Dediprog SF Software
User Manual
SF100, SF200, SF300

V4.5
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I. Introduction

This user manual illustrates the usage of Dediprog SF Software. The device connected when using this software can be SF100, SF200, SF300 and Backup Boot Flash kit. To get more information on our DediProg products and how to use them, please refer to our products specification, presentation and Application notes in our web site: **www.DediProg.com**

II. Dediprog SF Software GUI User Guide

Dediprog SF software is used together with SF100, SF200, SF300, or Backup Boot Flash Kit. The software can be used to program serial flash memory as well as the downloading configuration contents to the reference SPI Flash embedded in SF300 for standalone programming purpose. After the software and USB driver are installed, please follow the following steps before running the software.

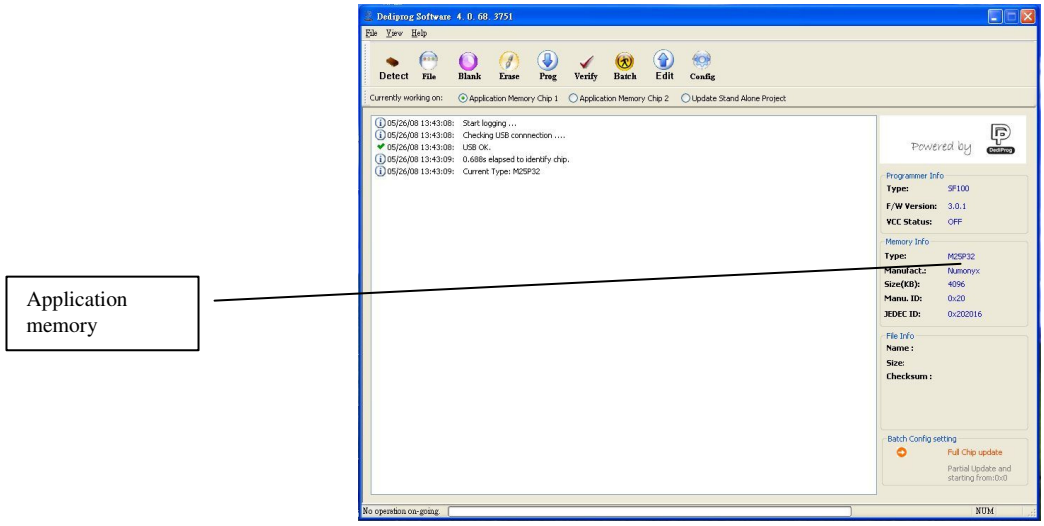
A. Prepare the environment

1. Connect the programmer to the PC through a USB cable.
2. - For SF100 and SF300 connect the ICP cable to the application(please check SF100 specification in case ISP header pin out are not known).
   - For SF200 and SF300 put the appropriate socket adaptor on the DIP socket located on the top of the programmer and insert a serial flash in the socket.
3. Double click on the Dediprog software icon on your desktop.

B.Identify the target SPI Flash

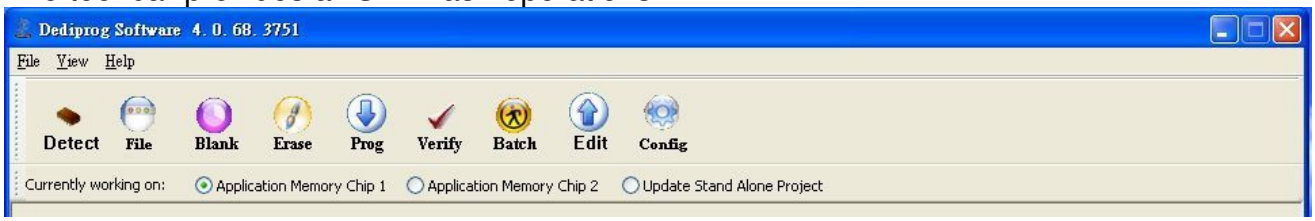
SPI Flash Detection

Double Click on the Dediprog software icon on your PC desktop. The detected Serial Flash information as well as the programmer information will be displayed on the right side of the window.
- The “chip1” button on the top left corner of the window is marked by default.
- If the user wants to work on the second target SPI Flash soldered on the application board, he/she has to select Chip2(note: the board has to be designed with proper schematic and the pin out have to match with Deidprog ISP pin outs).
- If the user wants to define a project to configure the SF300 in Stand Alone mode, he/she has to click the “Update the Stand Alone Project”

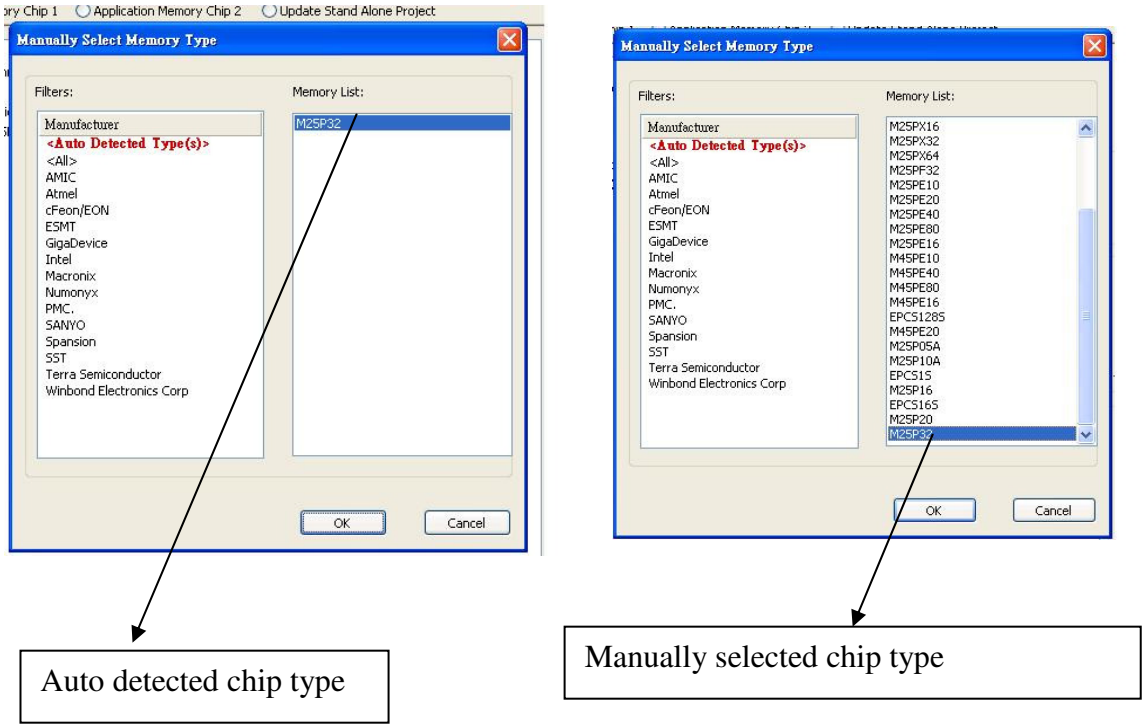


C. Tool Bar Description

The tool bar provides all SPI Flash operations.



Detect
Detect Chip: when a new SPI Flash is placed, user has to click on this button to identify it and perform operations. The auto detected chip types will be displayed on the right side of the screen. In case user would like to manually select a chip type, he/she can move the mouse over the chip manufacturer on the left screen and then click on the chip type on the right screen.



File

Select image: load the file you intend to program. The loaded file size can not be larger the application SPI Flash size.

Blank

Blank check: check the target serial flash is Blank (All Erased)

Erase

Erase SPI Flash: Erase the full content in a Serial Flash. After “Erase” the target serial flash shall be blank.

Prog

Program: Program the selected image into the Serial Flash

Verify

Verify the checksum value of the selected image and the programmed Serial Flash content

Batch

Batch operation: The programmer will perform a pre-configured set of operations such as (reload file + erase + program + verify) all together in one click. The configuration can be set

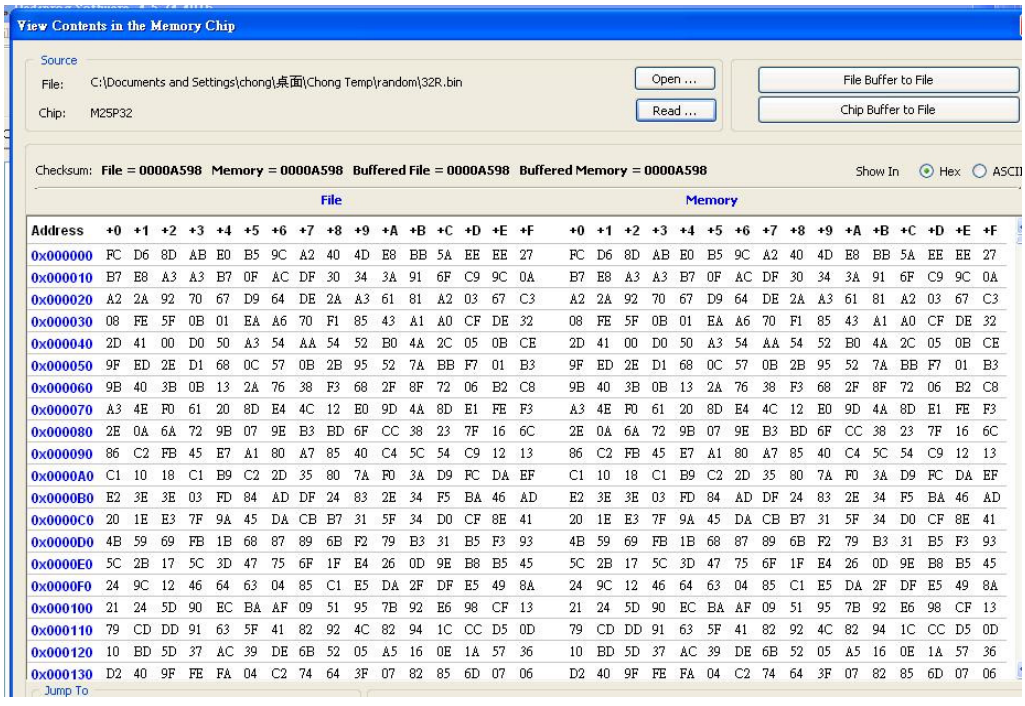
by clicking on the “Config” button. The configuration will not be changed until it is re-configured.

Edit
When click on Edit, the programmer will by default display the selected file content. User can click on “read” to read and display the chip contents. See “Edit window description” for more details.

Config
This allows users to configure advanced settings.
See “advanced settings window description” for more details

D. Edit window description

SPI Flash content display:
In the edit window, file contents and chip contents can be displayed in the same time so that user can make the comparison. By default the selected file contents are displayed once the user enter into the edit window. The user can click on “open” if another file contents are to be shown. The user can click on “read” in order to read the chip contents are display them on the edit window as well. Checksum of file contents and chip contents are displayed.



The difference between file contents and chip contents are highlighted with the red fonts. User can click on the “next difference” button to search for the next different content between chip and file contents.

Chip buffer to File
This will save the chip contents into a user named binary file.

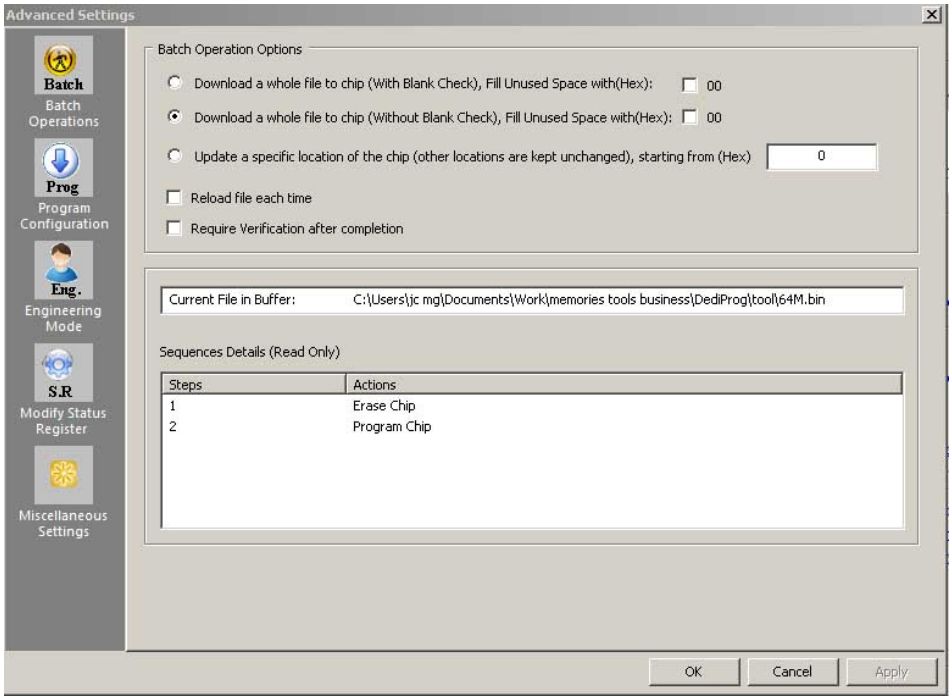
File buffer to file
File buffer can be modified in real time. This button will save the file buffer contents into a user named binary file.

E. Configuration window description

This feature allows users to configure advanced settings.

1. Batch Operation option

User can define the batch operations to be performed.



1. Download a whole file to SPI Flash (without blank check): this will perform blank check, chip erase, program steps.
2. Download a whole file to chip(without blank check): this will perform chip erase and program steps
3. Update a specific location of the chip: this will allow user to only update the chip partially and start from the user defined address

Reload file each time: if the box is checked, the software will load the same file from the source destination each time before the batch operations (refresh). This option is helpful when another software can update the file in parallel.

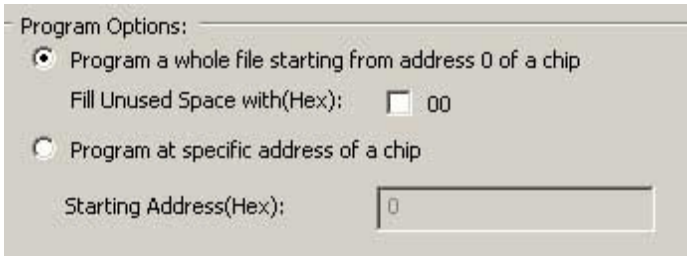
Require Verification after completion: if this box is checked, the software will verify the contents between the source file and the programmed Serial Flash contents after the batch operations.

2. Program Configurations

1. program a whole file starting from address 0 of a chip
2. program at specific address of a chip

If the file is smaller than the target Serial Flash, user can define how to fill the rest of the SPI Flash.
By default FFh or 00h if selected in the interface.

Remark: This configuration applies only to the program button on the tool bar. It does not affect the batch operation.



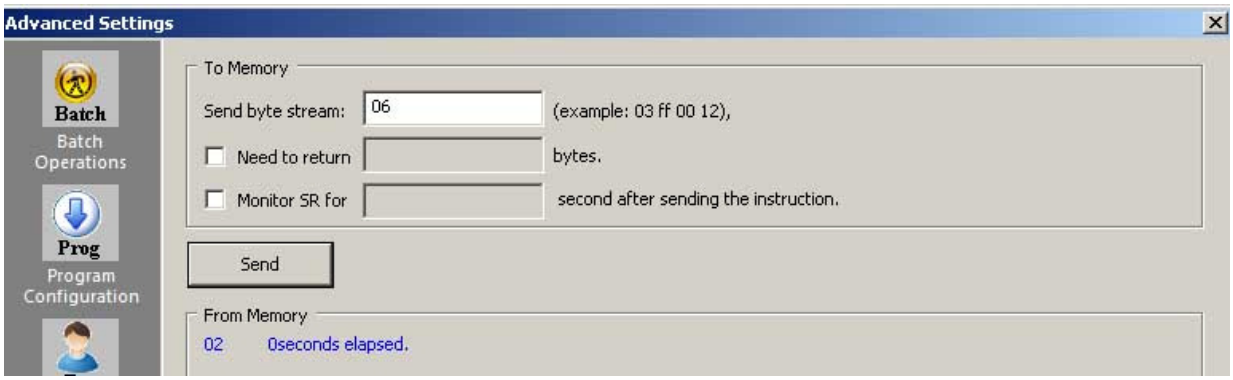
3. Engineering Mode

This function allows users to define their own SPI command and send it directly to the target SPI flash. This option is powerful as all the non standard SPI commands can be generated even if not supported by our programmer.

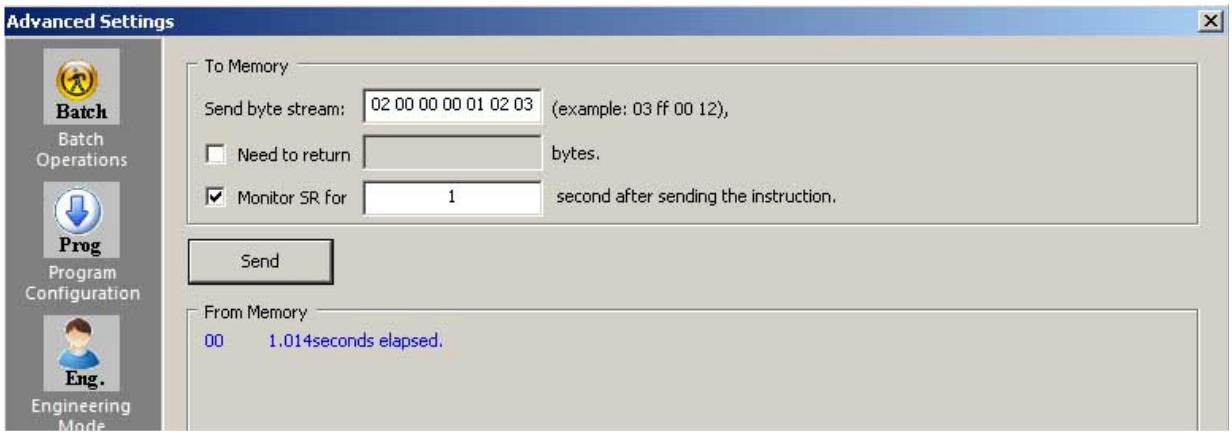
User can define the data bytes to be sent from the programmer to the SPI Flash and the number of bytes to be returned. He can also define if the status register WIP bit has to be polled to check if the SPI Flash is busy or ready.

For example:
User wants to write “01 02 03” data bytes at the address “00 00 00” and verify.

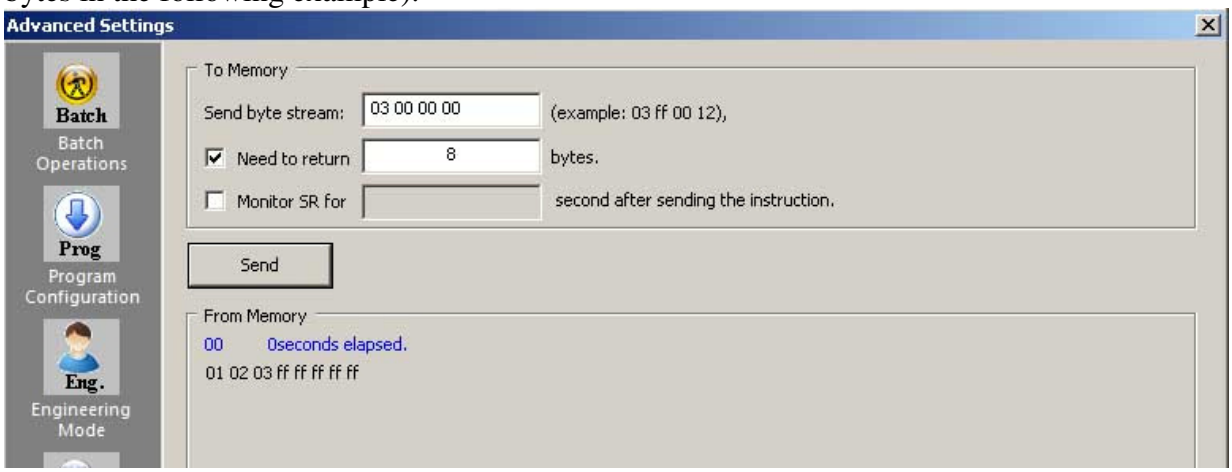
First: programmer needs to set the WEL bit by sending the WREN (06h) command to the SPI Flash as described below:



Secondly: programmer needs to send the programming instruction "02h" followed by the address "00 00 00" and the data "01 02 03" and monitor the Status register WIP bit as described below:



Third: The programmer need to verify the SPI Flash content by sending the Read instruction "03h" and the address "00 00 00" then read the return bytes from the SPI Flash (we read 8 bytes in the following example):



The return bytes from the SPI Flash are displayed in the "from SPI Flash" window: "01 02 03 FF FF FF FF FF".

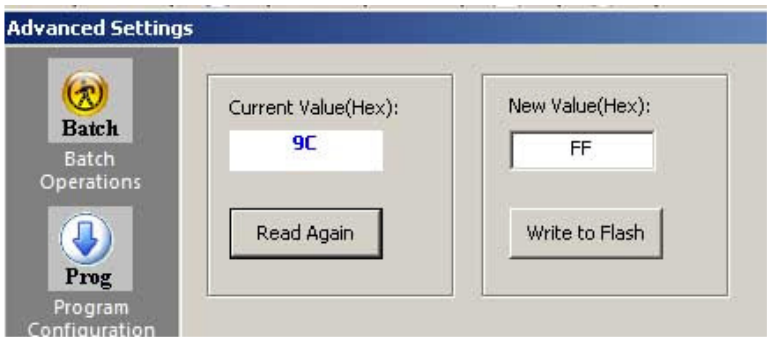
The engineering mode can be used to send any instruction to the SPI Flash.

4. Modify Status Register

This function allows users to modify or read the status register value of the target serial flash.

The instructions used are:

- For write: “06h” to set the Write Enable and “01h” and user data” to write the status register
- For Read: “05h” to read the status register



5. Miscellaneous settings

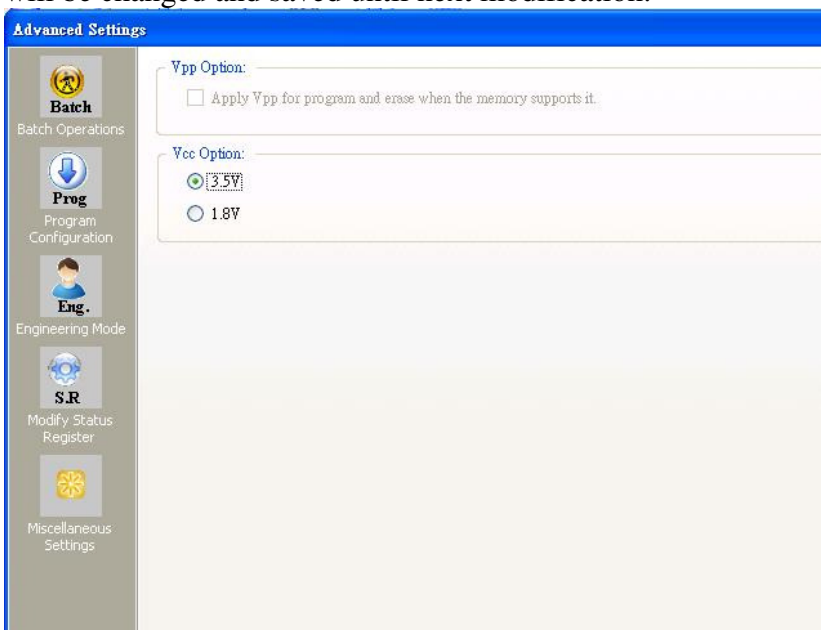
Vpp Option

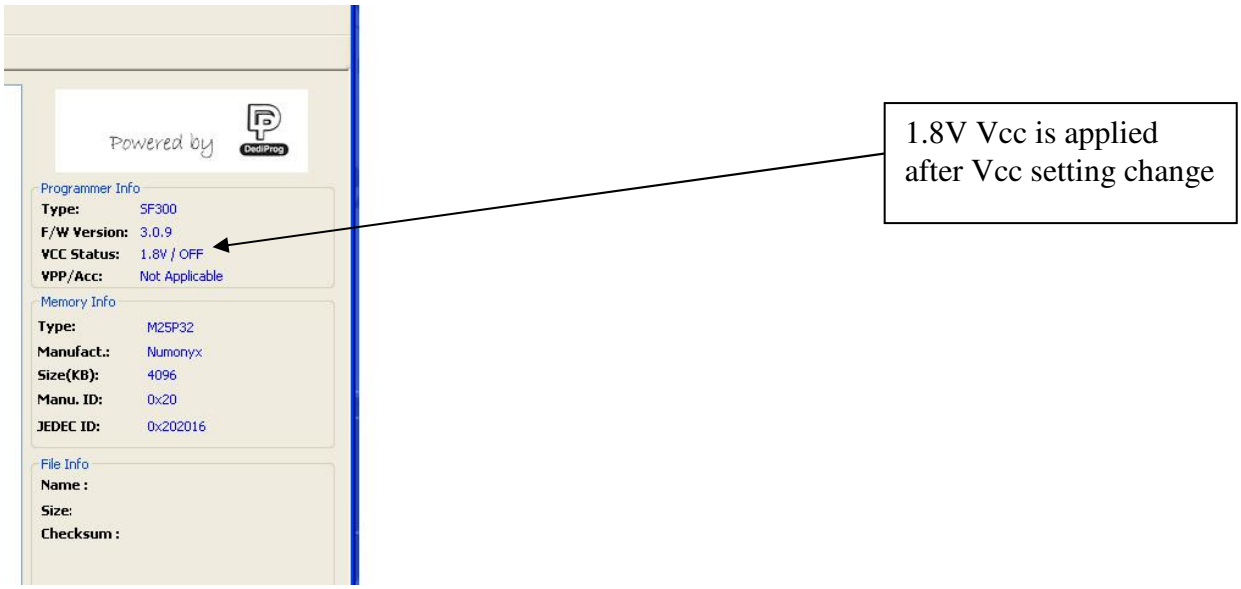
This setting allows user to enable the Vpp option so the High voltage is applied on the SPI Flash Wp pin to reduce the programming and erasing time.

This option can only be enabled on Serial Flash supporting the Vpp feature.

Vcc Option

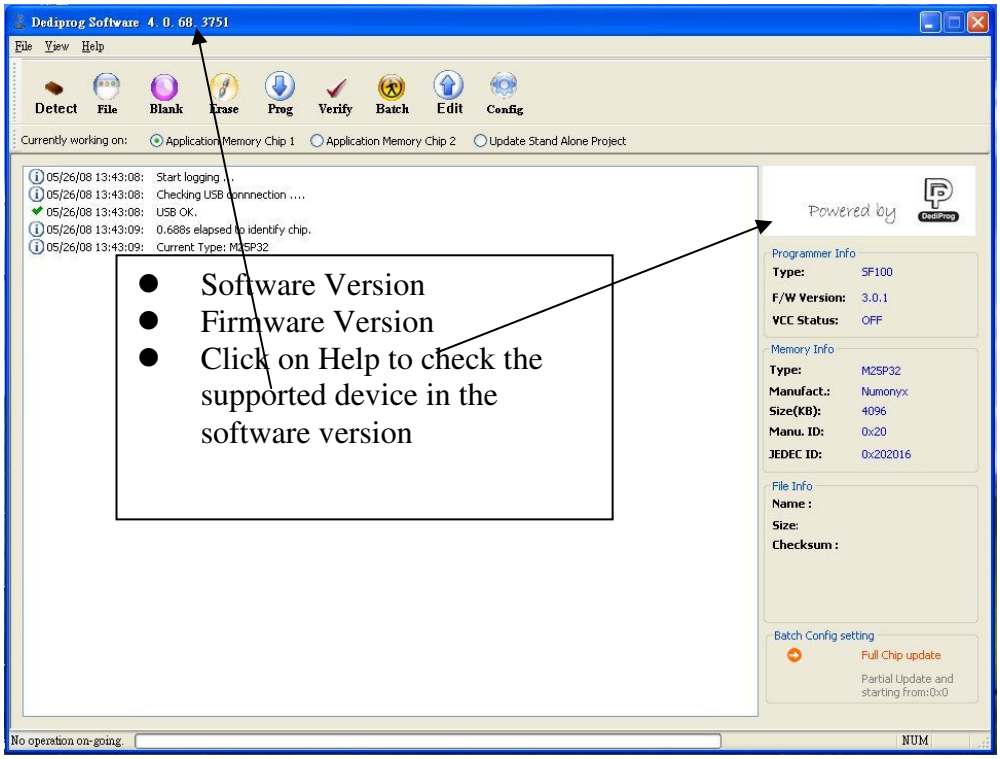
SF100/SF200/SF300 supports 3.5V, 2.5V, and 1.8V Vcc. Default of 3.5V Vcc is applied after the software installation. User is able to change the Vcc configuration here and the Vcc setting will be changed and saved until next modification.





F. Supported devices, Software version, Firmware version

User can check the Serial flash support list in our web site. This support list is valid for the last software and firmware so user will have to check the current software and firmware version he is using and update it if necessary.

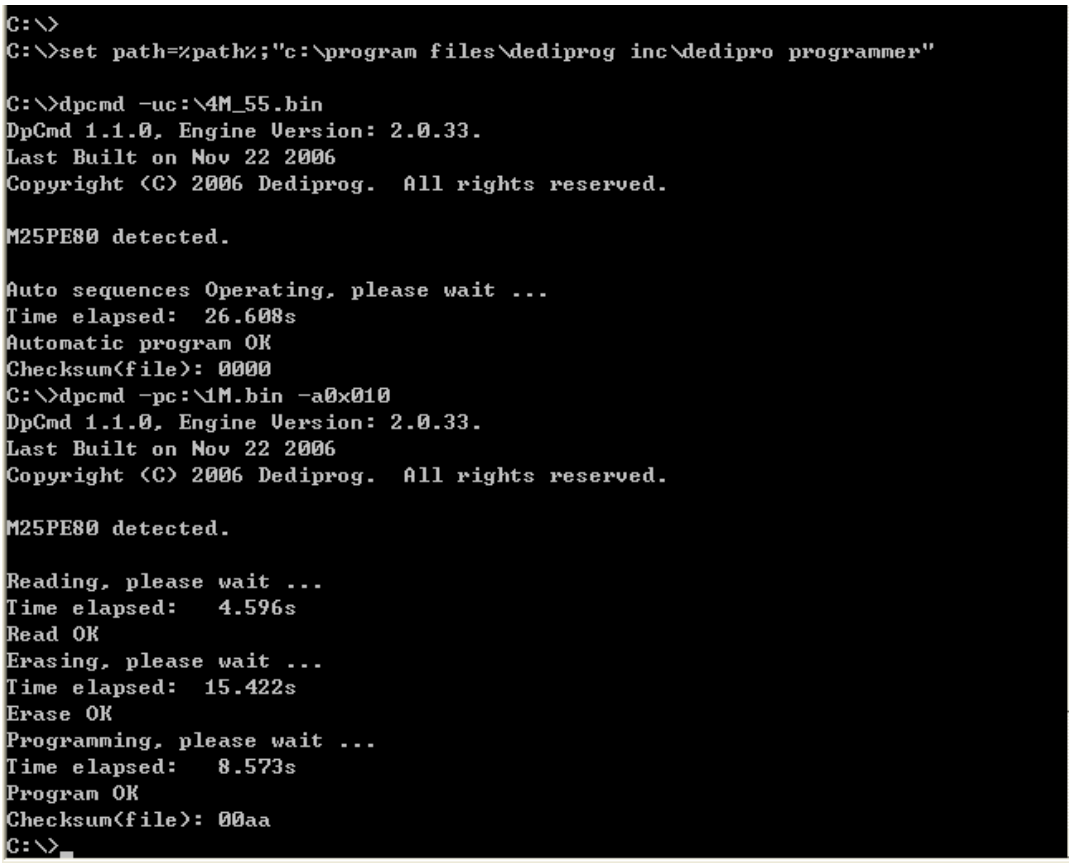


III. Dediprog Window DOS Command Line

A. Introduction

The window command line has been designed to control our programmer from another software. This feature will be convenient to synchronize the two software in development or Control Serial Flash programming in production line via the testing software (ICT test).
To get more information about these methods please contact DediProg.

Window DOS command



B. How to Start

Dediprog window dos command line software is executed by the file “dpcmd.exe.” There are three different ways to run the dos command line.

1. Double click on the “dpcmd” icon on your desktop and type in dpcmd and enter.
2. Change your dos directory to the same location where “dpcmd.exe” is located. C:\program files\dediprog inc\dedipro programmer
3. Type in the following command to auto direct the dpcmd command to the “dpcmd.exe” location.
   Set path=%path%;”c:\program files\dediprog inc\dedipro programmer”

C. Basic Usages:

1. dpcmd -r"f:\file.bin",
   reads the chip and save it into a file "file.bin"
2. dpcmd -rSTDOUT -a0x100 -l0x23,
   reads 0x23 bytes starting from 0x100 and display it on the screen
3. dpcmd -ufile.bin,
   erases and then program file.bin into the serial flash
4. dpcmd -pfile.bin -a0x100,
   writes file.bin into the serial flash starting from address 0x100
5. dpcmd -pfile.bin -x0xaa,
   programs file.bin into the serial flash and fill the rest area with 0xaa

Remarks: -a, -l only works with -p, -r, -s
Remarks: -x only works with -p
Remarks: space is not needed between the switches parameters. E.g. dpcmd -ubio.bin

D. Basic Switches:

-? [--help] show the help message with examples
-d [--detect] detect chip
-b [--blank] blank check
-e [--erase] erase entire chip
-r [--read] arg read chip contents and save to a bin/hex/s19 or STDOUT to the console.
-p [--prog] arg program chip without erase
-u [--auto] arg automatically run the following sequence:
- check if the chip is blank or not);
- erase the entire chip(if not blank);
- program a whole file starting from address 0
-s [--sum] display chip content checksum
-f [--fsum] arg display the file checksum(needs to work with a file)
--list print the supported chip list

E. Optional Switches

(specify the following switches to change default values):

-i [--silent] suppress the display of real-time timer counting, – used when integrating with 3rd-party tool(e.g. IDE)

-v[--verify] arg verify the checksum of the file and the target chip

-x[--fill] arg fill the rest of the chip with an hex value, - works with --prog only

-a[--addr] arg starting address(e.g. 0x1000), - works with --prog, --read and --sum only - defaults to 0, if omitted.

-l [--length] arg length to read/program in bytes,

- works with --prog, --read and --sum only
- defaults to whole file if omitted

-t [--timeout] arg (=300)	Timeout value in seconds
-g [--target] arg (=1)	Target Options Available values: 1. chip 1(Default) 2. chip 2 0. flash card
--vcc arg	specify vcc 0, 3.5v(default) 1, 1.8v
--vpp	apply vpp/acc when the memory chip supports it - work with –prog and --erase
--type arg	specify a chip type to override chip auto detection - use –list argument to look up the supported chip types
--log	write operation result into file “%appdata%dediprog/log.txt”

IV. Standalone mode (SF300)

In addition to the functions provided by SF100 and SF200, SF300 further allow users to program serial flash memories in the standalone mode. SF300 embeds a 128Mb memory which allows users to pre-download the reference contents and configurations before performing the programming in standalone mode.

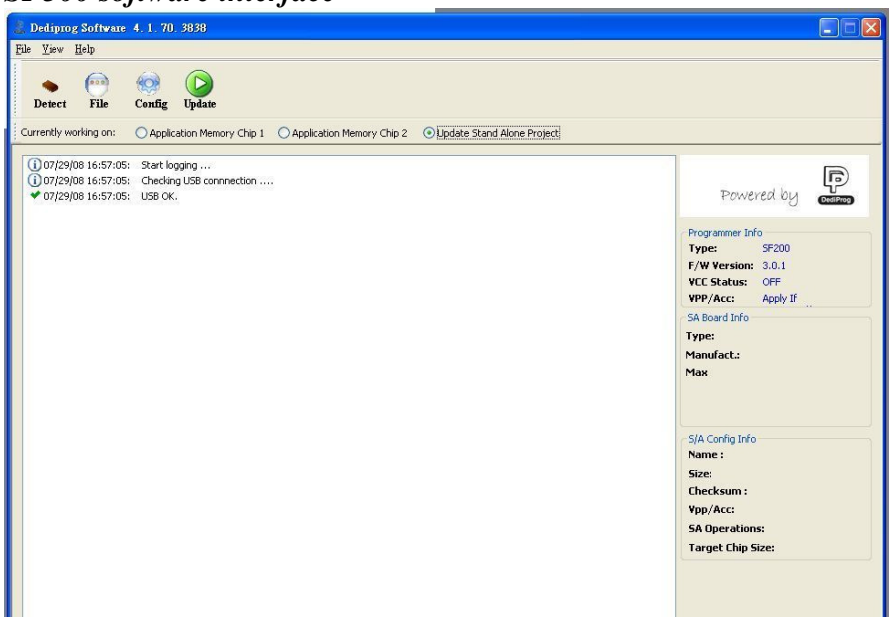
Standalone mode procedures:
1. Project preparation
2. Mode switch
3. Standalone programming

A. Project Preparation

In order to perform standalone programming, the contents and the programming operation procedures have to be pre-downloaded to the SF300 through the USB with the software provided by Dediprog. SF300 has embedded a 128Mb SPI Flash and therefore it is capable of supporting standalone programming for all serial flash equal and under 128Mb.

Prepare a standalone programming project
1. connect the SF300 to a PC with SF software installed and make sure the programmer is switched to USB mode
2. open the SF software and click on the “update standalone project” tab

SF300 software interface



3. Load the file
4. click on “Config” to select the target chip type and the standalone operation procedures
   - Erase + Program + Verify
   - Blank Check (Erase if no Blank) + Program + Verify
   - Program + Verify
5. click on “Update” to download the project information to the SF300

B. Stand Alone mode

SF300 provides 2 operation modes through a switch.

- **USB mode**: to control the programming via the computer tool
- **Stand Alone mode**: to work independently from computer

C. Standalone Programmer Operations

When the project is prepared in the SF300 internal Serial Flash and the mode is switched to SA mode, the user will see pass counter, fail counter and the target chip type on the LCD screen. The user can start the standalone programming by the following steps.

1. insert the target chip into the socket(or insert the ISP cable header to the target application header for standalone ISP)
2. press the start button
3. wait for the “PASS” LED ON and remove the chip from the socket

The LCD screen will display information on the programming on going: like pass/fail counter.

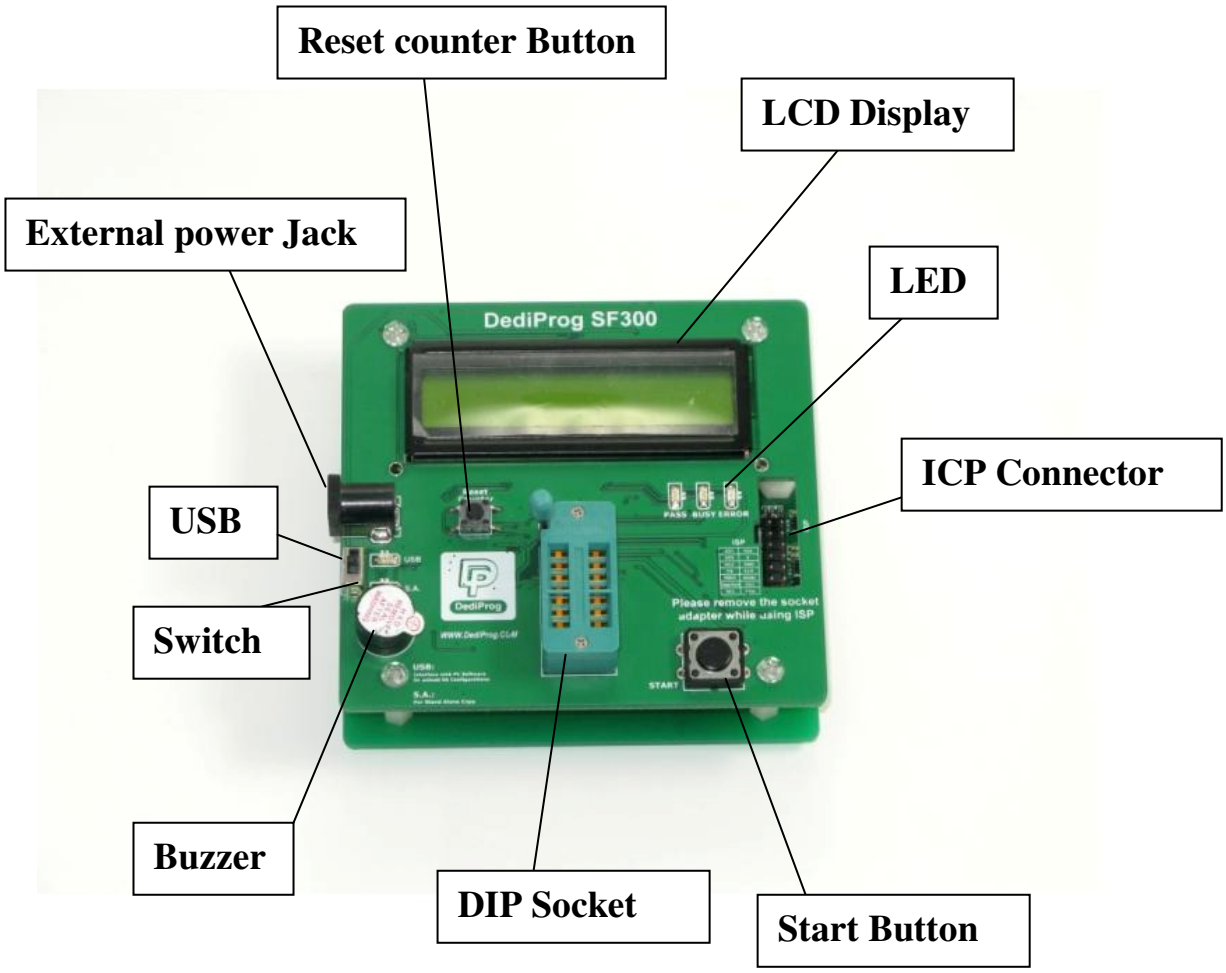
Error Handling

When there is programming error occurs, the Red LED will be on. The user can exit the error status by pressing the start button once and SF300 will increment the fail counter.

Reset counter

By pressing the reset button, SF300 will reset both the pass counter and fail counter to zero.

D. SF300 Hardware Description



1. LCD Display

LCD displays the standalone project related information such as the file checksum, chip type, pass counter, and fail counter.

2. Start button

By pressing the start button, the SF300 starts to execute the operation procedures defined in the project pre-downloaded to the SF300.

3. Power Jack

During standalone programming, SF300 is not required to connect to a PC as long as the power is provided. The power can be provided through the USB (5V) or the power adaptor (9V).

4. Reset counter button

The reset button is used to reset the counter information.

5. USB Connector

USB connector is used to communicate with the SF software during the USB mode or to provide the power during the standalone mode.

6. DIP Socket

DIP socket is used to connect to different socket adaptors provided by Dediprog in order to support all serial flash packages.

7. Buzzer

Buzzer is activated when an error chip is detected and removed.

8. LED Display

Red Led: error
Orange Led: operation on going
Green Led: pass

For more information please contact us or your motherboard suppliers.

We also recommend motherboard makers to enter in contact with our technical team to create a dedicated document that will take into consideration all your motherboard updating constraints and references. This documentation will then be very helpful to simplify the Bios update and avoid any mistake in the field.

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