

TOPWIN
Universal Programmer

User Manual

2004.10.

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Brief Introduction

TopWin, a type of software developed for TOP series programmers, adapts to the TOP hardware products of a new generation. TopWin has abandoned its method of one type of software matching for one mode of TOP product by operating different mode of hardware units. TopWin supports automatic identification of hardware mode and function. Once TopWin connects to hardware unit successfully, the name of hardware unit will appear at the bottom of window. The current basic modes that TopWin supported include TOP853, TOP2004, TOP2005 and TOP2048. Product of new mode developed in the future will be supported by new version of TopWin software.

TopWin supports multi-window operation, namely, it can connect multiple programmers on a computer to write device without any interference. Mode of programmer can be same or different. TopWin opens all devices in order of alignment. In theory, the number of connected devices is out of limitation.

TopWin supports Windows98se/Me/2000/XP.

Chapter I Software Installation

1.1 Software Installation of (WINDOWS98SE / ME / 2000 / XP)

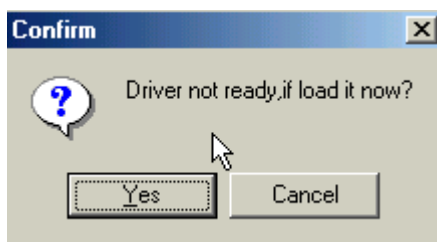
To disconnect programmer (Don't connect with programmer).

To operate Setup.exe in the CD and continues according to the prompt.

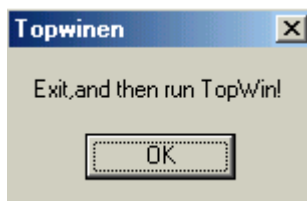
Lastly, press confirmation to restart computer.

After complete Windows start-up, use matching cord to connect with programmer. Computer will display the prompt of "find new facilities" and presses continue until completion.

To operate "begin/program/TopWin.exe", because it is the first installation, software has following prompt:

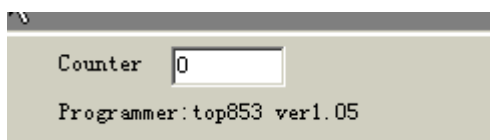


To press YES and wait for about five seconds, after blank screen vanish, following prompt will arise:



Press OK to exit.

To operate TopWin again, green light on programmer turns on, lower right of software window shows equipment name topxxx, it shows everything is in normal status and can have normal operation. Please find the following:



1.2 Hardware Connection

USB interface should support hot swap, it can operate computer first and then reconnect programmer.

To connect flat head of cord to USB interface of computer, square head connect to programmer socket. (Both sides of cords are different and must have separation.) When power indicator turns on “POWER” (red), it means power supply of machine has been put through.

To operate on TopWin program, after two to ten seconds, programmer working indicator" READY" (Green) turns on, bottom of window shows the name of hardware unit topxxxx. It shows that machine had ready and can have normal operations.

To open set up \ system status in the main menu and press “testing USB load current”, it show that from grade five to grade ten is normal, the higher the grade, the stronger the driving force. Electric current of grade five can write most of devices, some specific high-current devices need the electric current above grade seven. Most of the computers can reach to grade seven or more. If the computer is below grade five, it can connect cord (it should buy it additionally) or to circumscribe 5V / 2A regulated power supply (specific model have accessories, please check hardware specification).

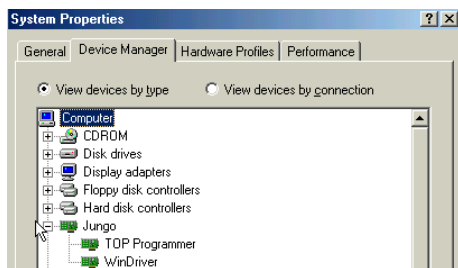
1.3 Software Specification

TopWin don't support old models of TOP851 / 852 / 2000 / 2003 / 48.

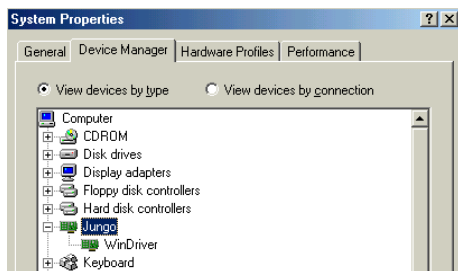
It is possible that D version XP of early age can not operate.

In normal conditions, it can see following information in “my computer/control panel/system/device manager”:

After connect programmer (Jungo/Top programmer/ WinDriver):

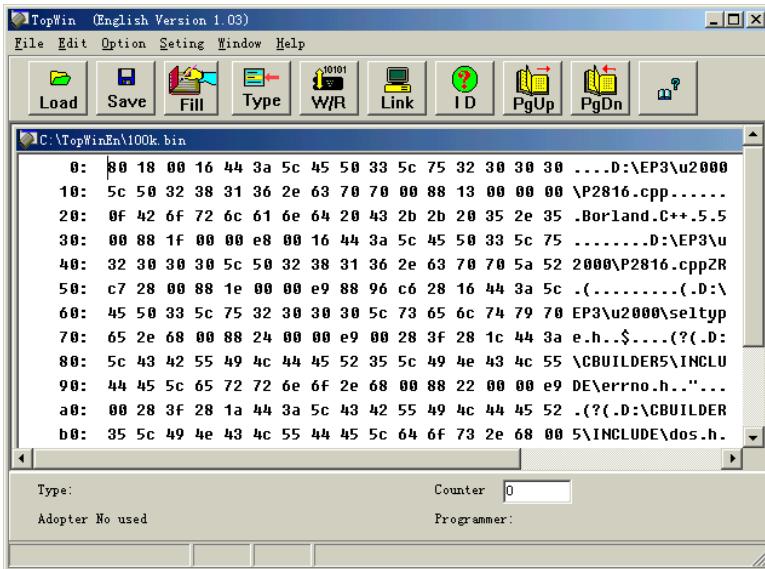


If no programmer find,show as:



1.4 Main Window

After TOPWin start-up, main window of TOPWin will be showed on the screen as follows:



Software interface is composed by menu bar, toolbar, buffer zone, status bar and report group, therein five menus include all functions and options of TOPWin operation, set up common icon button in toolbar, it has the completely same effect to the operation which use in the menu. To use the methods of click can make command transfer more convenient and rapid.

It should conduct explanation with the main thread of menu function for software application methods.

Note:

- It can also operate on TOPWin software under the conditions of not connect with programmer. After get the prompt of “can not turn on equipment”, press “OK” to enter offline operation.
- For the operation which concerned with device read and write, it should operate in the corresponding dialog box after select the model.

Chapter II File Operation

2.1 File Menu

"File" menu includes the file access and print operation, the format applies to binary system, hexadecimal and JECED.

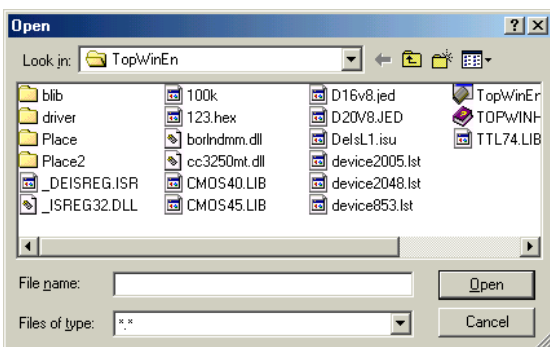
The file menu's functions are:

2.1.1 Create New File

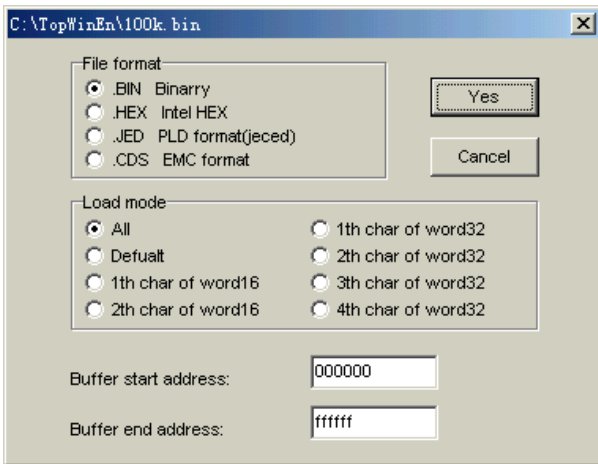
: to create a new file.

2.1.2 Loading

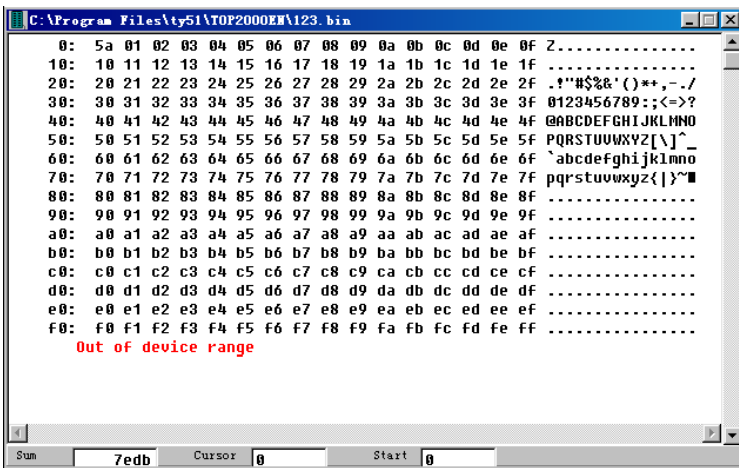
The corresponding tool icon button is "Loading"; to open an existing file in the main window, and the file window will spring out after the performance:



Select the file name, and then select the file format in the format dialog box:



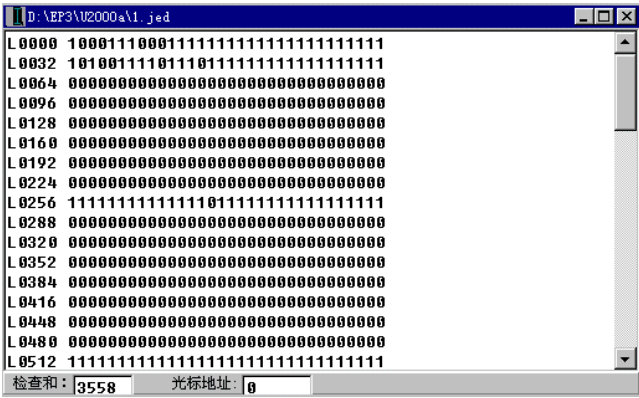
After confirming the file format, start and end address of buffer zone of the opening file, load the file data into the buffer zone, it will run as follow:



After the loading of file data into the buffer zone, if required to amend, move the mouse or keyboard to the relative byte and input the number directly. But the input number must be two hexadecimal numbers.

If there is a large volume data, and the target data is not in the window, please use editing key "Page Up", "Page Down", "Home" and "End" to turn page, or you can input the address on the right of the "Start Address" at the bottom of the data window and press "Enter", the window will move to the "Address" immediately.

PLD device introduces JECED formatted file of fuse diagram info with the extension of ".JED", after the data is loaded into the buffer zone, it will run as follows:



2.1.3 the Saving Buffer Zone

Its corresponding tool icon button is "Save", it is to save the content of the buffer zone.

2.1.4 Print

Select the file mode of printing and print the file

2.1.5 Set up Printer

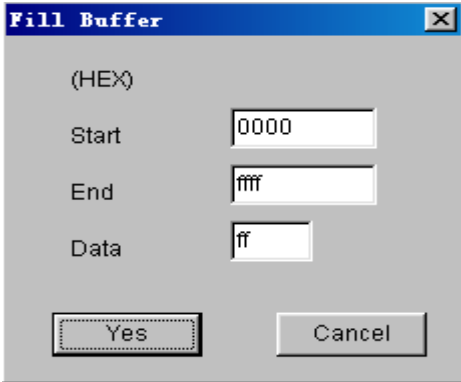
Specify the type of the printer and its ports

2.2 Modify Menu:

The operation is to edit the data in the buffer zone.

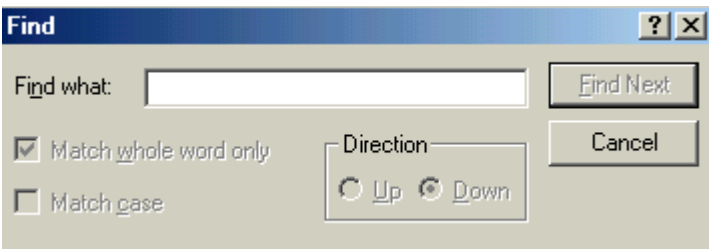
2.2.1 Fill Buffer

The corresponding tool icon button is "Fill Buffer". The operation can fill in the buffer zone units with required data. Select "Change Buffer Size", the dialog box springs, input the start address, end address of the infill block, and the data to be filled in, and press "Yes".



2.2.2 Find:

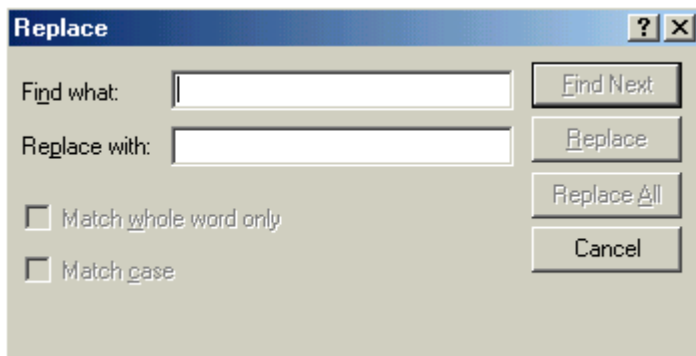
The operation is to find the named data in the buffer zone, and only two hexadecimal characters (no case sensitive) can be input. After the performance, the standard finding dialog box springs as follows:



Press "find next" to find now. And continue to press "find next" to find again.

2.2.3 Replace Characters:

The operation is to replace the text characters. After the performance, springs out the dialog box of Replacing as follows:



- Input the text to be substituted in "Find what" frame, or paste from the clipboard.
- Input the text to replace in the "Replace With" frame.
- Press "find next" first to find the character string to be replaced;
- Press "Replace" (p) button to perform the replacement.

Note: To replace the next, you must press "find next" first, and then press "Replace" to perform replacement.

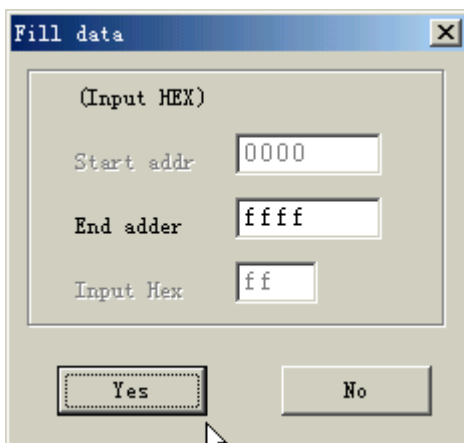
2.2.4 Repeat Last Find (F3):

For the text which has been found once before, you can press F3 to find the next position repeatedly.

2.2.5 Extend or Shrink the File Buffering Zone:

The size of the file buffering zone is typically similar with the file size. If you want to add data, you must extend the end address of the file buffering zone.

Select "Change Buffer Size", the dialog box springs out, input the end address on the right of "End Address" and then presses "Yes".



Data filling, extending or shrinking the file buffering zone can also be performed in the buffer zone area by clicking the right button of the mouse. The menu popup is as follows:

```

! 30 30 30 5c 73 65 6c 74 79 70
! 00 (          44 3a
: 44 (   Fill buffer      4c 55
! 6e (   Change buffer size 00 e9
! 3a 5c 43 42 55 49 4c 44 45 52
! 55 4b 45 5c 6b 6f 73 2e 68 00

```

Chapter III Device Operation

3.1 Conventional Procedures

Connect to TOPWin correctly; power indicator (red) turns on.

Run “TOPWin.exe”, and working indicator (green) turns on.

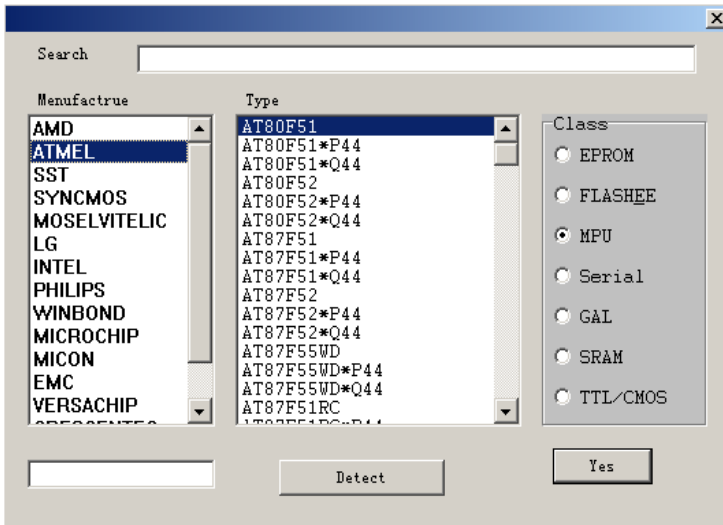
Select “File” in the main menu, and upload data to the file buffer.

Insert the device into the socket and lock it up, and then be ready for written-in and read-out operation of device.

3.2 Operate Menu

3.2.1 Select Type

The corresponding device button is “Type”; pull down the pop-up Window of “Select Manufacturer/Type” after operation.



The procedures to select “Type” of device are to confirm the type of device in order of “Type->Manufacturer->Type”.

- Input key word in the right of “Search” in first line; if the key word is “51”, this step can be omitted.
- Select “Type of Device” in the “Type” menu, like EEPROM.
- Select a manufacturer from the list of “Manufacturer”, like “ATMEL”.
- Select a device type from the list of “Device”, like select “89c51”.

If select a memory, press “Detect Manufacturer Code” to a get 2-byte code, the first byte of which denotes a manufacturer and the second one denotes a device type.

And then, press “Confirm” to enter write-in and read-out operation.

3.2.2 Read-Out and Write-In Device

The corresponding device button is “Read/Write”; Different device types have different read/write windows correspondingly. They are respectively described as follows:

1. Read-Write Combined Memory

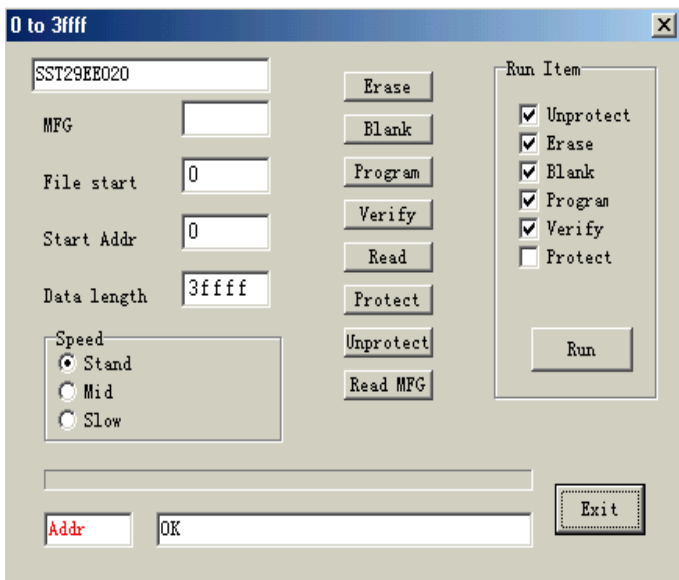
Take 29c010 for example, select the following item from the Window of “Select Manufacturer/Type”

Type: EEPROM

Manufacturer: ATMEL

Device: AT29C020

Press “Confirm”, pop up combined memory read-write Window as follows:



- Write-in Device

The write-in device is to write the data of the buffer into a device. The default values of File Start Address and Device Start Address are 0, which implies writing data into all the units of this device. While the length of the data can be up to six bits hexadecimal (HEX) numerals and the maximal address space is 8M. If necessary, user can follow required conditions to modify start address, so as to fulfil the intention to write in.

The procedures to write in device are visually displayed via a progress bar. If confront with some units fail to write in, it will exit from the write-in procedures and display fault address, data in buffer and contents of device data.

Cautions:

Before write in device, special attention should be paid to not to mistake device types, otherwise, device or devices might be damaged, owing to the device types are totally different, the corresponding serving programming voltage might be different. After confirm all configurations are all right, insert the device to be programmed into the corresponding sockets, and then level lock-up spanner.

- Read-Out Device

Read out all the data in the device and write them in the buffer, and then do page display in the data Window. The read-out procedures are visually displayed via progress bar. User can modify the read-out data and store them into a disk (the format of the file should be consistent with the built-in file format of the device).

- Erasing:

Erase all contents of the device memory. After being erased, the device shows “FF”. Only EEP device can use this command, and EPROM needs to be erased with ultraviolet radiation.

- Blank Check:

Before write in device, it is required to check whether there is a blank. Each byte of the Blank is “FF” (HEX).The check-out procedures are visually displayed via progress bar. When find out some non-blank unit, it will exit from the blank check-out procedures and display the address and data of the non-blank unit.

This operation will check out all address space of EPROM, which is independent of the device start address or the data length. EPROM can be checked after being irradiated with uviol lamp, if still fail to pass, it is proved that the device was already damaged.

- Data Censor:

This operation compares the data in the buffer with those in the device, which is visually displayed via progress bar. When confront with any unit fails to be censored, it will exit from the data censor procedures and visually display the

fault unit address, the data in the buffer and the device data.

For ensuring the written-in data in the device are correct, the “write-in device” operation should include the censor procedures. Therefore, no repetition of the same operation is required.

- Protection:

Many EEPROM and FLASH ROM have protection functions. The device with protection function can only be read out, instead of being written into, unless invalidate the protection function. This operation is generally applied with completion of write-in operation.

- Protection Invalidation:

It is in reverse with that of protection function.

- Read-Out Manufacturer:

The former byte of the two-byte read-out code denotes the manufacturer, and the latter one denotes the type.

- Write-In Speed

The programming speed of products by different manufacturers is totally different, and even if some products with different types are made by a same manufacturer, their programming speed might be different. It can generally be set into the standard speed.

- “Automated” Programming Operation

This operation will automatically finish the device programming on the base of the selection in box of “Combined Operation”, which can advance the programming efficiency of device.

2. Read-Write MCU/MPU

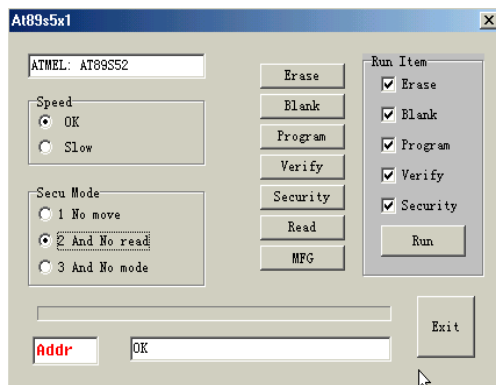
Take 89c51 for an example, select the following items from the Window of “Select Manufacturer/Type”

Type: MCU/MPU

Manufacturer: ATMEL

Device: AT89c51

Press “Confirm”, pop up a MCU/MPU read-write Window as follows:



- The following operation procedures are as same as those of the combined read-write memory.

Write-in Device, Read-out Device, Erasing, Check Blank, Data Censor, Manufacturer Read-Out, and Automated Operation.

- Encryption:

The encryption method can adopt different method to encrypt the MCU/MPU.

- Check-Out Voltage

The device working at lower voltage should select corresponding check-out voltage to verify written-in codes, so as to ensure the written-in codes are all correct. The check-out voltage won't influence on the write-in voltage and the read-out voltage.

- Write-In Speed:

There are only two options available. With manufacturer's rapid reform of processing crafts, the delay time to write in device may be different. In generally, lower speed is better, although it may waste much time.

3. Read-Write Serial Port Memory

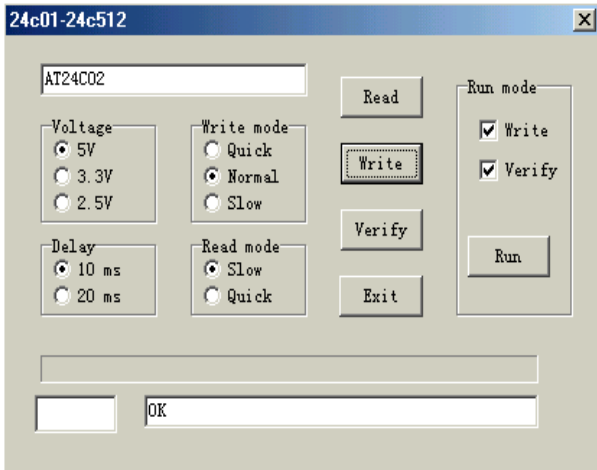
Take 24c02 for example, select the following items from the Window of "Select Manufacturer/Type"

Type: Serial Port Memory

Manufacturer:

Device: 24c02

Press "Confirm", pop up serial port memory read-write Window as follows:



- Select Write-In Speed:

The write-in speed of the serial port memory has much variation. It is not wrong to select the lowest one, while the write-in period might be longer. If proper speed is required, it is recommended to select different speed experiments to achieve. When the speed is too high, the adjacent data might encounter with repeated faults. In generally, it is relatively suitable to adopt 2-20mS.

- Read-Out Device:

It has the functions as same as those of the "combined read-write memory".

- Write-in Device

These series of device are written in replacement mode, namely, these apparatuses are in no need of being erased.

- Comparable Data:

It has the functions as same as those of the "combined read-write memory".

4. Read-Write PLD

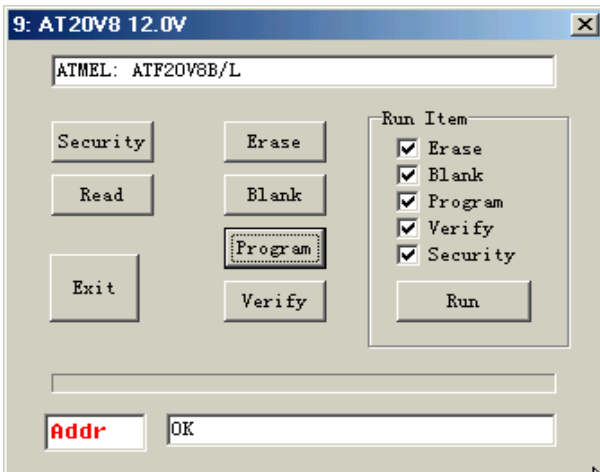
Take ATF20V8B/L for example, select the following items from the Window of "Select Manufacturer/Type".

Type: Programmable Logical Drive

Manufacturer: ATMEL

Device: ATF20V8B/L

Press "Confirm", pop up a PLD read-write Window as follows:



- Read-Out Device: It has the functions as same as those of the “combined read-write memory”.
- Write-in Device

Before write the data of the file buffer into a device, it is required to get the file data be ready in advance. PLD device adopt the "fuse file" with extension of “.JED” in format of JECED, and the device should be blank, otherwise, it will fail to be written into.

- Check-Out Device: It has the functions as same as those of the “combined read-write memory”.
- Erasing Device:

The original contents in the erasing device include and/or matrix fuse, structure control field, attribute field and so on.

3.3 Automatically Detect Manufacturer and Type:

Chapter IV SRAM and Universal Integrated Circuit Test

4.1 SRAM Test

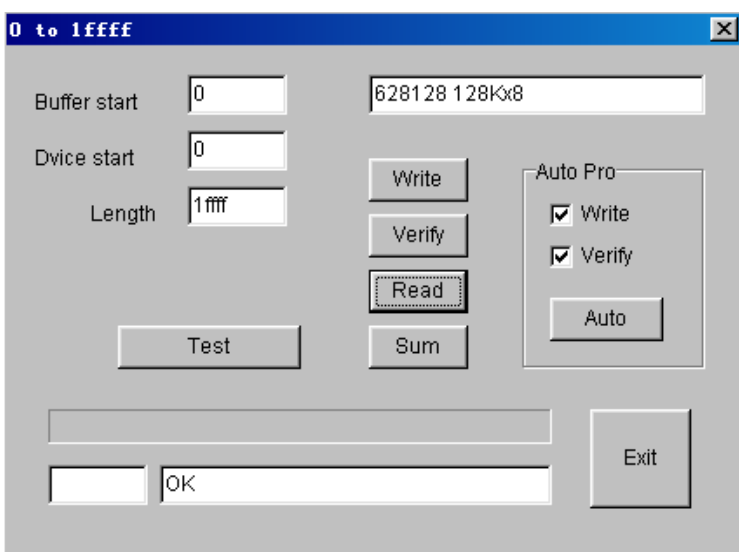
With the example of 628128, select in Select Manufacturer/Type box

Category: SRAM Test

Manufacturer: STAND

*Part Series: 628128 128K * 8*

Press “Yes” button, popup SRAM Test Window as follows:



The menu is chiefly used to test the common static storage SRAM. Press Auto button, and the programmer tests each byte of memory to ensure the test is performed stably.

Reading and writing operations of self-battery static memory are reserved in the operational functions, such as many series of products produced by DALLAS manufacturers, to meet some users' requirements.

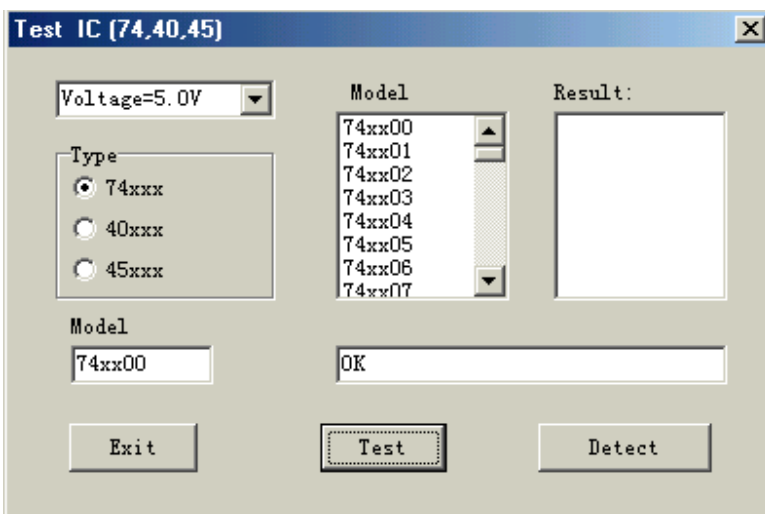
4.2 Integrated Circuit

(The Contents are unsuitable for TOP853)

It is available for testing the performance and logic function of thousands of types of products in 74, 45 and 30 series. Take 74HC245AP as example. Select in Select Manufacturer/Type box.

Category: TTL/CMOS Test

Press “Yes” button, popup Test Window as follows:



Select Series and Type of the tested device, and press testing button. In case that the device is normal, the speaker beeps a time, otherwise beeps three times.

Chapter V System Settings

5.1 Set Menu

5.1.1 System Status

The corresponding button is Link

1. Win version information

Display the version information of programmer software

2. Programmer Type

Display the type of current programmer.

3. Test USB load current

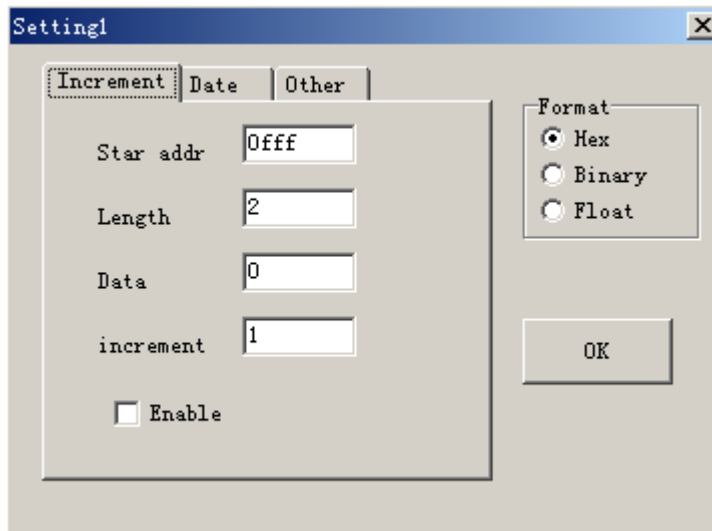
Displaying the grades from 5 to 10 represents norm, the higher grade is, the stronger driving is. For example, in case of the grade lower than 5, connect keyboard power supply cable (additionally purchase), otherwise connect external 5V/2A regulator (Refer to the hardware specification in case that specific model is outfitted with accessories).

4. Serial Number (SN)

Display the serial number of hardware of current programmer. To prevent from illegally modeling, each TOP programmer corresponds to an exclusive serial number so that the modeled product cannot access to software update services.

5.1.2 Set Additional Information

TOPWin offers Additional Information. Additional Information refers to the subparagraph information separated from user code, and auto changes with writing, which can be used for software encryption or other uses. The Window showed as follows:



The Window includes three option items, with which the user can make settings in accordance with their own requirements.

1. Linear Increment Option:

Input the address of additional information in Start Address edit box, and the address generally behind files must reserve an unspent space in the device. If the space of device is full of user files' code, the additional information cannot be written again.

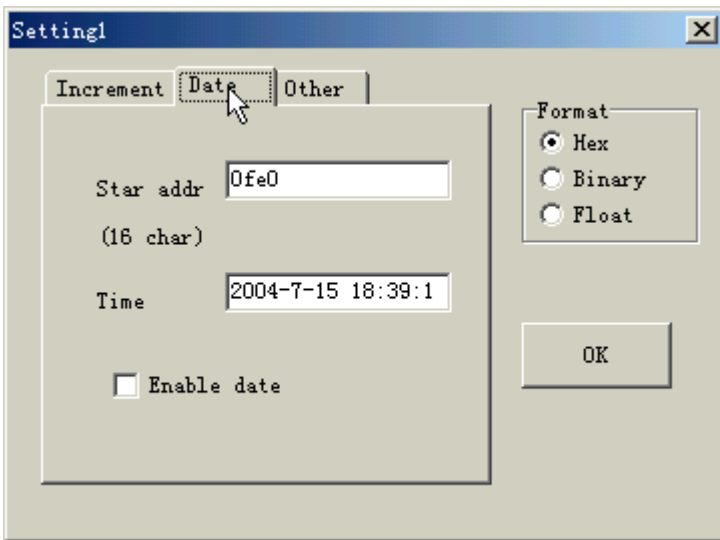
Select byte size of information in Byte Size edit box, the max is 8-byte (64-byte binary integer).

Input an initial integer in Number Value edit box, the integer will change later.

Select increment that is integer in Increment edit box. If there is a negative sign in front, the integer is Decrement.

Select Allowable Linear Increment.

2. Date & Time Option:

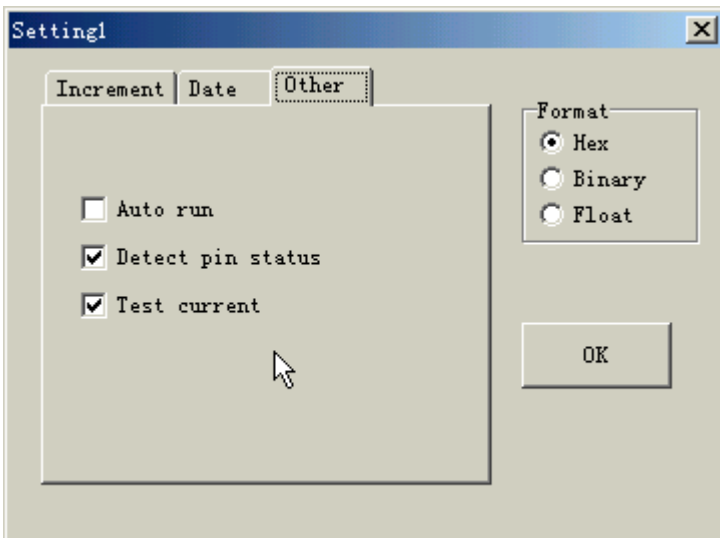


Input the address of accurate date in Start Address edit box.

Select Allowable Date & Time.

Date & Time that needn't be input by user is auto created by computer.

3. Quantity Option: (The contents is unsuitable for TOP853)



Quantity Mode: if allowable, press Auto button a time while writing a device, and then it can auto detect whether the device is pinned securely. Once the device is properly installed, the writing process starts instantly. After fully running a time, it will display "OK, Please take away the completed device". Once take away the device, it display "Place a new device". After place a new device, the program will auto-cycle operation as testing all pins well connected. Avoid repeatedly pressing mouse, and be suitable for writing in large quantity.

Note: Exit circulation in case of not inserting a new device within 5 minutes.

Test the pins' connecting state: If allowable, test whether the pins of a new device are well connected in each individual

operation, in case that any pin is poorly connected, report immediately, and stop operating.

Speedily test overrun electric current: Even if the Option is forbidden, the result from testing overrun electric current is available, except for slowing down the speed and desensitizing the test.

5.2 Window Menu

5.2.1 Tile

The opened file data are displayed in the entire data buffer.

5.2.2 Overlap

All opened files are displayed in overlap mode.

5.2.3 All Displays

Display all opened files, each Window non-overlapping.

5.2.4 Display buffer Window

Display the file data of buffer or the written data from a device.

Appendix: Hardware Characteristics

TOP853 Universal Programmer

TOP853, featured by small size, low power consumption and high reliability, is a universal mode of programmer designed for developing MCU/MPU and writing all kinds of memories.

TOP853 adopts USB universal serial port to connect PC, which offers high rate of transmission, high interference free performance and high unflinching performance without external power supply, so it is fit for mobile use of battery-powered notebook PC.

Characteristics:

Support 5V device;

Adopting USB interface power supply in stead of external power supply;

Connecting PC through USB universal serial port at a transmission rate of 12MHz/s;

Adapting to battery-powered notebook PC as well as desktop PC;

Perfect over-current protection to programmer and device against damage;

USB loading capacity testing (0 to 10 grade);

40-pin universal locking socket;

Operating under WINDOWS98SE/ME/2000/XP;

Plastic shell, small size, light weight and low power consumption;

Supporting automatic-detection of manufacturer and mode;

MCU/MPU timing, programming speed is independent of computer;

Performance and Specifications:

1. Software: TopWin (for windows98se/2000/ME/XP)

2. Volume: 142 x 103 x 23

3. Weight: 250g

4. Power: < 2.5w (5v/500mA)

5. Locking bed: 40 pin home-made socket

TOP853 Suite:

1. A TOP853 host;

2. A connecting cable of standard USB 1.1 (compatible with USB2.0);
3. A TOP853 Universal Programmer instruction book;
4. A TopWin Software Operation Manual;
5. A TopWin software CD attached.

TOP2048 Programmer

TOP2048 is a universal mode programmer designed for developing MCU/MPU and writing all kinds of memories with the characteristics of small size, low power consumption and high reliability.

TOP2048 adopts USB universal serial port to connect PC, which offers high rate of transmission, high interference free performance and high unfailing performance without external power supply, so it is fit for mobile use of battery-powered notebook PC.

Characteristics:

- Supporting 2.5 to 6.5V devices;
- Adopting USB interface power supply as well as 5V external power supply;
- Connecting PC through USB universal serial port at a transmission rate of 12MHz/s;
- Supporting battery-powered notebook PC as well as desktop PC;
- Perfect over-current protection to programmer and device against damage;
- USB loading capacity testing (0 to 10 grade);
- All—pin inspection is able to find the contacting status of every pin;
- 48-pin imported universal locking socket adapting to all kinds of universal adaptors;
- Operating under WINDOWS98SE/ME/2000/XP;
- Plastic shell, small size, light weight and low power consumption;
- Supporting automatic-detection of manufacturer and mode;
- MCU/MPU timing, programming speed is independent of computer;

Performance and Specifications:

1. Software: TopWin (for windows98se/2000/ME/XP)
2. Measured speed(PIII/800M,Windos98se,USB1.1):
 - 28F320 write & check, 104 seconds
 - 29LF320 write & check, 112 seconds
 - P89c58 write & check, 5 seconds
3. Volume: 155 x 110 x 26
4. Weight: 350g
5. Power: < 2.5w (5v/500mA)
6. Locking bed: 48-pin imported socket with high quality (replaceable)

TOP2048 Suite:

1. A TOP2048 host;
2. A 5V/2A regulated power supply (alternated);
3. A SDP-UNIV-44 universal adaptor (simple);
4. A PLCC32 adaptor (simple);
5. A connecting cable of standard USB 1.1 (compatible with USB2.0);
6. A TOP2048 Universal Programmer instruction book;
7. A TopWin Software Operation Manual;
8. A TopWin software CD attached.

Typical Universal Adaptor Reference

1. SPD_UNIV-44 PLCC44 (*P44)

2. SPD_UNIV-44 SOP44 (*Q44)
3. PLCC32
4. SOP44
5. SDP-UNIV-48 TSOP48
6. SDP-UNIV-40 TSOP40
7. SDP-UNIV-i320 uBGA48

TOP2005 Programmer

TOP2005 is a universal mode programmer designed for developing MCU/MPU and writing all kinds of memories with the characteristics of small size, low power consumption and high reliability.

TOP2005 adopts USB universal serial port to connect PC, which offers high rate of transmission, high interference free performance and high unflinching performance without external power source, so it is fit for outing use of battery-powered notebook PC.

Characteristics:

supporting 2.5 to 6.5V devices;

Adopting USB interface power source in stead of external power source;

Connecting PC through USB universal serial port at a transfer rate of 12MHz/s;

Supporting battery-powered notebook PC as well as desktop PC;

Perfect over-current protection to programmer and device against damage;

USB loading capacity testing (0 to 10 grade);

All-pin inspection is able to find the contacting status of every pin;

40-pin imported universal locking socket;

Operating under WINDOWS98SE/ME/2000/XP;

Plastic shell, small size, light weight and low power consumption;

Supporting automatic-detection of manufacturer and mode;

MCU/MPU timing, programming speed is independent of computer;

Performance and Specifications:

1. Software: TopWin(for windows98se/2000/ME/XP)
2. Volume: 142 x 103 x 23
3. Weight: 250g
4. Power: < 2.5w (5v/500mA)
5. Locking bed: 40-pin imported socket with high quality (replaceable)

TOP2005 Suite:

1. A TOP2005 host;
2. A connecting cable of standard USB 1.1 (compatible with USB2.0);
3. A TOP2005 Universal Programmer instruction book;
4. A TopWin Software Operation Manual;
5. A TopWin software CD attached.

TOP2004 Programmer

TOP2004 is a universal mode programmer designed for developing MCU/MPU and writing all kinds of memories with the characteristics of small size, low power consumption and high reliability.

TOP2004 adopts USB universal serial port to connect PC, which offers high rate of transmission, high interference free performance and high unflinching performance without external power source, so it is fit for outing use of battery-powered notebook PC.

Characteristics:

Supporting 2.5 to 6.5V devices;
Adopting USB interface power source in stead of external power source;
Connecting PC through USB universal serial port at a transfer rate of 12MHz/s;
Supporting battery-powered notebook PC as well as desktop PC;
Perfect over-current protection to programmer and device against damage;
USB loading capacity testing (0 to 10 grade);
All-pin inspection is able to find the contacting status of every pin;
40 pin imported universal locking socket;
Operating under WINDOWS98SE/ME/2000/XP;
Plastic shell, small size, light weight and low power consumption;
Supporting automatic-detection of manufacturer and mode;
MCU/MPU timing, programming speed is independent of computer;

Performance and Specifications:

1. Software: TopWin (for windows98se/2000/ME/XP)
2. Volume: 168 x 115 x 26
3. Weight: 280g
4. Power: < 2.5w (5v/500mA)
5. Locking bed: 40-pin imported socket with high quality (replaceable)

TOP2004 Suite:

1. A TOP2004 host;
2. A connecting cable of standard USB 1.1 (compatible with USB2.0);
3. A TOP2004 Universal Programmer instruction book;
4. A TopWin Software Operation Manual;
5. A TopWin software CD attached.