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SUPERPRO [®] **6100, 611S, 610P**
Universal Programmers

Important Information:

1. This manual applies to SuperPro 6100, SuperPro 611S, SuperPro 610P.
2. In order to connect the programmer easily and quickly, please connect the hardware after installing the software.
3. Please read this manual carefully before using programmers.
4. Do not use self-made adapters. It is recommended to buy the adapter made by Xeltek.

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Chapter 1 General Description

1.1 INTRODUCTION

1.1.1 What is SUPERPRO

SuperPro is a series of cost-effective, reliable, and high-speed universal programmers. They are designed to communicate through a USB 2.0 port and to operate with most IBM-compatible desktop computers and notebook computers based on Pentium. Their menu-driven software interface facilitates the operation. **Programming hardware includes the following items:**

- A programming module with a 48-pin ZIF socket (SuperPro 6100 includes a DIP48 DX0001 adapter; SuperPro 610P and SuperPro 611S include a built-in DIP module.)
- Power supply unit
- USB connection cable
- Optional socket adapters with 144 pins universal pin-drivers design to support devices with 144 pins or less and accommodate PLCC, TSOP, SOIC, SOP, QFP, TSSOP and BGA package types are available

Software features (USB 2.0 Series):

- Support Windows XP , Windows Vista, Win 7/8.
- Support numerous (over 10,000) types of devices, including PROM, E/EPROM, PLD and MCU from more than 150 manufacturers.
- Support many types of formats such as Binary, Intel (linear & segmented) Hex, Motorola S, Tektronix (linear & segmented), JEDEC, POF, etc.
- Device insertion test (48 pins or less) to detect defective chips, improperly inserted devices and pins of poor contact (model dependent)
- Integrated full screen buffer editing environment with commands such as fill, copy, move, swap, etc.
- Auto-generation of electronic serial numbers. (Only authorized users can use the user-defined methods).

1.1.2 Manual Organization

This manual consists of three parts:

Part 1: Introduction to the SUPERPRO series, including system requirements, software and hardware installation.

Part 2: Detail explanations on the software commands and all the function items.

Part 3: Appendix, including customer support information and error messages.

1.1.3 System Requirements

The minimum system configuration is as follows:

- Desktop or laptop, with Intel Pentium or equivalent processor, has at least one standard (USB2.0) compliant connector.
- Windows XP/Vista operating system.
- One CD-ROM drive.
- A hard disk with at least 1 GB free space

1.1.4 Programmer Package

The standard package contains the following items:

- One programmer module.
- One USB connection cable.
- One power supply unit.
- One software installation CD.
- The User's Guide.
- A registration form.

Chapter 2 System Installation

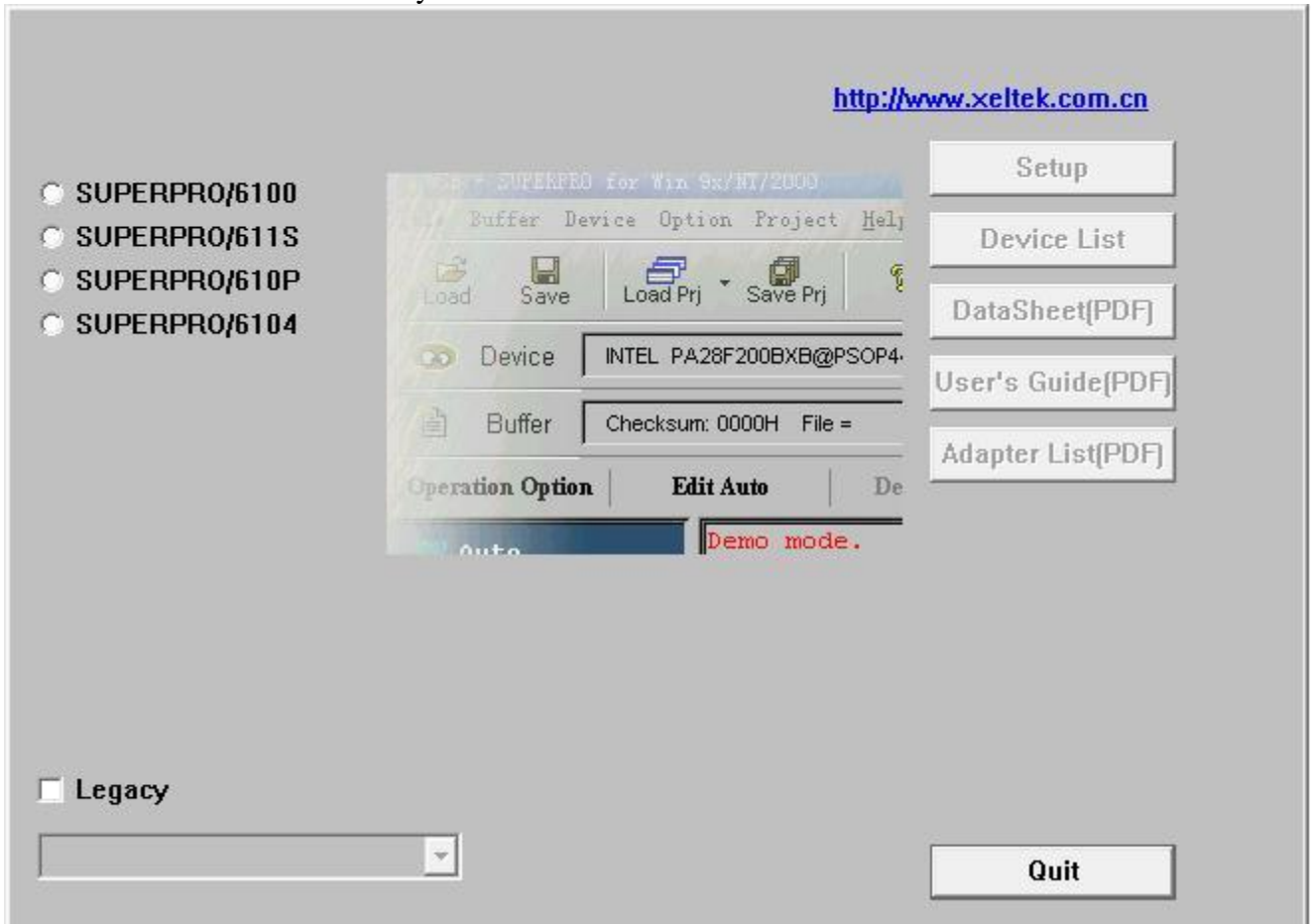
If it's your first time using the USB-based programmer from XELTEK, this chapter will help you to install the software and connect the programmer hardware properly. USB devices are PnP devices. At the first installation, Windows will start with "new hardware wizard" to scan all available INF files, and find out the appropriate drivers for the newly found hardware. In order to avoid unwanted complication during the installation of USB device, we strongly suggest that you install the software first. The setup program will handle the needed INF files and drivers automatically.

2.1 Software Setup

2.1.1 Setup from the CD-ROM

Insert the CD into the CD-ROM drive.

If the setup program starts automatically, a dialog box will show up for you to select the programmer model. If the setup program does not start automatically, please run SETUP.EXE in the root directory.



Select the corresponding model of the programmer you have bought. Click Setup to install the application software for the programmer.

NOTE: Each model has its own software. Please do not mismatch them.

2.1.2 Download the installation software from the Internet

You can download the specific software for a certain model at Xeltek website: <http://www.xeltek.com.cn/>. It is usually a self-extracting file. You only need to run this file to setup the software.

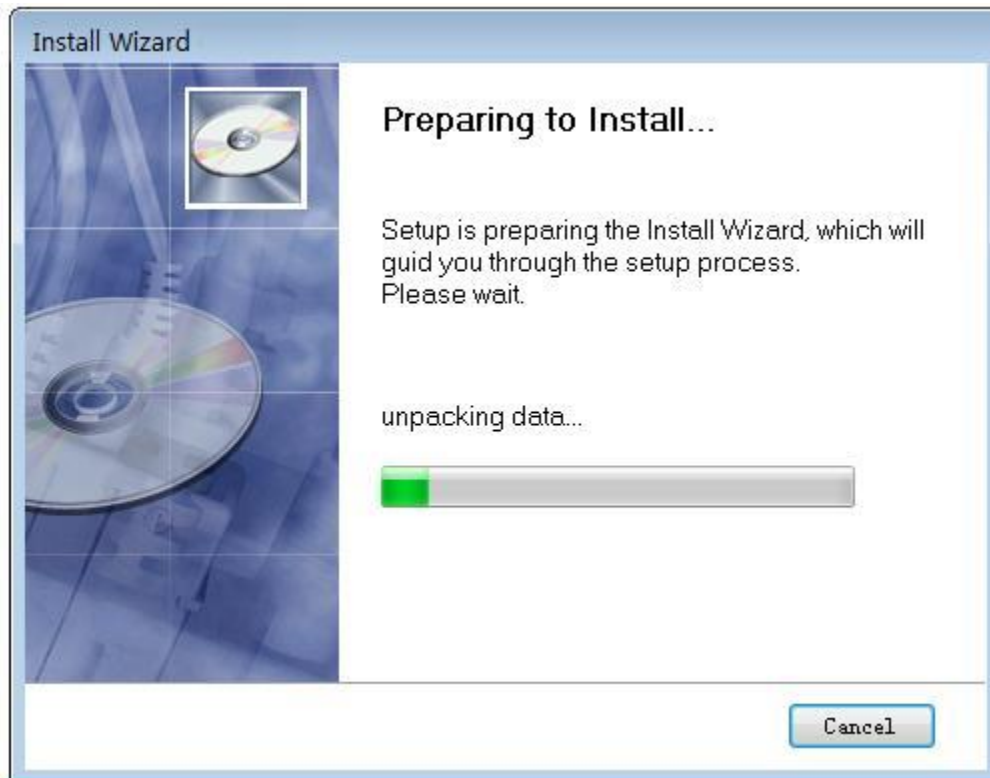
2.1.3 Setup Process

The setup procedure goes step by step and you can change the default settings according to your needs in the setup process.

Step 1: Select the language that you want to use in the setup process, as shown in the following language selection interface.



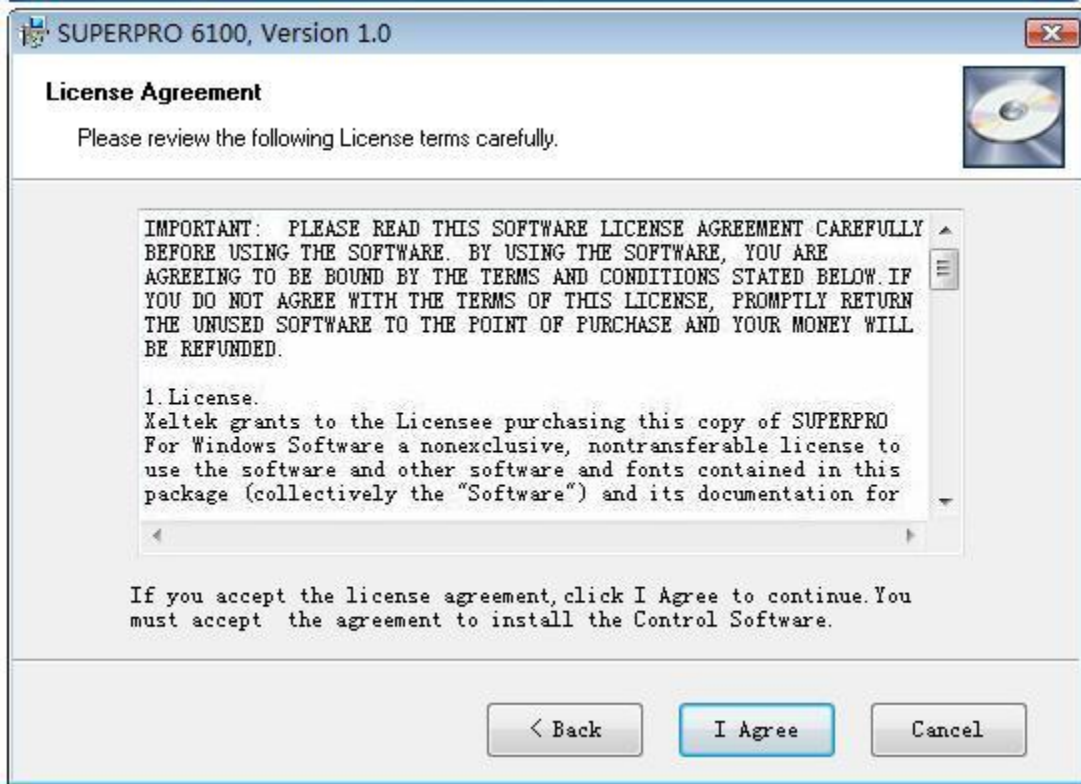
Click the “OK” button and a dialog box of “Preparing to install” appears.



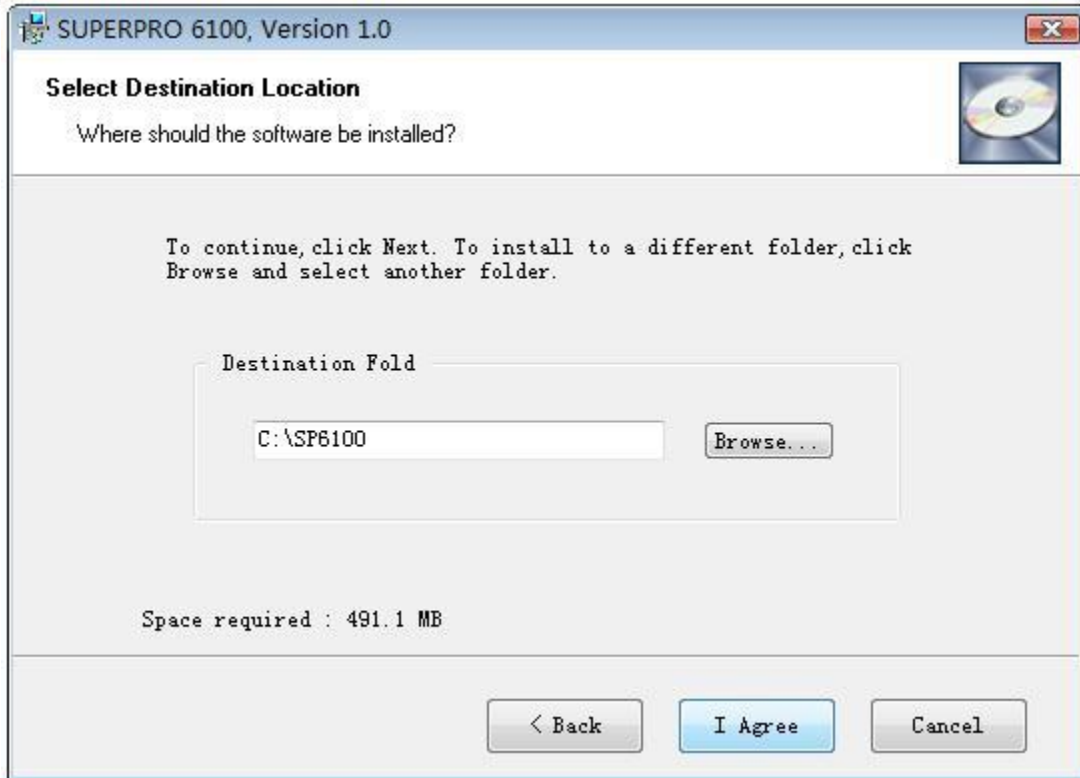
Then a welcome screen appears as shown below.



Step 2: Click the "Next" button. The License Agreement appears.

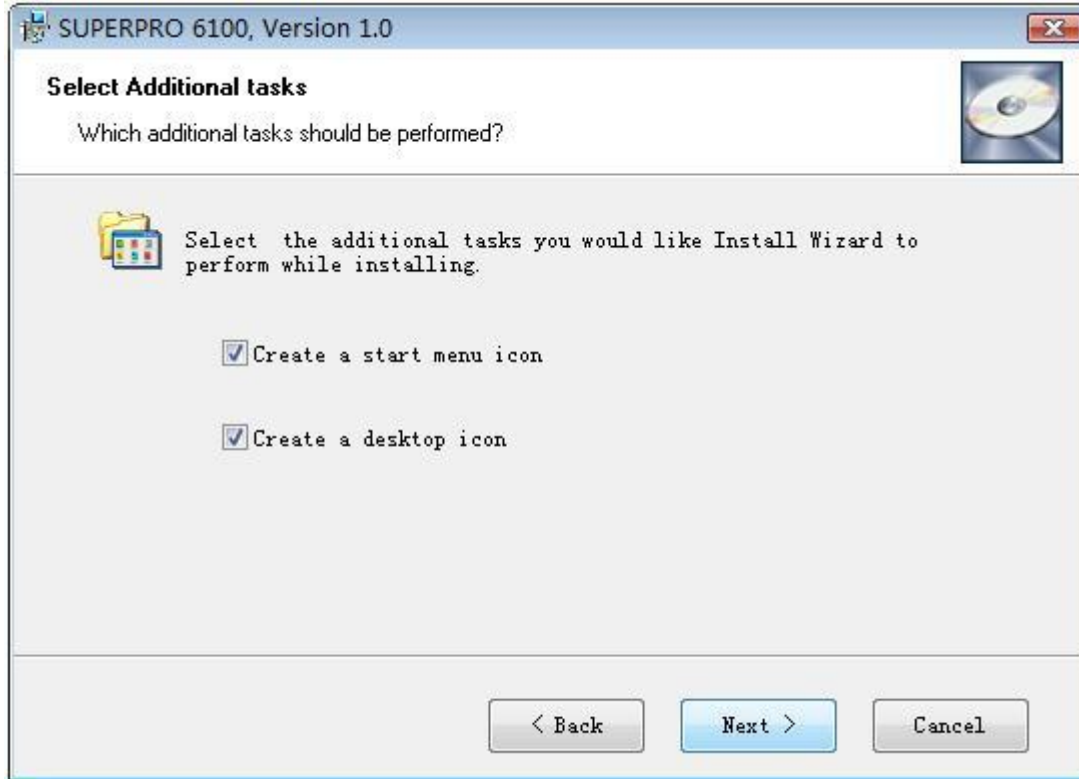


Step 3: Please read the license agreement carefully and click “I Agree” to continue the installation. Otherwise, click Cancel to exit the installation.



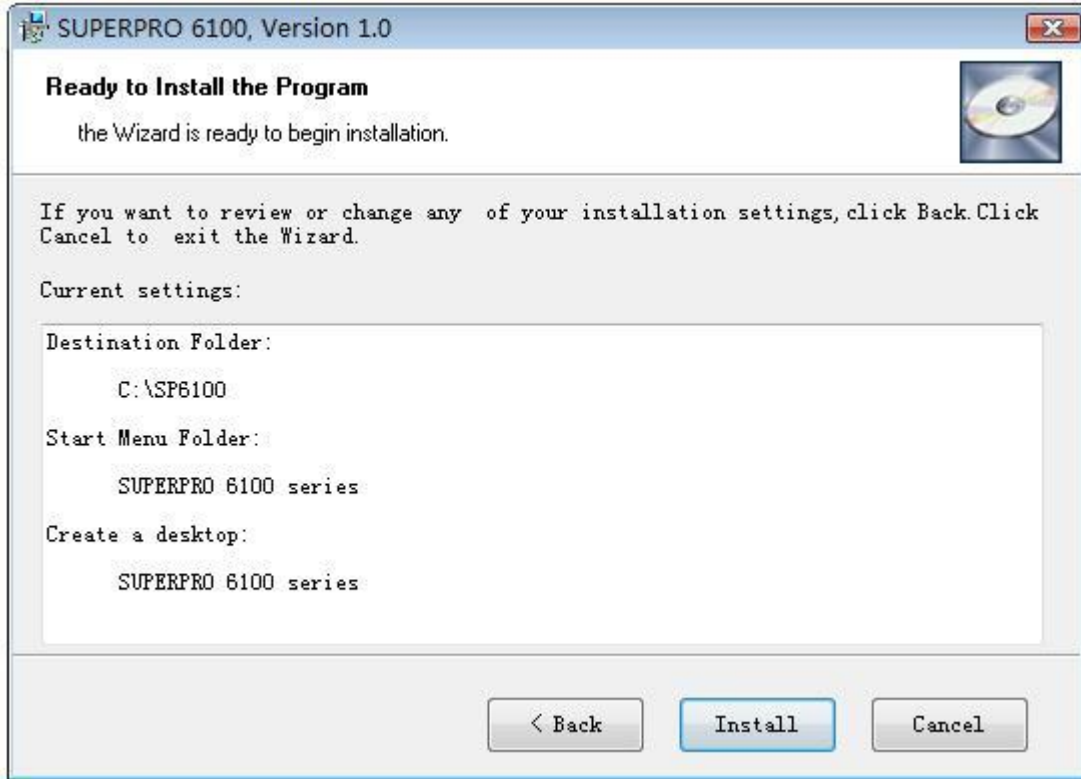
Step 4: You can select the installation path in this step. Click the “Browse” button to change the default destination folder. Click the “Next >” button to continue the installation.

Step 5:



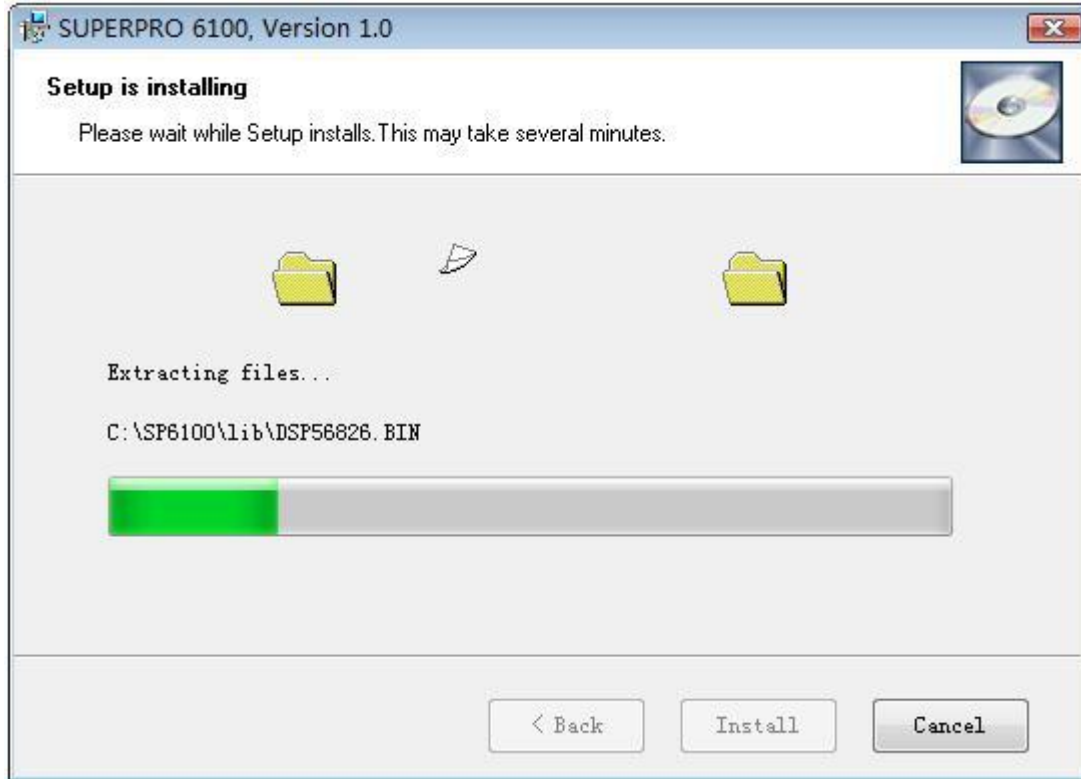
You are asked whether to create a start menu icon and a desktop icon in this step. If you select the default setting, click the “Next” button to continue.

Step 6:



Check the above settings that you set in the setup process. Click the “Install” button to proceed to the next step.

Step 7:



In this step, the files are being copied, the drivers are installed, the software is registered, etc.

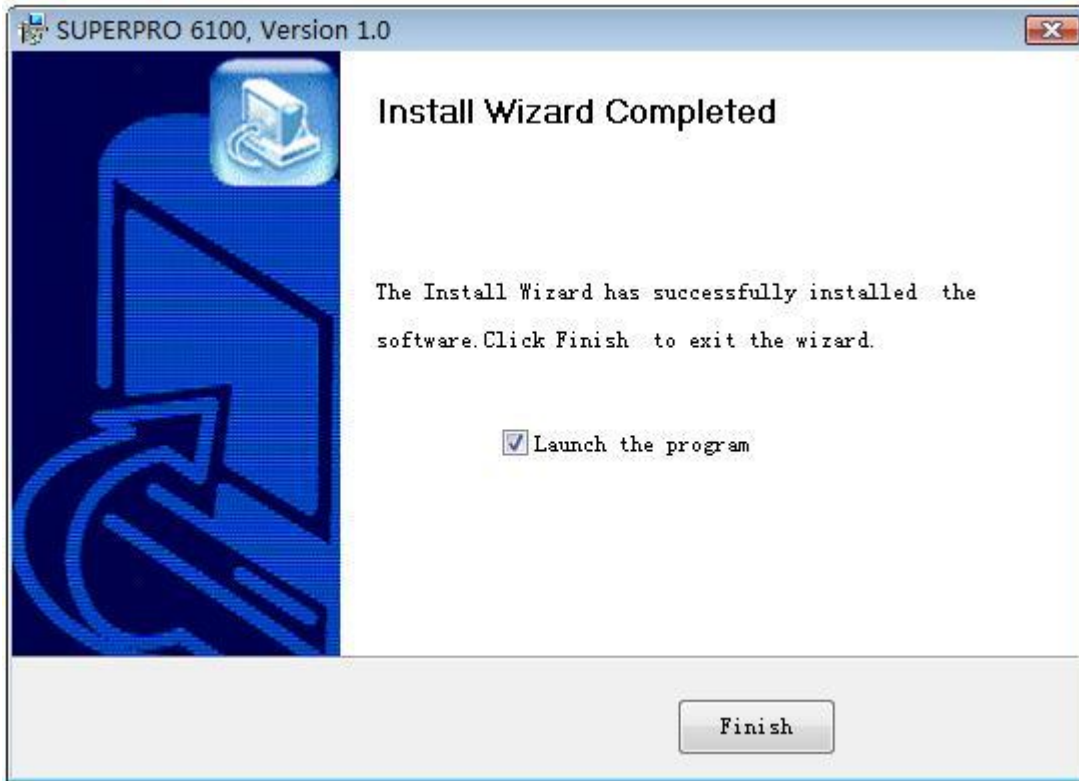
If the user's operating system is Windows Vista, the following dialog box will appear on the screen:



Now please select “Always install the driver software (I)”. Then wait until the next

dialog box appears.

Step 8:



Click the “Finish” button to finish the setup.

2.1.4 The hardware and driver installation

Connect the programmer module to your computer through the USB port. Turn on the programmer power switch.

After the application software is installed, the driver installation for the first time connection between the computer and the programmer module becomes very simple. You only need to wait until new hardware wizard finishes the installation. The following interfaces will appear on the screen one after another:





The actual interfaces may be somewhat different from the above ones. Anyway the user should wait until the installation finishes. Please don't run any other programs during the installation

2.1.5 Running the application software for the programmer

The application software for the programmer has a standard Windows UI, including pull down menus and buttons, etc. The user should have some knowledge about the MS Windows OS and be able to use the computer mouse well.

After the application software for the programmer is started, it will communicate with the programmer immediately and start the initialization. If the communication fails, please check according to the following steps:

- One programmer module. Check the connection between the programmer hardware and the computer, and turn on the power switch.
- Follow the correct installation steps. If the programmer hardware is connected to the computer before the programmer application software is installed, the computer will detect the new hardware and the following window will appear.



Please click the "Cancel" button lest the OS should install the driver with a compatible ID and cause some problems.

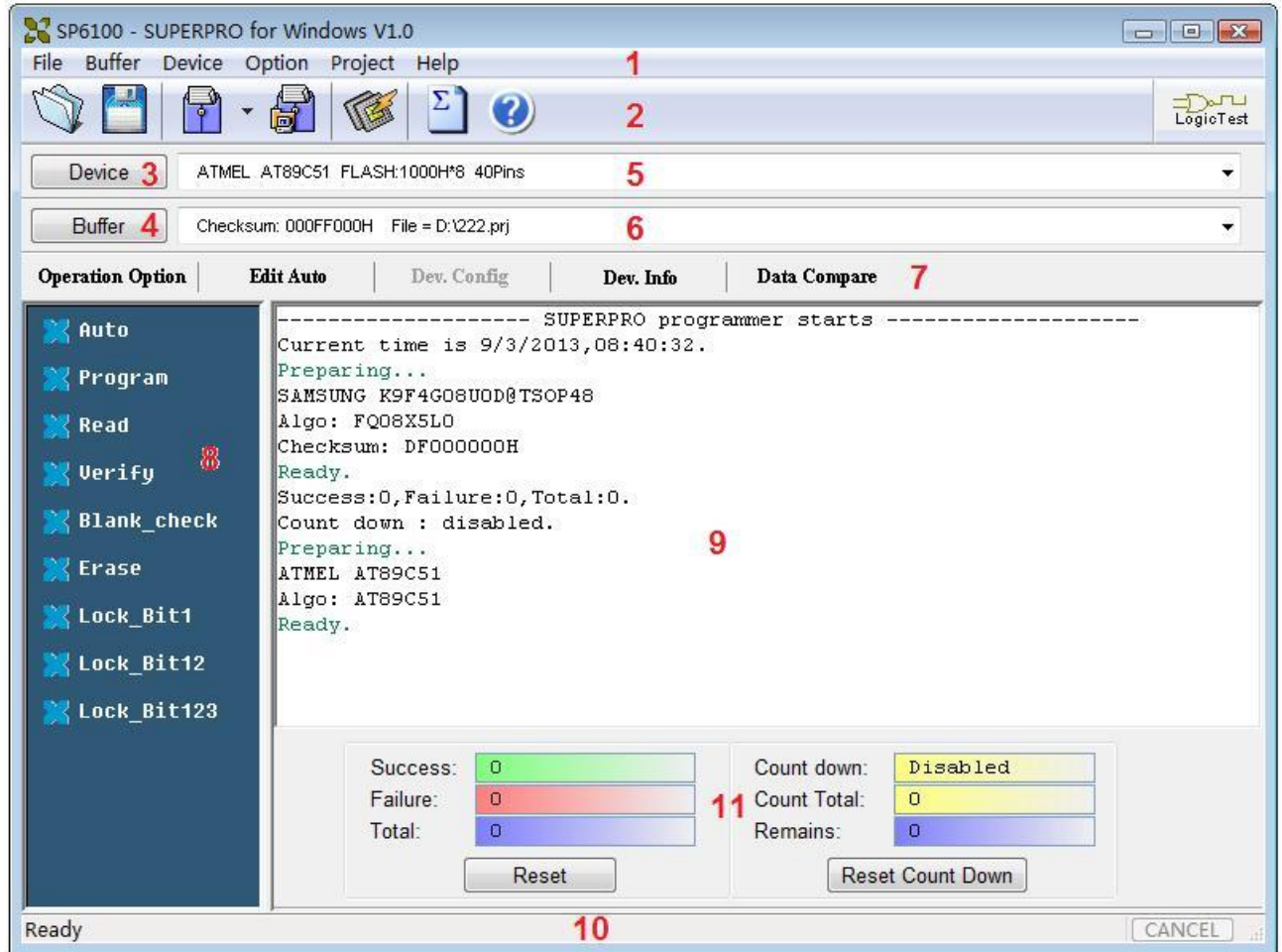
Chapter 3 Quick Guide

This chapter will help you understand the whole operation process of the chip programming. The content includes:

Before you start to program any devices, make sure that you have correctly install the programmer and the computer has succeeded in communicating with the programmer.

3.1 Description of the User Interfaces

The following interface will appear after the application software for the programmer is started.



- | | | |
|-----------------------------|---|------------------------|
| 1. Main Menu | 2. Toolbar | 3. Device Selection |
| 4. Data Buffer for Editing | 5. Device Messages | 6. File Message |
| 7. Operation Option Toolbar | 8. Function Items for Operations on Devices | |
| 9. Operation Message Window | 10. Progress Indicator | 11. Statistical Window |

Hotkey: SPACE = "Auto"

3.2 The steps of the programming

3.2.1 Hardware Preparation

Before using the programmer to program some device, please make sure the programmer is installed properly, and communication is established successfully between PC and programmer.

Some SMD devices need adapters. Please make sure that they are available for the devices. Insert the chip correctly (Device information for SMD and non-standard insertion will appear on the screen when the device is selected, if device information does not appear, check if chip insertion orientation follows the guideline of the standard chip insertion markings near the pin-driver socket).

3.2.2 Select the device

Click the "Device Selection" button or click the "Device" from the main menu and select the device. The "Device Selection" window will appear. First select the Device Type (such as E/EPROM, BPROM, SRAM, PLD, or MCU), then select the Manufacturer and Device Name in the window. Click OK button or double-click the device to confirm your selection. You can also enter the device part name in the "Search" box so that the selection is narrowed and can be done quickly.

3.2.3 Load data into Buffer

The process of programming a chip is the process in which the buffer data are written into the storage units of the chip according to the requirements of the manufacturer. Data can be loaded into the buffer in the following two ways:

1) By reading data from a file

You may load a file into the buffer by clicking "File" in the main menu and selecting 'Load File'. The dialog box for loading a file appears after the 'Load File' is selected. In the dialog box, select the folder and file name you wish to load. Then select the appropriate file type in the 'File Type' dialog box appearing subsequently. After confirmation, the selected data will be loaded into the memory buffer. Please go to the Buffer edit window and check if the data is loaded correctly.

Note: Some Hex or S record files contain non-zero file start address. In this case, the start address should be entered in the File Address box.

2) Reading data from master chip:

Insert the master chip in the socket and make the selection of the device to read from. In the screen of "Function items for operations on the devices", click Read to copy the data from the master chip into the memory buffer. At this point, you may go to the memory buffer edit screen and check if the data is loaded correctly. The data may be saved to a disk for later use.

Note: Some devices have no read function or are encrypted, under this condition data cannot be read from.

3.2.4 Set Options

1) Operation Option, including:

- Insertion Test option. Checking the pin contact before programming.
- Device ID Check option. Checking the device's ID before programming.

- Beeper option. Checking whether the beeper sounds on or off when the operation succeeds or fails.
- Auto Increment Function option. If it is enabled, the label number increases automatically while programming and it is written to a designated place so that each chip has a different label number.
- Address Change option. Changing the start address and end address of programming zone of the device.
- Verification Mode option. Selecting a specific VCC voltage according to the device requirements in order to ensure that the chip is programmed correctly.

2) Edit Auto. In the window of “Function Items for Operations on the devices”, each device has a basic batch-processing Auto operation, which automatically executes all the other operations of the device one after another in a preset order. Normally the following auto chip programming methods are selected:

- Erase
- Blank_check
- Program
- Verify
- Security or Protect

3) Dev.Config. For the chip that has the configuration word, the configuration word must be properly set before programming to ensure that the chip can be used on the target system. The configuration words for some devices are contained in the data file. The configuration words are automatically loaded into the configuration word buffer when the data file is loaded. For some devices, the selection must be made manually.

4) Dev. Information. After a device is selected, the dialog box of the device pops up and the vital information about the device is displayed in the box. Some devices must meet some special requirements while programming or there are some special conventions about the device algorithms. Therefore, the users must adjust operation steps or buffer data after carefully reading the text in the Dev. Information box. When an adapter is needed for programming the device, the adapter information will also be shown.

5) Production Mode. In order to program chips under production mode, the programmer always conducts the chip insertion test. Once the chip is inserted correctly, the auto batch-processing command is automatically started and the users do not need to use keyboard and mouse repeatedly.

3.2.5 Programming, writing the Data in Memory Buffer into a Chip

If the chip package is not DIP encapsulation, user may need to buy the adapter according to the device information and insert the chip properly into the socket.. (Contact Xeltek for selection and purchase of the adapters.)

The operation steps for programming a chip are as follows:

- Blank Check. This step can be skipped if the chip is brand new.
- Program.
- Verify. This step is necessary. The programming cannot be implemented

unless the chip passes the Verification. Some chips do not provide the unit-to-unit check function, but only provide the accumulation check function, such as Verify CRC, etc. Some chips even do not provide the accumulation check function.

- For the electrically erasable chips containing some information, the blank check will fail. In this case, the Erase operation should be performed first before the blank check. For some EPROM chips, the data can be overwritten. So no Erase operation needed.
- If encryption is required, add Security or Protect function after Verify.

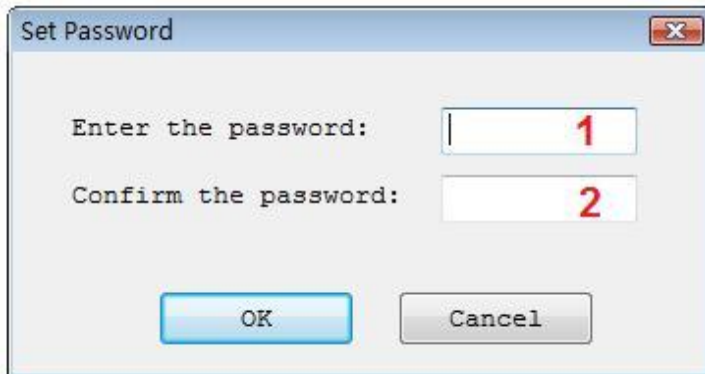
Note: For some devices, the configuration word should be set before the encryption is carried out. Refer to the detailed explanations on the function.

User can choose Auto to finish all the operations in one step.

3.2.6 Security and Password Input

To prevent the user's data from being used by others, sometimes the programmer asks the user to input the password in the operation process.

- Set the password: Input a new password.



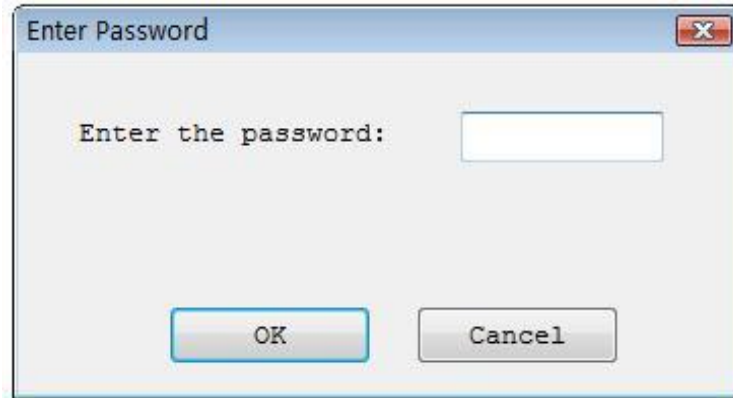
1. Enter the new password

2. Enter the password for confirmation

If the input password in 1 is the same and the same as in 2, the password is valid. If there is no input in 1 and 2, it means that no password is needed here.

Note: Spaces are characters and they can be used in the password.

- Verify the password: When the data protected with some password are operated on, the password needs to be input.



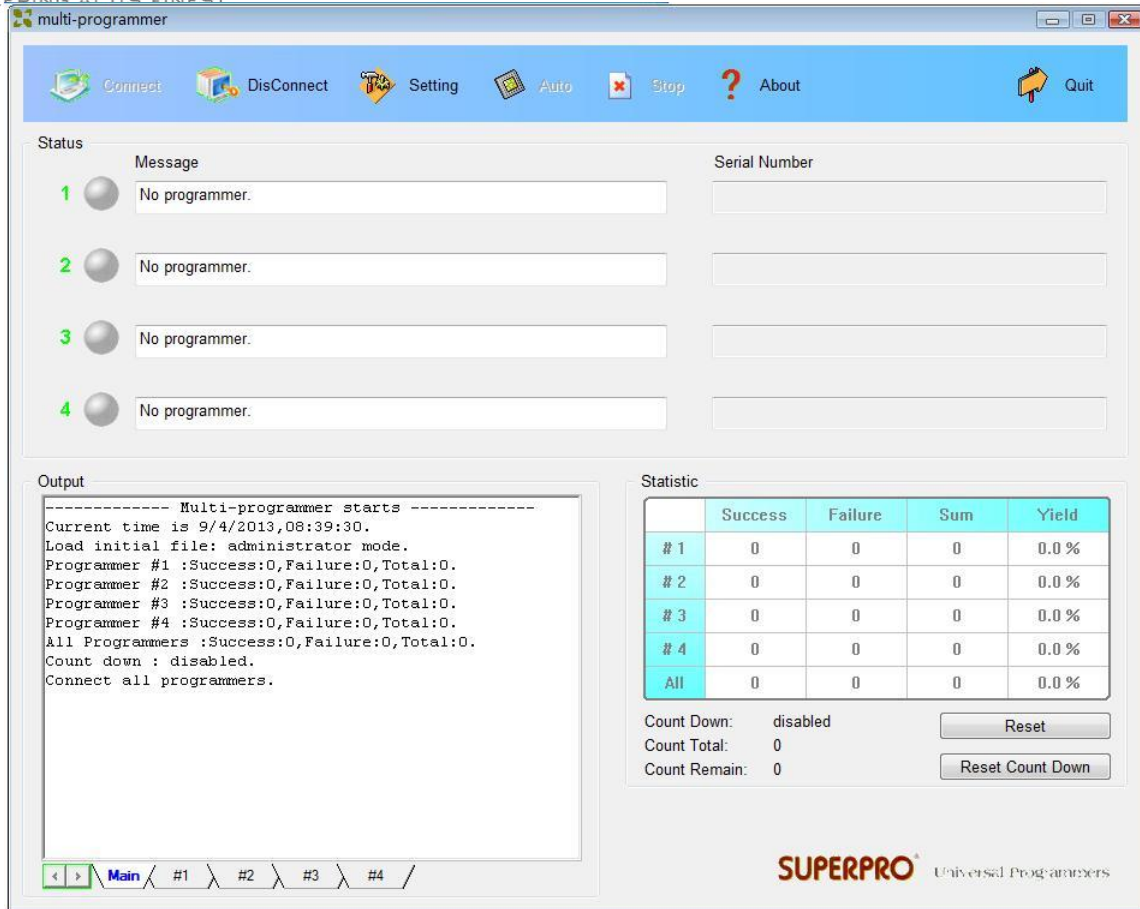
The description above is necessary for programming a chip. If it is the first time for you use the programmer, please refer to “Detail Explanations on the Functions” in Chapter 4 for more detailed information.

3.3 Multi-programming

This function is only provided by SUPERPRO 6100, SUPERPRO611S. SUPERPRO /610P doesn't support this function (Take SP6100 for example).

SP6100 can be connected to hub, You can connect four SP6100s or one SP6104 by hub.

Find muti_p.exe at the folder “bin” in the directory where your SP6100's software is installed. Run it then following interface shows up.



“muti_p.exe” can manage four modules (4 SP6100s or 1 SP6104) integratively. The main screen is a management interface that controls the hardware of the programmer by sending commands to the SP6100 software. After the main interface, the process of communicating with the SP6100 software starts automatically.

If the system does not find the programmer or something is wrong with a module, select Disconnect to cancel the connection. Then check the connection between the hardware and computer. Select Connect to reconnect.

“muti_p.exe” has administrator mode and producer mode. In administrator mode, users can set projects and save them, then entering producer mode, users can load these project. In producer mode, users can load different project for different module or load the same project for all the modules. It’s very convenient and flexible.

NOTE: the hub used to connect SP6100s should be specified by XELTEK.

Chapter 4 Detailed Explanations on the Functions

Hotkey: SPACE = “Auto”

This chapter gives detail explanations of the programmer software functions.

- Menu and Toolbar.
- Select the device and device info box.
- Edit in the buffer and file info box.
- Window of function items for operations on devices.
- Operation info window.
- Status bar.
- Statistics window.

4.1 Menu and ToolBar

4.1.1 File

4.1.1.1 Load

There may be one or more data buffers in the device. If more than one data buffer are displayed after the device is selected, the buffers should be understood according to their names and the device data manual.

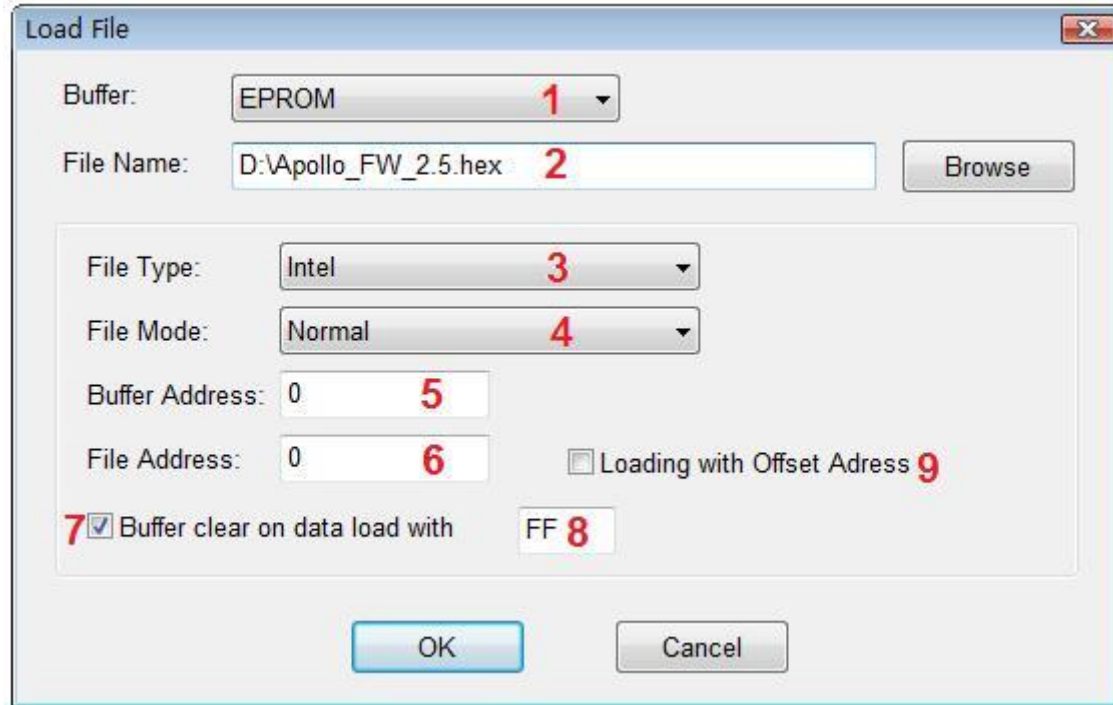
The two data types of the device are Data (HEX/ASCII) and Fuse.

For most EPROM and SCM, the data type is Data (HEX/ASCII). For PLD device, the data type is Fuse. After device is selected, the software will identify the data buffer type automatically. You can open the buffer edit dialog box to see all the buffer data types.

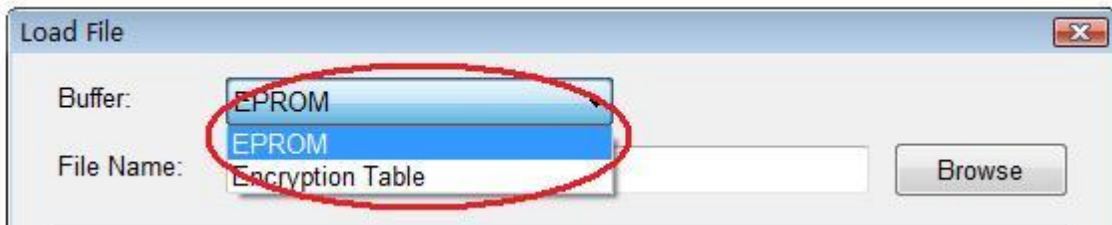
When some file data are loaded into the data buffer, the following rules apply:

- HEX/ASCII data buffer (EPROM, MCU etc.). 8 bits of the data are valid.
- JEDEC buffer (PLD/PAL). The lowest bit (1 bit) of the file data is valid.

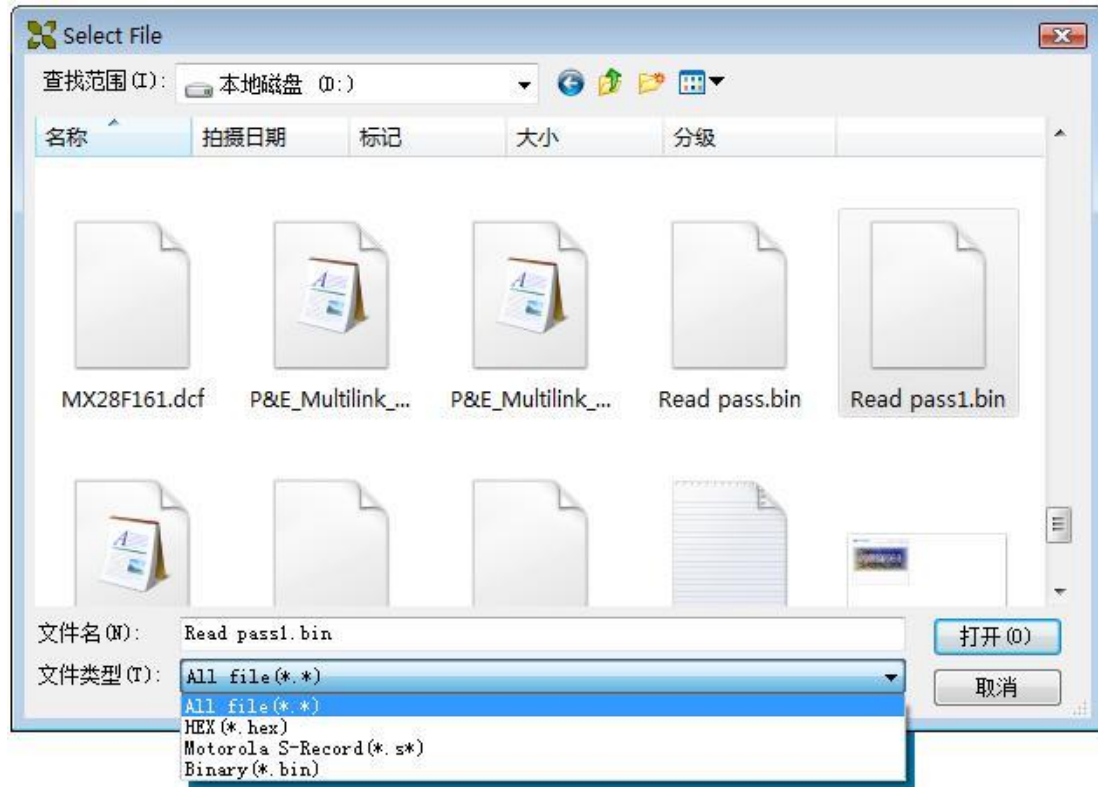
The operations are shown below. After the “Load File” in the menu is selected, the Load File box pops up.



1. Data buffer names. When the default is used, it is considered to be the programming zone of the device described in the data manual. If there are several buffers, the corresponding programming zones are determined according to their names and the data manual. The file data are loaded into the data buffers according to the data buffer names.



2. To select a data file to be loaded, the path and the file name should be entered into the name field. You can directly input the file name or click the “Browse” button to select the file in the Select File box.



When the data type is Data (HEX/ASCII data), the files can be further divided into many different types according to their storage forms. Therefore, it can be ensured to load the data correctly after the corresponding file type is selected.

If the data type is Fuse, the data file type is JEDEC and the file extension is “jed”. There is no need to select the data file type for JEDEC file. Altera Corporation uses the file of POF format. If the users need to program the chip made by Altera Corporation, please refer to “Detail Explanations on Common Problems”.

3. File types. They include the binary, Intel Hex (or extended), Motorola S record, Tektronix Hex, etc.

4. File Loading Mode. It can be divided into the following classifications (the unit is byte):

<Normal> : load the whole file.

<Even> : load the first byte of every two bytes and discard the second byte.

<Odd> : load the second byte of every two bytes and discard the first byte.

<1st byte of 4> : load the first byte of every four bytes and discard the other three bytes.

<2nd byte of 4> : load the second byte of every four bytes and discard the other three bytes.

<3rd byte of 4> : load the third byte of every four bytes and discard the other three bytes.

<4th byte of 4> : load the fourth byte of every four bytes and discard the other three bytes.

<1st_2_byte of 4>: load the first two bytes of every four bytes and discard the other two bytes.

<2nd 2_byte of 4>: load the last two bytes of every four bytes and discard the other two bytes.

5. Start Address of the Data Buffer. The data are loaded into the buffer from this buffer address.

6. File Offset Address. For files whose start addresses are non-0 start addresses (data offset addresses), their start addresses may need to be input when the files need to be loaded. Input the correct addresses in the edit boxes. The incorrect file offset address causes the head part of the buffer to be filled with FF (or incorrect data). The incorrect and large offset address causes the data to overflow or the system to fail. In order to avoid any unwanted events, the software will automatically detect the minimum offset address and display it in the information box.

7. Fill the data buffers with the specified data before the data are loaded.

8. Fill out the data input box.

9.If “File Offset Address” is not 0, load the file from non-0 start addresses (data offset addresses).

4.1.1.2 Save

Save the data in the current buffer to disk.

The screenshot shows a 'Save File' dialog box with the following fields and values:

- Buffer: FLASH (indicated by a red '1')
- File Name: (empty text box, indicated by a red '2')
- File Type: Binary (indicated by a red '3')
- Buffer Address: 0 (indicated by a red '4')
- Save Data Size: 1000 (indicated by a red '5')

1. Data Buffer Name.

2. File Name for saving the Data.

3. File Type.

4. Start Address of Data Buffer. The data in the buffer is saved from this address.

5. Data Size to Be Saved. Save the data of the corresponding amount (the unit is byte).

4.1.1.3 Recent Projects

The full file names (including the full path) of the recent projects have been saved in the sub-menu of the main menu, it is convenient for the user to re-open the projects.

Refer to the “Project” menu for the definition of the project.

4.1.1.4 Exit

This command closes the programmer software and returns you to the control of the operating system.

4.1.2 Buffer

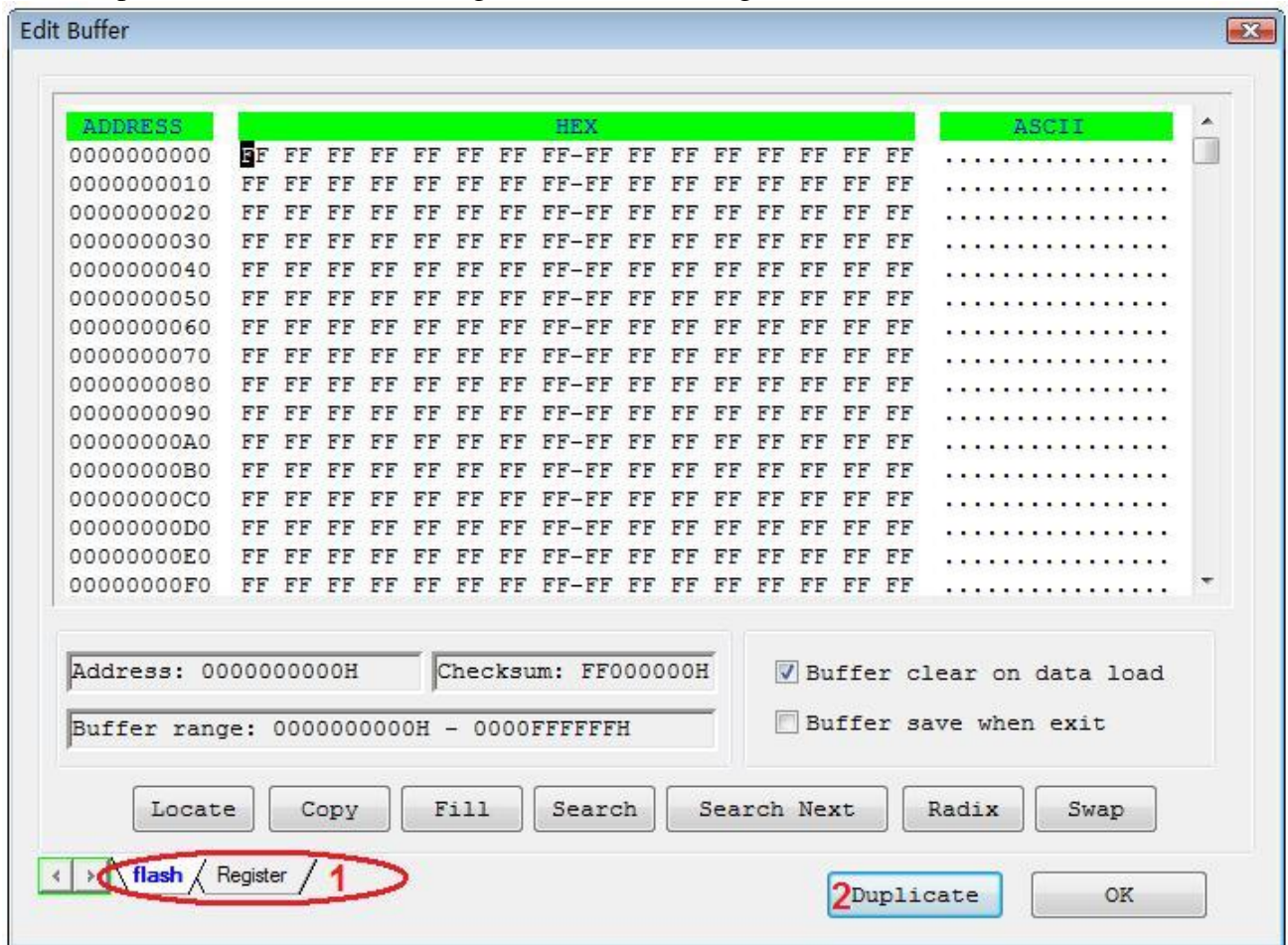
The menu manages data in the buffer.

4.1.2.1 Edit

The selection brings up Fuse Buffer Edit window if the device buffer type is Fuse; otherwise, brings up Data Buffer (HEX/ASCII) Edit window. You may edit the buffer data on the screen with the following keys:

- <PageUp> Page up
- <PageDown> Page down
- <Home> Move cursor to the beginning of the line
- <End> Move cursor to the end of the line

An example with two data buffers is given in the following:



Note: Several data buffers can be opened at the same time by using the toolbar.

1. Can switch from one data buffer to another. The current data buffer name is shown in the highlighted area.