1. Introduction

This manual describes how to install and operate ALL-100A/AP/AG Programmer under environment of PC Windows 2000/XP/Server 2003/ Vista/7. ALL-100A/AP/AG Programmer works with PC through USB 1. 1/2.0 (Universal Serial Bus) to perform high speed data transmission. The high-speed processor in programmer precisely controls programming timing and flow, this ensures accurate programming waveforms always generated on ALL-100A/AP/AG .

ALL-100A/AP/AG is embedded with 4Mbit memory to support the programming capacity for most E(E)PROM, MCU/MPU, and PLD. The software automatically uses PC memory as buffer to support high-density memory ICs.

1.1 Programmer and Accessories

Each ALL-100A/AP/AG package contains following standard accessories:

- Base Unit
- single socket Programming Module- M1-UN-DP48.
- An AC power cable, 1.8 M in length.
- A USB cable (Type A to Type B), 1.0 M in length.
- A CD-ROM for Driver Files.
- User's Manual.

☆Option 99

Price deduction for requesting another Programming Module to substitute M1-UN-DP48 as standard accessary.

☆ Optional Accessories:

M8-FLASH-TS48	8 sockets Programming Module dedicated for TSOP 48 PINs FLASH.
ADAPTER	Support high pincount devices from 48 to over 300 pins. See ADAPTER LIST on HI-LO Web site.
CONVERTER	Convert signals from DIP to different package types such as PLCC, QFP, SOP, TSOP, BGA,.... etc. See CONVERTER LIST on HI-LO Web site.

1.2 PC System Requirements

- PC/Pentium above.
- Microsoft compatible mouse.
- A hard disk with at least 200 Mbyte free space.
- A CD-ROM drive with speed x2 or above.
- At least one USB port (Version 1.1/2.0)
- Equip 128MB memory space or above.
- Operating System: Windows 2000/XP/Server 2003/Vista/7.

1.3 ALL-100A/AP/AG Specification

Device Support	Pin Count : from 8 pins up to over 300 pins Device Type : EPROM,EEPROM,Serial PROM, FLASH, PLD/CPLD/FPGA, MPU/MCU, etc.
Device Contact	Default : DIP48,Textool Others : SOP,TSOP,PLCC,QFP,MLF,SDIP etc. through optional CONVERTERs or ADAPTERs
Max Sockets in parallel	8 sockets on optional GANG Programming Module
Controller	16 bits high-speed controller with big sized FPGA & CPLD
Interface Port	1 x USB port
Data Transfer Rate	USB 1.1 : 12 Mb/s USB 2.0 : 480 Mb/s
Max Sites in parallel	up to 8 via tiered star USB
Functions	Load file, Read Master, Program, Verify, Auto, ID Check, Checksum, Blank Check, Erase, Protect/Unprotect, Secure, Edit, Function Configuration, Self Test
Host Computer Requirements	・An Intel Pentium or compatible processor with 128MB of RAM ・At least one USB port available (V 1.1/ 2.0) ・200 MB free hard disk space with Windows 2000/XP/Server 2003/Vista/7 operating system ・CD-ROM Drive
Power	AC voltage : 100-240 VAC Frequency : 50-60 Hz Power consumption : 50W
Dimension	L x W x H : 260mm x 150mm x 100mm
Weight	4 kg
Operating Temperature	0- 40 ¢J(32-105 ¢K)
Safety Standards	CE Approved

2. Single ALL-100A/AP/AG/ Installation

2.1 Hardware Installation

Before installation, make sure your PC has USB 1.1/2.0 port which can be connected to ALL-100A/AP/AG Programmer through USB cable. Suggest to use USB 2.0 for fast data transmission with ALL-100A/AP/AG Programmer.

USB 1.1 (Full Speed) : Transmission rate 12 Mb/s

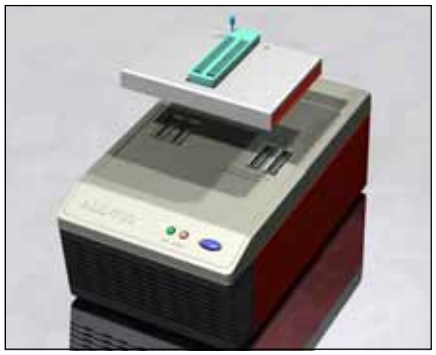
USB 2.0 (High Speed) : Transmission rate 480 Mb/s (Suggested)

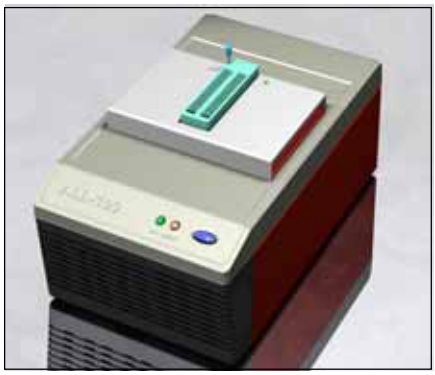
2.1.1 ALL-100A/AP/AG Hardware Installation and Applications

Step 1:

Make sure power of Base Unit is in "OFF" state and then positioning and connecting Programming Module onto Base Unit.

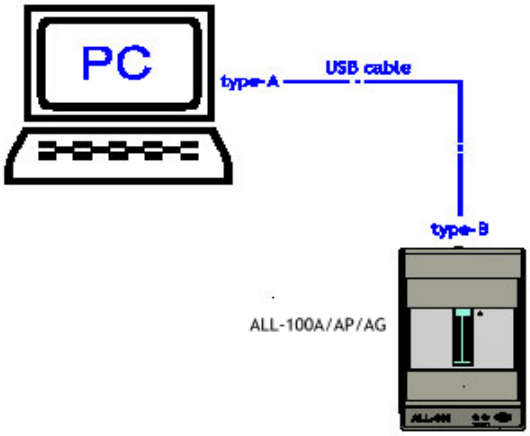
See figures below:



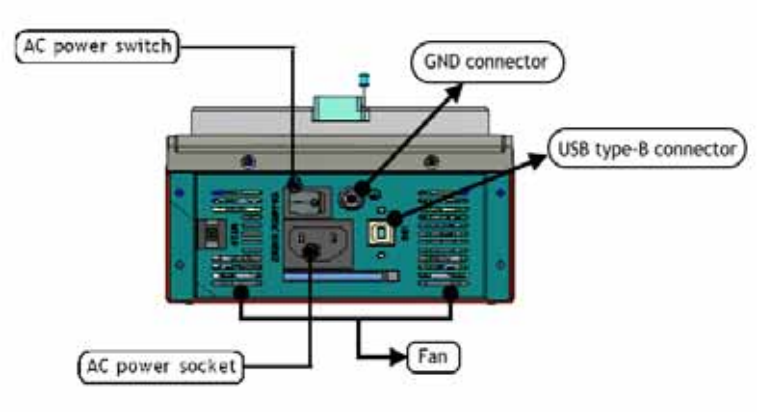


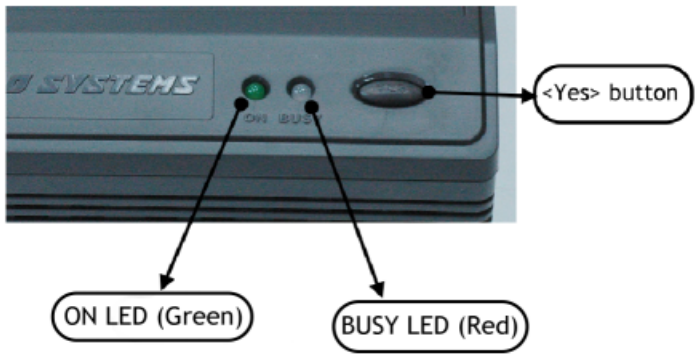
Step 2:

Connect programmer and PC as figures below.



Connect the Type B end of USB cable to the USB Type B connector at rear panel of programmer, connect the Type A end of USB cable to the USB Type A connector on the PC.





Step 3:

Connect power cable to AC power socket of ALL-100A/AP/AG Programmer and plug in the other end to the outlet of power source (100-240VAC / 50-60 Hz).

Power on the ALL-100A/AP/AG from the switch above the AC power socket on the rear panel.

☆ Note: Please have PC completely on before turning on ALL-100A/AP/AG for installation and applications.

☆ After power on, the green LED will lit and the red LED will off; if no, please see **Troubleshooting**.

☆ ALL-100A programmer is a revised version ofALL-100 programmer. Major enhancements include: The revised core processor ; The regulated device supply voltages further im prove IC programming stability; The new USB processor further speeds up and stabilizes data link / transfer.

ALL-100A programmer operations are same with ALL-100, so user's manual of ALL-100 is applicable to ALL-100A.

The new Pin-card that in ALL-100A is also compatible to ALL-100, but the old Pin-card in ALL-100 is not compatible to ALL-100A.

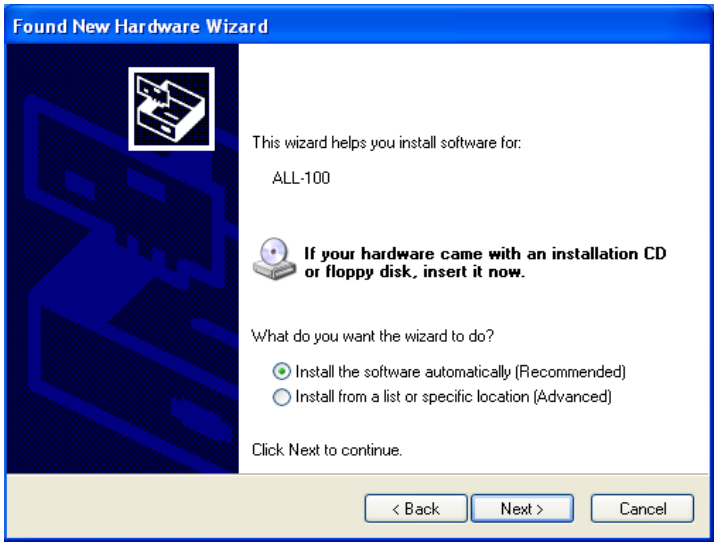
2.2 USB Driver Installation

Insert the Driver File CD into CD-ROM drive, and then connect USB cable between PC and ALL-100A/AP/AG; power on ALL-100A/AP/AG programmer, the PC will detect the new hardware and a window will open asking "can windows connect to Windows Update to search for software?", please select "No, not this time".

Click "Next" to continue.

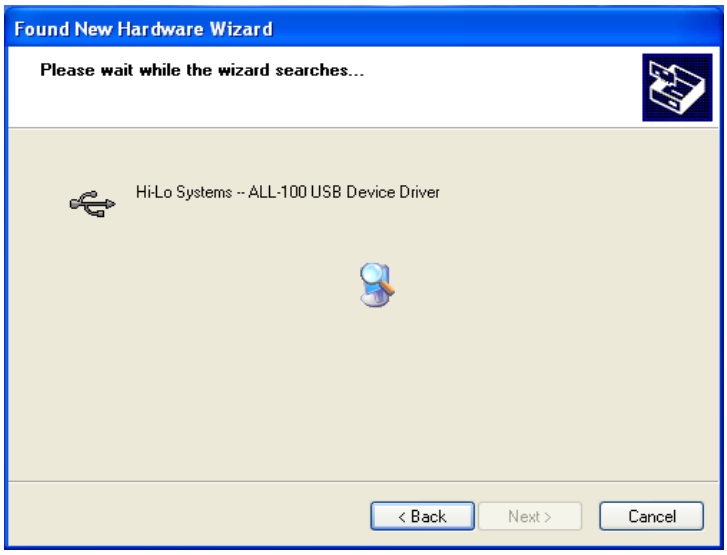
☆ To do installation under Windows 2000/XP/Server 2003/Vista/7, user needs to change Log-in authority to "Administrator" or "Power-User" in order to install new software/hardware driver.

Select “Install the software automatically(Recommended)”

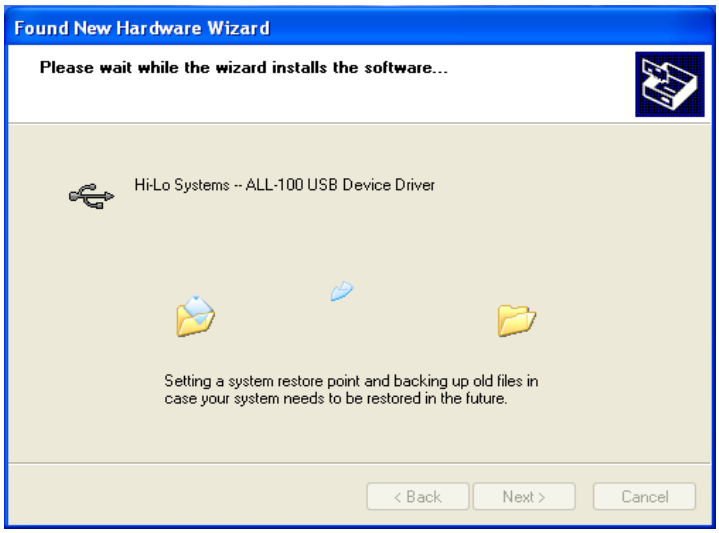


Click “Next” to continue.

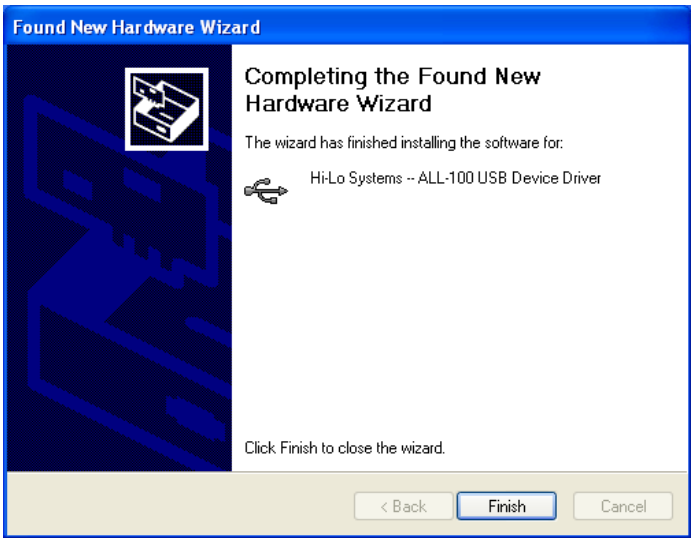
Pc will search for driver in the CD automatically (please make sure you have inserted the CD into CD-ROM drive).



PC will allocate files named “ALL100.INF” and “ALL100.SYS” for installation.



Windows has finished the USB driver installation for ALL-100A/AP/AG Programmer.



Click “Finish” to complete USB driver installation.

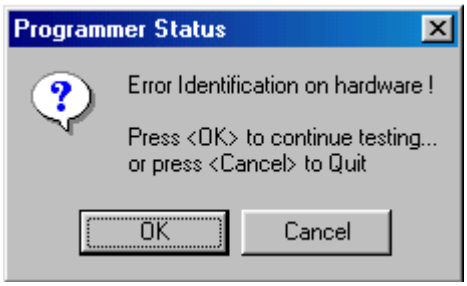
2.3 Software Installation

Insert Driver Files CD to CD-ROM drive, go to directory of ALL-100 under File Manager to execute the SETUP.EXE file, or run the SETUP.EXE from START menu of WINDOWS and follow all steps accordingly as follows:

Check of installed software:

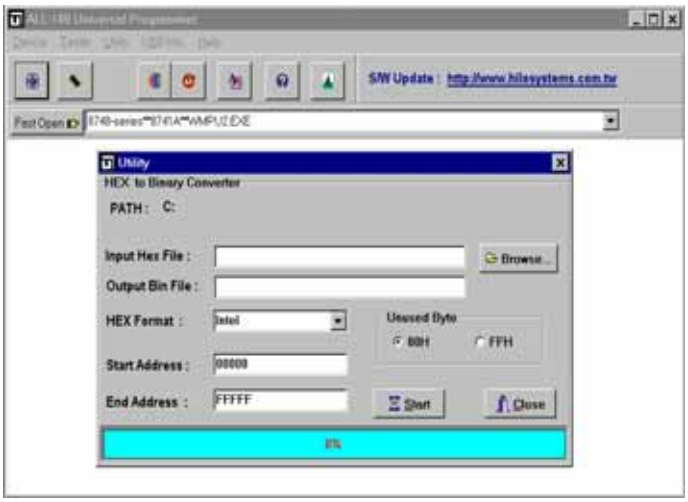
(1) Check if software is installed properly with File Manager, see if XACCESS.EXE (for ALL-100A/AP)or GACCESS.EXE(for ALL-100AG), individual IC programming driver, and Utility files exist under C:\Program Files\Hi-Lo\ALL-100(ALL-100G) directory. XACCESS.EXE/GACCESS.EXE is a system file, which provides an easy way to select IC Manufacturer, Product Type, and the corresponding programming driver. All the programming drivers can also be executed without running XACCESS.EXE/GACCESS.EXE file. Each programming driver usually supports a series of relevant ICs. For instance, driver file XMEM1.EXE is able to program 27C128 ~ 27C512 EPROMs.

(2) When executing programming driver, software will automatically check if ALL-100A/AP/AG Programmer is properly connected. If software cannot recognize the existence of ALL-100A/AP/AG, the connection and/or installation might have problem and ALL-100A/AP/AG Programmer might not be able to be accessed.

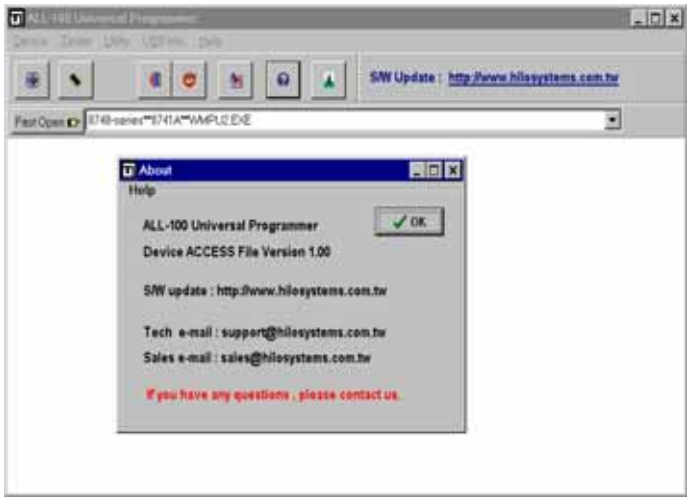


(3) Methods to check if ALL-100A/AP/AG Programmer is properly connected/existed:

1. Run “USB Info.” option under XACCESS/GACCESS menu.
2. Run programming driver file under XACCESS/GACCESS menu.



XACCESS.EXE Utility Dialog Box



XACCESS.EXE Information Box

3. ALL-100A/AP/AG/ Basic Operation

3.1 Getting Started

We will have a brief description of ALL-100A basic operation, introduce how to access the desired IC programming driver through XACCESS/ GACCESS, the main system program. We will also introduce functions of Device, Load, Blank check, and Program by taking "S29AL004D-TF-01" as an example.

☆ For best view of ALL-100A information displayed, user screen should have resolution 800x600 pixels or above.

3.1.1 Start with XACCESS/GACCESS.EXE

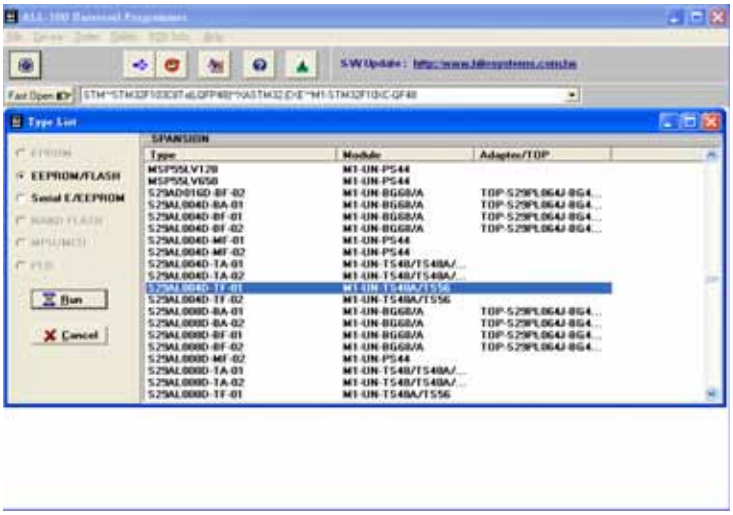
Click the icon of XACCESS/GACCESS to activate XACCESS.EXE/GACCESS .EXE and get following display on the window.

3.1.2 Entries to Programming Driver

Click “Device” and “Select Device” to display two entries to programming driver, “select manufacturer/type” and “search for type”(as the figure below).

(1) Select manufacturer/type

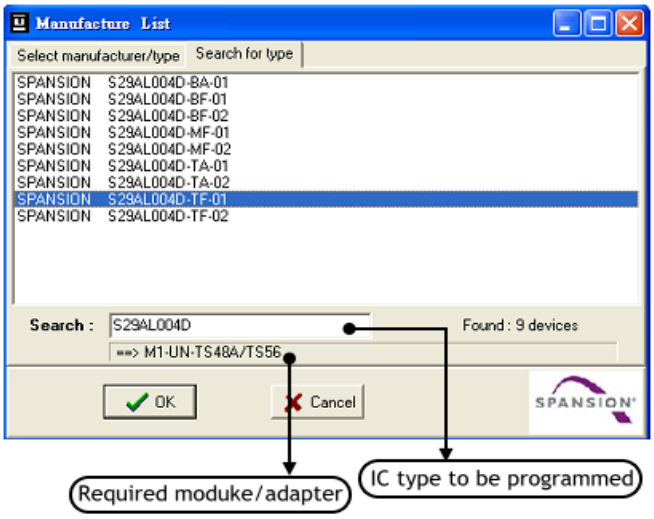
Click “Select manufacturer/type” in “Manufacturer List” to display IC Manufacturer options. Select “SPANSION” and click “OK” to display Type List.



Select EPROM/FLASH in product groups, and select “S29AL004D-TF-01” in product type at right side of Type List and then click “Run”.

(2) Search for type

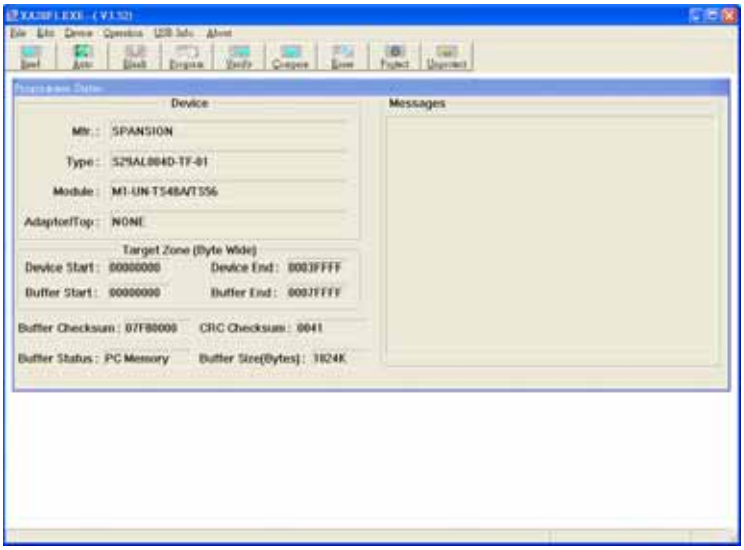
Click “Search for type” in “Manufacturer List”, select “S29AL004D-TF-01” and the required HEAD P/N is displayed under the block of Search. Then click “OK” to enter the main menu of driver.



Click the part number you would like to program and then you will see name of the required module/ adapter under “Search”, and then press “OK” to continue.

3.1.3 Enter Main Menu of the Driver

Main Menu of the Driver File contains three major parts, the first row for menu of main functions, the second row for quick function keys, and the rest provides space for dialogue boxes of IC information like IC Manufacturer, Product Type, Adapter, Module needed... etc.



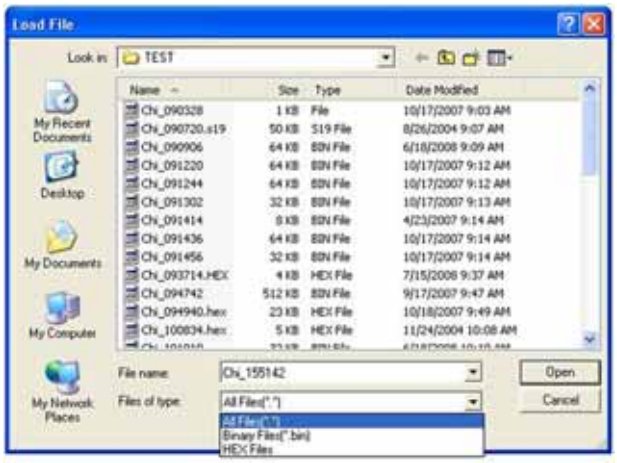
Main Menu of the Driver

Remark:

When reselecting IC manufacturer and Product Type, information in dialog box will be updated accordingly and the driver file will be downloaded to ALL-100A Programmer. If message "File not found" appears, it means the driver file is not available in PC, check the attached Driver File CD or visit HI-LO web site at http://www.hilosystems.com.tw for S/W download. If a specific ADAPTER or Module is needed, "File not found" might be due to the absence of the required ADAPTER S/W. Try to install the S/W again.

3.2 Load file to Programmer buffer

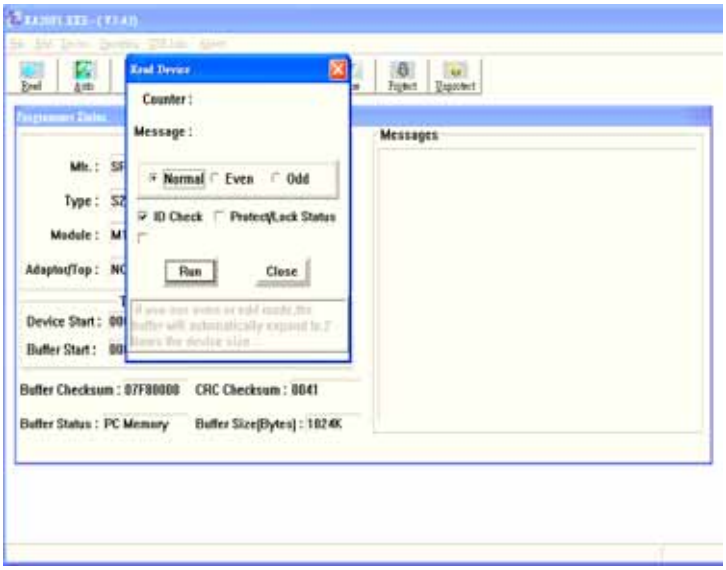
It is ready for IC programming after selecting IC Manufacturer and Product Type. In general, programming code is saved in a file in Bin/Hex format. This code needs to be loaded to programmer buffer and then programmed into Blank IC devices. To load file to programmer buffer, click "File" menu, select "Load file to Programmer buffer" option, following dialogue box will appear:



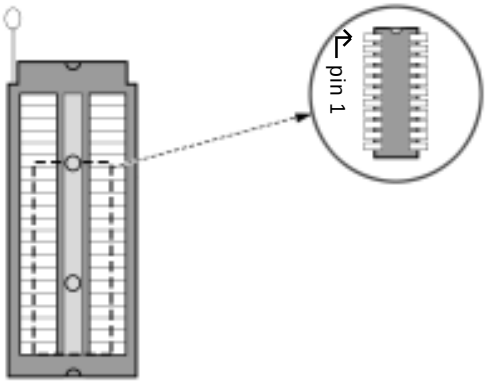
Function of file loading is similar to that under Windows environment. Enter the file name to be downloaded and click "Open", the named file will be loaded to programmer buffer. **Note: Disk drive and file path must be correct.** Select and click the correct drive and folder that the file located to. If it cannot be operated by mouse, apply <TAB>, <UP>, <DOWN>, and <ENTER> keys for selecting and confirming.

3.3 Read contents from Master IC to buffer

When programming code is stored in a Master IC, insert the Master IC onto socket, click “Read” button on screen or press “R” key on keyboard to read programming code from Master IC to programmer buffer.



When insert Master IC onto socket, make sure Pin 1 orientation and Pin count positioning is correct as diagram indicated.

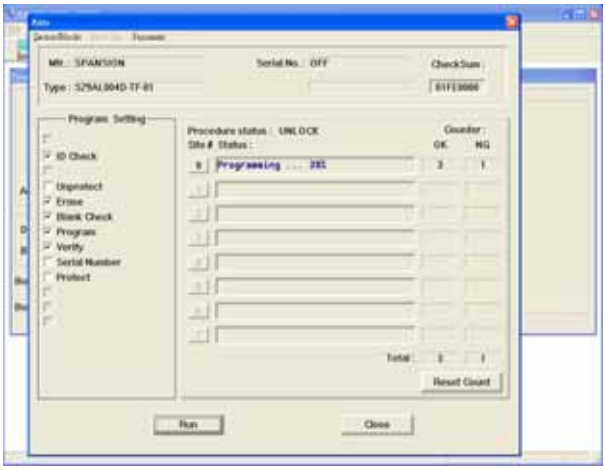


☆ Caution! Incorrect IC positioning might cause IC damage or be programmed to an unknown state.

☆ Do not take the IC away from socket during programming, or the IC and programmer might be damaged.

3.4 Program buffer contents to IC

Insert IC to be programmed onto socket, click “Auto” button on screen or press “A” key on keyboard, following dialogue box will appear.



Click “Run” button on screen or “Y” key on keyboard or “YES” on programmer to start programming buffer contents to blank IC.
After programming, system will automatically verify data read from programmed IC with data in programmer buffer. If both data match then the “GOOD” LED will be lit to show a successful programming.
For next IC programming, the “BUSY” LED needs to be off and then insert blank IC onto socket, click “Run” button on screen or “Y” on keyboard or “YES” on programmer to continue programming.

Click “Close” button on screen or <ESC> key on keyboard to go back to main menu.

3.5 MODULEs, TOPs

Adequate MODULEs, ADAPTERs and CONVERTERs are available to support various IC types and packages in market such as PLCC, SOP, TSOP, QFP, PGA, ... etc.

- **MODULE:**
  M1-UN-DP48 has DIP48 socket, and adapters and converters that are described below can be inserted on the module. And there are modules designed for special IC package and series (including gang module); please use the recommended one that is displayed on XACCESS/ GACCESS. Each module has a (or more) programming file(s) that needs to be copied to the same directory as XACCESS/ GACCESS.
- **TOP:**
  A TOP is used with Module for special IC packages(like BGA).
- **ADAPTER:**
  Each ADAPTER has 40/48 gold plated pins in DIP layout which can be inserted onto 48 pins ZIF socket on the Programming Module.Each ADAPTER has one (or more) programming file(s) that needs to be loaded to the same directory as XACCESS.
- **CONVERTER:**
  CONVERTER is used to convert signals from DIP package to others like PLCC, SOP, TSOP, ...etc. No extra programming file is needed to work with CONVERTER.

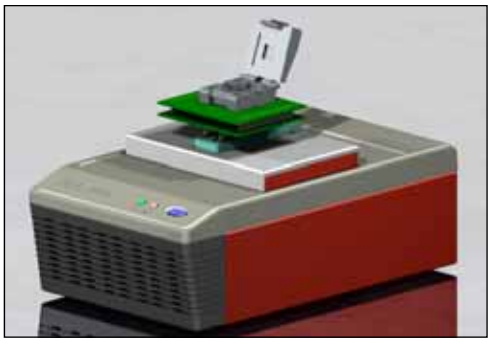
3.5.1 ADAPTER and CONVERTER installation

■ **S/W Installation:**

Copy the ADAPTER file(s) attached to the same directory as that for XACCESS file(s).

■ **H/W Installation:**

Insert the DIP-layout 40/48 pins of ADAPTER or CONVERTER onto the 48 PIN DIP ZIF socket on the Programming Module and lock it. See diagram below:

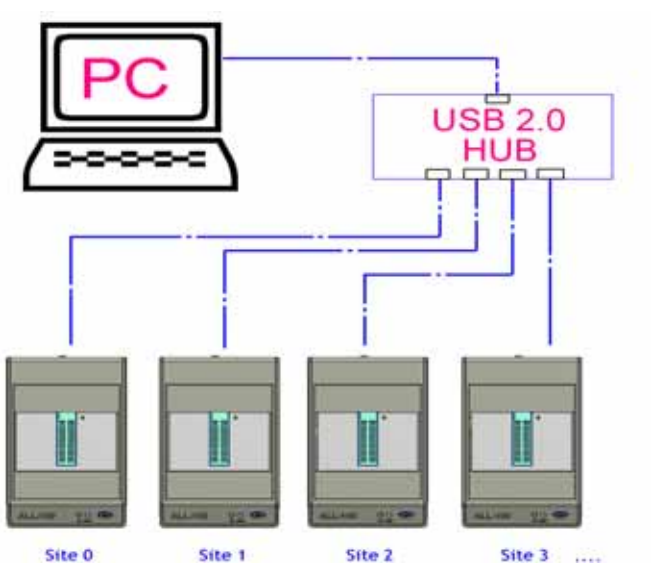


Note: While inserting ADAPTER or CONVERTER onto DIP ZIF socket, please have it close to bottom of the socket (toward the YES key), and you should insert ADAPTER/CONVERTER by following direction as the picture shows.

4. Multiple ALL-100A/AP/AG Installation

USB interface provides functions like “Plug-and-Play”, auto detection, high expansibility, and high transmission rate (480 Mb/s for 2.0 version). By using these functions, ALL-100A/AP/AG can be installed up to 8 sets and running simultaneously.

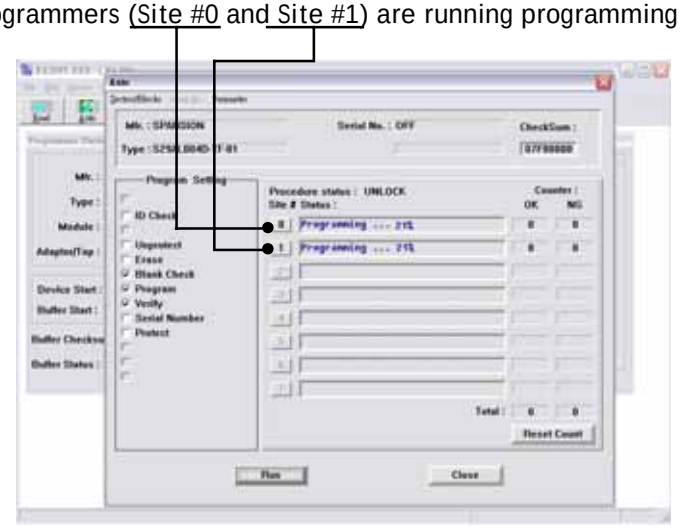
After single ALL-100A/AP/AG installation, more ALL-100A/AP/AG Programmers can be installed through either extra USB ports of your PC or USB 2.0 Hub like following diagram.



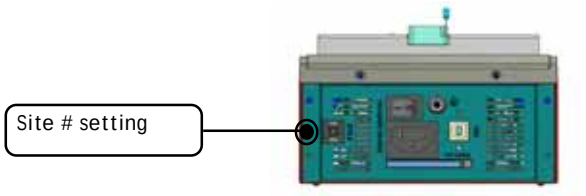
Multiple ALL-100A installation through USB 2.0 Hub

4.1 Multiple ALL-100A/AP/AG Operation

Multiple ALL-100A/AP/AG operations can increase programming throughput. With Multi-Thread methodology, each programmer can operate independently. The diagram below shows there are two ALL-100A/AP Programmers (Site #0 and Site #1) are running programming.



Site # setting switch is located on the rear panel of ALL-100A/AP/AG Programmer. Valid Site # for Multiple ALL-100A/AP/AG setup is 0~7 and can not have the same Site # in whole system.



When running ALL-100A/AP/AG programming software, system will automatically detect and load necessary driver S/W and also download programming code to ALL-100A/AP/AG through USB port. Operation of multiple ALL-100A/AP/AG is basically the same as that of single ALL-100A/AP/AG. There are two operation modes for multiple ALL-100A/AP/AG programming, synchronous operation and asynchronous operation.

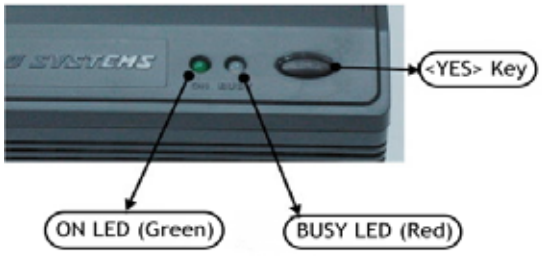
After entering programming mode on screen, user can choose either of following two operation modes depending on production needs:

- **Synchronous operation:**

  Run programming on all the ALL-100A/AP/AG at the same time. Put ICs onto socket of each ALL-100A/AP/AG, press "Y" key on PC keyboard. All ALL-100A/AP/AG will start programming simultaneously.

- **Asynchronous operation:**

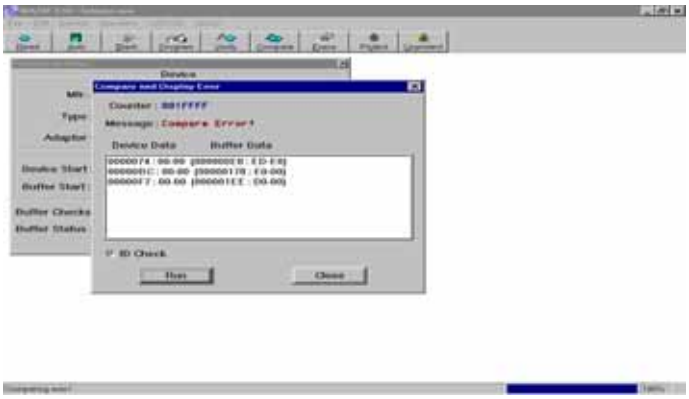
  Run programming on each ALL-100A/AP/AG one after another. Put IC on the 1st ALL-100A/AP/AG, press <YES> on that programmer to start programming, then put another IC on the 2nd ALL-100A/AP/AG, press <YES> on that programmer to start programming, then the 3rd one ... and so on.



4.2 Read/Compare on Multiple ALL-100A/AP/AG

To perform Read/Compare function under Multiple ALL-100A/AP/AG setup, only the minimum site# is valid. This means that only IC on **minimum site#** can be read/Compared under Multiple ALL-100A/AP/AG setup.

Read Dialogue Box



Compare Dialogue Box

Note:

While using ALL-100AG, only socket#1 that on the minimum site# ALL-100AG can perform Read/Compare; and there is no such restriction if you just install one ALL-100AG on your PC.

5. ALL-100AG Gang Option Installation

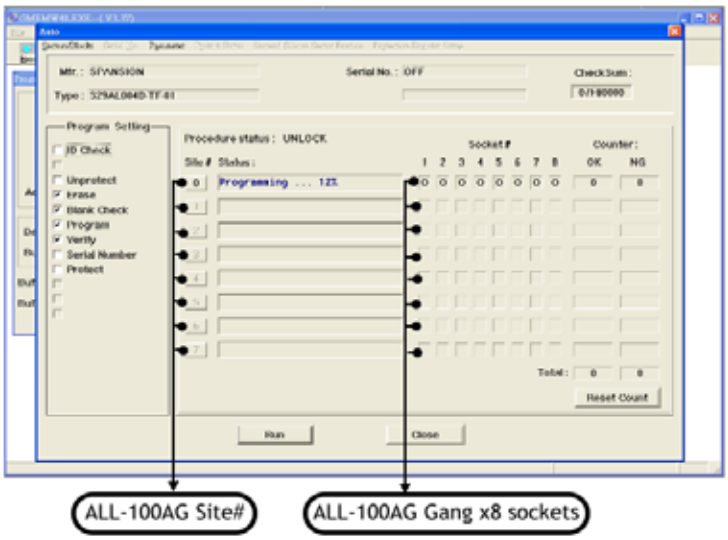
For further speed up programming for volumes of ICs, 8 sockets Programming Module option is available. Contact your local HI-LO agent for ordering information.

ALL-100AG Gang Programmer is an ALL-100AG Base Unit with 8 sockets Programming Module put on the top. User can choose either Single ALL-100AG Gang operation or Multiple ALL-100AG Gang operation for mass programming. The S/W attached with 8 sockets Programming Module is used for ALL-100AG Gang as well as Multiple ALL-100AG Gang operation. The installation /operation is similar as what is stated above.

☆ Due to more information to be displayed on screen for Gang operation, user's screen resolution needs to be 1024x768 pixels (SVGA mode) or above.

5.1 ALL-100AG Gang Operation

ALL-100AG Gang Programmer ties IC pin count in parallel, drive programming and control signals through FPGA to program ICs on all sockets simultaneously. The diagram below shows there is one ALL-100AG Gang Programmer (Site #0) is running programming.



Up to 8 sets of ALL-100AG Gang Programmer can be connected to PC through USB interface, this is so call “Multiple ALL-100AG Gang Setup”. Each ALL-100AG Gang can program 8 ICs. One PC with 8 sites of ALL-100AG Gang setup can program 8x8= 64 ICs.

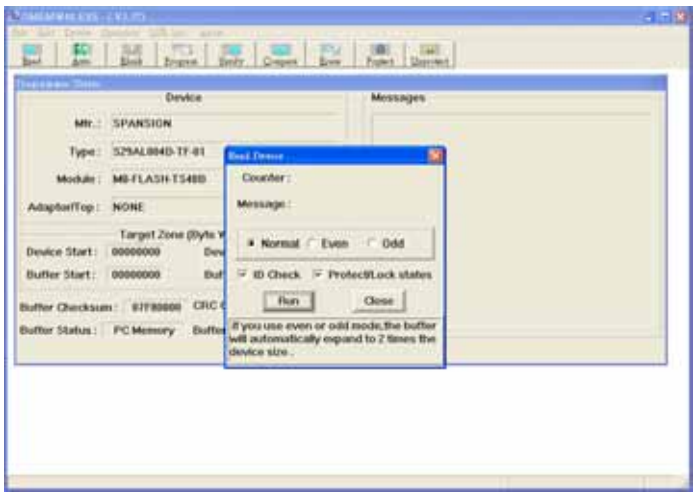
For Gang module, we provide module that can support 4 pcs IC (M4-XXX), 6 pcs IC (M6-XXX) and 8 pcs IC (M8-XXX) depending on IC¡ ¦s package or type, and you can find detailed module list from Hilo¡ ¦s website and GACCESS.

5.2 Read/Compare on Multiple ALL-100AG Gangs

To perform Read/Compare function under Multiple ALL-100AG Gang operation, only IC on **MASTER** (Socket #1) of **the minimum Site #** Gang programmer is valid. This means that only the 1st IC on **MASTER** (Socket #1) of **the 1st site (the minimum Site #)** Gang Programmer can be read/compared under Multiple ALL-100AG Gang setup.

Put IC to be read/compared onto **MASTER** (Socket #1) of **the minimum Site #** Gang Programmer and click Read/Compare keys on screen.

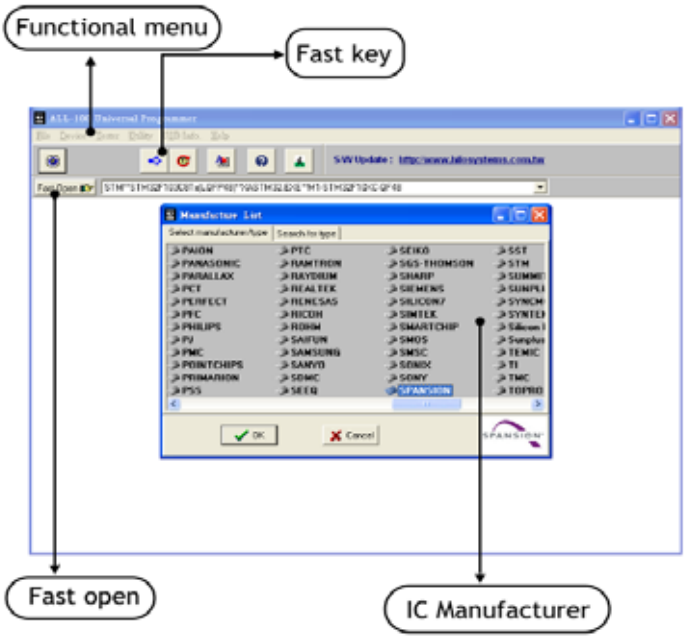
☆ Refer paragraph 4.1 for setting of Site # for Gang Programmer.



6. ALL-100A/AP/AG Software Description

6.1 XACCESS/ GACCESS User Interface

System Software “XACCESS” or “GACCESS” is an interface guiding user to locate the driver software for product type to be programmed. XACCESS/GACCESS also provides File Management Utilities as well as Data Base of programmable IC products.



6.2 Enable/ Read Job Function

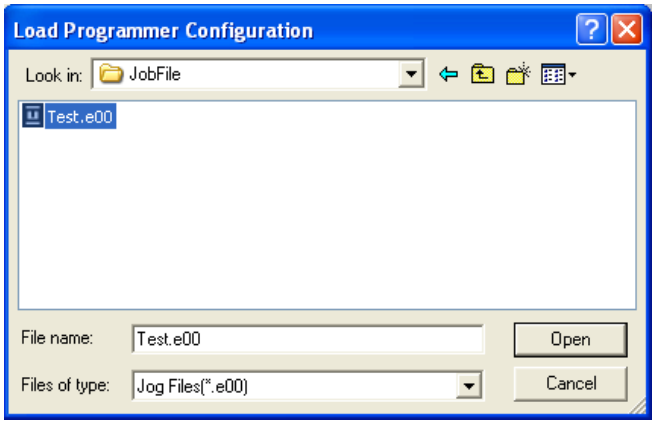
With enabling Job function, it will enter Job File Mode automatically when you execute the software next time, and it will enter “Auto” programming mode after loading in the Job File you need.

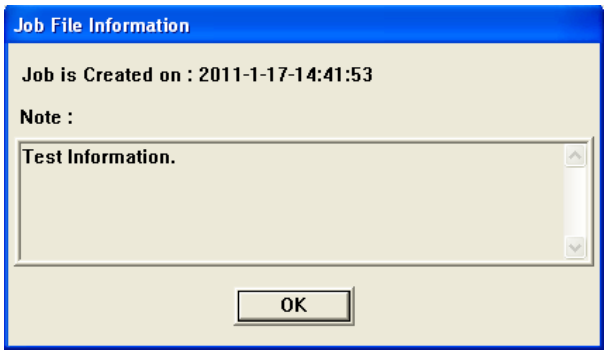
6.2.1 Save your Job File

Please refer to 6.6.1.(3).

6.2.2 Read your Job File

When you are going to program a device with the same settings, you can load in your Job File and then program the device directly without making any settings again.



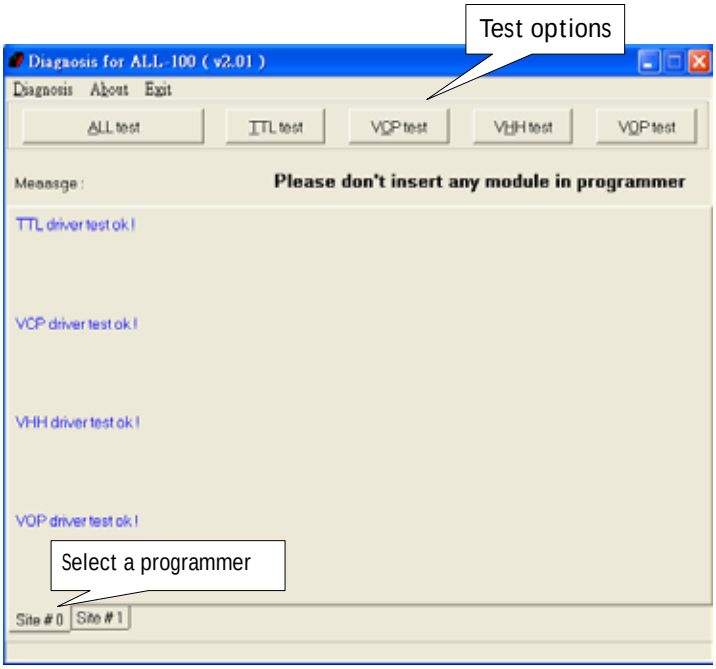


6.2.3 Enable Log Function

If this options is ticked, that means this function is already enabled, and it will record all of your programming procedures and results in the Log folder. You can disable this function by double clicking this option; this function is enabled under default settings.

6.3 Diagnostic Tester

You can run "Diagnostic Tester" to check ALL-100A.



The diagnostic includes ALL Test, TTL Test, VCP Test, VHH Test, VOP Test; if it passes ALL-test, you will see result like the picture.

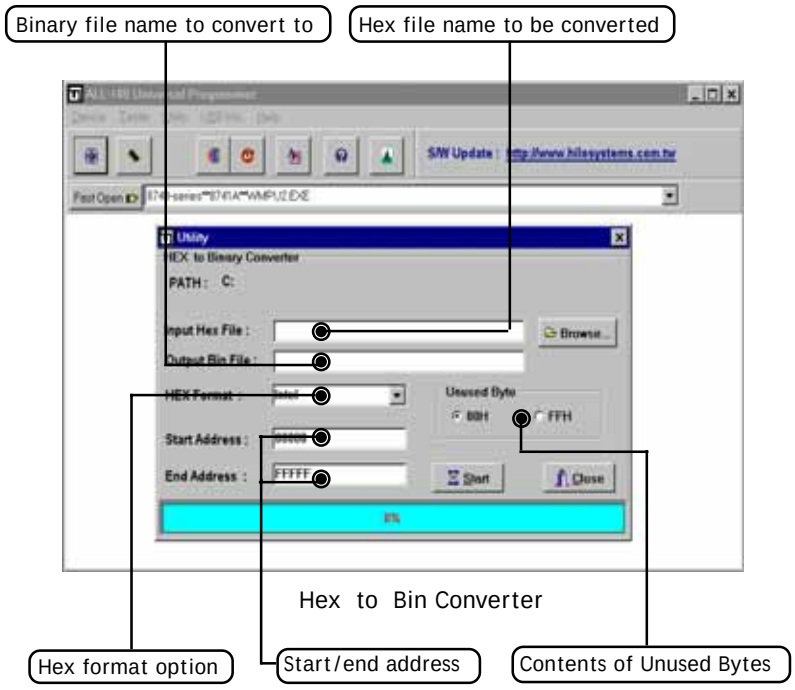
☆ Be sure to remove any Module from programmer before running Diagnostic Test; otherwise Module or IC on Module might be damaged.

6.4 Utilities:

File Management Utilities includes Hex to Bin Converter, Bin to Hex Converter, 2-way splitter, 4-way splitter, 2-way shuffler, and 4-way shuffler, ...etc.

6.4.1 Hex to Bin Converter

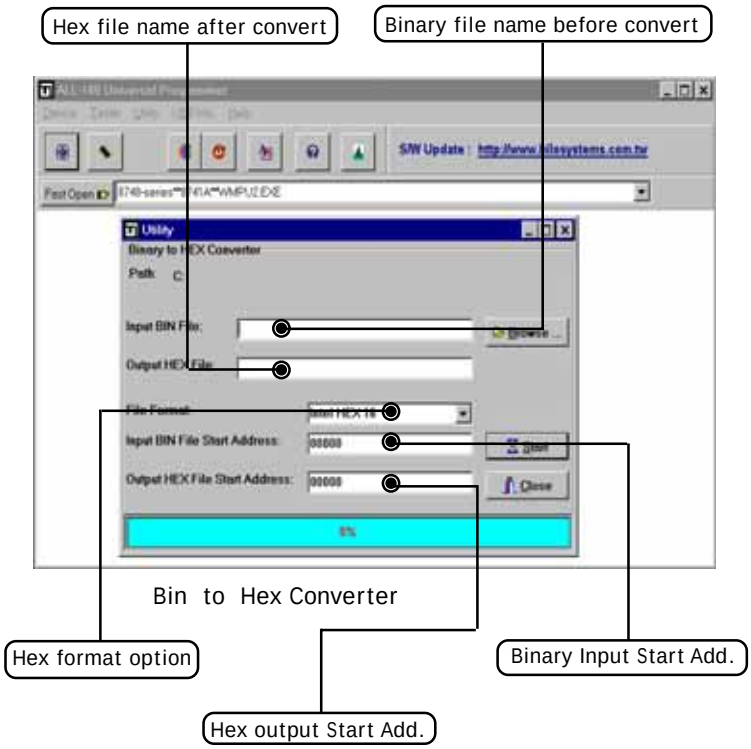
Convert data from Hex format to Binary format for programmer Read/ Write.



Hex to Bin Converter

6.4.2 Bin to Hex Converter

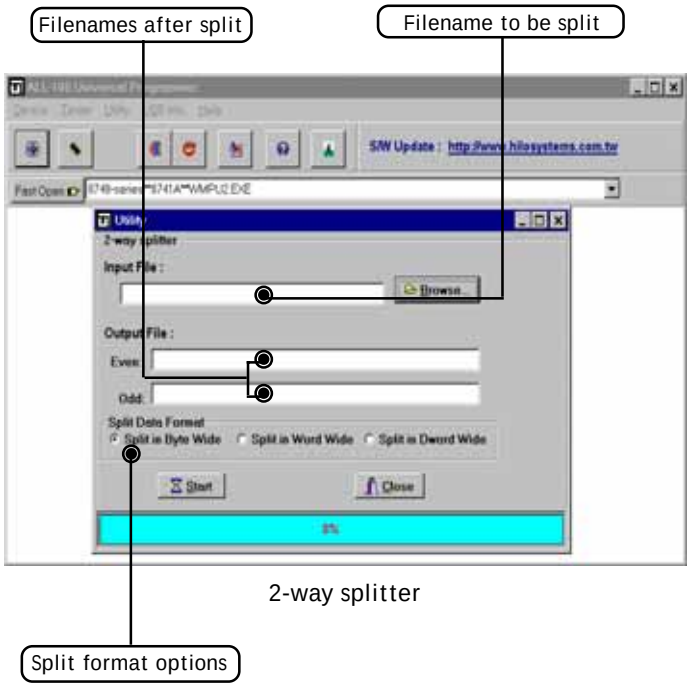
Convert data from Binary format to Hex format.



Bin to Hex Converter

6.4.3 2-way splitter

Split one file into two output files. One file contains odd-byte data of the original file and the other file contains even-byte data of the original file.



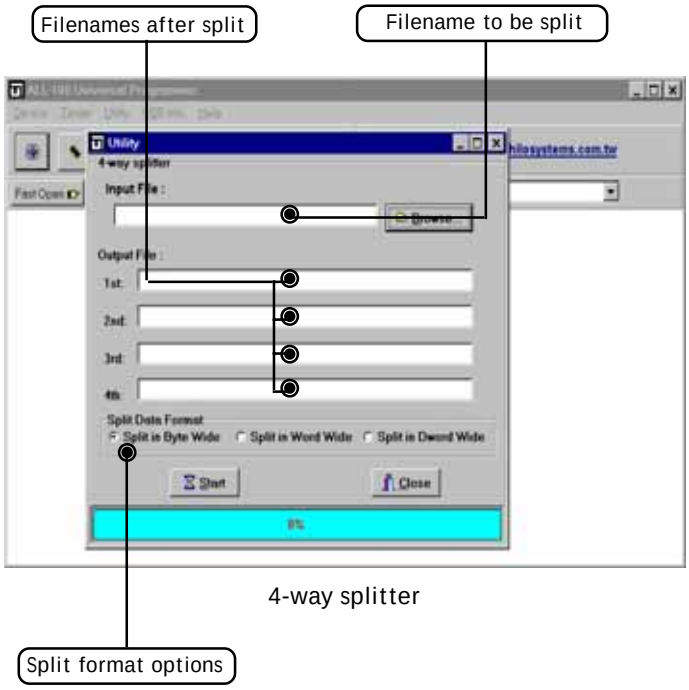
2-way splitter

Split Data Format:

Normally the split data is in Byte Wide, however, user can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data split.

6.4.4 4-way splitter

Split one file into four output files. The 1st file contains the 1st byte of every 4-byte data segment of the original file. The 2nd, 3rd, and 4th file contains the 2nd, 3rd, and 4th byte of every 4-byte data segment of the original file.



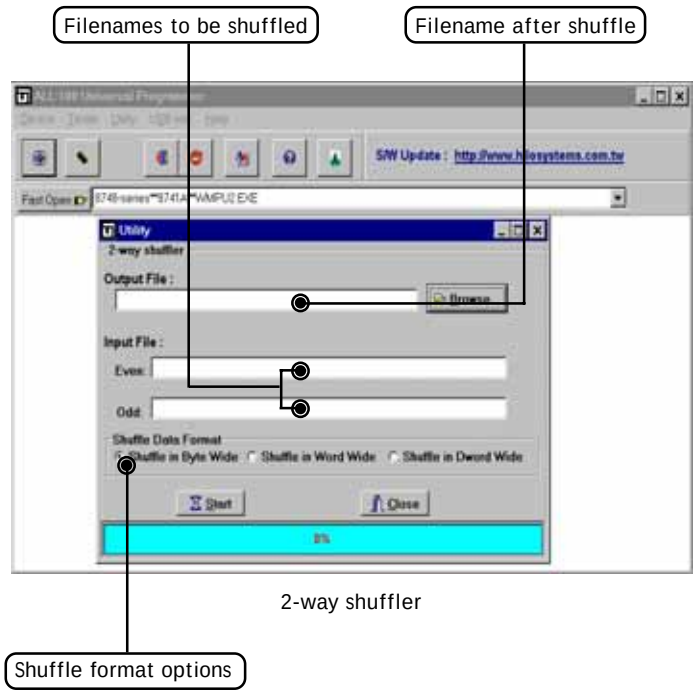
4-way splitter

Split Data Format:

Normally the split data is in Byte Wide, however, user can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data split.

6.4.5 2-way shuffler

Combine two files into one. Insert data of Even file into even byte position of the combined file and insert data of Odd file into odd byte position of the combined file.



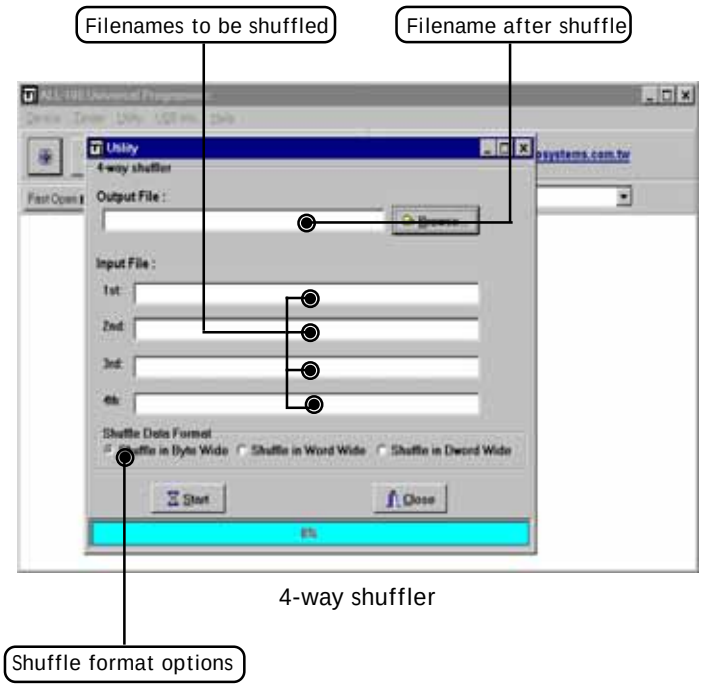
2-way shuffler

Shuffle Data Format:

Normally the shuffled data is in Byte Wide, however, user can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data shuffle.

6.4.6 4-way shuffler

Combine four files into one. Insert data of 1st file into the 1st byte of every 4-byte data segment of the combined file, insert data of 2nd, 3rd, and 4th file into the 2nd, 3rd, and 4th byte of every 4-byte data segment of the combined file.



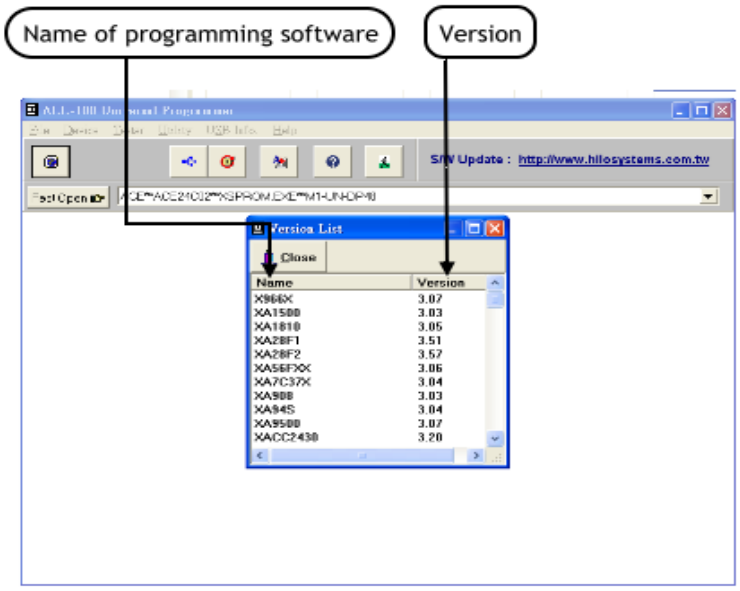
4-way shuffler

Shuffle Data Format:

Normally the shuffled data is in Byte Wide, however, user can choose Word Wide (two bytes) or Double Word Wide (four bytes) as unit of data shuffle.

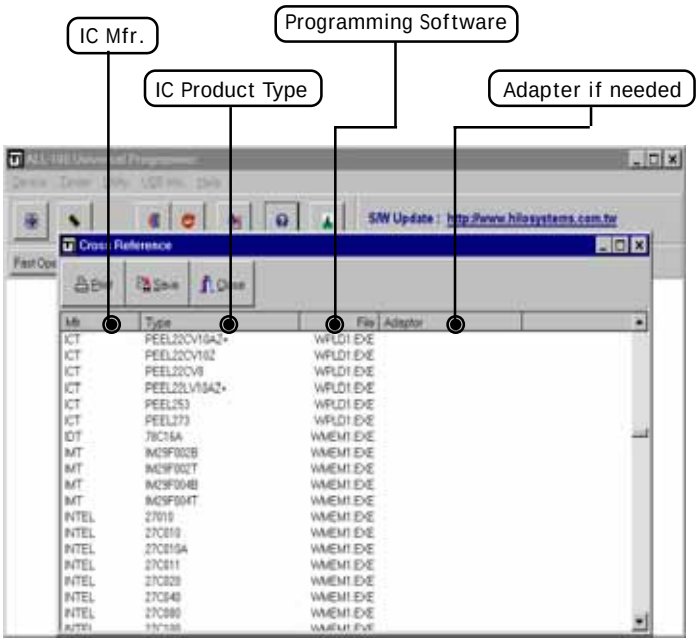
6.4.7 Version List

List version number of current programming software.



6.4.8 Cross Reference

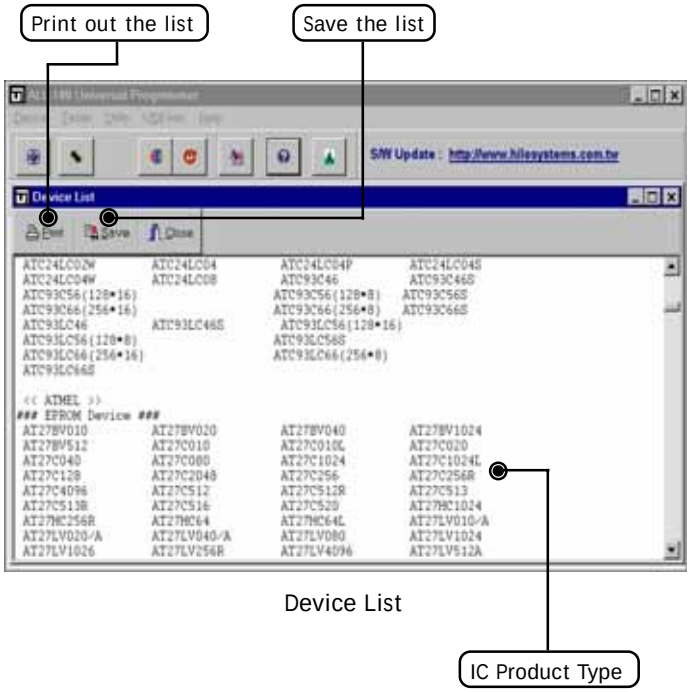
List the Cross Reference of IC Mfr., Product Type, and the corresponding programming software.



Cross Reference

6.4.9 Device List

List all device types that are programmable at current version.



Device List

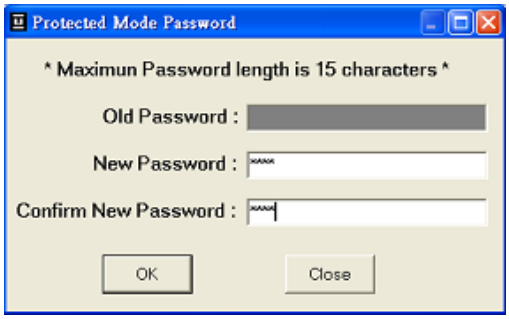
6.5 Protect Mode

XACCESS/GACCESS provides Protect Mode to limit user's operation authorities after entering programming software. The user will need to key in password in order to enable or disable this function.

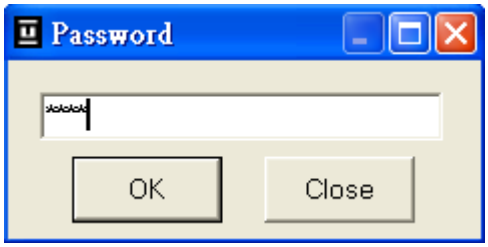
6.5.1 Protect Mode Password

For the first time to run Protect Mode, you need to key in new password and confirm again; then click "OK" to enter Protect Mode Option.

To change the password or re-starting Protect Mode, you need to key in the original password, and then new password and confirm again.

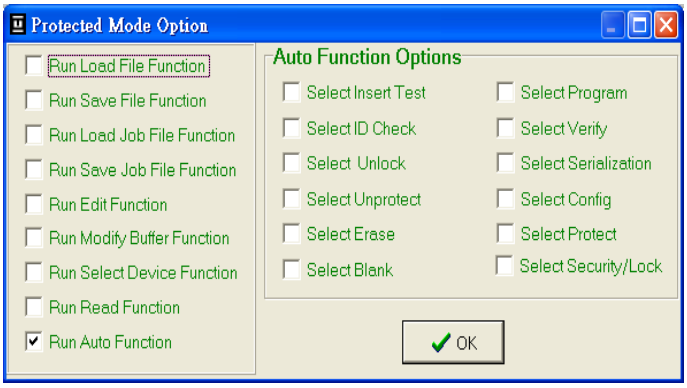


To disable Protect Mode, the password is also essential.



6.5.2 Protect Mode Option

After s/w enters Protected Mode, a functional menu is available to select functions on the left and make them executable in s/w. Then select functions on the right to make them optional in Auto function and click <OK> to finish.

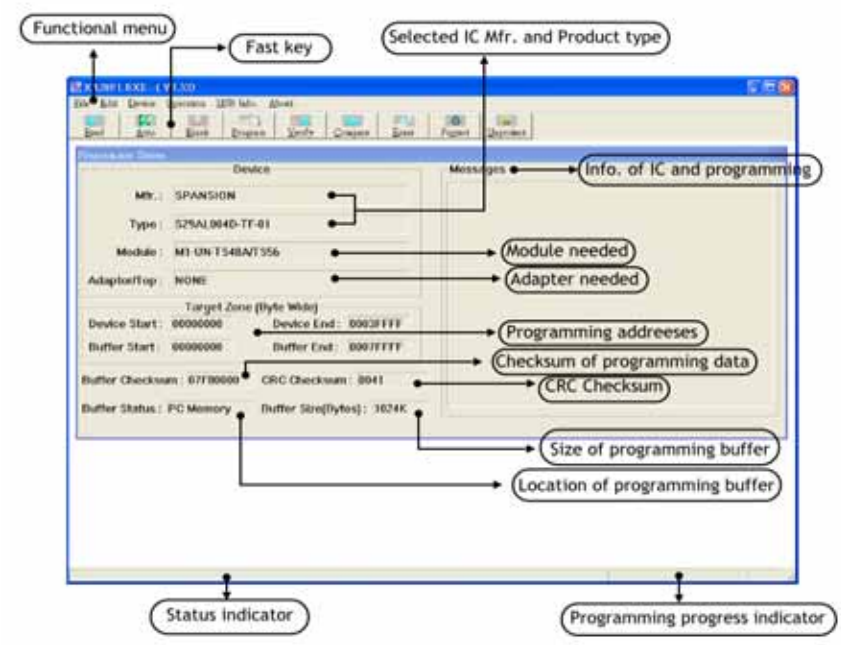


6.5.3 Reset Protect Mode Option

When Protect Mode Option is reset, the following message will pop up. If you click <Yes>, all the settings will be changed back to the original default settings.

6.6 Programming Data/ Function Description

Programming software includes loading of programming driver, utilities of data management, and control of programming function/ operation. Each programmable IC needs correct functional setup before programming. User needs to refer IC data sheet and/or application software for proper setup of programming function. See description below by taking SPANSION S29AL004D-TF-01 as an example.



Buffer Checksum :

A value that is got by plus each bytes in code in buffer

CRC Checksum :

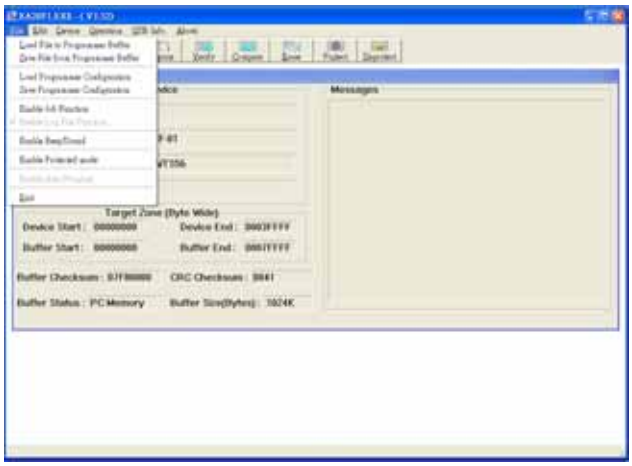
Just like Buffer Checksum, but it is calculated by using CRC algo-rithm (EX: CRC-D8 , CRC-D16). Users can find out problems by analyzing CRC Checksum when offset of the file to be loaded is wrong.

Buffer Size :

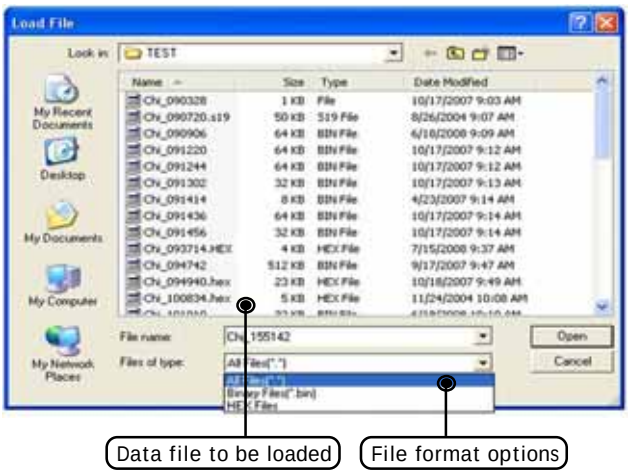
Size of programmer buffer that it generated by software.

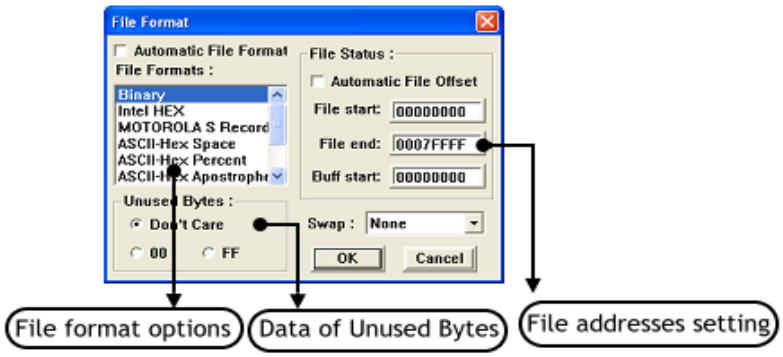
6.6.1 File

Load/Save of data file and configuration file. See dialogue boxes below.



(1) Click “Load File to Programmer Buffer” in File to load data file:





Automatic File Format:

Enable this option if you are not sure the format of your data file, and a proper file format will be selected automatically.

Automatic File Offset:

Enable this option if you are not sure the offset of your data file, and the File Start will be automatically adjusted.

Unused Bytes:

[Don't Care]: Keep the data as it was in unused bytes of buffer memory.

[FF]: Write "FF" to unused bytes of buffer memory.

[00]: Write "00" to unused bytes of buffer memory.

Swap:

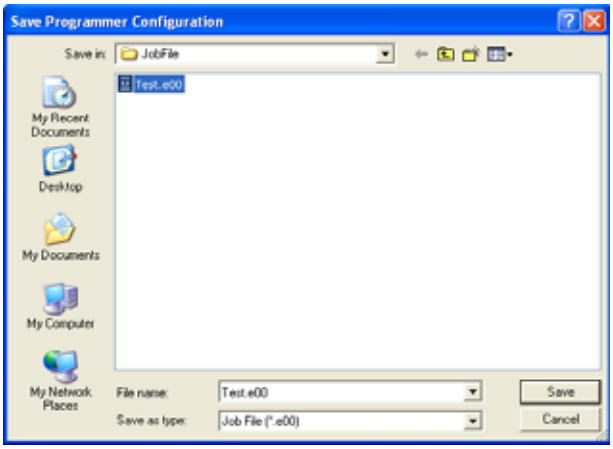
Please refer to explanation in 6.6.2(5) and (6); if you select **None**, it will not swapped. The programming software provides user with Little-Endian originally, and you can use Swap function to swap the format if you are using Big-Endian or others.

(2) Click “Save File from Programmer Buffer” in File menu to save a data file from programmer buffer as a Binary file; then the following dialogue box will show up.

But to save data files as other formats, please run “Utility” in main menu of XACCESS/GACCESS <see details in **6.4**>.

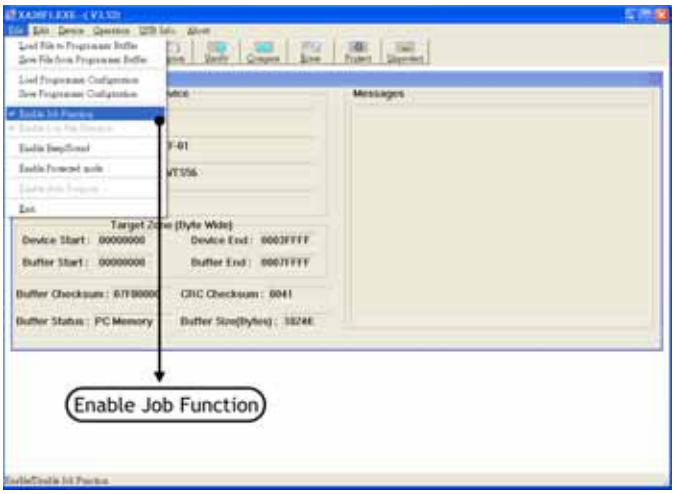
(3) Save Programmer Configuration

After all programming options are set, select “Save Programmer Con-figuration” to save all the info as a Job File (the subname in ALL- 100A is *.e00 and is *.g00 in ALL-100AG) including programming driver, contents, program settings and so on, thus users can load in it directly next time.



(4) Dialogue box of enable Job Function:

Once user enables Job Function and followed by loading Programming Configuration file, system will enter <AUTO> programming mode and is ready for programming. User needs not re-do the programming functional setting and serial number setting.

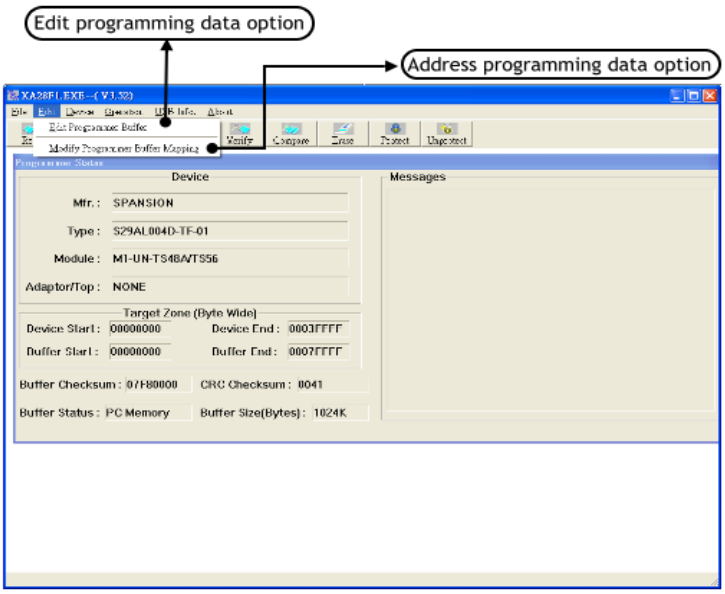


(5) Beep/ Sound setting

After enabling Beep/ Sound, this option will be ticked, that means it is activated already; when the programming is finished, it will output a "finish" sound through Beep of PC (if Sound Card is not installed) or speaker; click this option again and you can disable this function, and it is disabled in default setting.

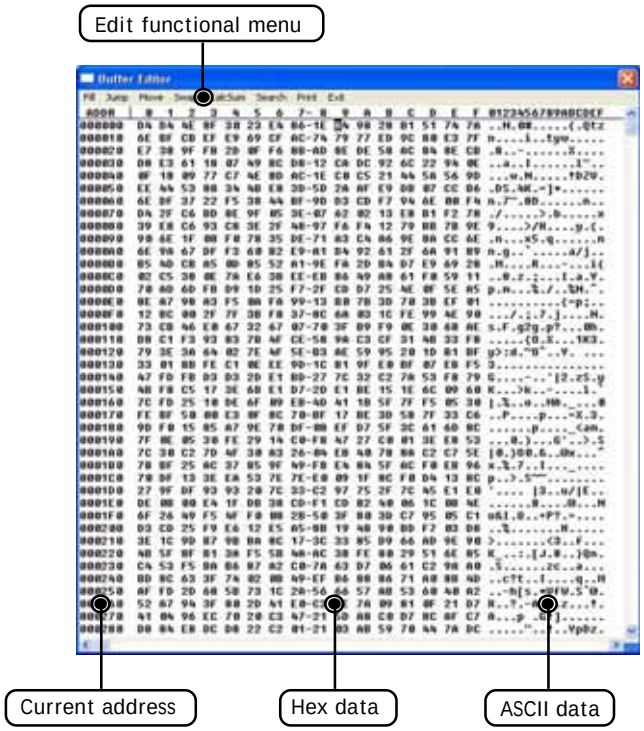
6.6.2 Edit

Includes programming data editing and addressing. See dialogue box below.



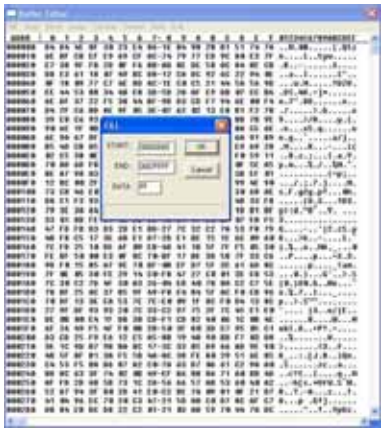
(1) Edit data:

Provide functions such as Fill, Jump, Swap, Calc, SUM, Search,... etc for user to edit programming data in Hex and ASC II expressions.



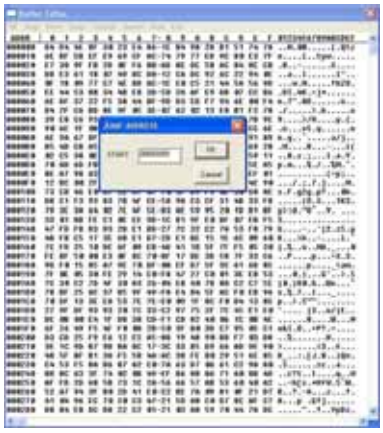
(2) Fill:

Specify start and end addresses and data to be filled in, then click "OK", data will be filled into the specified area.



(3) Jump:

Specify the start address to jump to, then click “OK”, system will jump to the specified address with data displayed.

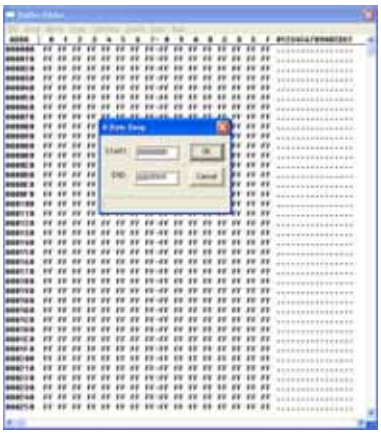


(4) Move:

Specify start and end addresses in which data to be moved, also specify the destination address to move to, then click “OK”, system will move data between specified addresses to the destination area.

(5) Swap - Byte and 4 Bytes:

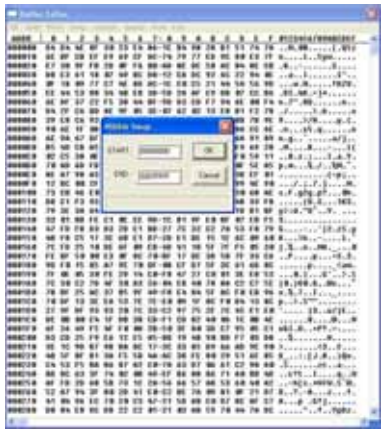
Specify start and end addresses in which data to be byte-swapped or 4-byte-swapped; then click “OK” to start swapping.



Address	Original Data	Byte-swapped	4 bytes-swapped
00000h	01h	02h	04h
00001h	02h	01h	03h
00002h	03h	04h	02h
00003h	04h	03h	01h
00004h	05h	06h	08h
00005h	06h	05h	07h
00006h	07h	08h	06h
00007h	08h	07h	05h

(6) Swap - Nibble:

Specify start and end addresses in which data to be nibble-swapped,then click “OK”, system wil swap Nibble for data between specified addresses.



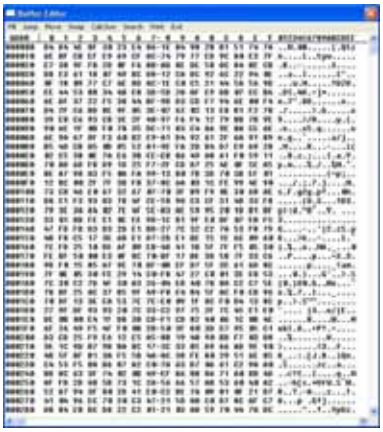
Bit that in original byte	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
Bit after Nibble-Swapped	bit3	bit2	bit1	bit0	bit7	bit6	bit5	bit4

(7) CalcSum:

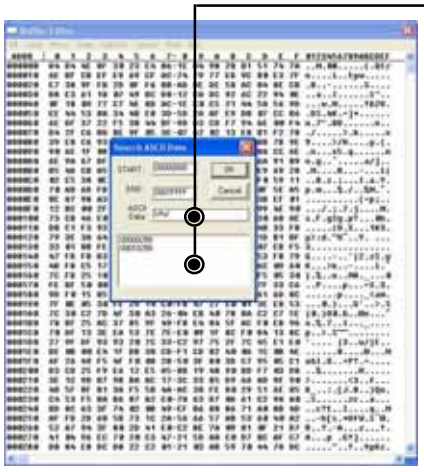
Specify start and end addresses in which data to be calculated for checksum and then click “OK”, system will calculate and display result (checksum) on screen.

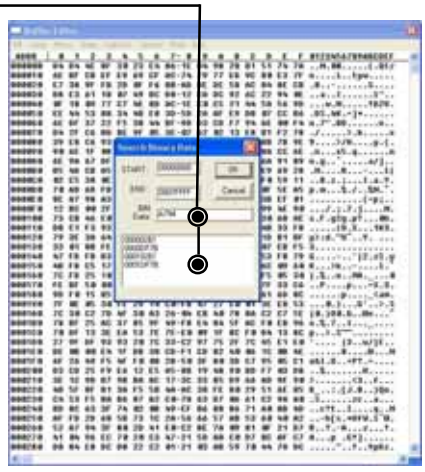
(8) Search:

Two options available, search ASC II data or search Binary data.



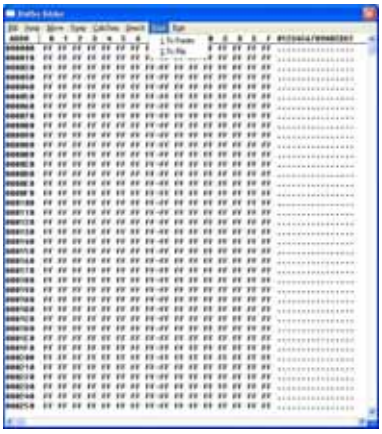
Specify start/end addresses and data to be searched, then click "OK", system will search data between specified addresses and list all addresses that match data to be searched.



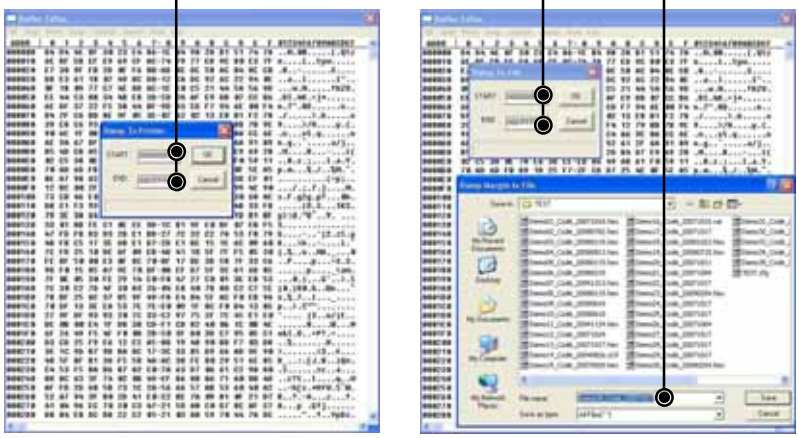


(9) Print:

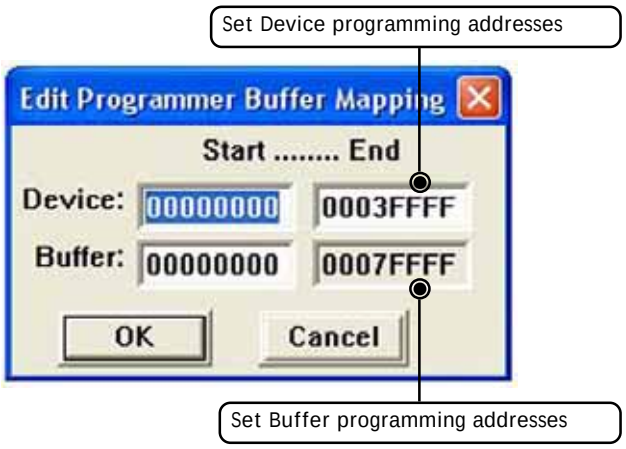
Two options available, print to printer or output to file.



Specify start/end addresses and then click "OK", system will print/save data between specified addresses to printer/output file.

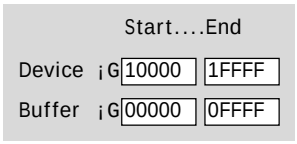


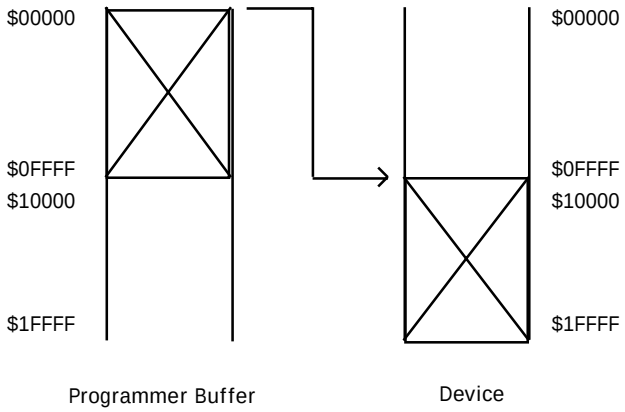
(10) Modify Programmer Buffer Mapping:



Example:

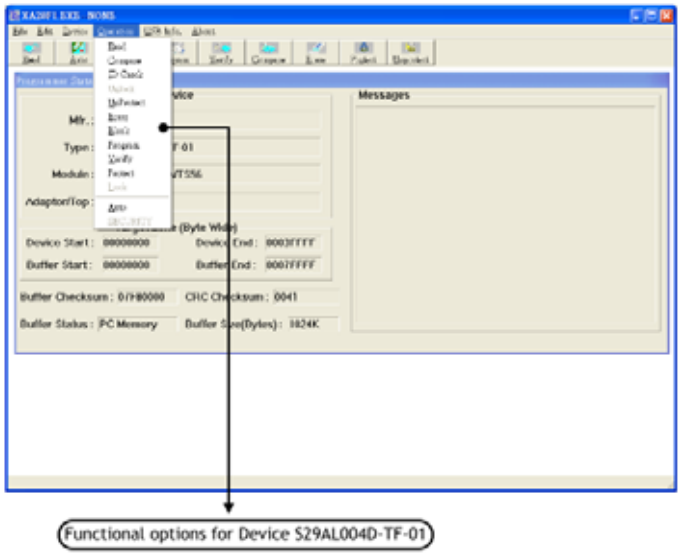
Program data from Buffer address $00000 - $0FFFF to Device address $10000 - $1FFFF.



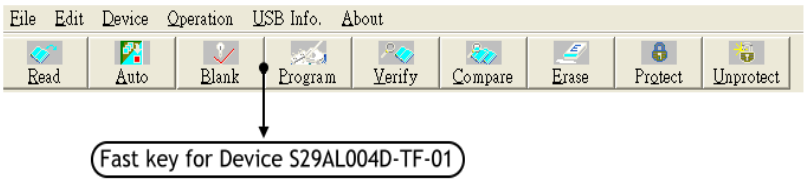


6.6.3 Operation

Different IC product type might have different options of programming functions. Basically, programming functions include options of Erase, Blank, Program, Verify, Lock, Auto, ...etc.



User can also click <Fast Key> to excute program functions. See <Fast Key> indicated below:

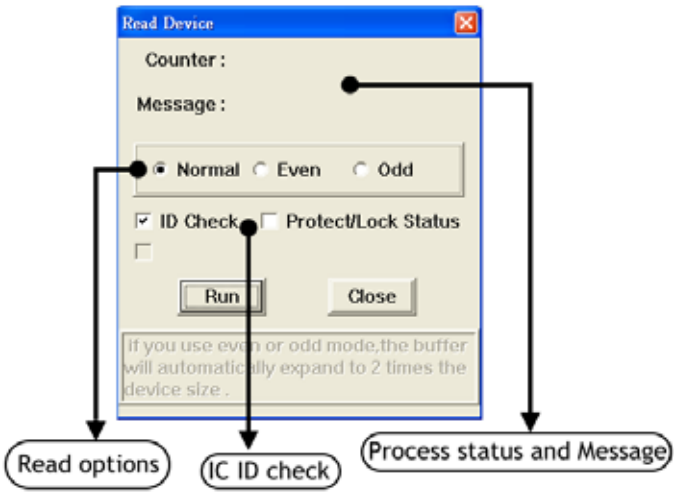


(1) Read:

Read contents in IC memory. Read function is only valid for IC on following position.

- Single ALL-100A/AP setup: The IC on the socket.
- Multiple ALL-100A/AP setups: The IC on the minimum Site # programmer.
- Single ALL-100AG Gang setup: The IC on Socket #1 of Gang programmer.
- Multiple ALL-100AG Gang setup: The IC on the 1st Socket

(Socket #1) of the 1st Site (the minimum Site #) Gang programmers.

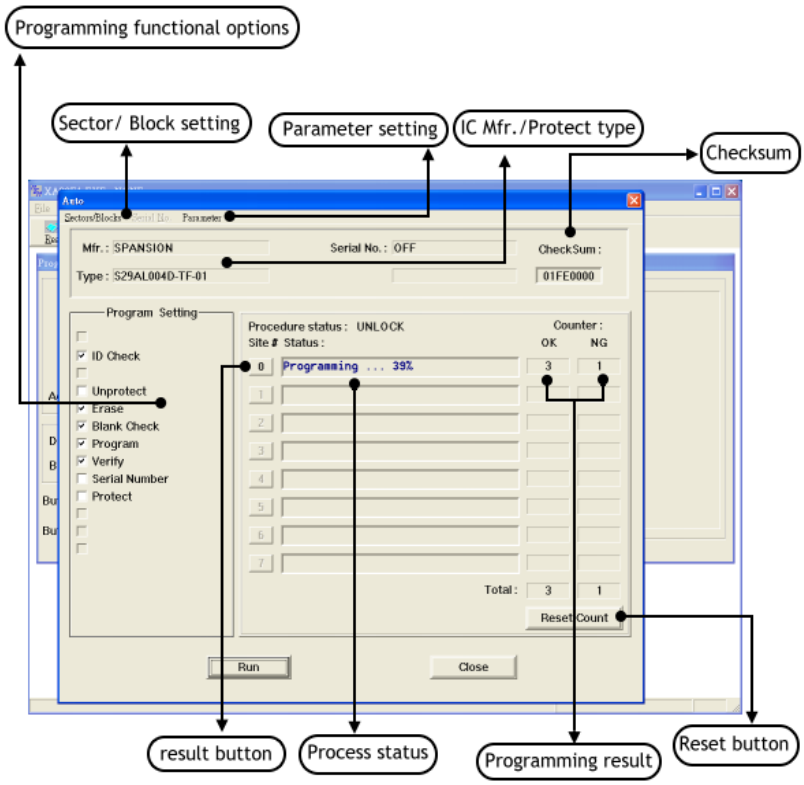


☆ After Read operation, suggest user to double-check to confirm checksum and the data read are all correct.

(2) Auto:

■ Protect Mode inactivated

Enter programming mode with all programming functions activated.

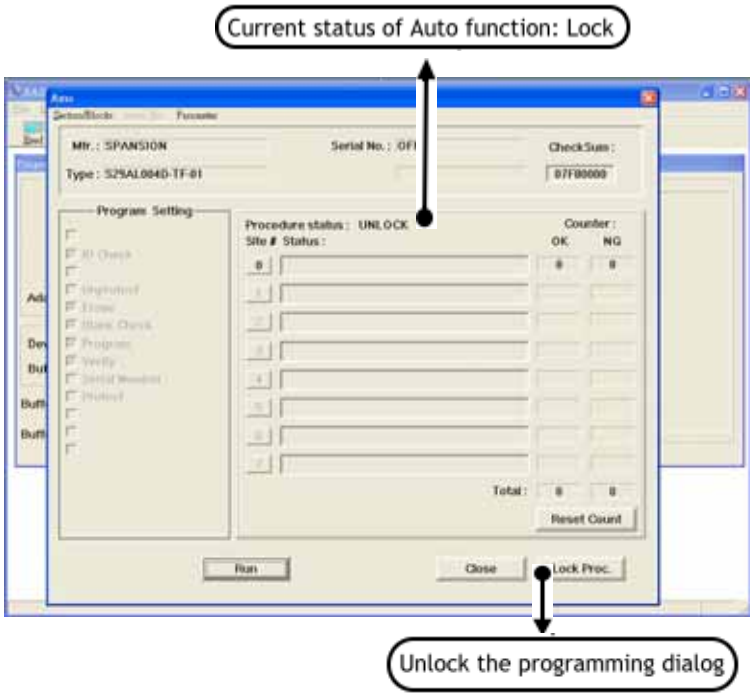


☆ Different IC product type might have different programming functional setting and parameter setting. User needs to refer IC data sheet for proper settings of programming functions and programming parameters.

■ Protect Mode activated:

After Protect Mode is activated in XACCESS/GACCESS, all programming settings of Auto function will run basing on the setting of Protect Mode Option.

Besides, at the lower right corner of Auto dialog apprears an additional button of "Lock Proc.", which locks the thorough programming dialog except the <RUN> button.

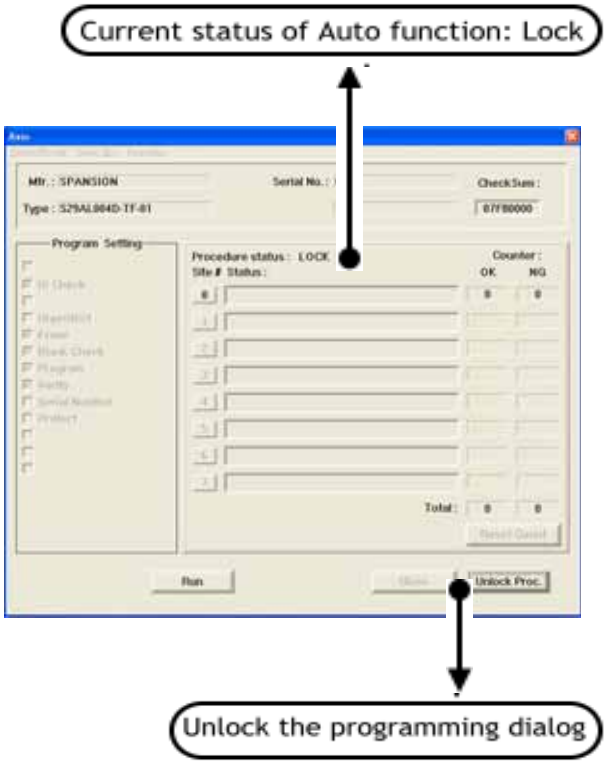


■ Lock Process:

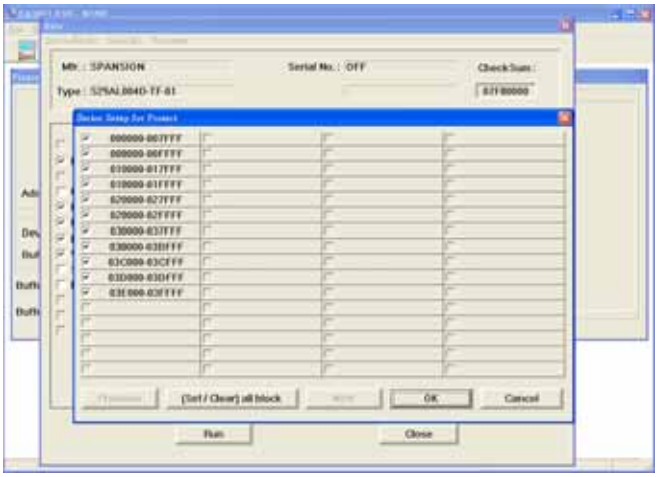
After Protect Mode is activated, click <Lock Proc.> to lock the programming dialog of Auto function but <RUN> button is excepted. The procedure status will show "LOCK" and <Lock Proc.> will change into <Unlock Proc.>.

You can either click <RUN> to start programming or click <Unlock Proc.> to unlock the dialog.

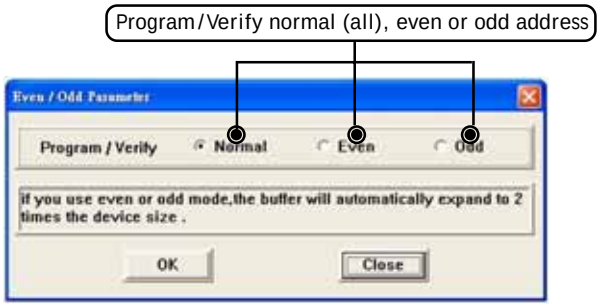
☆ Entering password is essential for Lock and Unlock process.



- Sector/Block: Specify Sector/Block to be protected if needed. When a sector is ticked, that means protect function of that sector will be activated.



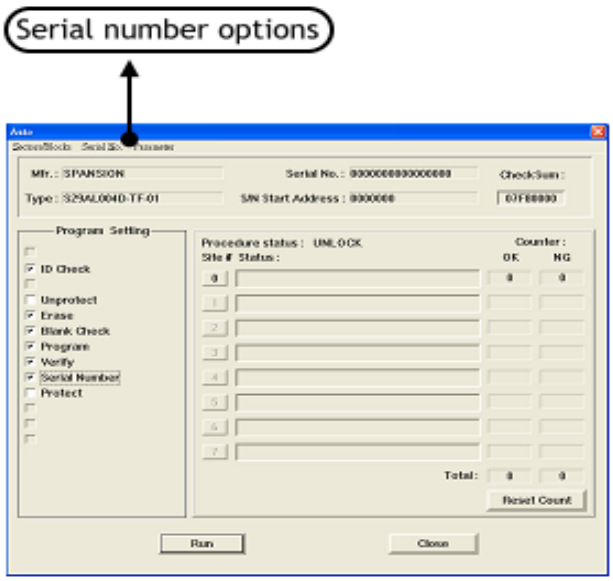
- Parameter: Special setting for programming if needed. If an option is displayed in gray, that means that function is not available.

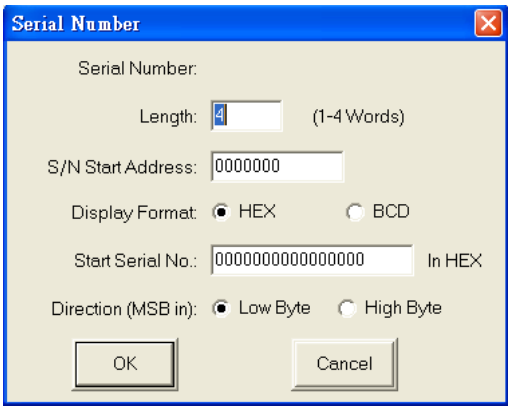


■ Serial Number:

Select “Serial Number" option of the programming setting to enable "Serial No." of Auto function; then click "Serial No." to set the length, start address and format, etc...; Serial NO. will increases 1 automatically after a device is successfully programmed.

☆ This feature is provided basing on algorithm/application of IC product so it is not available for all ICs.





- Length:
  You can set the length of Serial number(the maximum is 8 bytes; 4 words, 16 characters).

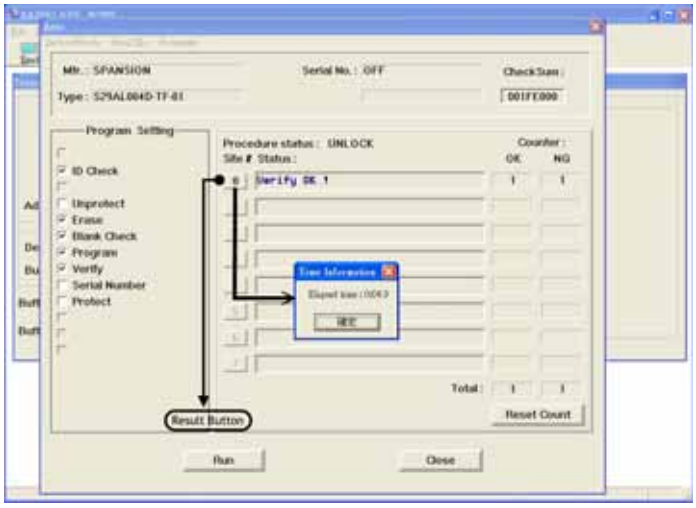
- Display Format
  You can select HEX or BCD as the format.

- S/N Start Address
  You can set the start address for writting ROM.

- Start Serial No
  You can set the start address for writting Serial number.

- Direction
  You can select the displaying order (from High to Low or Low to High).

■ Result button: Button to display programming result and elapsed time.



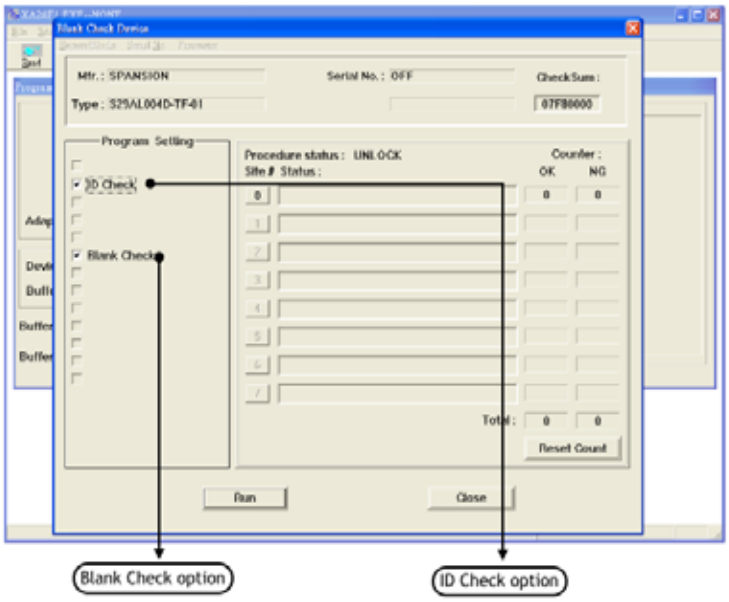
(3) Erase : Enter programming mode with Erase function activated.

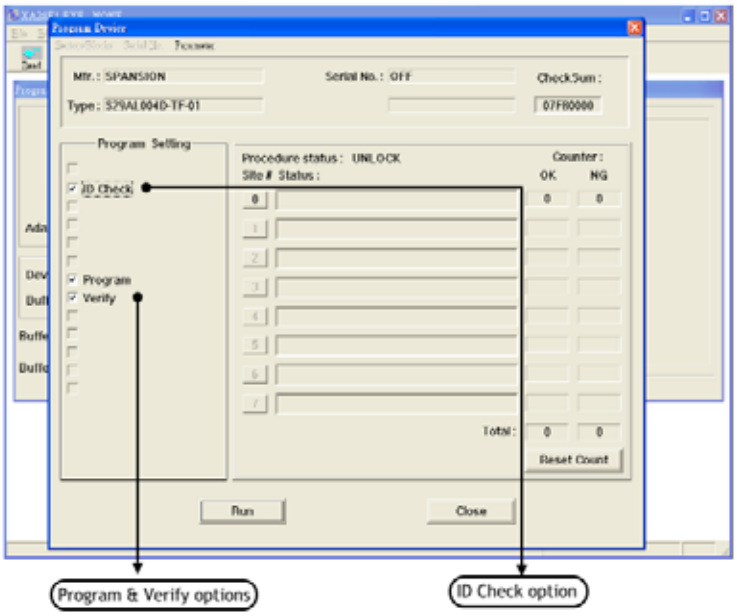
Blank : Enter programming mode with Blank check activated.

Program : Enter programming mode with Program function activated.

Verify : Enter programming mode with Verify function activated.

Protect : Enter programming mode with Protect function activated.



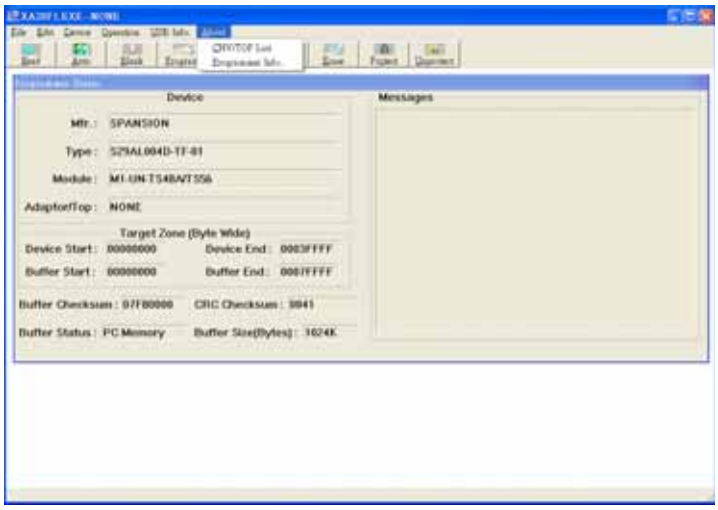

Program Device
Mfr. : SPANSION
Serial No. : OFF
CheckSum :
Type : S29AL004D-TF-01
07F80000
Program Setting
ID Check
Program
Verify
Procedure status : UNLOCK
Site # Status :
Counter :
OK
NG
Total :
Reset Count
Run
Close
Program & Verify options
ID Check option

6.6.4 USB Info.

Display current ALL-100A/AP/AG connection status through USB interface.

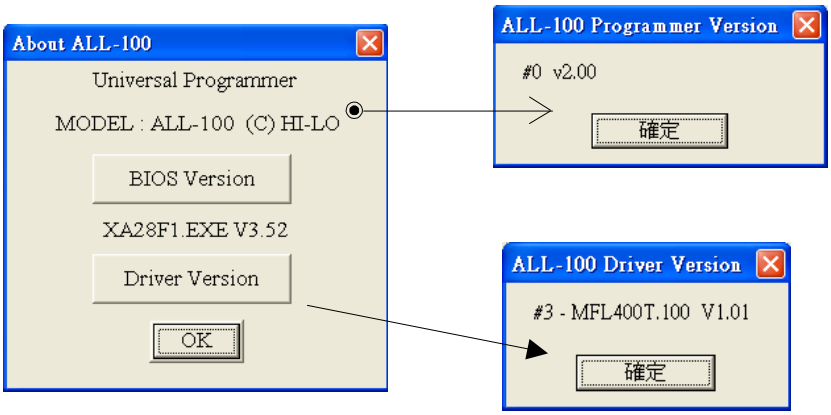
6.6.5 About

Display list of required Module/TOP/Adapter/Converter and version of programming driver, as below:



(1) Module , CNV/TOP or CNV/ADP List: display list of required module, TOP converter or adapter.

(2) Programmer Info.: display current programmer type and programming driver version.



7. ALL-100A/AP/AG Troubleshooting

After power on, ALL-100A/AP/AG will run self-diagnostics and USB connection check. Green/Red LED will display test result. Table listed below summarize test result with possible causes/dispositions for troubleshooting.

Condition	Possible cause/Dispositions
After power on, Green and Red LED off.	Poor contact / operation abnormal: 1. Check power cable connection. 2. Need troubleshooting. Contact your local dealer for service.
After power on, Green and Red LED flash.	Fail self diagnostic test: 1. Check if there is IC on socket (Should be removed). 2. Need troubleshooting. Contact your local dealer for service.
After power on, Green LED off but Red LED flash.	Fail ALL-100A memory diagnostic test: 1. Try to power on again. 2. Need troubleshooting. Contact your local dealer for service.
After power on or during programming, Green LED flash but Red LED off.	Fail USB connection check: 1. Check USB cable connection. 2. Check PC BIOS setup to see if USB is disabled (Should be enabled). 3. Need troubleshooting. Contact your local dealer for service.
During programming, Greend LED on but Red LED flash.	USB communication error: 1. Check USB cable connection. 2. Need troubleshooting. Contact your local dealer for service.
During programming, Green LED on but Red LED become orange color.	USB data trasmission interrupted: 1. Check USB cable connection. 2. Check if PC is interrupted. 3. Need troubleshooting. Contact your local dealer for service.

8. Glossary

8.1 EPROM, EEPROM, BPROM, and MPU

Programmable device: An integrated circuit (IC) that can be programmed.

■ **Bit, Nibble, Byte, Word, Double Word**

Bit : A basic unit of binary data.

Nibble : A groug of 4-bit binary data. A nibble ranges from 0H to FH.

Byte : A group of 8-bit binary data. A byte ranges from 0H to FFH.

Word : A group of 16-bit binary data. A word ranges from 0H to FFFFH.

Double word : A group of 32-bit binary data. A double word ranges from 0H to FFFFFFFFH.

■ **Buffer**

There is 4 Mbit memory buffer in ALL-100A/AP/AG Programmer. IC driver file can automatically allocate/arrange these 4Mbit memory space for programming depending on IC memory size and read/write needs.

When data needs to be programmed to IC, data needs to be loaded to programmer buffer first and then program to IC. When data is read from Master IC, the data is also stored in programmer buffer, it can then be edited or saved to disk for future use.

■ **Buffer Start and Buffer End Address**

It specifies the start and end addresses in programmer buffer in which data is to be programmed to IC in sequence. This is also the area that data is used for Checksum calculation.

■ **CheckSum**

This is the SUM of all data contents between buffer start and buffer end addresses. All data are added and the least significant 16 bits (4 HEX) are displayed as the Checksum. (Some data in some ICs might not be covered in Checksum calculation.) Checksum will be calculated after IC reading, file loading, type changing, or buffer editing.

■ **Bit Count of data**

A NIBBLE contains 4-bit data.

A BYTE contains 8-bit data.

A WORD contains 16-bit data.

MPU is normally in 8 or 16 bit width, but still have some in 12 or 14 bit width.

■ **Device Start and Device End address**

It specifies the start and end addresses inside IC device. During IC programming, data stored in programmer buffer will be written to this specified area.

■ **USB interface**

USB, Universal Serial Bus, is a high-speed data transmission bus initiated by Intel and then supported by NEC, IBM, MicroSoft, Compaq,...etc. It is now a data transmission standard between PC and peripheral devices.

V1.0 / 1.1	USB Low-Speed	:	1.5 Mb/s
V1.0 / 1.1	USB Full-Speed	:	12 Mb/s
V2.0	USB High-Speed	:	480 Mb/s

■ **Security fuse**

Security fuse is available in most of programmable ICs. Once the Security fuse has been blown, the data stored in IC can not be read out correctly and IC can not be programmed either. However, IC can still operate functionally no matter the Security fuse has been blown or not.

Note: Once the Security fuse has been blown. IC data can no longer be read out or programmed correctly, please double-check before programming Security fuse.

■ **Lock bits**

Some MCU/MPU use Lock bits to protect data programmed. Normally user has options to select individual Lock bit to protect different area of memory data. Please refer IC data sheet for definition of Lock bits.

■ **Encryption**

Some MCU/MPU use Encryption code for data protection. If an IC has been programmed with Encryption code, then a correct decryption code must be given to read the correct data.

■ **Protection Fuse**

Some FLASH memory use Protection fuse for data protection. It can prevent data change from accident programming. The Protection fuse must be reset to Unprotection state, if the programmed data need to be changed. The default state of Protection fuse is Unprotection.

8.2 PLD, PAL, GAL, PEEL, CPLD, EPLD, and FPGA

■ **Programmable Logic Device (PLD)**

PLDs are usually grouped into following five categories:

PLD : A one time Programmable Logic Device such as PAL.

EPLD : A UV Erasable PLD such as EPLD, CPLD, and FPGA. These devices have transparent window on top of package for UV light exposure.

EEPLD : An Electrically Erasable PLD such as GAL, PEEL, CPLD, and FPGA.

CPLD : A more complex PLD device.

FPGA : Field Programmable Gate Array.

■ **JEDEC fuse map file of PLD**

JEDEC fuse map file is a standard format used for PLD programming. It contains fuse information and functional test vectors of PLD to be programmed. Most PLD assemblers or compilers such as PALASM, OPAL, CUPL, ABEL, AMAZE, and PDK-1, can create JEDEC fuse map file.

■ **POF fuse map file of PLD**

POF fuse map file is a format used for ALTERA PLD programming. POF file can store more programming data than JEDEC file.

■ **Fuse blown and intact**

Most of unprogrammed (blank) PLD have fuses in intact (connect) state. After programming, PLD fuses are blown to open state. For one time programmable PLD, once fuses are blown (opened), they can not be changed back to intact (connect) state. However, the UV erasable PLD can be erased to change fuses back to intact (connect) state by UV light exposure and the electrically erasable PLD can be electrically erased to change fuses back to intact (connect) state by using Erase function on this Programmer.

■ **Array fuse, Configuration fuse**

Array fuses are the main logic fuses in a PLD. Different types of PLD have different logic function arrangement. Configuration fuses define the I/O architecture of a PLD such as Combinatorial/Registered, Output feedback/Output enable, and so on. Generally, user do not have to understand the details of these fuses because logic compiler will automatically translate logic statements and equations into JEDEC format file.

■ **Security fuse**

Most of PLD have Security fuse. Once Security fuse is blown, data in PLD can no longer be read out correctly. Generally, the PLD will be read as blank if Security fuse is blown.

Note:

Caution : USB Interface Compatibility

- For USB 2.0 compatibility, the revision of your computer operation system should be no earlier than following editions : Windows 2000 SP4/XP SP1/Server 2003/Vista/7

- Software incompatible may happen if your computer uses any one USB Host Controller from following :
  - Compaq PCI to USB Open Host Controller
  - VIA Tech PCI Universal Serial Bus Host Controller
  - VIA Tech 3038 PCI to USB Open Host Controller
  - SiS 7001 PCI to USB Open Host Controller
  - OPTi 82C861 PCI to USB Open Host Controller

- How to check the PCI to USB Controller your computer used :
  - Please go to [Start] [Settings] [Control Panel] to click on [System]
  - Then select [Device Manager], Click on [Universal Serial Bus Controller]
  - Check the Universal Serial Bus Controller shown is within above list or not

- In case your USB interface card is incompatible with ALL-100A, suggest you to use the USB interface card we approved and recommended. Please refer to “optional accessory” in ALL-100A data sheet or contact HI-LO distributors for further information.

VERIFICATION

of conformity with European EMC Directive

No. E980207-1

Document holder: HI-LO SYSTEM RESEARCH CO., LTD.

Type of equipment: Universal & Gang Programmer

Type designation: ALL-100, ALL-100A

A sample of the equipment has been tested for CE-marking according to the EMC Directive, 2004/108/EC *Standard(s) used for showing compliance with the essential requirements of the directive:*

EMC Standard(s):

CISPR 22: 2005+A1:2005+A2:2006	Class A
IEC 61000-3-2: 2005	Pass
IEC 61000-3-3: 2008	Pass
CISPR 24: 1998+A1: 2001+A2: 2002	*Performance Criterion*
IEC 61000-4-2: 2008	B
IEC 61000-4-3: 2006+A1:2007	A
IEC 61000-4-4: 2004	B
IEC 61000-4-5: 2005	B
IEC 61000-4-6: 2008	A
IEC 61000-4-8: 2001	A
IEC 61000-4-11: 2004	C

The referred test report(s) show that the product fulfills the requirements in the EMC Directive for CE marking. On this basis, together with the manufacturer's own documented production control, the manufacturer (or his European authorized representative) can in his EC Declaration of Conformity verify compliance with the EMC Directive.

Signed for and on behalf of
PEP Testing Laboratory

Testing Laboratory PEP Testing Laboratory PEP

M. Y. Tsui

Date: SEP. 07, 2009

M. Y. Tsui / General Manager

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