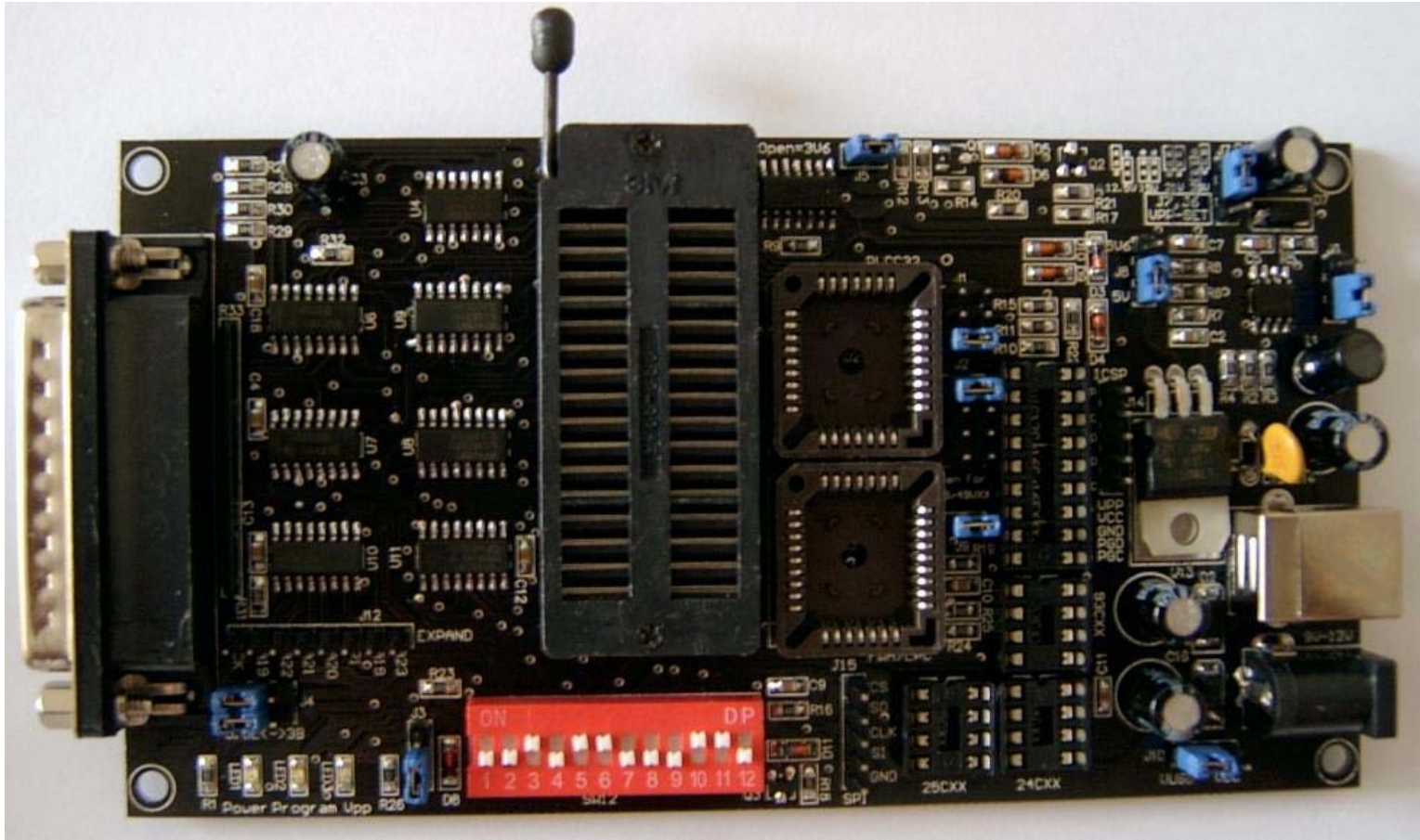


Dual Powered Standard Willem EPROM Programmer

User Guide

[Hardware Installation & Configuration](#)

Hardware Structure



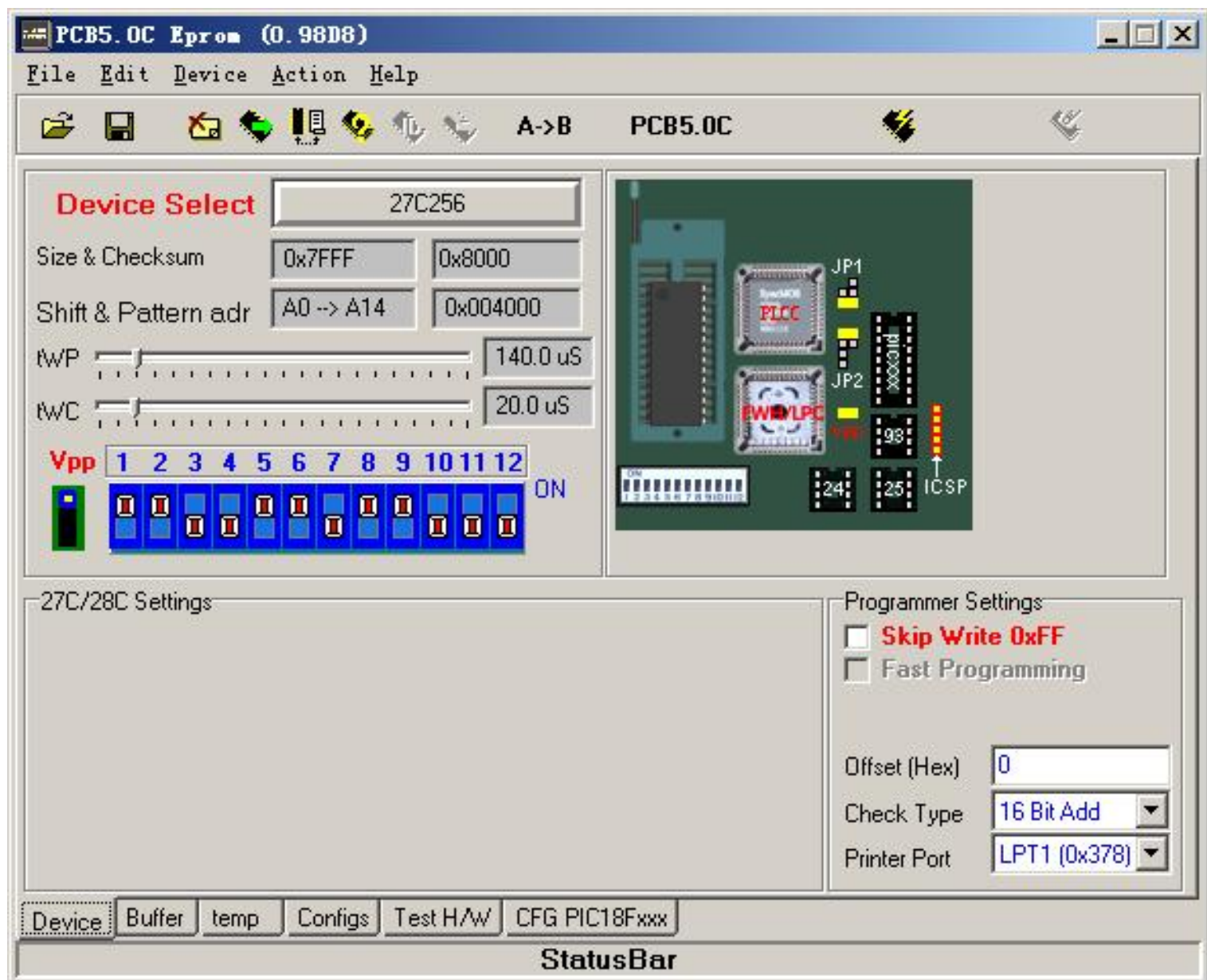
Installation Steps

- Check the parallel printer port setting in the bios, it should be EPP or Normal.
- Check there are any active resident programs that use the printer port, such as TWAIN drivers. You may have to remove it.
- Connect one end of the 25 pin SubD parallel cable to PC printer port
- Connect the other end of parallel cable to 25 Pins port of the programmer
- Connect USB power cable or AC adaptor (Note: if you are working on the EPROM programming. You may need use a AC adaptor, so that you can get Vcc 5.6V and 6.2V when doing programming)

- The yellow power normal indicator of the programmer should light up, then the programmer power supply is normal.
- Run the software
- Select devices type
- Click the Willem in toolbar to change to PCB5
- Set the DIP switch based on the displayed pattern.

(Note: the LPT port of PC MUST set to ECP or ECP+EPP during BIOS setup. To enter the BIOS setting mode, you need press "Del" key or "F1" key during the computer selftest, which is the moment of computer just power up.)

The software interface:



Jumper Configuration

Special Chip Setting:

NORMAL	2732	2716	2816	128F001	AT29C256	ERASE W27C/SST27Xxxx

Programming VPP setting (JP5, JP6):

normal (12.5V)	21V	25V	15V

Programming 4M and 8M EPROM setting:

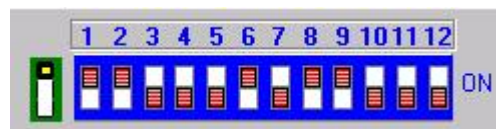
4M	8M

VCC setting (JP7):

Default (5V)	5.6 V	6.2V

Note: the Vcc setting jumper only has effect when you are using AC adaptor as power source. For the USB power only 5V Vcc is available.

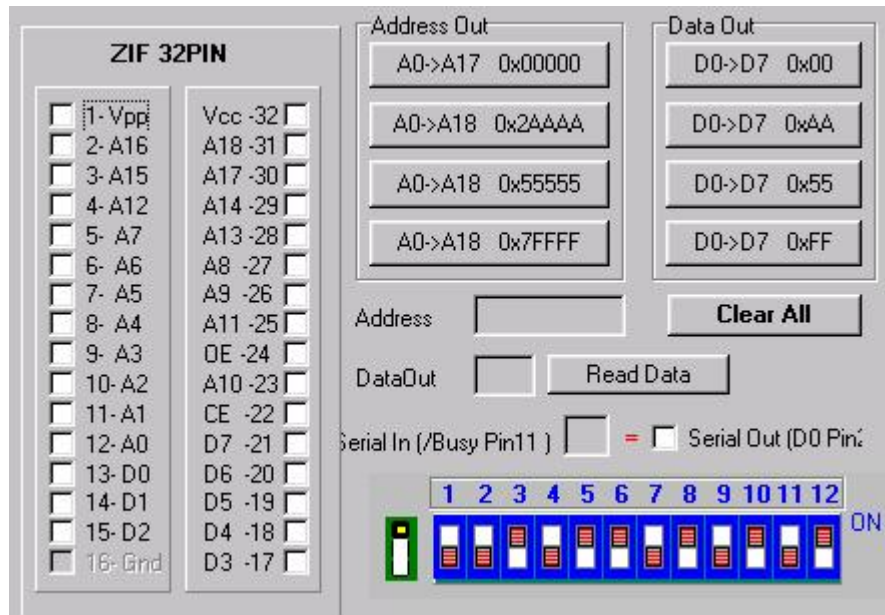
DIP Switch



When programming one chip, follow the program prompt to set DIP switch .

Self Test Function

The screen :

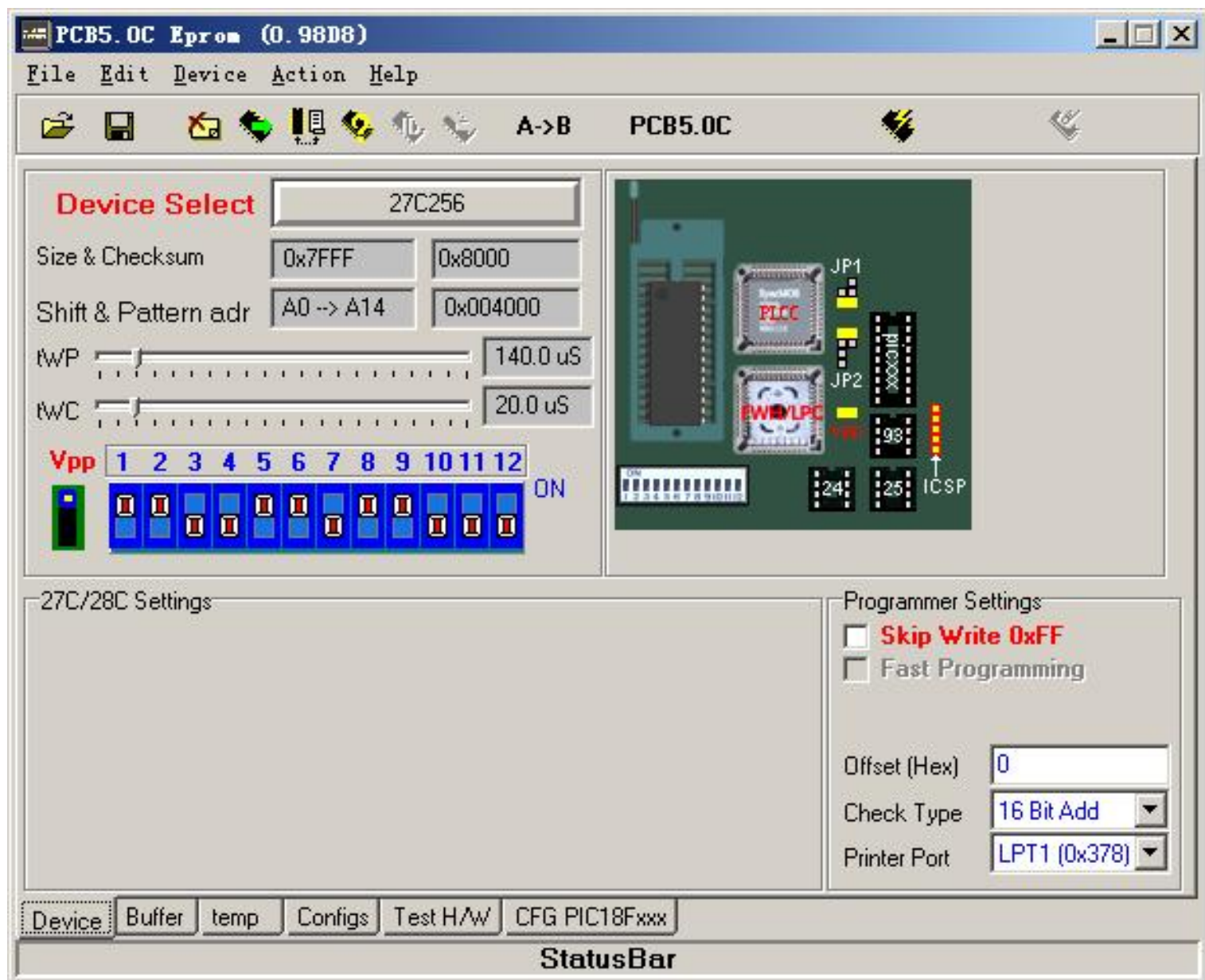


Steps:

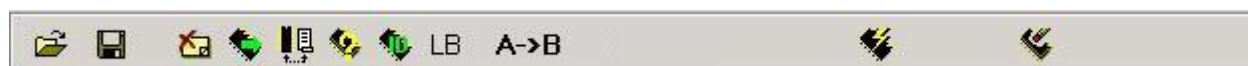
- Before test, set the DIP switch, jumper setup to software prompted
- Address Pin Test: click the one of the push button in the Address Out group, use multimeter detect output signal in the ZIF32 socket. Or directly input the address data, the range is: 0--7FFFFH A0-PIN 12, A1-PIN 11, A2-PIN 12, A3-PIN 9, A4-PIN 8, A5-PIN 7, A6-PIN 6, A7-PIN 5, A8-PIN 27, A9-PIN 26, A10-PIN 23, A11-PIN 25, A12-PIN 4, A13-PIN 28, A14-PIN 29, A15-PIN 3, A16-PIN 2, A17-PIN 30
- Data Pin Test: click one of the push button in Data Out group, use multimeter confirm the data from ZIF socket. Alternatively, input the test data, the range is: 0--FFH; D0-PIN 13, D1-PIN 14, D2-PIN 15, D3-PIN 17, D4-PIN 18, D5-PIN 19, D6-PIN 20, D7-PIN 21
- VPP (programming voltage) Test: Turn on the programming voltage by click on pin 1 (1-Vpp) check box, measure the voltage between PIN 16 and PIN 1. It should show the Vpp voltage your set. (12V, 15V, 21V, 25V. Note : there maybe 0.5V tolerance of voltage reading)
- Clear All: Clear the whole control signal, address and data output. Then you measure should be all 0V.

Software Interface & Function

The software interface :



Tool bar:





Read data file to buffer, it can be : Intel HEX (*.hex); Binary (*.bin); Motorola S Record (*.s); ALL Eeprom File (*.bin, *.hex, *.s)



Save data to a file from buffer



Clear buffer of programmer software



Read data from chip to programmer buffer



Blank verify. Verify the chip if it is blank



Display chip's factory ID



Programming/Test. Programm the chip or test the SRAM.



Erase. Erase content of chip.



LB Programming bit control. For MCS51, AVR



File : Open, Save, Exit.

Edit: Edit buffer

Device: Selection of target device/chip.

Action: The operations for the target device/chip.

Help: Help information.

Main area in software: From left to right there are four sections

1, chip selection and parameter area

2, hardware jumper and setting indication picture.

3. MCU chip's parameter setting, such as lock bit.

4, programming parameter setting and fine adjustment. Normally a default value can be used

Tab page selection:

The bottom of main program screen is series tab window button.



Click "Buffer" button, display buffer content. The first column of data is data address, last column is the data ASCII code, the middle is data hex value. If internal EEPROM exists in PIC MCU, the EEPROM data content displays automatically.

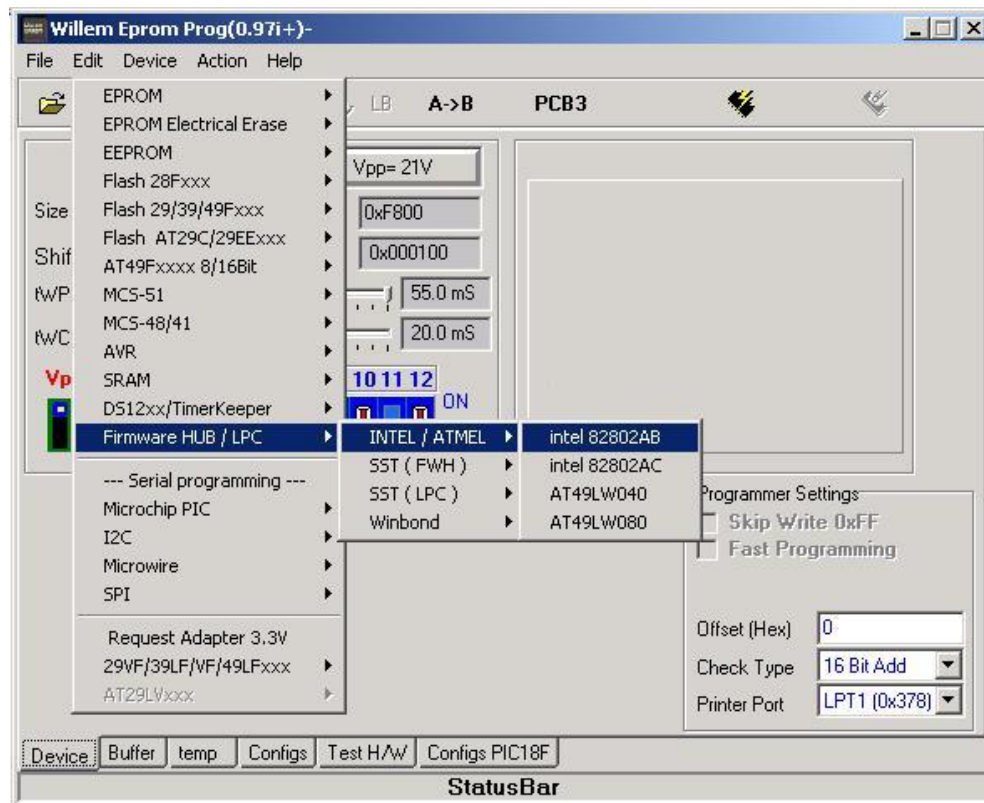
Status bar : Displays programmer's current status: the chip write in is not correct, wrong programming position, programmer problem and so on.

BIOS/Flash Setting & Programming

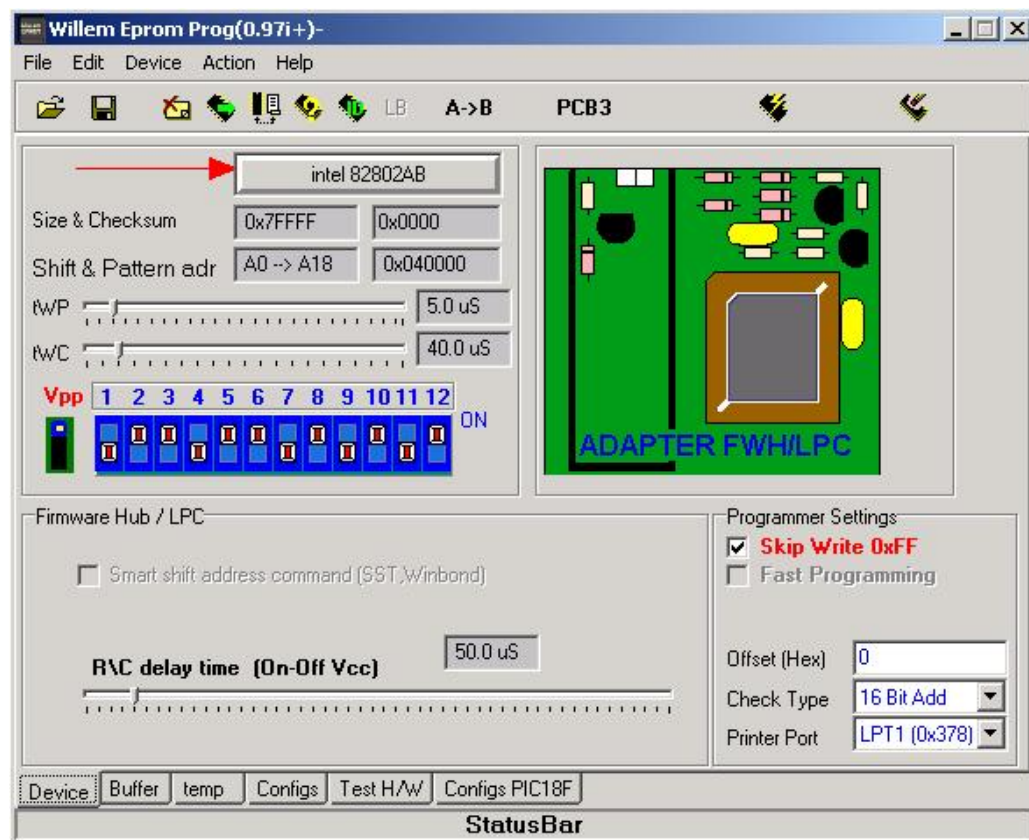
Programming the BIOS on Willem programmer is easy, as long as we selected right chip type and right jumper. Here is an example for programming on a N82802AB of Intel845 mother board(3.3V):



1, select chip type and software setting



now you can see following setting:



DIP position: OFF,ON,ON,OFF,ON,ON,OFF,ON,OFF,ON,OFF,ON

Chip's parameter is showed below the Chip Select Button. Normaly, those parameters are no need to adjusted, using default value.

Size&checksum: shows chip's capacity and data buffer's checksum.

Shift&pattem adress: shows chip's address line to be used and highest address bit.

†WP/WC: shows programming pulse width and delay time.

2. check chip's position

After DIP set, check the chip's position. For BIOS chip, it should be placed in the 32 pins ZIF socket. For N82802AB chip, the program prompt user need a FWH/LPC adaptor.

Please make sure the pin one position on the FWH/LPC adaptor.

Note: 1,Displayed chip's parameter is no need to be ajusted.

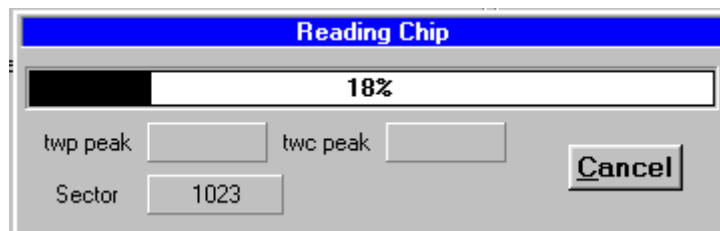
2, DIP is different when programming different chip

3, For EPROM chip, we need resetting the DIP, speical chip and special valtage follow the prompt of software

3, read from chip

After selected the chip, we can click on the "Read" button. All data will be put into the buffer.

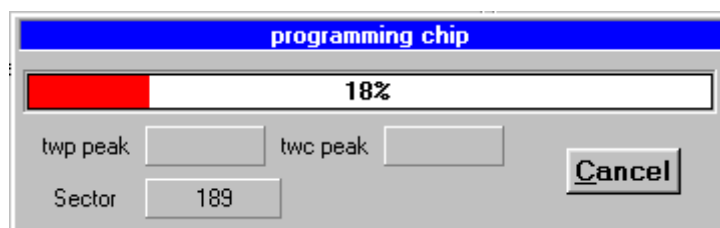
When reading the chip, the yellow LED will be light up, indicats that the valtage is been applied on the chip.

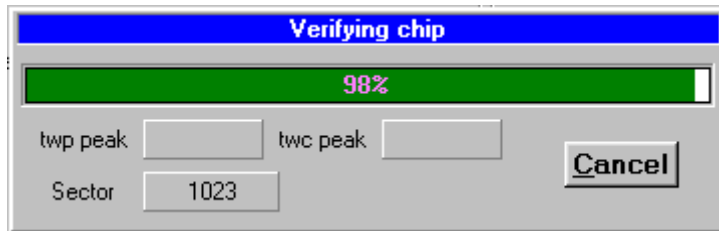


4, Programming

After insert the chip, click on "Open file" to open your data file. Then click on "Programm Chip" button. Note, some of chip need erase before write.

When programming, the yellow LED will be on. If the chip need a Vpp programming voltage, the red LED will be on.



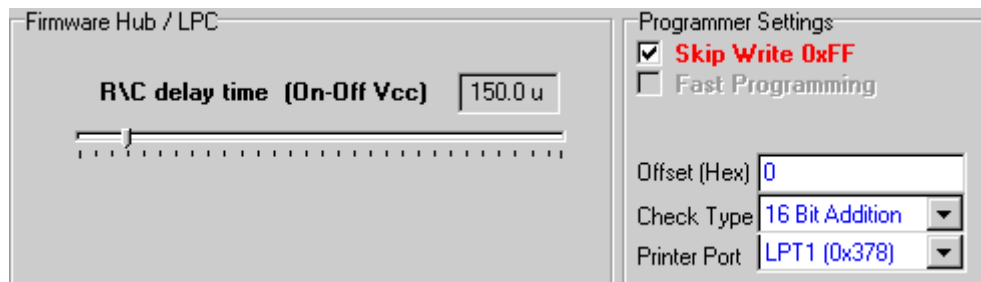


5, copy a chip:

- 1), Select the chip type and then put in the original chip.
- 2), "read" the data into buffer.
- 3), Put in the target chip and then click "Programm Chip".

Note: the chip may be damaged if wrong chip type selectd or chip in a wrong direction in socket.

The following parameter is for advanced user only.



R/C delay time: programming pulse delay. If your computer is too fast, you may need increase the delay.

Skip Write 0xFF: Enable this setting will skip the 0xFF when programming.

Fast Programming: For a fast programming mode if it is enabled.

Printer Port: LPT1(0X378), printer port selected.

Offset: setting programming start offset adress.

Check Type: You can select the way to check either 32 bit CRC or 16 bit add.

Note:

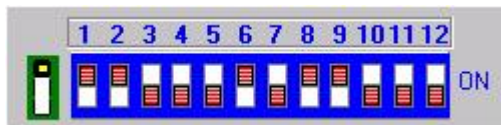
- 1, some of chip need to be erased in order to programming. Such as SST39SF020.
- 2 Always put the chip in the programmer at the last step. Because the programmer is in a unstable state then windows is starting.
- 3, Do not interrupt the programming procedure. Press the "Stop" button if needed.

EPROM Chip Programming

The operation to EPROM chip is similar to general BIOS chip. The main difference is: the programmer jumper needs relevant ground setup. As an example: write a 27C16(programming voltage is 12.5V), also you need change the Vcc voltage setting accordingly. Some chips need the Vcc set to 6.2V when doing programming.

1. Select the chip and configuration

Set the chip and make sure the jumper for that chip is correct, the program displays the DIP switch setting. Follow the figure to set up the DIP switch, includes the jumper next to DIP switch.



The DIP switch setup is: toward to upper side is on, toward to bottom side is off. As to above figure, the DIP switch is: ON, ON, OFF, OFF, OFF, ON, OFF, ON, OFF, OFF, OFF, OFF.

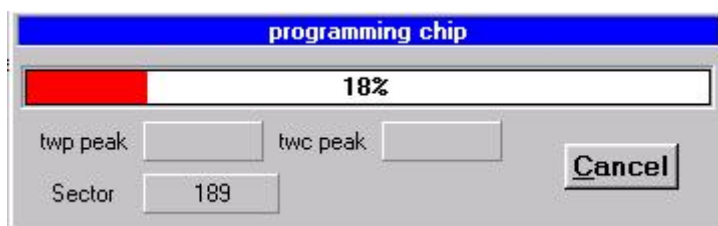
2. Fix the chip position

After DIP switch set-up, insert the chip to 32 PIN ZIF socket, check the special chip setting is correct.

For the chips have capacity less than 1M, PIN fewer than 32 PIN, the chip installation is shown the right figure, align with the bottom of ZIF socket:



The follows operation is read in data file, programming. When programming, the red indicator lights up. This shows the programmer has correct voltage Vpp.



Note:if wrongly selected the chip type, the EPROM chip may be damaged.

EEPROM Chip Programming

Some EPROM chip, like W27C512 or W27C010, they are 27series, but no erasing window on the top. Then, they have to be erased electronically. When programming this type, besides the DIP setup and insertion of IC to 32 PIN ZIP socket, the special chip and special voltage button have to be adjusted accordingly.

1. WinBond EEPROM

The programmer supports: W27E512, W27E010, W27C010, W27C020, W27C040

Operation steps:

- 1) Setup the 12 bit DIP, select the chip model W27CXX
- 2) Set the programming voltage VPP to 15V, special model jumper to W27C position
- 3) Insert W27CXX to 32PIN ZIP socket, click the software upper right corner erase button, the program indicator lamp flashes and progress bar is not moving, then directly press reset button, the chip starts to erase.
- 4) Verify the result.

2. SST EEPROM

This programmer supports: 27SF256, 512, 010, 020, 040; 37VF512, 010, 020, 040.

Operation steps (Vpp keeps as 12V):

- 1) Setup the 12 bit DIP, select the chip model W27CXX
- 2) Set the programming voltage VPP auto to 15V, special chip jumper to W27C position.
- 3) Insert W27CXX to 32PIN ZIP socket, click the software upper right corner erase button, the program indicator lamp flashes and progress bar is not moving, then directly press reset button, the chip starts to erase.
- 4) Verify the result.

3. MX26C4000 EEPROM

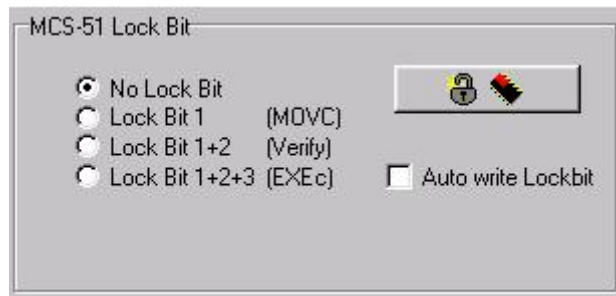
Operation steps (VPP keeps as 12V):

- 1) Setup the 12 bit DIP, select the chip model W27CXX
- 2) Set the programming voltage VPP to 15V, special model jumper to W27C position.

- 3) Insert W27CXX to 32PIN ZIP socket, click the software upper right corner erase button, the program indicator lamp flashes and progress bar is not moving, then directly press reset button, the chip starts to erase.
- 4) Verify the result

ATMEL Chip Programming

Select the target MCU chip, the program prompts the relevant adapter. Meanwhile, display the options to select the lock bit:



MCS-51 encryption setup, lock bit functions:

No LockBit: no

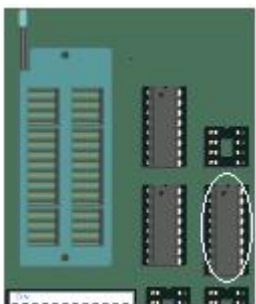
LockBit1: forbidden MOVC instruction and programming again.

LockBit1+2: include the above functions and forbidden test (forbidden readout FLASH)

LockBit1+2+3: include the above functions and forbidden external program memory

PIC Chip Programming

After select the relevant PIC chip type, the program prompts the needed socket:



Meanwhile, in the chip setup area, display the relevant setup to select PIC MCU configuration parameters

The screenshot shows a 'PIC Setting' window with the following fields and options:

- Oscillator:** RC (selected from a dropdown)
- Code Protect:** CP OFF (selected from a dropdown)
- ID edit (hex):** FFFF
- CONFIG:** 0x3FFF
- WatchDog:** ☒ (checked)
- Power-up Time:** ☐ (unchecked)
- MCLR +5V:** ☐ (unchecked)

PIC MCU configuration parameters:

Oscillator types:

LP:low power consumption

XT:crystal/cera

HS:high speed crystal/ceramic

RC:resistance

IntRC:internal 4Mhz resistant

ExtRC:external resistant

ExtClock:external clock(24Mhz)

E4:external clock with PLL(6Mhz)

H4:crystal/ceramic with PLL(6Mhz)

IntRC RB4:internal resistant

IntRC CLKOUT:internal resistant,RB4 output clock ExtRC RB4:external resistant

ExtRC CLKOUT:external resistant,RB4 output clock

IntRC I/O:internal resistant

intRC CLKOUT:internal resistant, output clock

ER I/O:external resistance

ER CLKOUT:external resistance,output clock

Code protect:encrypt PIC MCU program, prevent read out

Watch Dog:turn on/off watch dog

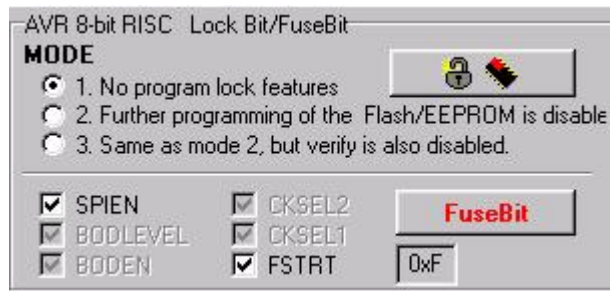
Power-up Time:upper power delay selection

AVR Chip Programming

As to AVR chip, choose the target chip,the program prompts the correct adapter socket.

Meanwhile, at the chip configuration area, display the right setup list in order to choose PIC MCU configuration

parameters.



CKSEL0...2:Reset delay selection

BODEN:BOD(power off test)permission

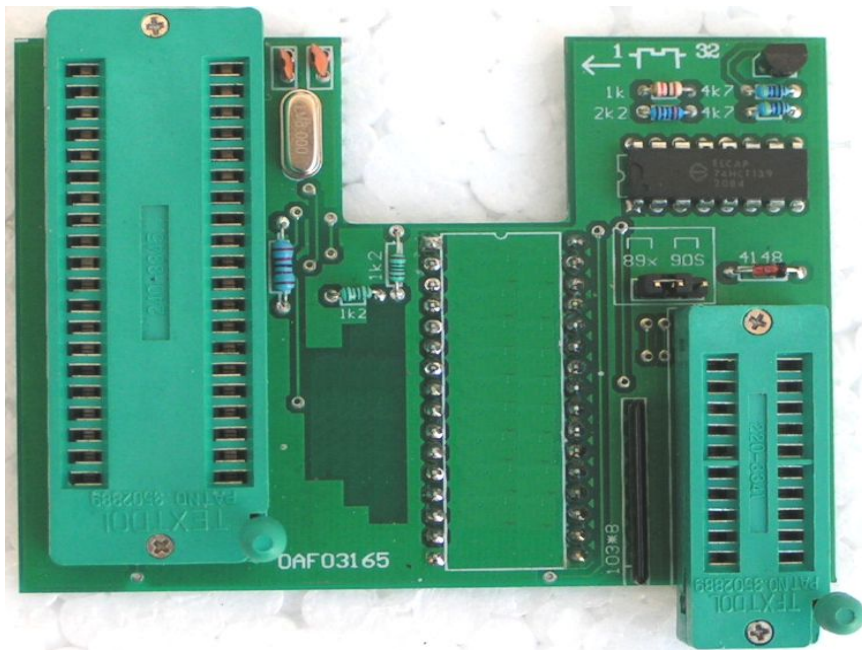
BODENLEVEL:BOD strike voltage selection

FSTRT:upper start time selection

RCEN:internal RC oscillation permission

SPIEN:SPI serial programming permission

ATMEL89 Adapter



By using this adapter, it is able to program MCS-51 series MCU. The MCU includes ATMEL & INTEL.

- It supports: 89 series

MCU: AT89C1051,AT89C2051,AT89C4051,AT89C51,AT89LV51,AT89C52,AT89LV52,AT89C55,AT89LV55,A

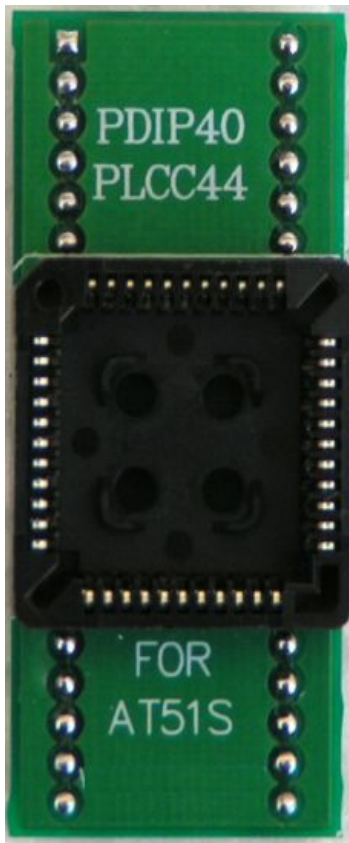
T89S8252,AT89LS8252,AT89S53,AT89LS53 AT87F51,AT87F52

i87C51,i87C51FA,i87C51FB,i87C51FC,i87C52,i87C54,i87C58 (*)AT89C51RC (32KB), AT89C55WD

- 90 series AVR 8-bit RISC: AT90S1200,AT90S2313

Other AVR chips need 51-AVR+ adator, such as 90S2333, 90S4433, 90S4414,90S8515, 90S4434, 90S8535

ATMEL PLCC44 Adapter



This adaptor is able to program MCS-51 series PLCC MCU, such as 89C51PLCC44. Please note, it is used with ATMEL89 Adapor.