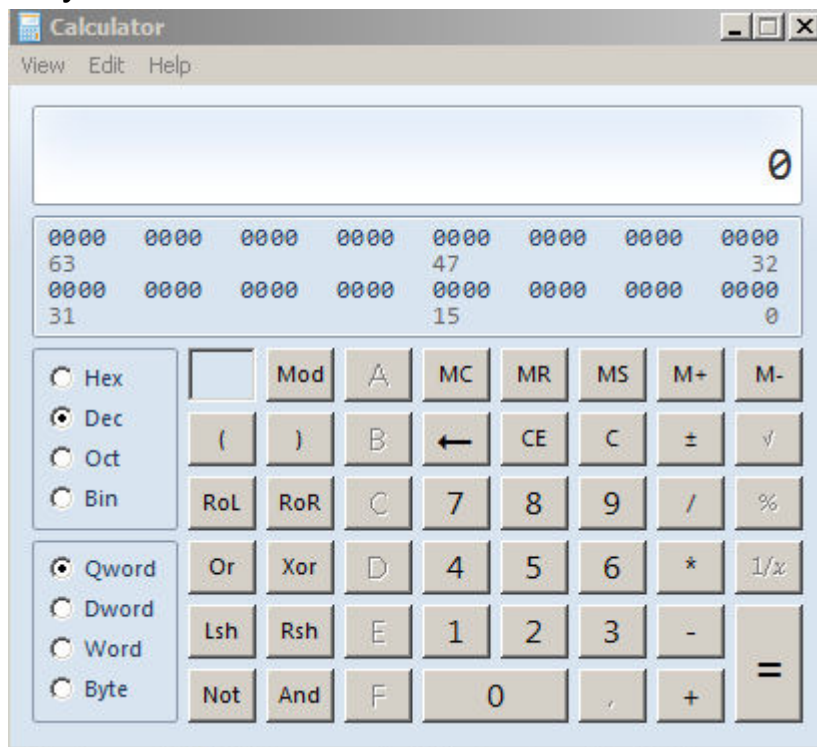
Mini TL866 Universal Programmer -> Tools menu

The menu functions are for the chip programming operation.

◆ Tools menu items are as follows:

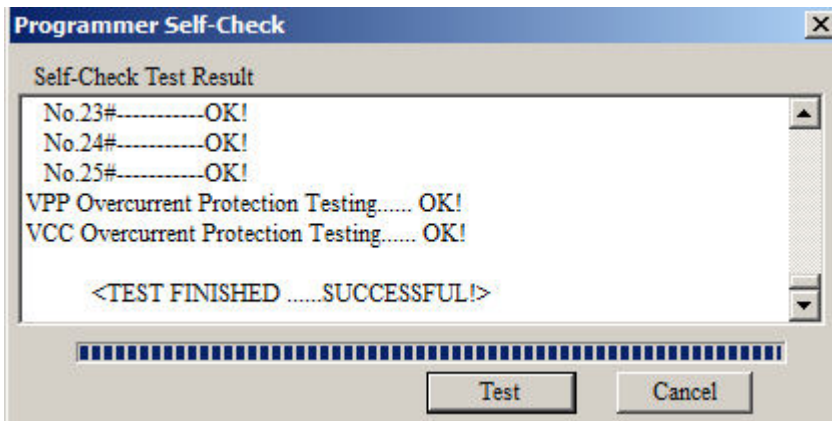


◆ Calculator: This is a calculator that comes with Windows and the scientific model calculation is very convenient for a variety of formats.



◆ Programmer Self-Check: self-test on the programmer hardware

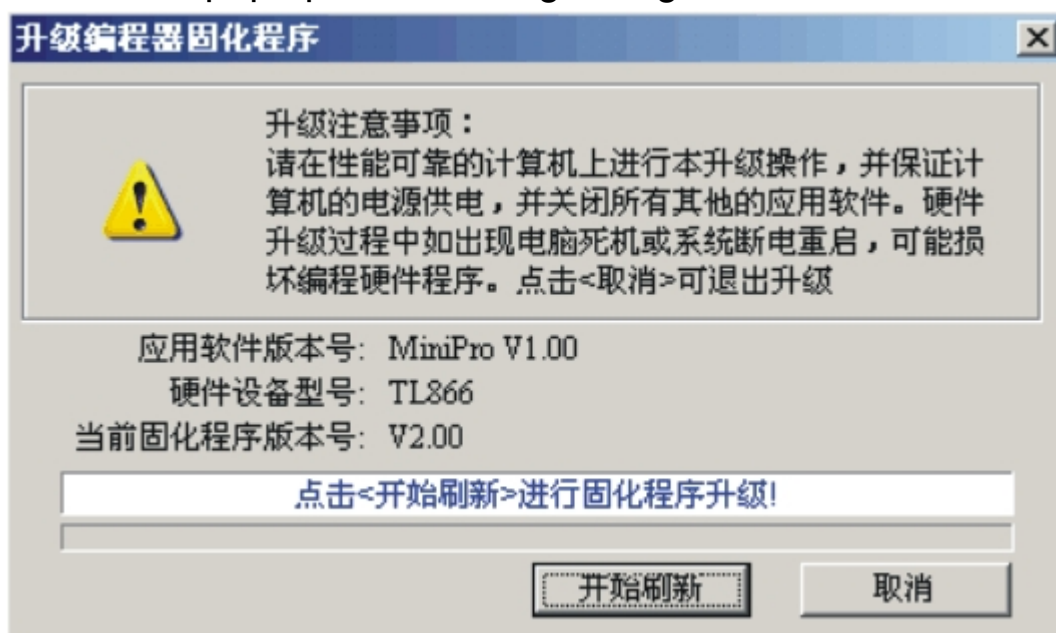
Click to pop up the following dialog box:



Note: Please remove the IC in the 40-PIN socket and ICSP cable before programmer begins to self-check. The IC may be damaged if no removing. Because when self-checking, programmer will test by applying VPP, VCC and GND to all pins and will perform an inside short-circuit overcurrent test (at the same time apply VPP, VCC and GND to the same pin). The testing information will be shown in the dialog box.

◆ Firmware FLASH refresh: Refresh and upgrade the firmware program

After you upgrade the application, if there is an upgrading need, the application will prompt to refresh the firmware; otherwise his refresh function is disabled. Click <Refresh firmware > to pop up the following dialog box:



Refresh Note: Please make sure the reliable performance of your PC and the uninterrupted electricity supply to your PC. At the same time, please close other application programs. The programming firmware program may be damaged if there is a computer crash or power failure in the process of upgrade. Click <Cancel> to exit upgrade.

Close all other programs, and ensure reliable computer power!

Click <Refresh> to begin, the refresh total time is about 30 seconds. Click <Cancel> to exit refresh.



Related Topics:

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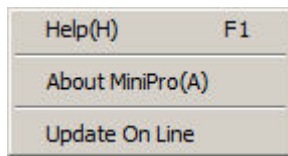
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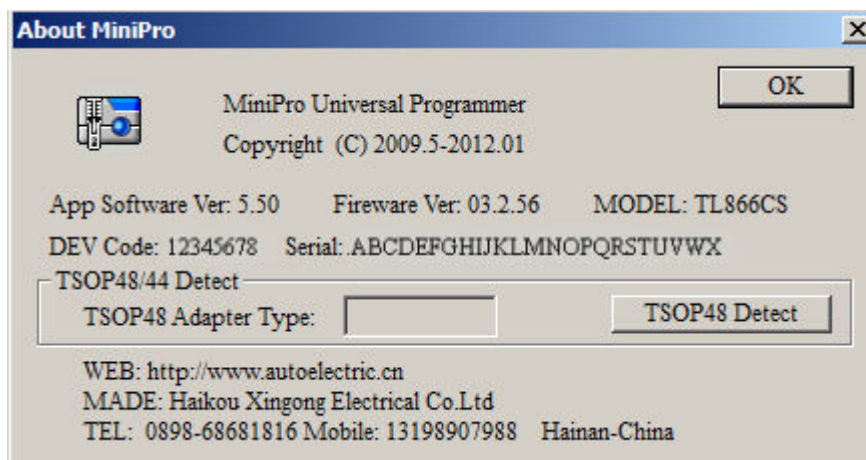
Mini TL866 Universal Programmer -> Help menu

- ◆ Help menu items are as follows:



- ◆ Help: Shortcut keys F1 or click <help> to pop up the help files

- ◆ About MiniPro: The programmer information is shown below:



As shown above, "DEV Code" and "Serial" are the unique number of each programmer and this encrypted serial number is randomly generated 24 digits within the programmer hardware. The pirates cannot copy all of the serial number. You can verify whether the product you bought is original according to the number in order to protect users' rights.

- ◆ Update online: Open this Programmer manufacturer's website to see if there is the upgrade version.

 Related Topics:

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Mini TL866 Universal Programmer ->Edit buffer

[Define Block](#)

[Fill Block](#)

[Copy, Paste](#)

[Block Save As](#)

[Clear current buffer](#)

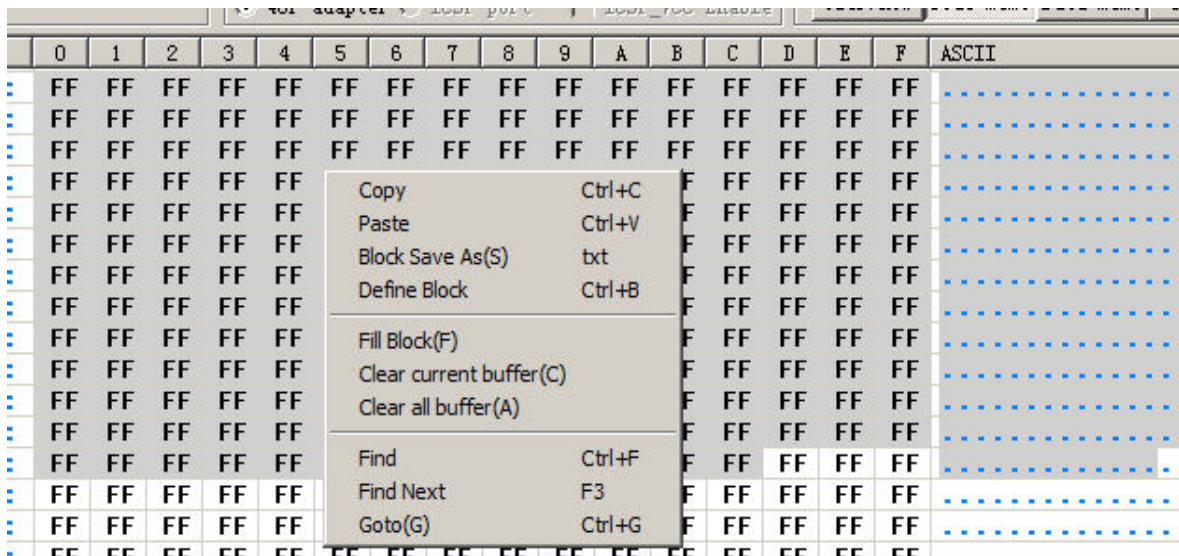
[Find, Find Next](#)

[Go to](#)

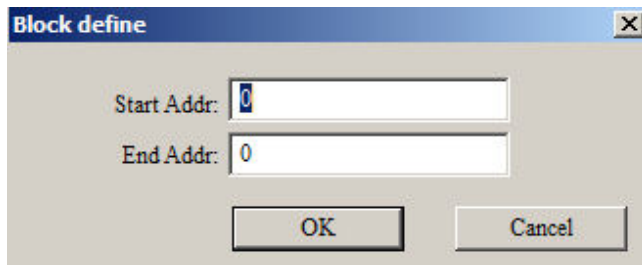
◆ Define Block

Define block in two ways:

1. The first method: press the mouse left key and move the mouse to select a block of buffer data, right click to pop up the dialog box as shown below:



2. The second method: Select **【Define block】** in **【Main menu】** or mouse **【Right-click menu】** or direct press shortcut keys "CTRL + B" to pop up the following dialog box, input a start address and end address, and then press "OK" to complete the block definition.



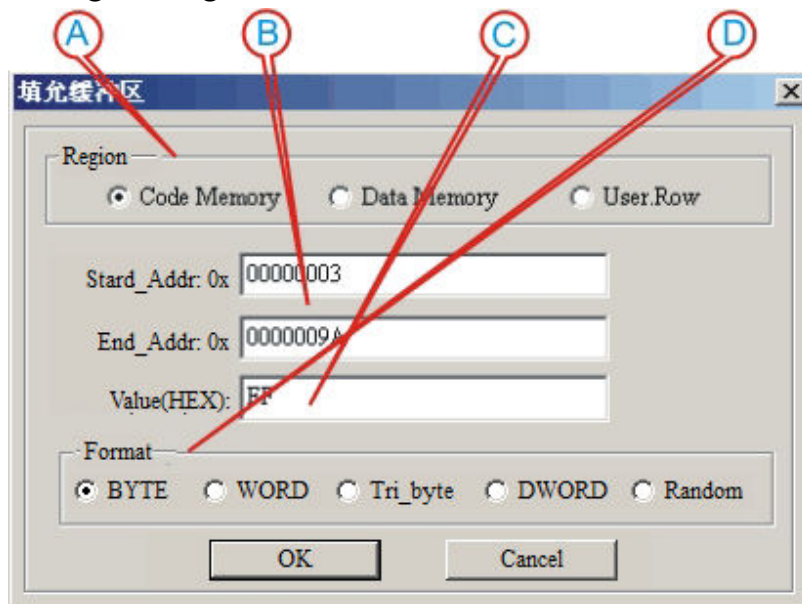
You can follow-up operation for the defined data block: Copy Block, Fill Block, Block Save As TXT file

◆ Fill Block

Fill Block it means replacing a certain period of data that includes consecutive addresses with a fixed value.

To fill the buffer, a certain period of data consecutive addresses in the code buffer replaced with a fixed value。

In 【Right-click menu】 , Select 【Fill Block】 to pop up the following dialog box:



A. Select the filled buffer region, the default value is the current buffer in the window.

B. Set the start and end address. If you do not define the block, the default value will be all the area of the current buffer.

C. Value (HEX): to be allowed a maximum of 4 bytes. If the fill mode is random, this value can be ignored.

D. Fill Format, the default format: the default is single-byte if the

chip is programmed in 8-byte way; the fault is double-byte if the chip is programmed in 16-byte way. It is up to you.

◆ Copy

After defining the data block, you can select **【Copy】** in **【Right-click menu】** and then the contents of the block has been copied to the WINDOWS clipboard.

Also you can press shortcut key <CTRL + C> to complete the copy.

◆ Paste

Function: fill the buffer with the copied block

Operation: move the cursor to allow the buffer to the start address and press <CTRL + V> shortcut key to complete the paste.

A region data is copied to B region as below:

数据地址	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	ASCII
000000:	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	
000010:	0C	16	A4	E6	8E	8B	74	7C	FB	2B	48	D6	A9	2C	5D	8Ft .+H...].
000020:	D7	08	F5	30	F9	A1	4D	53	51	93	CE	09	BF	D9	87	7A	...0..MSQ...z
000030:	DA	83	0B	C8	3F	86	77	45	2A	04	88	83	43	CE	2A	0B	...?.wE*...C.*
000040:	BA	28	23	51	95	CC	D1	89	49	31	61	0C	8B	0C	42	4C	.(#Q...11a...BL
000050:	5B	18	09	9B	70	12	77	59	B5	FF	FF	FF	FF	FF	FF	FF	[...p.wV.....
000060:	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	
000070:	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	
000080:	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	
000090:	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	
0000A0:	FF	FF	FF	FF	FF	0C	16	A4	E6	8E	8B	74	7C	FB	2B	48t .+H
0000B0:	D6	A9	2C	5D	8F	D7	08	F5	30	F9	A1	4D	53	51	93	CE	...]....0..MSQ..
0000C0:	09	BF	D9	87	7A	DA	83	0B	CB	3F	86	77	45	2A	04	88	...z...?.wE*..
0000D0:	B3	43	CE	2A	0B	8A	28	23	51	95	CC	D1	89	49	31	61	.C.*..(#Q...11a
0000E0:	0C	8B	0C	42	4C	5B	18	D9	9B	70	12	77	59	B5	FF	FF	..BL[...p.wV...
0000F0:	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	

Note: In order to speed up the paste, the clipboard data format is binary format this programmer exclusively uses, so other WINDOW applications can not directly use the copied data in the clipboard. If you want to copy the block of data to other applications, please use **【Blocks Save As】** TXT file function.

◆ Block Save As

You can output the defined data block as TXT files to enable designers to conveniently use when programming. The text format can be automatically arranged in 16-byte or 8-byte way.

Operation: After the definition of buffer block, click the mouse right key to pop out context menu, select **【Block Save As】** .

◆ Clear current buffer:

Function: Clear the current buffer that application window displays.

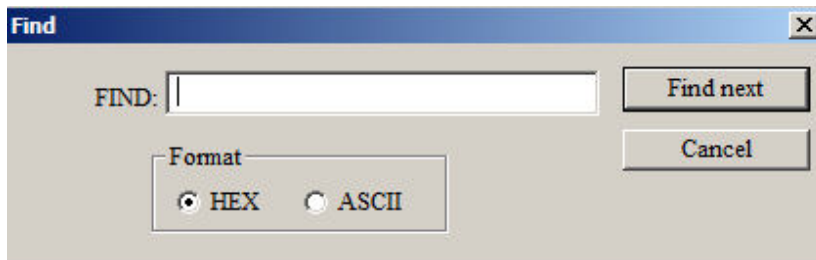
◆ Clear all buffer:

Function: Clear all chip buffer as the default value.

◆ Find, Find Next:

Function: Find HEX or ASCII character strings in the current buffer.

Operation: Press <CTRL + F> shortcut key or click **【Find】** in right-click menu to pop up the following dialog box:

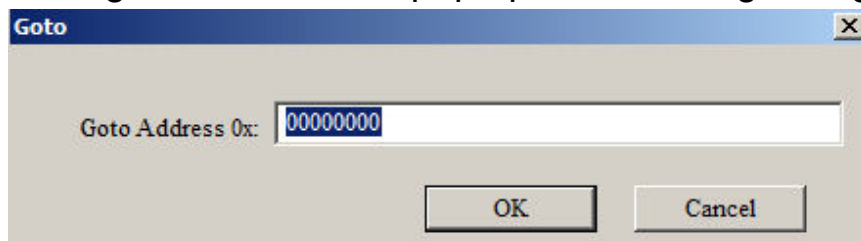


Input the HEX value or ASCII character strings you want to find and click "Find" button in the dialog box. When there is matching hexadecimal data or character string in program code buffer, the cursor will be positioned to the first matching address found. Press F3 key to continue to find the next until the search in the whole buffer is completed.

◆ Go to Address:

Function: Move the cursor to the address specified by the current buffer.

Operation: Click shortcut key <CTRL + G> or select **【Go to】** in the right-click menu to pop up the following dialog box:



Enter the address, press OK button and then the cursor will move to the specified address.

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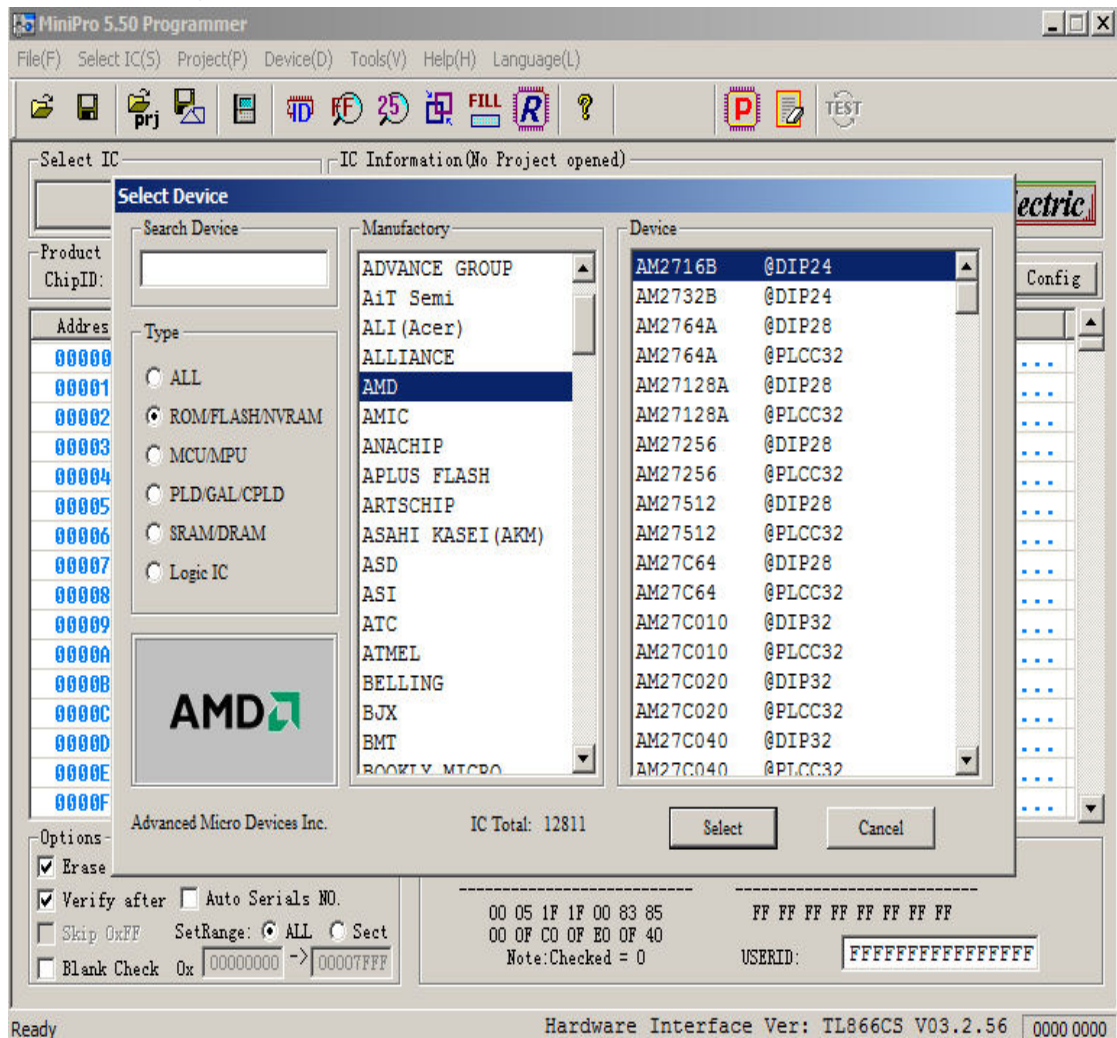
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Mini TL866 Universal Programmer -> Chip select

Directly select the chip you want to program according to the IC type that is easy and convenient to operate.



Note: For the IC with same model but different package, if all of the packages (no including DIP package) cannot be listed, you can directly connect the corresponding pins to program by referring to the IC product manual.



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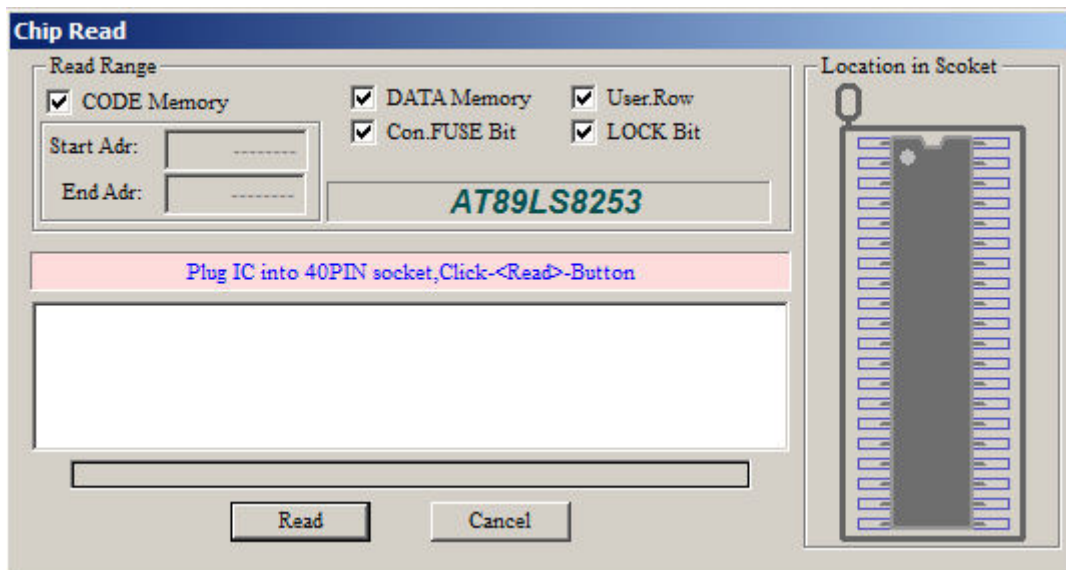
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Mini TL866 Universal Programmer -> Chip Read

Read the chip data to the buffer. May be different chip reads in different window. Taking the AT89S8253 chip for example to explain how to read the chip. Click [Read] Button in the toolbar to pop up the following dialog box:



[Read Range], at first set the range, including [CODE] [DATA] [FUSE] [LOCK], and it's invalid when reading start address and end address. Press [Read] button to start reading the chip data. Note: If the chip is encrypted, all the value read out shows 0xFF.

After reading is completed, in the information column, reading time for each buffer will be shown.

Note: in the process of reading chip, the programmer will not test the error. You can use <verify> function if you want to verify whether the read data is correct. You can get the detailed operation by following <verify> instructions. The programmer will check chip ID before operation.

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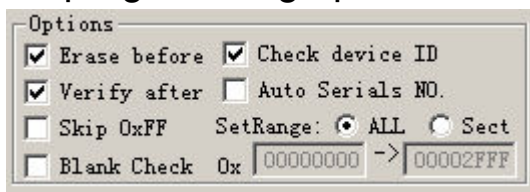
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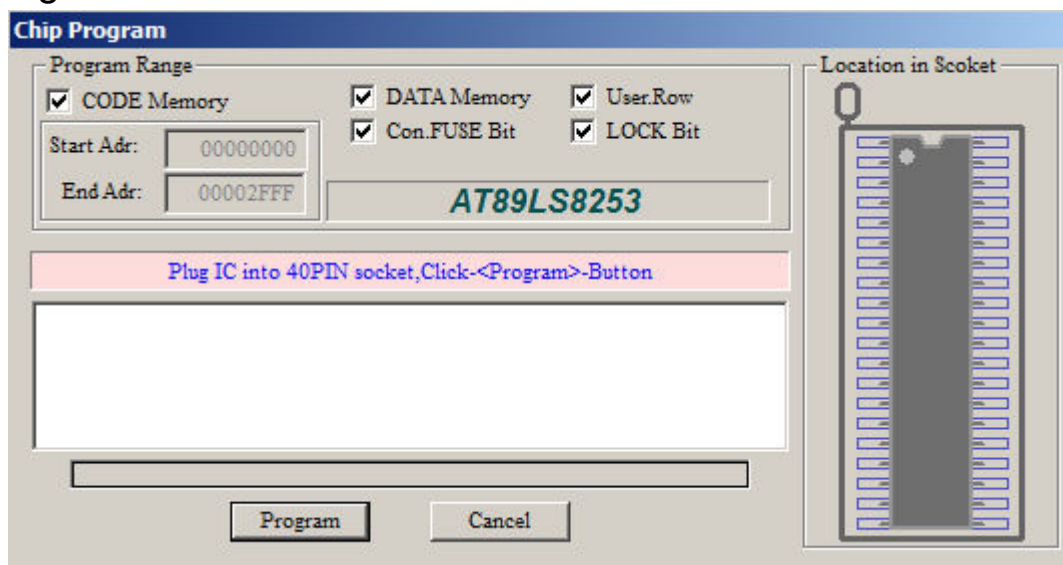
Mini TL866 Universal Programmer ->Program chip

Program the data in the buffer into the chip. May be different chip programs in different window. Taking the AT89S8253 chip for example to explain how to program the chip.

1. Load the programming data to the buffer.
2. The programming options are as shown below:



3. Click [Write] Button in the toolbar to pop up the following dialog box:



Firstly set [Program Range], including [CODE] [DATA] [FUSE] [LOCK]. Press [Program] button to start programming the chip.

Tips:

◆ After programming, the programming time for each buffer is shown in the information column.

◆ Most of the chips will be automatically checked in the process of programming and the program operation will be immediately terminated if there is an error.

◆ If the user selects "Auto Serials No.", after programming the chip number in the buffer will be automatically increased according to the settings.

◆ To ensure the accuracy of programming data, users are always recommended to perform [Verify After].

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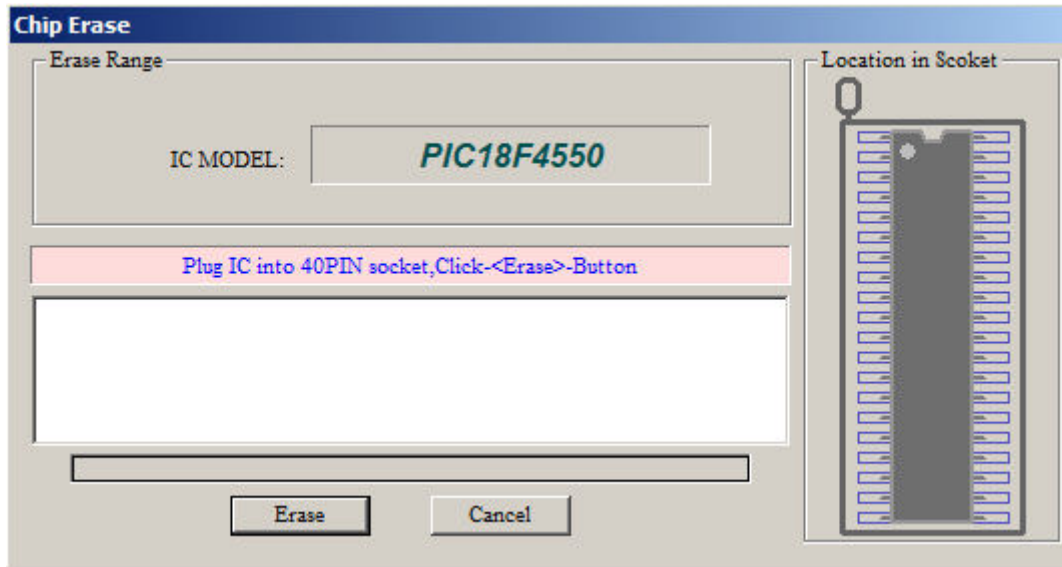
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Mini TL866 Universal Programmer ->Chip Erase

For the chip that can be erased electronically, click [Erase] button in the toolbar to pop up the following dialog box:



By default, chip ID will be checked before erase. For a small part of the microcontroller, the chip ID cannot be read after encrypted. At that time, don't tick off [check device ID] in the options, otherwise there is an error of checking ID. Click [Erase] button in the dialog box and the erase time will be shown after erase is complete.

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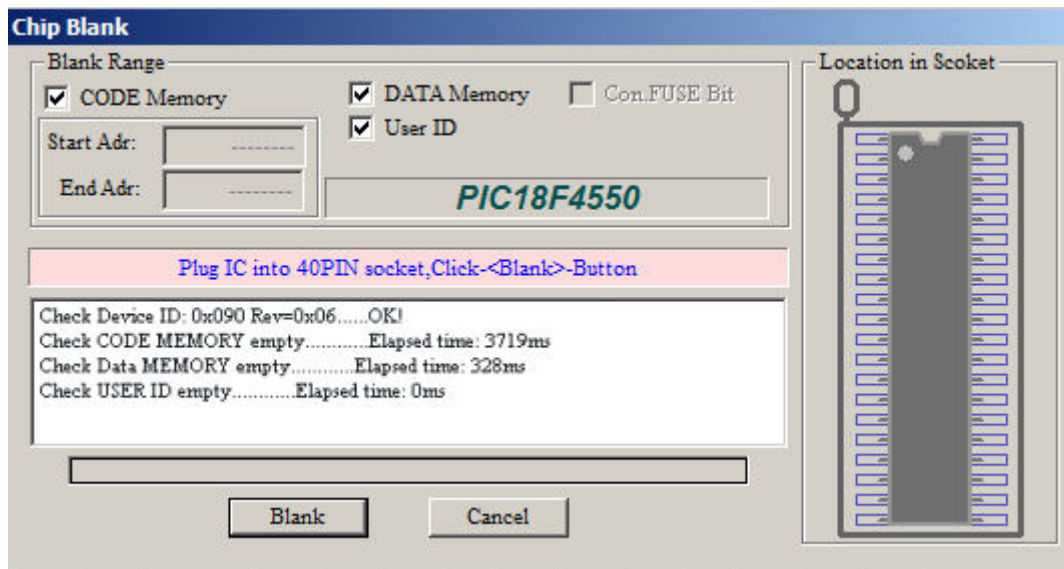
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Mini TL866 Universal Programmer ->Chip Blank Check

Click [Blank Check] Button in the toolbar to pop up the following dialog box:



By default, chip ID will be checked before erase. You can select the region you want to check blank and the default is the entire region. And then click [Blank check] button in the dialog box to start checking blank. The spending time for each region will be shown after checking. In the meantime, the operation will be terminated if it is found that the chip is not empty and the address and storing value in non-empty region will be shown.

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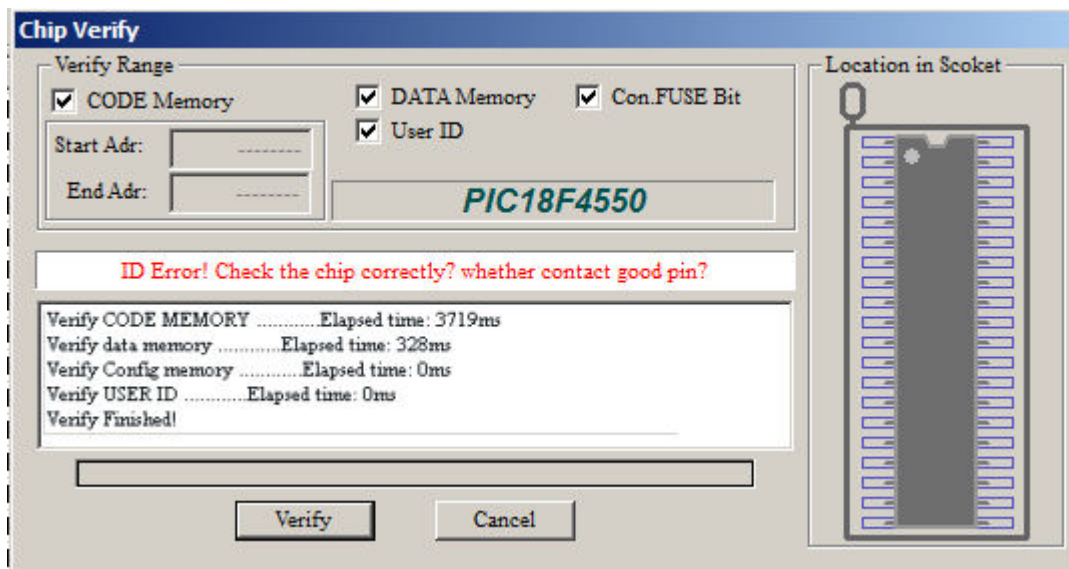
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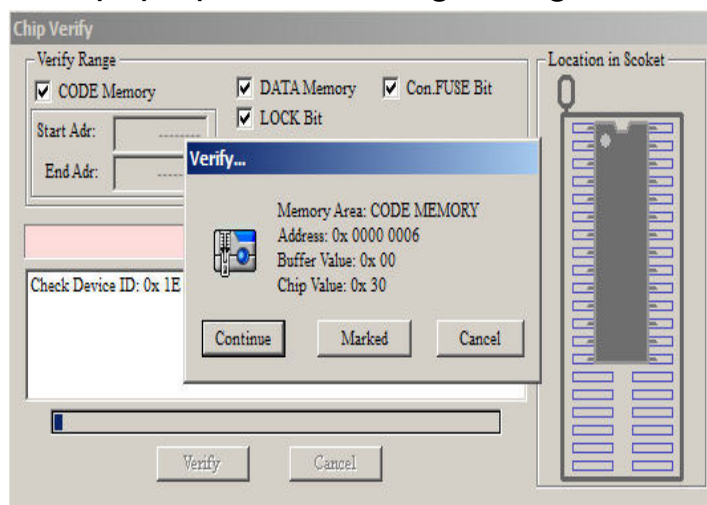
Mini TL866 Universal Programmer ->Verify chip

Click [Verify] Button in the toolbar to pop up the following dialog box:



By default, chip ID will be checked before erase. You can select the region you want to verify and the default is the entire region. Click [Verify] button in the dialog box to start. If it is verified that all the chip data is same, the spending time for each region will be shown after verifying, as shown above.

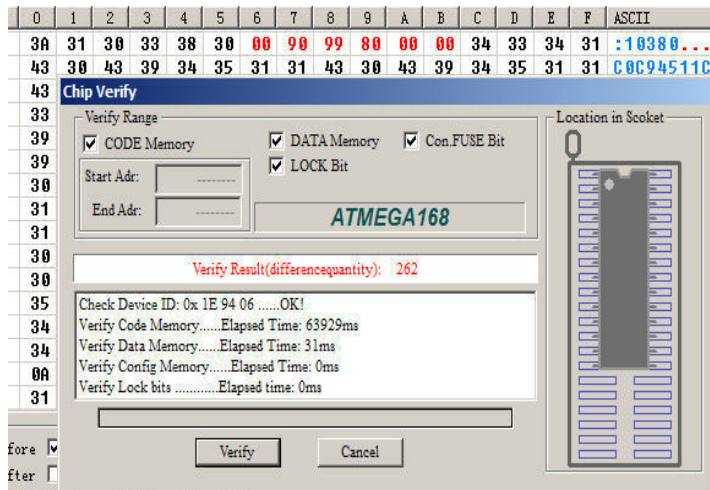
In the meantime, if it is found that the chip data is not same, pop up the following dialog box:



Click [continue to verify]: will continue to verify if there are different data, the same prompt dialog box will be popped up.

Click [Mark differences]: the prompt dialog box will not be popped up in the process of verifying until completion. Finally, all the differences will be prompted and the different units will be shown in red font in the buffer, as shown below.

Click [exit]: exit to stop verifying.



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Mini TL866 Universal Programmer -> Configure Chip

Click **【CONFIG】** Button in chip buffer select bar to pop up the following interface (select ID: PIC18F4550):

Product Identification		Set Interface			Built select			
ChipID:		<input checked="" type="radio"/> 40P adapter <input type="radio"/> ICSP port <input type="checkbox"/> ICSP_VCC Enable			<input type="button" value="Code Memo"/> <input type="button" value="Data Memo"/> <input type="button" value="Config"/>			
	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0X300000:	-	-	<input checked="" type="checkbox"/> USBDIV	<input checked="" type="checkbox"/> CPUDIV1	<input checked="" type="checkbox"/> CPUDIV0	<input checked="" type="checkbox"/> PLLDIV2	<input checked="" type="checkbox"/> PLLDIV1	<input checked="" type="checkbox"/> PLLDIV0
0X300001:	<input checked="" type="checkbox"/> IESO	<input checked="" type="checkbox"/> FCMEN	-	-	<input checked="" type="checkbox"/> FOSC3	<input type="checkbox"/> FOSC2	<input checked="" type="checkbox"/> FOSC1	<input type="checkbox"/> FOSCO
0X300002:	-	-	<input checked="" type="checkbox"/> VREGEN	<input type="checkbox"/> BORV1	<input type="checkbox"/> BORV0	<input type="checkbox"/> BOREN1	<input type="checkbox"/> BOREN0	<input type="checkbox"/> /PWRTEN
0X300003:	-	-	-	<input type="checkbox"/> WDTPS3	<input type="checkbox"/> WDTPS2	<input type="checkbox"/> WDTPS1	<input type="checkbox"/> WDTPS0	<input type="checkbox"/> WDTEEN
0X300004:	-	-	-	-	-	-	-	-
0X300005:	<input type="checkbox"/> MCLRE	-	-	-	-	<input checked="" type="checkbox"/> LPT1OSC	<input type="checkbox"/> PBADEN	<input type="checkbox"/> CCP2MX
0X300006:	<input type="checkbox"/> /DEBUG	<input checked="" type="checkbox"/> XINST	<input checked="" type="checkbox"/> ICPRT	-	-	<input type="checkbox"/> LVP	-	<input type="checkbox"/> STVERN
0X300007:	-	-	-	-	-	-	-	-
0X300008:	-	-	-	-	<input type="checkbox"/> CP3	<input type="checkbox"/> CP2	<input type="checkbox"/> CP1	<input type="checkbox"/> CP0
0X300009:	<input type="checkbox"/> CPD	<input type="checkbox"/> CPB	-	-	-	-	-	-
0X30000A:	-	-	-	-	<input type="checkbox"/> WRT3	<input type="checkbox"/> WRT2	<input type="checkbox"/> WRT1	<input type="checkbox"/> WRT0
0X30000B:	<input type="checkbox"/> WRID	<input type="checkbox"/> WRIB	<input type="checkbox"/> WRIC	-	-	-	-	-
0X30000C:	-	-	-	-	<input type="checkbox"/> EBTR3	<input type="checkbox"/> EBTR2	<input type="checkbox"/> EBTR1	<input type="checkbox"/> EBTR0
0X30000D:	-	<input type="checkbox"/> EBTRB	-	-	-	-	-	-

The value of IC config information in the lower right is corresponding to config interface: Click Config interface and the value of the config information will be automatically changed.

IC Config Information	
CONFIG: (0x300000-0x30000D)	USERID: (0x200000-0x200007)
00 05 1F 1F 00 83 85	FF FF FF FF FF FF FF
00 0F 0D 0F 0D 0F 40	USERID: <input type="text" value="1234567890000000"/>
Note: Checked = 0	

1. Different chip has different configuration information, so firstly users should check the IC datasheets in order to properly configure the chip.
2. IC configuration interface is well-designed and users can conveniently check the IC datasheet.
3. Some chips have no configuration information.
4. The common configuration interfaces are shown as below:
 - ◆ PIC18FXXX interface is as shown above, ID can be edited in the main screen, different model has different contents in the table.

◆PIC10xxx 12xxx 16xxx configuration interface is generally as below and different chip has different contents.

The screenshot shows a configuration window for a PIC chip. At the top, there are tabs for 'Product Identification' (ChipID), 'Set Interface' (40P adapter selected, ICSP port, ICSP_VCC Enable), and 'Buff select' (Code Memo, Config). Below this is a 'CONFIGURATION WORD' table with columns for BIT11 through BIT0. BIT4 is checked for 'MCLRE', BIT3 for '/CP', and BIT2 for 'WDTE'. Below the table is the 'USER ID WORD' section with four input fields for USER ID0 (0x100) through USER ID3 (0x103), all set to 'OFFF'. To the right, there are settings for 'Reset Vector (0x0FFH): OFFF' and 'Backup of OSCCAL (0x104H): OFFF'. A checked box 'Programming Reset Vector Byte Disable' is present, along with a note: 'NOTE: The Cali. Words do not necessarily participate in the erase operation unless this specific procedure is executed.'

For parts of the PIC chips, by default the programmer will not erase the Reset Vector of the chip when erasing. If you program the verified bytes in configure interface, the Reset Vector will be erased. If the chip has no backup verified value and at the same time you make a mistake with the verified bytes, if you use inside clock, the clock skew may appear and the chip may not be used.

Note: Under normal circumstances, The verified bytes don't need to be changed because it has been verified at factory.

◆The ATMEGA configuration information is generally as below and different chip has different contents.

The screenshot shows an ATMEGA configuration window. At the top, 'Select IC' is set to 'ATMEGA168'. 'IC Information' shows 'ChipType: MCU/MPU', 'ChkSum: 0x0041 BE00', and 'IC Size: 16384 Bytes + 512 Bytes'. The 'Autoelectric' logo is visible. Below are tabs for 'Product Identification' (ChipID), 'Set Interface' (40P adapter selected, ICSP port, ICSP_VCC Enable), and 'Buff select' (Code Memo, Data Memo, Config). The main area is divided into four sections: 'Fuse Low Byte' (CKDIV8=0, CKOUT=0, SUT1=0, SUT0=0, CKSEL3=0, CKSEL2=0, CKSEL1=0, CKSEL0=0), 'Fuse High Byte' (RSTDISBL=0, DWEN=0, SPIEN=0, WDTON=0, EESAVE=0, BODLEVEL2=0, BODLEVEL1=0, BODLEVEL0=0), 'Extended Fuse Byte' (BOOTSZ1=0, BOOTSZ0=0, BOOTRST=0), and 'Lock Bit Byte' (BLB12=0, BLB11=0, BLB02=0, BLB01=0, LB2=0, LB1=0). A 'Calibration Programming' section has 'Disable' selected, 'Calibration: 0x 00', and 'Memory Address: 00000000'. A note states: 'Note: The CaliBrAtion byte, The location value will be replaced by this byte when programming!'

◆ You can test by yourself in applications for other more interfaces. You are sure to use it well.

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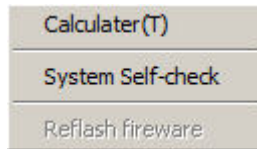
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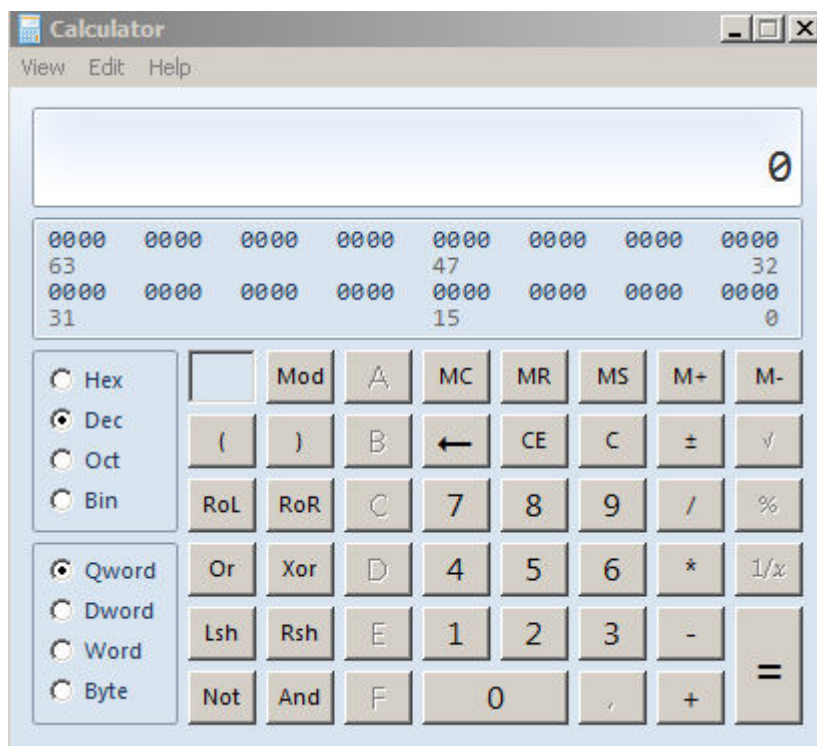
Mini TL866 Universal Programmer -> Programmer Self-Check

The menu functions are for the chip programming operation.

- ◆ Tools menu items are as follows:

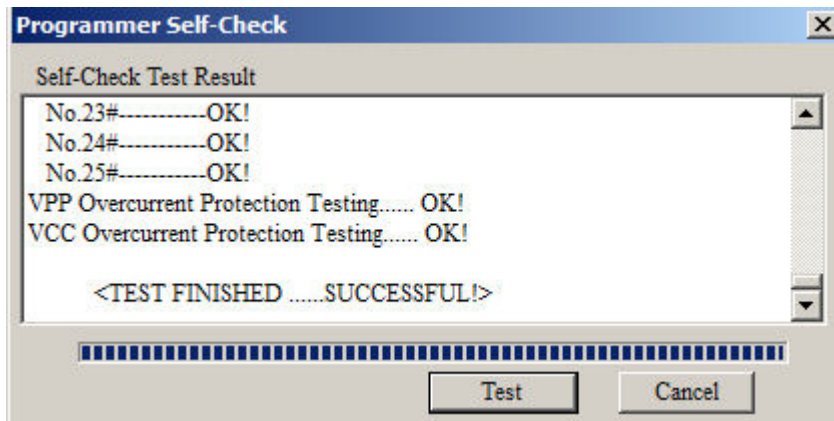


- ◆ Calculator: This is a calculator that comes with Windows and the scientific model calculation is very convenient for a variety of formats.



- ◆ Programmer Self-Check: self-test on the programmer hardware

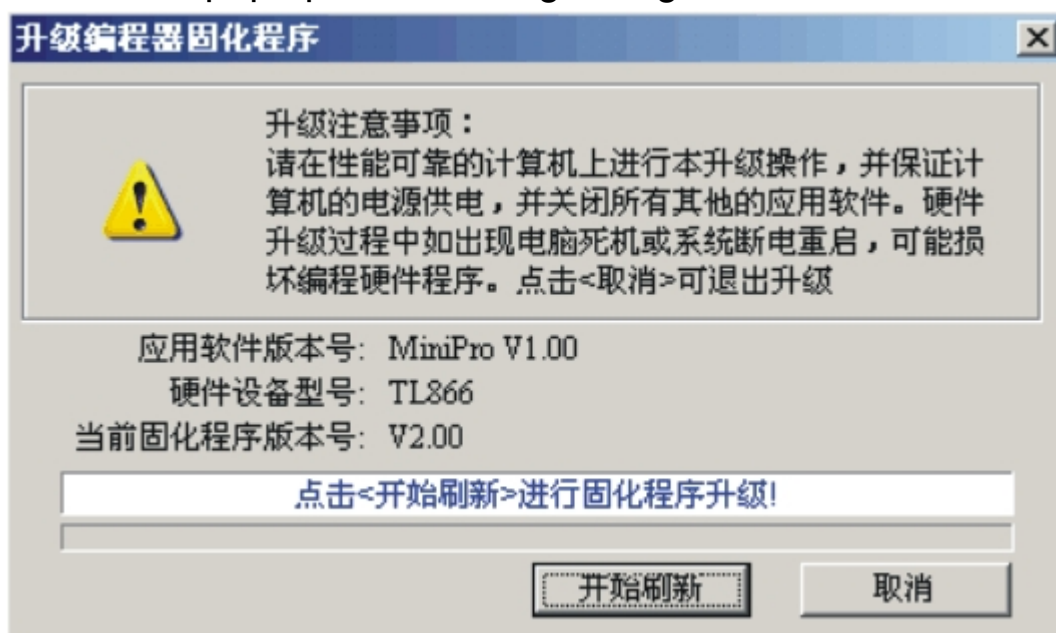
Click to pop up the following dialog box:



Note: Please remove the IC in the 40-PIN socket and ICSP cable before programmer begins to self-check. The IC may be damaged if no removing. Because when self-checking, programmer will test by applying VPP, VCC and GND to all pins and will perform an inside short-circuit overcurrent test (at the same time apply VPP, VCC and GND to the same pin). The testing information will be shown in the dialog box.

◆ Firmware FLASH refresh: Refresh and upgrade the firmware program

After you upgrade the application, if there is a upgrading need, the application will prompt to refresh the firmware; otherwise his refresh function is disabled. Click <Refresh firmware > to pop up the following dialog box:



Refresh Note: Please make sure the reliable performance of your PC and the uninterrupted electricity supply to your PC. At the same time, please close other application programs. The programming firmware program may be damaged if there is a computer crash or power failure in the process of upgrade. Click <Cancel> to exit upgrade.

Close all other programs, and ensure reliable computer power!

Click <Refresh> to begin, the refresh total time is about 30 seconds. Click <Cancel> to exit refresh.



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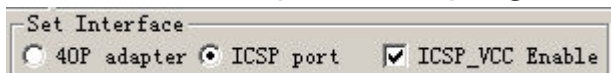
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Mini TL866 Universal Programmer -> ICSP Program

(only TL866A has this ICSP programming function)

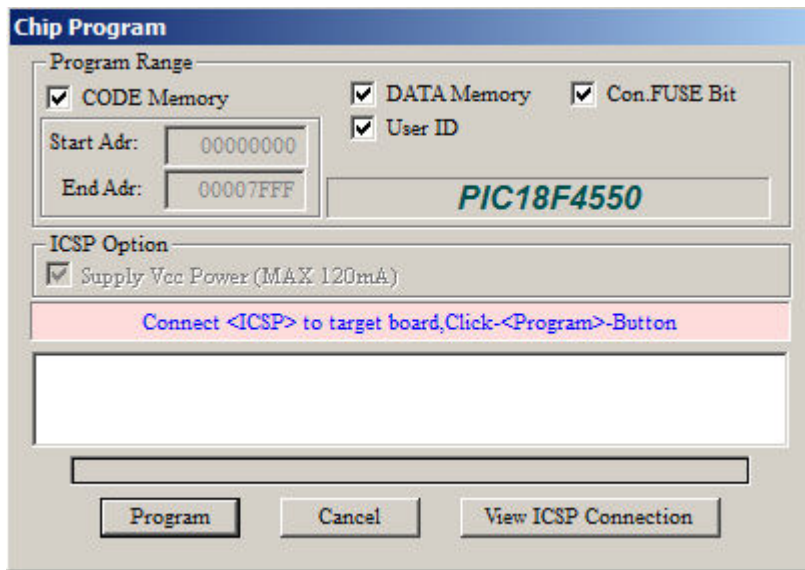
For the serial in-circuit programmed chips, this programmer can program microcontroller on the target board through ICSP port. Firstly select <ICSP port> in the main interface and then by default <ICSP_VCC Enable> is ticked off. That means the target board will be provided VCC power when programming. (Note: The maximum current of programmer VCC power is 120ma. Please use the target board's power supply if larger current is needed. You'd better isolate the CPU power from other high current components on the board and use programmer's power supply that is more convenient.

If the power don't need to be supplied by programmer, don't tick off the **【ICSP_VCC Enable】** . Then there is no VCC power in the VCC pin when programming, as shown below:

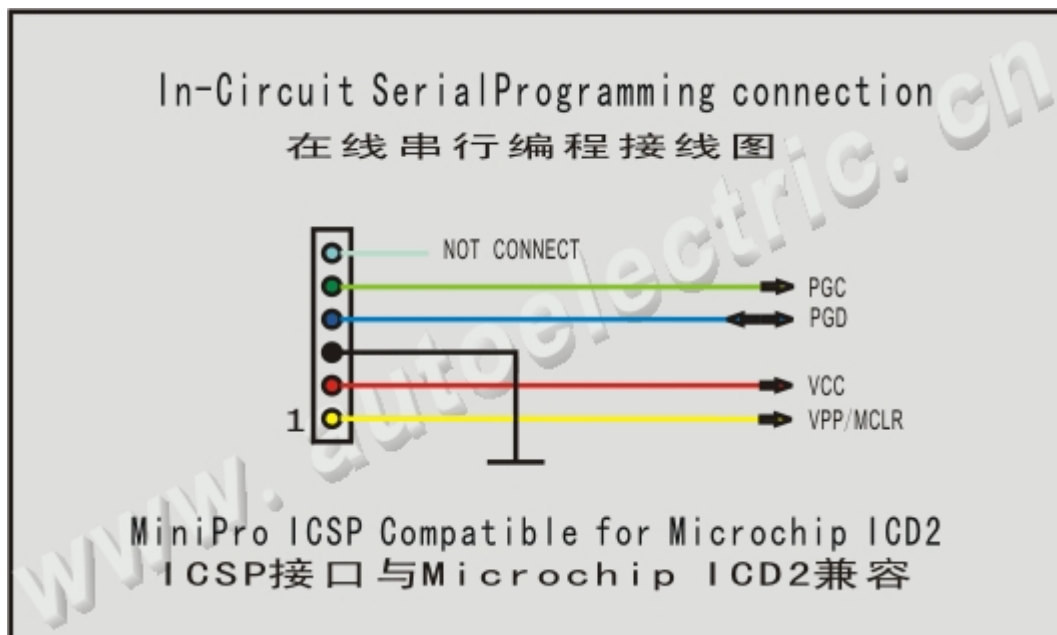


The next step: Read, erase, verify, program, etc. Such operations will be finished through the ICSP port. At that time, you are not allowed to put the chip on the 40PIN universal socket. Click **【Write】** button to pop up the following dialog box:

(Note: the dialog box of read, erase, verify, etc. is nearly the same as the **【Write】** , just one more ICSP prompt.)



Click [View ICSP Connection] button to pop up the in-circuit serial programming wiring diagram, as shown below:
 (Different chip has different ICP connection method)



Note:

1. Now ICSP can in-circuit serial program ATMEL89S51, ATMEL89S52, AT45DBxxx, a whole series of AVR ATMEGAXxx, MICROCHIP PIC10Fxxx 12Fxxx 16Fxxx 18Fxxx, as well as a full serial of SYNCMOS SM59Dxx SM59Rxx. The variety of microcontroller that can be

supported in-circuit programming will be continually increased in the future.

2. Under normal circumstances, the 40PIN socket programming is high-speed Parallel Programming and ICSP programming for the target board is serial in-circuit programming.

3. The programmings of the PIC10 12 16 series chips, 40PIN and ICSP port are high-voltage serial programming. Different 18 series chip has different VPP voltage. The programming ways of ICSP port and the 40PIN socket are the same, but Programming rate of ICSP port is a bit slower than which of 40PIN socket.

4. Atmel AT89Sxx ATMEGAXxx SPI programming speeds are very different from the parallel programming. This programmer is one of the highest parallel programming speed and it can fully meet the needs of mass production.

5. TL866CS Model programmer has no this ICSP port and it cannot in-circuit program.

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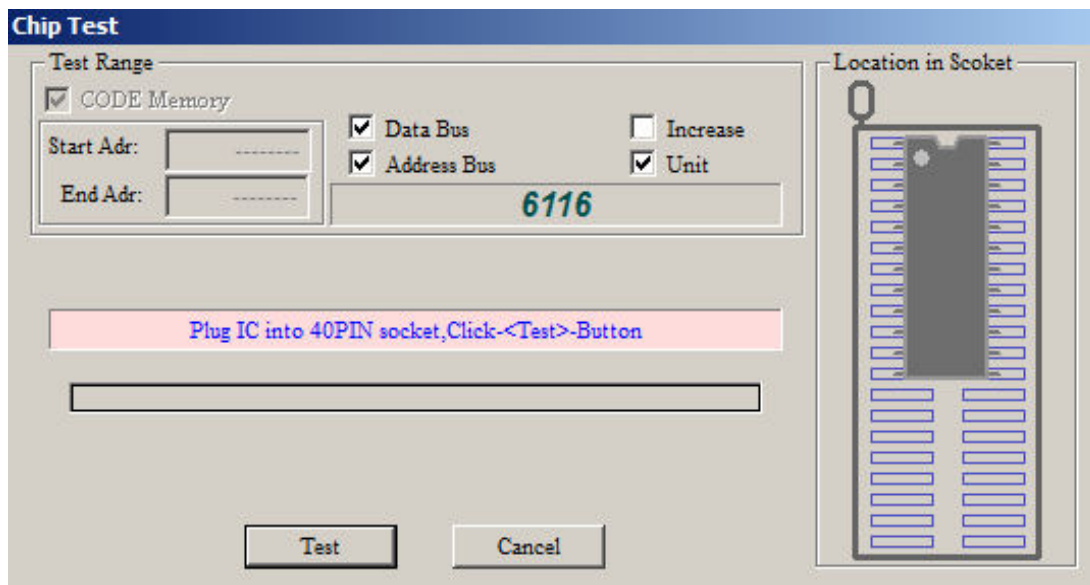
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Mini TL866 Universal Programmer ->RAM test

Select IC as RAM chips and click [test] button in the toolbar to pop up the following dialog box:



RAM test: There are four methods and the RAM unit can be tested whether the function is normal by these testing methods.

General programmer cannot test whether RAM unit is good or bad because it only read and write the RAM units. For example, if there is a short circuit between two adjacent address lines, it is not possible to check out the problem to simply read and write the RAM units data. So each testing way is not complete.

Insert chip and click [test] button to start testing RAM.

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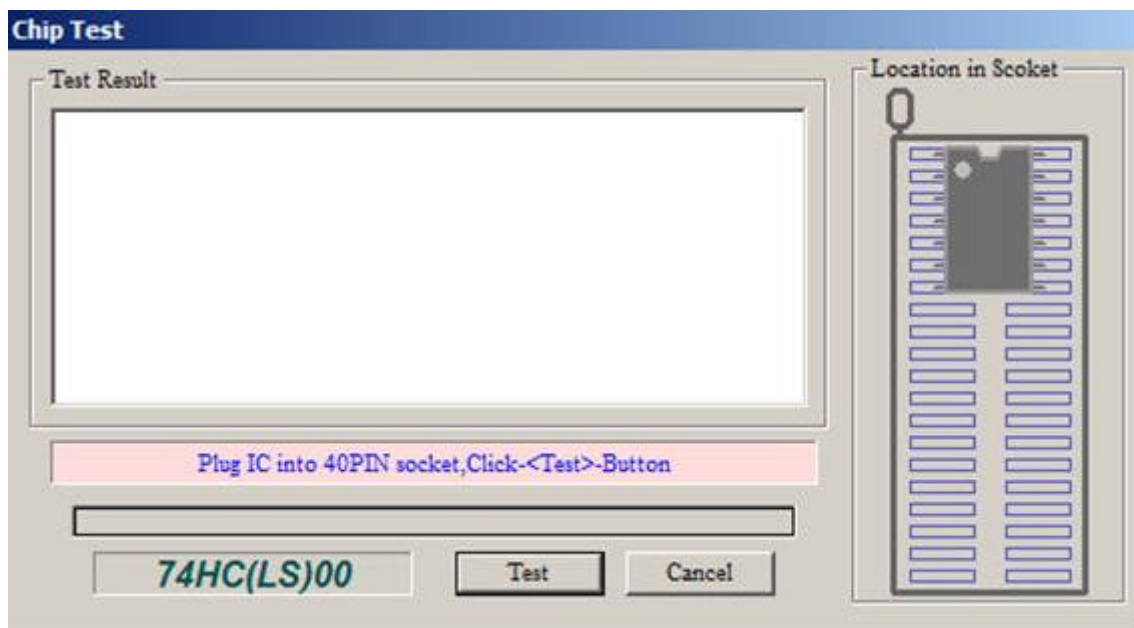
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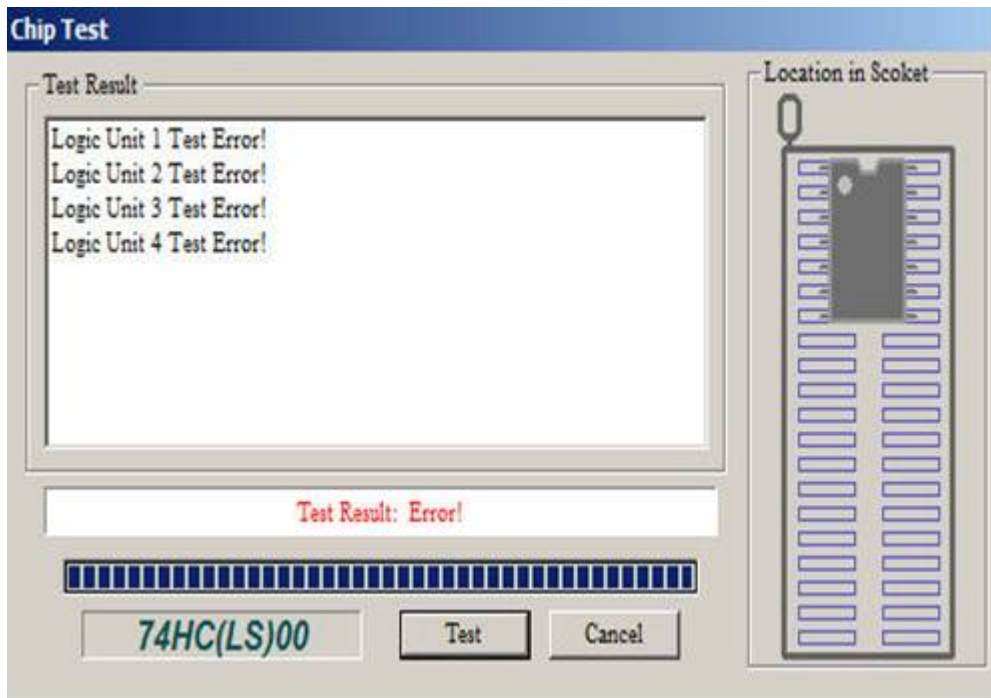
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Mini TL866 Universal Programmer ->Digital circuit testing

Maybe this is the first development comprehensive programmer to test the common 74 series CMOS4000 series IC and this test can be located the errors of logic gate circuit. After select corresponding 74HC00 IC, click [TLL/CMOS Test] button to pop up the following dialog box:



Under normal circumstances, testing information of each logical unit with a variety of input combinations will be shown. If there is an error with IC gate circuit, for example, If you disconnect the PIN1 of 74HC00 chip, the testing results will be shown as follows: prompt chip error.



Different chip has different logical unit number. Logical unit numbering is the same as the IC manual.

 Related Topics:

- > [Quick Guide](#)
- > [Complete Operations Guide](#)

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