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DediProg SF Software User Manual

Version 7.8



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Important notice:

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I. Introduction

This user manual illustrates the usage of DediProg SF Software. The software is able to work with SF100, SF600, SF600*Plus* and SF700 programmers and Backup Boot Flash kit at the same time (SF100/SF600/SF600*Plus* only). However, it is not recommended. Get more information about DediProg products and how to use them.

II. Software Installation Guide

Please refer to the products' specification, presentation, and application notes on our website: <u>www.dediprog.com</u>

2.1 Operating System Requirement

Windows Vista/7/8/8.1/10 Windows Server® 2008 Support both 32 bit and 64bit OS

2.2 USB Installation

- 2.2.1 Insert the installation CD or download the installation software from <u>www.dediprog.com/download</u>
- 2.2.2 Execute SFx.x.x.msi file and follow the setup instructions to finish installation.

The versions after Windows 8 please refer to the "USB driver Installation Guide (Win 8 / 8.1/10) ". For other older OS version, please refer to "dp_SF User Manual_6.9" user manual.



III. DediProg SF Software Engineering GUI

DediProg SF software is suited for SF100, SF600, SF600*Plus*, SF700, and Backup Boot Flash Kit. The software can only be used for programming serial flash memory as well as downloading the configuration contents to the reference SPI Flash embedded memory in SF600*Plus*/SF700 for standalone programming purpose. After the software and USB driver are installed, please follow the steps below before running the software.

Four software icons will appear on your desktop after installation.

Icon "DediProg Engineering" is the engineering GUI, "DediProg Production" is the production GUI, "DpCmd" is the command line interface and "DediProg Help" is the user manual.

3.1 Environment Preparation

3.1.1 Connect the programmer to the PC through an USB cable.

- For ICP programming, connect the ICP cable to the application (please check the specification in case ISP header pin out are not known).
- For socket and standalone programming, connect the appropriate socket adaptor to the programmer and insert a serial flash in the socket.
- 3.1.2 Double click the DediProg software icon on your desktop.





3.2 Identify the Target SPI Flash

SPI Flash Detection

Double Click 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.

DediProg software will automatically identify the SPI Flash on the application board or the socket. You do not need to select SPI Flash's location.

Note: If you want to work on the second target SPI Flash soldered on the application board, the application board has to be designed with proper schematic and the pin outs have to match with DediProg ISP pin outs.

🖳 DediProg Software SF7.1.1.0-Beta I		×
File View Help		
• Detect File Blank Erase Prog Verify Batch Edit Config Load Prj Save Prj Prog Prj	Powered by Controp	
Currently working on: Application Memory Chip 1 Application Memory Chip 2 Currently working region: Region 1 Region 2 Region 3 Region 5 		
(i) 2019-Mar-27 12:53:59: Welcome to DediProg SF7.1.1.0-Beta I (i) 2019-Mar-27 12:53:59: Start logging (i) 2019-Mar-27 12:53:59: Checking Windows version	OS Info Windows Version: Windows 10	î
✓ 2019-Mar-27 12:53:59: Windows version: Windows 10 (1) 2019-Mar-27 12:53:59: Checking USB connction ✓ 2019-Mar-27 12:54:00: USB OK. (1) 2019-Mar-27 12:54:00: Detecting Chip (1) 2019-Mar-27 12:54:06: Current Type: CD5F2GQ4RC (1) 2019-Mar-27 12:54:06: VCC 1.8V is applied.	Programmer Info Type: SF700 Firmware Version: 4.0.226 FPGA Version: 0x0720 Hardware Version: 4.1 VCC Status: 1.8V / OFF VPP/Acc: Not Applicable SPI Clock: 12 MHz IO Mode: Single IO	
Application memory	Memory Info Type: GD5F2GQ4RC Manufact: GigaDevice Size(KB): 278392 Manu. ID: 0xc8 JEDEC ID: 0xc8a248 Chip VCC: 1.8V Page size(B): 2176 Block Size(B) 139264	
No operation on-going.	File Info Name : Size: Checksum(File size) : Checksum(Chip size) : CRC32 Checksum(file CRC32 Checksum(chip size):	Ų



3.3 Tool Bar Description

The tool bar provides all SPI Flash operations.

Dedi File Vie	Prog Softv w Help	vare SF6.0.	5.19										_	×
Detect	(interview) File	O Blank	() Erase	Prog	Verify	® Batch	Edit	(config	Load Prj	Save Prj	Dowaloud Prj	Powered by		
	ly working o ly working r		Application Region 1		chip 1	Application		ip 2 OU Region 4	pdate Stand	Alone Proje egion 5	ect			

Detect

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

Manually Select Memory Type	×	Manually Select Memory Type	e		×
Filters: Manufacturer <auto detected="" type(s)=""> <all> ACE Adesto ALTERA AMIC Atmel AUTO Solution BergMicro Boya cFeon/EON Dosilicon DOUQI Technology ESMT Fidelix <</all></auto>	Memory List: 525FL064K W25Q40L W25Q64 W25Q648V W25Q648V W25Q647V Cancel	Filters: Manufacturer ISSI LRC Macronix Micron(Numonyx) Nantronics PARAGON PMC. SANYO SiliconBlue Spansion Terra Semiconductor Winbond Electronics Corp Zbit Semiconductor Winbond Electronics Corp Zbit Semiconductor	Manua	Memory List: W25Q40EW W25Q64 W25Q64BV W25Q64EV W25Q64EV W25Q64EV W25Q64EV W25Q64EV W25Q64EV W25Q64EV W25Q64EV W25Q80EW W25Q80EW W25Q80EW W25Q80DV W25Q80DV W25Q80DV W25Q80DV W25Q80DV W25Q80DV W25Q80DV W25Q80DV W25Q80DV W25Q80EW W25Q80DV W25Q80EW W25Q8W W25Q80EW W25Q8W W25Q8W W25Q8W W25Q8W W25Q	↓ ↓ Cancel

File

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

Load File				×
File Path:				 ✓ Find
Data Format:	Raw Binary	◯ Intel Hex	O Motorola S19	
Truncate fil	e to fit in the targe	area.		
		ОК		Cancel

www.dediprog.com



Blank

Blank check: check if 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 change until it is re-configured. Press start button to allow batch function when running the SF software.

Edit

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

Config

This allows configure advanced settings. See "advanced settings window description" for more details.

Load Prj

Load the existing project to execute the programming operation.

Save Prj

Save all programming settings to a project file for avoid re-setting action.

Download Prj

SF600*Plus*/SF700 only, please refer to Chapter 7- VI. Stand Alone Mode (SF600*Plus/SF700* only).



3.4 Edit Window Description

SPI Flash content display:

In the edit window, file contents and chip contents can be displayed at the same time for comparison. By default, the selected file contents will be displayed as soon as you enter the edit window.

Click "Open" to show another file contents if needed. Also, click "Read" to read and display the whole chip memory contents on the edit window. Checksum of the file contents and the chip contents will be displayed.

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Source																																	
	:\8Mb	uto k	vin																	Ope	en						File F	Buffer	to F	ile			
		÷	////																	- 1													
Chip: W	25Q6	54FV																		Rea	ad						Chip	Buffe	r to F	ile			
Swap																																	
	Byte	Swa	р			Wo	rd Sv	vap			DV	/ord s	Swap	1																			
														_																			
Checksum:	File	= 3F	60D1	100	Men	orv	= 36	-60D	100	Buff	ered	File	= 36	60D	100	Buffe	ered M	mor	v =	3660	D100	,					ch	iow Ir	. (ЭH) ASC	TT
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Address	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F	^
0x000000	A 8	12	4B	1D	66	73	CF	A5	C8	0 C	A 7	AD	4F	49	79	8D	A 8	12	4B	1D	66	73	CF	A5	C8	0 C	A 7	AD	4F	49	79	8D	
0x000010	B3	<u>6</u> E	7B	07	DD	81	9D	F9	CA	69	45	16	97	1F	DB	F4	B3	6E	7B	07	DD	81	9D	F9	CA	69	45	16	97	1F	DB	F4	
0x000020	AB	83	49	80	A7	D1	2F	0E	21	CD	F8	FE	CF	8A	12	E7	AB	83	49	80	A 7	D1	2F	OE	21	CD	F8	FE	CF	8A	12	E7	
0x000030	21	EE	5E	85	73	EB	B9	7F	58	6F	A 3	BA	A 8	88	E1	CD	21	EE	5E	85	73	EB	B9	7F	58	6F	A 3	BA	A 8	88	E1	CD	
0x000040	4B	E3	27	41	E6	6D	A 6	BC	04	DE	16	CE	B5	FB	F1	62	4B	E3	27	41	E6	6D	A6	BC	04	DE	16	CE	B5	FB	F1	62	
0x000050	53	36	28	18	75	99	EE	96	98	19	DB	07	37	2F	9B	4E	53	36	28	18	75	99	EE	96	98	19	DB	07	37	2F	9B	4E	
0x000060	A 8	EF	CB	40	23	ED	60	4F	34	96	12	82	6F	F1	BB	BO	A8	EF	CB	40	23	ED	60	4F	34	96	12	82	6F	F1	BB	BO	
0x000070	4D	5C	B4	49	63	AB	F8	A9	F1	5A	32	48	F1	9F	FE	B4	4D	5C	B4	49	63	AB	F8	A9	F1	5A	32	48	F1	9F	FE	B4	
0x000080	29	99	09	33	5D	ED	2C	7A	B7	03	E3	53	F0	34	B7	1B	29	99	09	33	5D	ED	2C	7A	B7	03	E3	53	FO	34	B7	1B	
0x000090	D6	A9	45	F6	42	36	B9	36	09	5B	CE	24	OF	DB	A 7	51	D6	A9	45	F6	42	36	B9	36	09	5B	CE	24	OF	DB	A7	51	
0x0000A0	75	04	8F	A0	1B	7D	7B	05	D6	66	67	CF	30	00	53	FD	75	04	8F	A0	1B	7D	7B	05	D6		67	CF	30	00	53	FD	
0x0000B0	7A	9E	7F	55	1A	C3	35	4D	CC	F6	41	11	C6	5B	52	8D	7A	9E	7F	55	1A	C3	35	4D	CC	F6	41	11	C6	5B	52	8D	
0x0000C0	FC	88	75	67	67	9E	E5	4A	23	36	DC	D7	A 7	84	9D	C8	FC	88	75	67	67	9E	E5	4A	23	36	DC	D7	A 7	84	9D	C8	
0x0000D0	87	ED	68	E8	F4	CE	15	94	EC	BC	F9	5B	D5	06	E1	E0	87	ED	68	E8	F4	CE	15	94	EC	BC	F9	5B	D5	06	E1	E0	
0x0000E0	6D	B2	36	B7	CD	C8	A6	B8	EB	9B	66	A 4	D5	E6	CA	80	6D	B2	36	B7	CD	C8	A6	B8	EB	9B	66	A4	D5	E6	CA	80	
0x0000F0	91	FB	EE	8D	63	4A	27	44	5C	6F	4E	22	FC	BB	D9	DA	91	FB	EE	8D	63	4A	27	44	5C	6F	4E	22	FC	BB	D9	DA	
0x000100	3E	44	2F	15	61	E7	1D	54	49	F2	0C	3C	BE	BD	B1	3D	3E	44	2F	15	61	E7	1D	54	49	F2	0C	3C	BE	BD	B1	3D	¥
Jump To																																	
			Next	Diffe	rence	•																											
Address (H	lex)	Γ						Go!																									
Hour coo (i	ieny	L																															



If the file contents and chip contents are different, then those will be highlighted with the "Red Fonts". Click "next difference" button will go to the next different content or fill the address in Address (Hex), and then click "Go" to go to the assigned address.

Source -			- hile																		Ope	n						File P	Buffor	r to Fi	ila			
	::\Use		ondi y	Jeskto	op \tes	st nie	(OIMD)	yte_2	2.DIN												÷.													۲
Chip: \	V25Q6	54FV																			Rea	d						Chip	Buffe	r to F	ile			
Swap																																		
	Byte	swa	p			Wo	rd Sv	vap			DV	Vord	Swap																					
Checksum:	File	= 3F	5FAD	08C	Меп	iory	= 31	-60D	100	Buf	fered	l File	= 3F	5FAI	DEB	Buff	ered	Me	mory	/ = 3	F60[0100						Sh	iow Ir	n (H	ex () as	CI
									File													Me	emory	/										
Address	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F		+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F	Ţ
0x000000	B6	47	37	81	A6	F7	1E	01	1C	78	3F	62	38	BC	06	B9		A8	12	4B	1D	66	73	CF	A5	C8	0C	Α7	AD	4F	49	79	8D	
0x000010	6C	BB	E4	76	D9	EF	1C	11	B2	B8	5D	30	8B	FD	45	CC		B3	6E	7B	07	DD	81	9D	F9	CA	69	45	16	97	1F	DB	F4	
0x000020	41	92	71	0A	47	C1	31	24	A2	8C	1E	3F	54	EC	19	FD		AB	83	49	80	A7	D1	2F	0E	21	CD	F8	FE	CF	8A	12	E7	
0x000030	E4	BC	F6	11	FD	83	52	42	A4	CE	E0	9A	09	63	2D	33		21	EE	5E	85	73	EB	B9	7F	58	6F	A3	ΒA	A8	88	E1	CD	
0x000040	7B	55	1B	3C	84	64	A4	DF	AC	AC	98	OB	63	FC	E2	24		4B	E3	27	41	E6	6D	A6	BC	04	DE	16	CE	B5	FB	F1	62	
0x000050	AC	EB	A3	E1	6A	7F	8D	32	F6	EC	DC	6A	6B	E4	E7	31		53	36	28	18	75	99	EE	96	98	19	DB	07	37	2F	9B	4E	
0x000060	31	D7	01	D1	D2	Α7	C3	74	1E	C8	7E	F1	06	2B	C1	2D		A8	EF	CB	40	23	ED	60	4F	34	96	12	82	6F	F1	BB	BO	
0x000070	66	03	E1	24	0C	3C	E0	C1	Α7	B4	8E	8B	8B	92	60	AB		4D	5C	B4	49	63	AB	F8	A9	F1	5A	32	48	F1	9F	FE	B4	
0x000080	DC	42	C2	08	98	75	ED	E0	13	34	F6	22	CF	DD	2B	D8		29	99	09	33	5D	ED	2C	7A	B7	03	E3	53	FO	34	B7	1B	
0x000090	68	9E	7D	96	44	B6	F6	95	6A	A9	04	ED	39	A3	15	C4		D6	A9	45	F6	42	36	B9	36	09	5B	CE	24	OF	DB	A7	51	
0x0000A0	30	A5	57	FF	31	DC	17	6E	D5	26	FA	4D	C9	1B	Α7	31		75	04	8F	A0	1B	7D	7B	05	D6	66	67	CF	30	00	53	FD	
0x0000B0	BD	BD	94	7E	E7	90	0D	16	27	B7	A2	87	35	F0	96	66		7A	9E	7F	55	1A	C3	35	4D	CC	F6	41	11	C6	5B	52	8D	
0x0000C0	8F	72	85	62	бA	91	46	A4	EA	BB	58	2A	EE	10	D1	80		FC	88	75	67	67	9E	E5	4A	23	36	DC	D7	A7	84	9D	C8	
0x0000D0	A4	45	19	A3	41	8D	F3	ED	F8	2B	A0	4F	B6	79	0E	BE		87	ED	68	E8	F4	CE	15	94	EC	BC	F9	5B	D5	06	E1	E0	
0x0000E0	92	00	EA	15	89	6A	96	D2	06	71	32	F3	AE	0C	DB	56		6D	B2	36	B7	CD	C8	A6	B8	EB	9B	66	A4	D5	E6	CA	80	
0x0000F0	10	FD	53	50	0A	17	91	0F	AF	B5	OB	C3	67	DD	33	ЗE		91	FB	EE	8D	63	4A	27	44	5C	6F	4E	22	FC	BB	D9	DA	
0x000100	07	08	78	87	C2	61	B6	OB	90	2C	7C	6A	ED	82	09	05		3E	44	2F	15	61	E7	1D	54	49	F2	0C	3C	BE	BD	B1	3D	
Jump To																																	_	
			Next	Diffe	rence																													

Chip buffer to file

This will save the chip contents into a binary file; you can set up the file name and the location.

File buffer to file

File buffer can be modified in real time. This will save the file buffer contents into a binary file as well.



3.5 Configuration Window Description

This feature allows users to configure advanced settings.

3.5.1 Batch Operation Option

Advanced Settings	>
\odot	Batch Operation Options
Batch Batch	O Download a whole file to chip (With Blank Check), Fill Unused Space with(Hex): 00
Operations	Download a whole file to chip (Without Blank Check), Fill Unused Space with(Hex): 00
Prog	O Update memory only on sector locations with content difference. O Update start from address (Hex)
Program Configuration	O Update up to address (Hex) 7FFFF
2	O Update memory and keep one protected area unchanged. Protect area at address(Hex)
Eng. Engineering Mode	O Update memory according to Region configuration Region 1 v From(Hex) 0 to FFF
٠	Erase the rest of the selected but not updated region
S.R Modify Status	Without Erase for item 1 and tiem 2
Register	Enable Freescale EzPort MCU & Send the DIV value (Hex)
**	Send Specific Data. File path: V Find
Miscellaneous Settings	Identify Chip
	Reload file each time
Flash Options	Require Verification after completion
	Auto update second memory with file:
	Verify only for project saving and using on Production mode (for SF600/SF600Plus only)
	Standalone start mode: Start from Programmer Button V
	Current File in Buffer: C:\1Mbyte.bin
	C
	確定 取消 套用(A)

A. Download a whole file to chip (With Blank Check) Click Batch button on the tool bar, the following operation will be automatically executed:

1) Read the memory content

2) Blank check (Check if the chip is erased. If it is blank, then it will jump to the programming step).

- 3) Erase the entire memory if it is not blank
- 4) Program the entire memory with the file
- 5) Verify if the memory content is identical with the programmed file.

B. Download a whole file to chip (Without Blank Check)

Clicks the **Batch** button on the tool bar, the following operation will be automatically executed:

- 1) Erase the entire memory
- 2) Program the entire memory with the file
- 3) Verify if the memory content is identical with the programmed file.





C. Update memory only on sector locations with content difference

You can select the sector locations of file to program.

- Update start from address (Hex):

Program the entire file starting from the address that you enter.

- Update up to address (Hex):

Program the entire file and ends at the address that you enter. The default ending address will be automatically calculated by the software according to memory's size.

Click the Batch button on the tool bar, the following operations will be automatically executed:

1) Read the memory content

2) Compare the memory content from the given address with the file at the 64KB sector base

3) Erase only the 64KB sectors with the differences

4) Program only the erased sectors with the file data of the corresponding address

5) Verify the data on the updated 64KB sectors

Smart Update can be used in the following cases:

- A small file can be programmed or updated at a given address without changing the rest of the memory (local update).
- A file with only a minor change compare to the memory content can be quickly updated. The sectors without difference are kept unchanged.

Remark:

The file data is identical with the target memory. Therefore, you will need to load the entire file, even if only programming a sector of it.

D. Update memory and keep one protected area unchanged Click the Batch button on the tool bar, the following operations will be automatically executed:

- 1) Read the memory content from the given address of the given length
- 2) Insert the read memory contents into the file buffer
- 3) Erase the entire chip
- 4) Program the entire chip with the updated file in step 2
- 5) Verify the programmed data



E. Update memory according to Region configuration

When you only want to update some part of the data in SPI Flash, you can use this function to update the data in the assigned region. This function saves time when debugging.

1) Assign the Region and set start & end address of the Region.

2) S	elect v	working	g regio	n							
🖳 Dedi	Prog Soft	ware SF6.0.	5.19								
File Vie	w Help										
			Ø							d.	13
Detect	File	Blank	Erase	Prog	Verify	Batch	Edit	Config	Load Prj	Care Dai	Download Prj

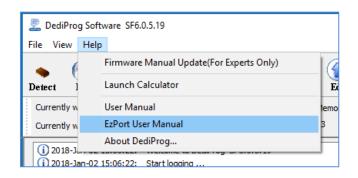
F. Erase the rest of the selected region but not updated space The software will update the selected region, and the rest of the selected region that are not updated will be erased.

G. Without Erase for item 1 and item 2

Remove erase operation from item 1 and item 2.

H. Enable Freescale EzPort MCU & Send the DIV value (Hex)

If the box is checked, the programmer will automatically enable EzPort. Details please see « Help \rightarrow EzPort User Manual»



I. Send Specific Data

The software will load and send the engineering SPI sequence defined and saved in the "Engineering Mode" Configuration window. This option allows you to create your own SPI instruction.



J. Identify Chip

The software will identify the chip before operation starts.

K. Reload file each time

The software will load the same file from the source destination each time before the batch operations (refresh). This option is helpful when the other software updates the file in parallel (like compiler).

L. Require Verification after completion

The software will verify the contents between the source file and the programmed Serial Flash contents after the batch operations.

M. Auto update second memory with file

The software will auto update the second chip memory after chip 1 has been updated.

N. Verify only for project saving and using on Production mode

The Batch function does not support verify only feature on engineering mode. This feature is for project saving and allows verify only on Production mode and standalone mode.

Methods Comparison:

Case 1:

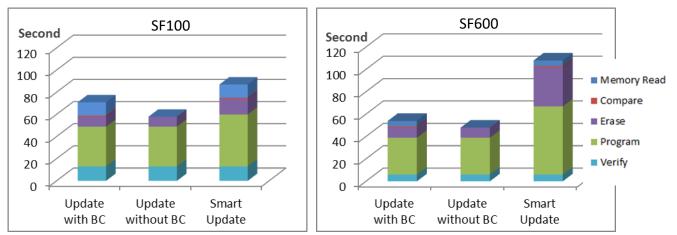
64Mb Serial flash update with 64Mb file that are totally different. Memory has previously been programmed and needs to be erased totally.

Function	Update v	with BC	Update w	vithout BC	Smart L	Jpdate
Model name	SF100	SF600	SF100	SF600	SF100	SF600
Memory Read	12	5	х	х	12	5
Compare	1	1	х	х	1	1
Erase	9	9	9	9	14	35
Program	36	33	36	33	47	61
Verify	13	6	13	6	13	6
TOTAL	71	54	58	48	87	108

Time unit: second



Comparison Chart



Conclusion:

If the memory needs to be completely erased for a file update, the "Update without Blank Check" is the optimum choice.

Time Saving:

SF100 saves 33%; SF600 saves 55%

Case 2:

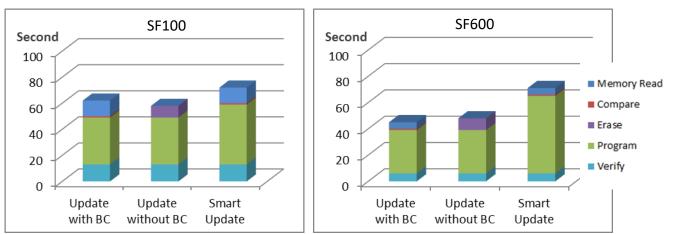
64Mb Serial flash programming with a 64Mb file. Memory has never been programmed (from supplier).

Function	Update v	with BC	Update w	vithout BC	Smart L	Jpdate
Model name	SF100	SF600	SF100	SF600	SF100	SF600
Memory Read	12	5	х	х	12	5
Compare	1	1	х	х	1	1
Erase	0	0	9	9	0	0
Program	36	33	36	33	46	59
Verify	13	6	13	6	13	6
TOTAL	62	45	58	48	72	71

Time unit: second



Comparison Chart



Conclusion:

If the memory is blank (from supplier), the "Update with Blank Check" or "Smart update" is the optimum choice.

Time Saving:

SF100 saves 19%; SF600 saves 37%

Case 3:

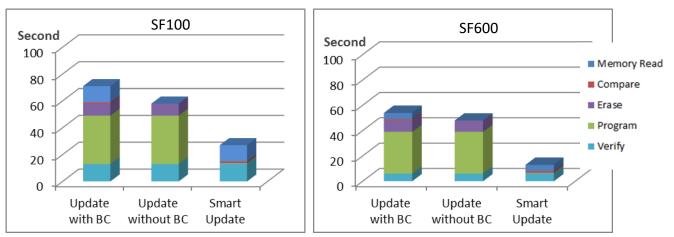
64Mb Serial flash update with a 64Mb file with only data differences on one block or a small file of one block size only at a specified address.

Function	Update v	with BC	Update w	vithout BC	Smart L	Jpdate
Model name	SF100	SF600	SF100	SF600	SF100	SF600
Memory Read	12	5	х	х	12	5
Compare	1	1	х	х	1	1
Erase	9	9	9	9	0.5	0.5
Program	36	33	36	33	0.5	0.5
Verify	13	6	13	6	13	6
TOTAL	71	54	58	48	27	13

Time unit: second



Comparison Chart



Conclusion:

If the difference between the memory content and the file are small or if the file that needs to be programmed is small, the "Smart update" is the optimum choice.

Time Saving:

SF100 saves 62%; SF600 saves 76%



3.5.2 Program Configurations

Advanced Settings			×
(Program Options:		
Batch	Program a whole file starting from the starti	om address 0 of a chip	
Batch Operations	Fill Unused Space with(Hex):	00	
	O Program from specific address	of a chip	
Prog	Starting Address(Hex):	0×0000000	
Program Configuration	O Program up to specific address	of a chip	
	End Address(Hex):	0X07FFFF	
Eng. Engineering Mode			
S.R			
Modify Status Register			
88	* Settings in this page are only mean	t for singly fired program instructions, which must be appplied to a blank(i.e. erased) area.	
Miscellaneous	* To configure program instructions	that are embedded in composite sequences, See "Batch Configurations".	
Settings			
Flash Options			
		確定 取満 套用(A)	

- A. Program a whole file starting from address 0 of a chip
- B. Program from specific address of a chip: To program the entire file starting from the address that you enter.
- C. Program up to specific address of the chip: To program the entire file, ending at the last address of the chip. The default ending address will automatically be calculated by the software according to memory size.

If the file is smaller than the target Serial Flash, you can define how to fill the rest of the SPI Flash. By default FFh or 00h by selecting the box.



Advanced Settings	s S		×
Advanced Settings Batch Batch Operations Prog	Send single command Send byte stream: Need to return Monitor SR for	(example: 03 ff 00 12) bytes.	nd single command
Program Configuration Engineering Mode	Send mutiple command	Add command to list to memory :	Response time
S.R Modify Status Register Miscellaneous Settings	Command : Clea	Save Load Se	nd multiple command
Flash Options	N/A		
	Warning: any on-goin	operation(e.g. erase) will be terminated immediately after closing this page. 理	定 取満 套用(A)

This function allows you to define your own SPI command and send it directly to the target SPI flash. This option allows you to add other SPI commands even if it was not originally added on the programmer.

The engineering mode can be used for sending instruction to the SPI Flash.



3.5.3.1 Send single command to Memory

You can define the data bytes to be sent from the programmer to the SPI Flash and the number of bytes to be returned. Also define if the status register WIP bit has to be polled to check if the SPI Flash is busy or ready. Send single command by clicking "Send single command" button.

For example:

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:

Advanced Settings						
(R) Batch	 Send single command Send byte stream: 	to Memory:	(example: 03 ff 00 12)			
Batch Operations	Need to return		bytes.			
	Monitor SR for		second after sending the instruction.		Send	l single command
Prog Program Configuration	Send mutiple comman	d to memory :	Add command to list \downarrow			
Eng. Mode	Steps	Command		Return byte(s)	Response time

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

Advanced Settings						
🛞 Batch	Send single command Send byte stream:	to Memory: 02 00 00 00 01 02 03	(example: 03 ff 00 12)			
Batch Operations	Need to return		bytes.			
	Monitor SR for		second after sending the instruction.		Send	d single command
Prog Program Configuration	Send mutiple comman	d to memory :	Add command to list \downarrow			
Engineering Mode	Steps	Command		Return byte(s)	Response time



Third: The programmer needs 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):

Advanced Settings		×
Batch Batch Operations Program Configuration	Send single command to Memory: Send byte stream: 03 00 00 00 (example: 03 ff 00 12) ✓ Need to return 8 bytes. Monitor SR for Second after sending the instruction. Send single command Add command to list ↓	
Engineering Mode S.R. Modify Status Register Wiscellaneous Settings	Steps Command Return byte(s) Response time Command : Clear Save Load Send Mutiple command	
Flash Options	From memory : Save data SR = 00 0.316 seconds elapsed 01 02 03 ff ff ff ff ff 01 02 03 ff ff ff ff ff Warning: any on-going operation(e.g. erase) will be terminated immediately after closing this page.	
	確定 取消	套用(A)

The return bytes from the SPI Flash are displayed in the "from memory" window.



3.5.3.2 Send multiple commands

In order to save time from doing repetitive commands, DediProg provides multiple command sending function, so you can save or load command to.ini file. In order to add command to the command list, click "Add command to list" button and click "Send Multiple command" to send command by priority.

NOTE: Delete the command by double clicks the number of the steps item.

Advanced Settings								
8	Send single command	-						
Batch	Send byte stream:	03 00 00 00	(example: 03 ff 00 12)					
Batch Operations	Need to return	8	bytes.					
	Monitor SR for		second after sending the instruction		Send single	command		
Prog Program Configuration			Add command to list $~\downarrow~$					
	Send mutiple comman	-			-			
	Steps	Command		Return byte(s)) Respo NONE	nse time		
Eng. Engineering	1	06 02 00 00 00 01 02 03		NONE NONE	NONE			
Mode	3	03 00 00 00		8	NONE			
Register	Command : Clea	ir Save I	oad		Send Mutip	le command		
	From memory : SR = 00 0.323 second	ls alansed				Save data		
	01 02 03 ff ff ff ff ff	is elapsed						
Flash Options		ng operation(e.g. erase) will be terminated immediately after c	osing this page	.			
					-			
					確定	取消	套用(A)	



3.5.4 Modify Status Register

Advanced Settings	
	Read status register(s) :
Batch Batch	Register1 Value(Hex): 00 Read Again
Operations	Register2 Value(Hex) : unavailable Read Again
Prog Program	Write status register(s) :
Configuration	Only one status register:
2	Register1 Value(Hex): 00 Write to Flash
Eng. Engineering	For two status register: Byte 1 Byte 2
Mode	Register Values(Hex): 00 00 Write to Flash
S.R Modify Status Register	* NOTE : Not Each Chip Have Two Status Register
<u>612</u>	

This function allows you to modify or read the status register(s) value of the target serial flash.

Please note each chip has their own command to write status registers.

For the chip that only has one status register:

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

For the chip that has two status registers:

- Please refer to the device specification for parameter setting.



DediProg SF Software User Manual

3.5.5 Miscellaneous Settings

Advanced Settings									×
(Vpp Option:								
Batch Batch	Apply Vpp for pr	rogram and erase w	hen the memory su	ipports it.					
Operations	Vcc Option:								
Prog	Manual select Vcc	Vcc							
Program	Using Fixed Vcc	0 3.5V	🔿 Manual a	djust Vcc (For SF6	500/ SF600Plus o	nly)			
Configuration		0 2.5V	- E						
Eng.		0 1.8V	1.8V	1.8V	3.8V				
Engineering Mode									
	SPI Clock Setting								
SR	Select Clock:								
Modify Status Register	12 MHz		\sim						
83	Toolbar Icon Configura	ation:							
Miscellaneous	Blank: 🔽 Enable Bl	ank Button							
Settings	Erase: 🔽 Enable Er	rase Button							
	Prog: 🗹 Enable Pr	rog Button							
Flash Options	Verify: 🔽 Enable Ve	erify Button							
riasii options	Batch: 🗹 Enable Ba	atch Button							
	Dual/Quad IO Option:								
	Always Single IO								
	O Enable Dual IO w	hen available							
	C Enable Quad IO	when available							
						Trip min	T- NV		
						確定	取消	套用(A)	

A. Vpp Option

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

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

B. Vcc Option

SF series programmers support 3.5V, 2.5V, and 1.8V Vcc. The default VCC status will be 3.5V when plug in the programmer without IC on it. You will be able to modify the Vcc configuration, and then the Vcc setting will be changed and saved.

Note: Firmware version 4.x.x and early version of SF100 not support 1.8V.

Programmer Info	
Туре:	SF600
Firmware Version:	7.2.26
FPGA Version:	D
Hardware Version:	2.2
VCC Status:	3.5V / ON
VPP/Acc:	Not Applicable
SPI Clock:	12 MHz
Dual/Quad IO:	Single IO



C. SPI Clock Setting

The SPI clock frequency can be adjusted by user to fit the application requirements or SPI Flash performance. Notice that the SPI Flash frequency is defined from the supplier specification for a maximum capacitance usually is 30pf or 15pF. The application is therefore designed not to exceed this maximum capacitance.

In-circuit programming does not fulfill anymore this original design as additional capacitance will be added according to the cable length and programmer. Therefore, you cannot expect to program on board SPI flash to the maximum frequency of the datasheet since the SPI flash will not be able to drive such capacitance at such high frequency.

In order to comply with the different capacitance and SPI flash driving capability, DediProg provides frequency adjustment of the programmer. Frequency needs to be reduced if the data timings do not comply with the specification.

D. Tool Bar ICON Configuration

You can hide the tool bar icons by uncheck the icon items in the "Toolbar Icon configuration setting". For example, if you only want the batch icon, you can leave only batch button selected and save the setting, then only the batch icon will appear on the tool bar.

SR	SPI Clock Setting Select Clock:
Modify Status Register	12 MHz ✓ Toolbar Icon Configuration:
Miscellaneous Settings	Blank: Enable Blank Button Erase: Enable Erase Button
Flash Options	Prog: ☐ Enable Prog Button Verify: ☐ Enable Verify Button Batch: ☑ Enable Batch Button
	Dual/Quad IO Option:

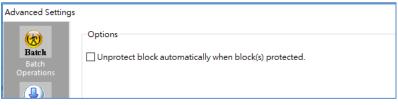
DediProg Software SF6.0.5.17							
File View Help	File View Help						
• · · · · · · · · · · · · · · · · · · ·	(R) Batch	🧐 🔥 Config Load Prj	Save Prj Prj				



3.5.6 Flash Option

Advanced Settings		×
Batch Operations	⊂ Options □ Unprotect block automatically when block(\$) protected.	
Prog Program Configuration		
Eng. Engineering Mode		
SR Modify Status Register		
Miscellaneous Settinas		
Flash Options		
	確定 取消	套用(A)

A. Unprotect block automatically when block(s) protected.



B. Enable automatically unprotect Individual WP mode



C. Translate program address to page+offset in standard DataFlash page size.

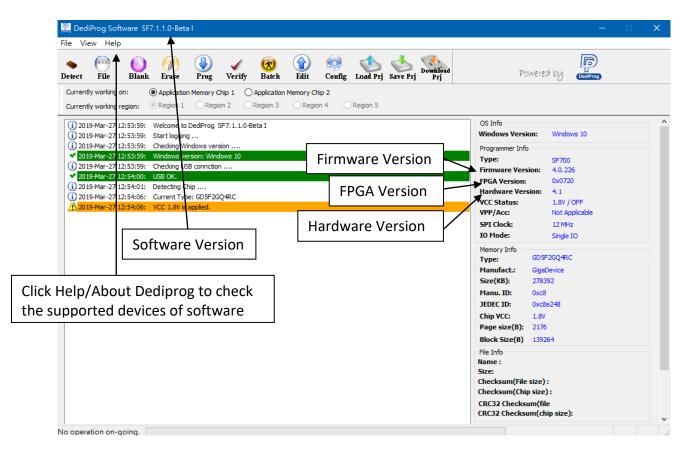
For example: AT45DB642D program address 0x8000 translate to 0xF820 (page+offset)

Advanced Settings	
Batch Derations	Options Unprotect block automatically when block(s) protected. Translate program address to page+offset in standard DataFlash page size. For example: AT45DB642D program address 0x8000 translate to 0xf820 (page+offset)



3.6 Supported Devices, Software Version, Firmware Version

You can check the Serial flash support list on our website. The list is valid for the latest software and firmware, so check the current version that you are using and update it if necessary.





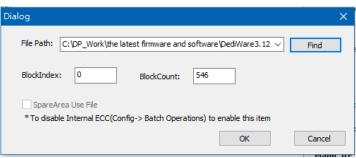
3.7 SPI NAND Programming Interface

SF700 supports SPI NAND programming. The below image is the software interface, and the operating method is similar to the method for SPI NOR Flash. This section will describe the software functions for SPI NAND.

ect File Blank Erase Prog Verify Batch Edit Config Load Prj Save Prj Prj	Powered by Coopers
urrently working on:	
] 2019-Mar-26 22:35:49: Welcome to DediProg SF7.1.1.0-Beta I] 2019-Mar-26 22:35:49: Start logging	OS Info Windows Version: Windows 10
0 2019-Mar-26 22:35:49: Checking Windows version 2019-Mar-26 22:35:49: Windows version: Windows 10	Programmer Info
i) 2019-Mar-26 22:35:49: Checking USB connction	Type: SF700 Firmware Version: 4.0.226
2019-Mar-26 22:35:49: USB OK.	Firmware Version: 4.0.226 FPGA Version: 0x0720
2019-Mar-26 22:35:50: Detecting Chip	Hardware Version: 4.1
i) 2019-Mar-26 22:35:56: Current Type: GD5F2GQ4RC \2019-Mar-26 22:35:56: VCC 1.8V is applied.	VCC Status: 1.8V / OFF
1/2019-Mar-26 22:35:56: VCC 1.8V is applied.	VPP/Acc: Not Applicable
	SPI Clock: 12 MHz
	IO Mode: Single IO
	Memory Info
	Type: GD5F2GQ4RC
	Manufact: GigaDevice
	Size(KB): 278392
	Manu. ID: 0xc8 JEDEC ID: 0xc8a248
	Chip VCC: 1.8V
	Page size(B): 2176
	Block Size(B) 139264
	File Info
	Name :
	Size:
	Checksum(File size):
	Checksum(Chip size):
	CRC32 Checksum(file

•••

File : Load the programming file. Attention: If there is ECC code in the programming project file, which means you need to set up the Spare area, please disable the Internal ECC in the Config setting.



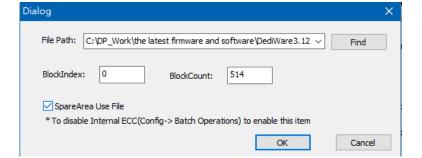
If the image file includes ECC code or has used the Spare area, please follow the below image and select Disable.

	Advanced Settings	5		
	8	Bad Block and Internal ECC Mar	nagement:	
		Bad Block Management:	Skip Bad Block	○ No Management (Hard Copy)
Batch Operation	Internal ECC Management:	○ Enable	 Disable 	

www.dediprog.com



After disable the Internal ECC, click File, and then there will be a SpareArea Use File option to select.



Programming Basic Function: Please refer to Chapter 3.3.



Config: All the settings for SPI NAND are in the Config setting. Below section will describe more about each function.

tings				
	Bad Block and Internal EC	C Management:		
	Bad Block Managemer	nt:	○ No Management (Hard Copy)	
n	Internal ECC Managem	nent: OEnable	Disable	
	Batch Options:			
	○ Download a whole fi	le to chip (with Blank che	ck)	
	Download a whole fi	le to chip (without Blank	check)	
	🗹 Identify Chip			
	Erase			
L	Enable Hard Cop marking, all other	y Erase. (Caution: excepti r all bad block marking w	on the original manufacture OTP bad block ill be erased)	
5	Require Verification	after completion		
L	Verify only for proje	ct saving and using on Pre	oduction mode and standalone mode	
5	Current File in Buffer:	C:\DP_Work\the latest	firmware and software\DediWare3.12.48.1.exe	
	Sequences Details (Reac	l Only)		
k	Steps	Actions		
	1	Identify before operati	on starts.	
	2	Erase Chip		
	3	Program Chip		
	4	Verify after operation of	completes	

Bad Block Management: It is the action that it will take if bad block appears during IC programming. The default setting is Skip, otherwise, choose Hard copy.

Internal ECC management:

The Internal ECC of SPI NAND can be turn on or off. When Internal ECC is needed during application, then you can choose Enable; on the other hand, if the file has its own ECC Code, then choose Disable.



Batch Options: This is the working procedure for the programmer when Auto batch. <u>Download a whole file to chip (with Blank check)</u>: During Auto Batch, after execute the Erase action, it needs to execute the blank check action.

Download a whole file to chip (without Blank check): During Auto Batch, after execute the Erase action, it **does not** need to execute the blank check action.

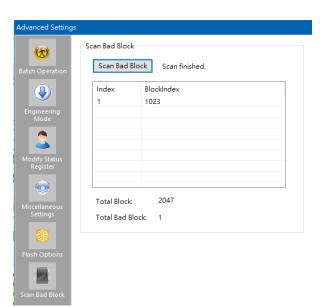
Identify Chip: You can decide whether you want to do ID check or not.

Erase: This is to set up whether you want to erase the SPI NAND during Auto Batch. Default will only erase the Good blocks. If you want to erase forcibly (Force Erase), you can select the "Enable Hard Copy Erase" However, please think about it before you enable the hard copy erase.

Require Verification after completion: This is for verification after programming.

Verify only for project saving and using on Production mode and standalone mode: If you only want to verify the Flash without any programming action, then you can select this option. This option is only for the standalone or the production mode.

There is a Scan bad block function in the Config setting that can read the Bad block distribution in NAND, which is very beneficial to NAND analysis.





IV. DediProg SF Software Production GUI

DediProg SF software production GUI is only available after the software version 5.x.x. The production GUI allows you to plug in and operate multiple SF100/SF600/SF600*Plus/SF700* at the same time.

The new software will remove the old USB driver when it detects such driver during installation. New USB driver is required in order to run the software and the driver will come together with the software CD ROM or it can be downloaded from DediProg website. www.dediprog.com/download

In order to run more than one SF programmer at the same time reliably, USB hub with individual power supply is highly recommended.



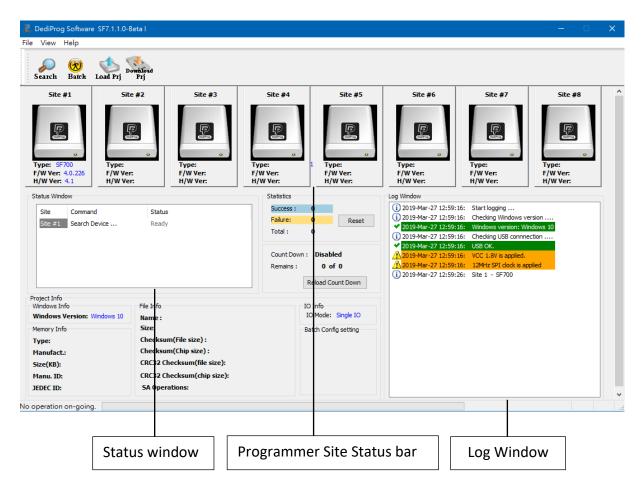
Multi-Programmers Capability for SF series programmers



In order to run production GUI, please plug in all USB of the intended programmers prior opening the software. It is not recommended to add (plug in) or remove (unplug) the programmers when the software is running.

The production software does not provide auto chip detect feature, therefore use "programmer search" and "load project" prior the operations.

The production GUI manual will only illustrate the items that not covered in the engineering GUI. Therefore, function descriptions such as Program, Erase, and Blank check will not be repeated here.





4.1 Search

Click "search", the software will show programmer type. The default programmer type is SF100. Please select the programmer you are using and click Rescan.

Search Programmer:

The detected programmers will be listed along with the site number. The site number is given by the Window OS randomly; you can use the "blink", "up" and "down" button to adjust the real sequence of the connected programmer. When click on "blink", the connected programmer will blink on its green LED once. You can use this feature to locate the programmer associated with its site number. For programmers with firmware version after 5.x.x, DediProg will write a serial number in the hardware before shipping out and the serial number will be displayed in the following screen snapshot.

Searc	h for Program	mmers			Х
	Search Progra	ammer Type			
	SF600		~	Rescan	
	Site	Programmer	UID		
	Site #1	SF600	SF606045	Blink	
		Accept	Cancel		

Note: SF software doesn't support different programmer at the same time, and only supports same programmer on the production mode.





V. DediProg Windows Command Line

5.1 Introduction

The window command line has been designed to control DediProg programmer from the other software. This feature will be convenient to synchronize the two software in development (For example: program the memory automatically after the code has been compiled) or in production (for example: Program automatically the Serial Flash via the ICT tester after the hardware has been checked).

Command result "log.txt" file will be automatically saved under the following folders: C:\Users\user\AppData\Roaming\DediProg\SF100

🗐 log - Notepad	Rever (P. St. M. Super-	
File Edit Format View He	łp	
2010-Mar-17 14:06:18 2010-Mar-17 14:06:26 2010-Mar-17 14:06:26 1	USB communication = true Site#1, PASS Site#2, PASS	*

This .txt file has to be checked to make sure that the operation has been successful. Time stamp can also be checked to be sure that the result has been updated with a new value.

The following are the error messages in the log.txt file.

FAIL Identify Fail
FAIL Blank Fail
FAIL Erase Fail
FAIL Program Fail
FAIL Read Fail
FAIL Send Specific data Fail
FAIL Verify Fail
FAIL Unknown

To get more information about these methods, please contact with DediProg.



Window DOS command

Dpcmd		_	\times
7.1.1.0-Beta I Engine Vers st Built on Mar 21 2019	sion:		
sic Usages:			
md -uxxx			
cmd /uxxx cmdauto=xxx			
	n the switches and parameters. E.g. dpcmd -ubio.bin)		
sic Switches(switches in f	this group are mutual exclusive):		
·? [help] ·-list	show this help message		
·d [detect]	print supported chip list detect chip		
b [blank]	blank check		
e [erase] force-erase	erase entire chip erase entire chip		
	work with Nand chip only		
•r [read] arg	read chip contents and save to a bin/hex/s19 file – use STDOUT for the console.		
p [prog] arg	program chip without erase		
u [auto] arg	automatically run the following sequence: - Read the memory content		
	- Compare the memory content		
	- Erase only the sectors with some differences		
	- Program only the erased sectors with the file data from address O		
z [batch] arg	wrok with SPI NOR and SPI NAND		
	SPI NOR 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 O		
	SPÍ NÁND		
	automatically run the following sequence:		
	- check if the chip is blank or not; - erase the chip memory which skip bad block(if		
	not blank);		
-nand-batch-forceerase au	- program a whole file starting from address O rg automatically run the following sequence:		
	- check if the chip is blank or not;		
	 force 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		
-raw-instruction arg	issue raw serial flash instructions.		
	- use spaces(" ") to delimit bytes. - instructions must be enclosed in double		
	quotation marks("")		
	- use " " to send continuous command Example:		
	dpcmdraw-instruction O6		
vom vornive votuve ovo	dpendraw-instruction "06102 00 00 00 11 22 33"		
-raw-require-return arg	decimal bytes of result to return in decimal after issuing raw instructions.		
	- used along withraw-instruction only.		
	Example: dpcmdraw-instruction "O3 FF OO 12"raw-requi		
	re-return 1		
	dpcmdraw-instruction "O6 05"raw-require-ret urn "O 2"		
	fine-tune ability to Basic Switches: exadecimal starting address hexadecimal(e.g.		
03	x1000),		
	works withprog/read/sum/verify/auto/batch only defaults to 0, if omitted.		
l [length] arg he	exadecimal length to read/program in bytes,		
	member with a second description of the second se		
	works withprog/read/sum/auto only defaults to whole file if omitted		



~

				unuu
Dpcmd				\times
-v [verify] -x [fill] arg	- works (=FF) fill sp	checksum file and chip withprog/auto/batch/load-file/addr only are space with an hex value(e.g.FF),		1
type arg	– works Specify	withprog/batch only a type to override auto detection		
lock-length arg	hexadec	-list arguement to look up supported type. imal length of area that will be kept ed while updating		
lock-start arg	– used Example dpcmd – Ox100 – hexadec	along withauto/lock-start only. : u file.binlock-start 0x1000lock-length		
blink arg		Its to O, if omitted.		
1	(Defaul	link green LED 3 times from USB1 to USBn t) : the sequence is assigned by OS during USB		
device arg	- n: Bl (work w - 1: ac - n: ac	ink the programmer connected to USB1 3 times. ink the programmer connected to USBn 3 times. ith all Basic Switches) tivate only the programmer connected to USB1 tivate only the programmer connected to USBn		
fix-device arg	note be exec connect Fix pro sequenc - instr	: if "device" is not used, the command will uted with the same chip type and file on all ed programmer. grammer serial number with programmer e. uctions must be enclosed in double quotation		
list-device-id a	rg - 0 : L (Defaul note	: -fix-device "1 DP000001" ist all ID of programmers from USB1 to USBn t) : the sequence is assigned by OS during USB		ł
load-file arg	USB1. - n: Pr USBn. Load a content - work Example	ompt the device ID of programmer connected to ompt the device ID of programmer connected to bin/hex/s19 file and compare with memory withverify only		
Miscellaneous option	18 :			
-t [timeout] a		Timeout value in seconds. Default value is 1000s.		
-g [target] an	g (=1)	Target Options Available values: 1, Chip 1(Default) 2, Chip 2 3, Socket 0, reference card		
vcc arg		specify vcc 0, 3.5V 1, 2.5V 2, 1.8V 1800 ~ 3800, 1.8 ~ 3.8V (minimum step 100mV) (For SF600/ SF600Plus only)		
vpp		apply vpp when the memory chip supports it - work withprog anderase.		
log arg		Record the operation result in given/appoint ed .txt file Example:		
		dpcmdlog F:\LogFilePath.txt Note: If user didn't use this command, the operation result will be recorded in default file "%appdata%dediprogSF100log.txt"		



📅 Dpcmd		_	\times
t	suppress the display of real-time timer coun ting		^
(· used when integrating with 3rd-party tools (e.g. IDE) specify SPI clock(SF100/ SF600): 2, 12 MHz/ 12MHz (Default) 0, 24 MHz/ 25MHz 1, 8 MHz/ 6MHz 3. 3 MHz/ 4MHz		
set-iol arg (=0) s	3, 3 MHZ/ 4MHZ 4, 2.18 MHZ/ 2MHZ 5, 1.5 MHZ/ 1MHZ 6, 750 KHZ/ 800MHZ 7, 375 KHZ/ 400MHZ specify Level of 101(SF100) or GPI01(SF600/S		
500 101 alg (-5) F	<pre>5600Plus): 0, Low(Default) 1, High</pre>		
	specify Level of IO4(SF100) or GPIO2(SF600/S *600Plus): 0. Low		
	1, High(Default) specify if the Spare Area use file: 0, Unuse(Default) 1, True		
nand-skip-bad-block arg (=0) s	work with Nand chip specify if the Bad Block(s) are skipped: 0, Skip(Default) 1, No management work with Nand chip		
nand-internal-ecc arg (=O) s	work with Nand Chip geolfy if the Enternal ECC enable: 0, Enable(Default) 1, Disable work with Nand chip		
C:\Program Files (x86)\DediProg\SF10	00>		~

5.2 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.
- Change your dos directory to the same location where "dpcmd.exe" is located. C:\program files\DediProg\SF100
- 3. Type in the following command to auto directs the dpcmd command to the "dpcmd.exe" location.

Set path=%path%;"c:\program files\dediprog\SF100

5.3 Basic Usages

- dpcmd –r "f:\file.bin", reads the chip and save it into a file "file.bin" in Partition f
- 2. dpcmd –r STDOUT –a 0x100 -l 0x23, reads 0x23 bytes starting from 0x100 and display it on the screen
- 3. dpcmd –u f:\file.bin, erases and then program file.bin in Partition f into the serial flash
- dpcmd –p f:\file.bin –a 0x100, writes file.bin in Partition f into the serial flash starting from address 0x100
- whites me.bin in Falticion I into the senai hash starting no
- 5. dpcmd –p f:\file.bin –x 0xaa,



programs file.bin in Partition f into the serial flash and fill the rest area with Oxaa 6. Able to open multiple DpCmd windows to control different programmers.

Remarks: -a only works with -p, -r, -s, -v, -u, -z Remarks: -a with -l only works with -p, -r, -s, -v, -u, Remarks: -x only works with -p, -z Remarks: --load-file only works with -v Remarks: --lock-start must work with -lock-length each other Remarks: space is not needed between the switches parameters. E.g. dpcmd -u f:\file.bin Remarks: default target is chip 1. Please changing the target if need. Remarks: adding -type will decrease the command execution time. Remarks: Only "batch" command support EzPort programming. Remarks: if "-vcc" not be used, detected voltage will be used when operation. It's possible to use lower voltage to work to cause operation fail. So recommending use "-type" to get work voltage from chip data base.



5.4 Basic Switches

-? [help]	Show the help message
list	Print supported chip list
-d [detect]	detect chip
-b [blank]	blank check
-e [erase]	erase entire chip
force-erase	erase entire chip
	work with Nand chip only
-r [read] arg	read chip contents and save to a bin/hex/s19 file
	-use STDOUT for the console.
-p [prog] arg	program chip without erase
-u [auto] arg	automatically run the following sequence:
	- Read the memory content
	- Compare the memory content
	- Erase only the sectors with some differences
	- Program only the erased sectors with the file data from address
	0
-z [batch] arg	work with SPI NOR and SPI NAND
	SPI NOR
	automatically run the following sequence:
	- check if the chip is blank or not
	- erase the entire chip(if not blank)
	- program the entire file starting from address 0
	SPINAND
	automatically run the following sequence:
	- check if the chip is blank or not;
	- erase the chip memory which skip bad block(if not blank);
	- program a whole file starting from address 0
nand-batch-forceerase	automatically run the following sequence:
arg	- check if the chip is blank or not;
	 force 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
	needs to work with a me



raw-instruction arg	Issue raw serial flash instructions. - use spaces(" ") to delimit bytes. - instructions must be enclosed in double quotation marks("") - use " " to send continuous command Example: dpcmdraw-instruction 06 dpcmdraw-instruction "06 02 00 00 00 11 22 33"
raw-require-return arg (=0)	decimal bytes of result to return in decimal after issuing raw instructions. - Used along withraw-instruction only. Example: dpcmdraw-instruction "03 FF 00 12"raw-require-return 1 dpcmdraw-instruction "06 05"raw-require-return "0 2"

5.5 Optional Switches

(Specify the following switches to change default values):

ing
/
า
•



device arg	 (work with all Basic Switches) 1 : activate only the programmer connected to USB1 n : activate only the programmer connected to USBn Note: if "-device" is not used, the command will be executed with the same chip type and file on all connected programmer.
fix-device arg	Fix programmer serial number with programmer sequence. - instructions must be enclosed in double quotation marks("") Example: dpcmdfix-device "1 DP000001"
list-device-id arg	 - 0 : List all ID of programmers from USB1 to USBn (Default) note: the sequence is assigned by OS during USB plug-in - 1 : Prompt the device ID of programmer connected to USB1. - n : Prompt the device ID of programmer connected to USBn.
load-file arg	Load a bin/hex/s19 file and compare with memory content - work withverify only Example: dpcmdverifyload-file d:\xxx.bin

Miscellaneous options:

Note: The programming operation always uses the default value for command. For other settings, must add the wanted option to every command.

Timeout value in seconds. Default value is 1000s.
Target Options
Available values:
1, Chip 1(Default)
2, Chip 2
3, Socket
0, reference card
specify vcc
0, 3.5V
1, 2.5V
2, 1.8V
1800 ~ 3800, 1.8 ~ 3.8V (minimum step 100mV)
(For SF600/SF600 <i>Plus</i> only)
apply vpp when the memory chip supports it
- work withprog anderase.
Record the operation result in given/appointed .txt file
Example:
dpcmd –log F:\LogFilePath.txt
Note: If you didn't use this command, the operation result will
be recorded in the default file
"%appdata%\dediprog\SF100\log.txt"



-i [silent]	suppress the display of real-time timer counting
	 used when integrating with 3rd-party tools (e.g. IDE)
spi-clk arg (=2)	specify SPI clock(SF100/ SF600):
	2, 12 MHz/ 12MHz (Default)
	0, 24 MHz/ 25MHz
	1, 8 MHz/ 6MHz
	3, 3 MHz/ 4MHz
	4, 2.18 MHz/ 2MHz
	5, 1.5 MHz/ 1MHz
	6, 750 KHz/ 800MHz
	7, 375 KHz/ 400MHz
set-io1 arg (=0)	specify Level of IO1(SF100) or GPIO1(SF600/SF600Plus):
	0, Low(Default)
	1, High
set-io4 arg (=1)	specify Level of IO4(SF100) or GPIO2(SF600/SF600Plus):
	0, Low
	1, High(Default)
nand-SpareAreaUseFile	specify if the Spare Area use file:
arg (=0)	0, Unuse(Default)
	1, True
	work with Nand chip
nand-skip-bad-block	specify if the Bad Block(s) are skipped:
arg (=0)	0, Skip(Default)
	1, No management
	work with Nand chip
nand-internal-ecc arg	specify if the internal ECC enable:
(=0)	0, Enable(Default)
	1, Disable
	work with Nand chip



5.6 Exit Code

enum ErrorCode

{

EXCODE_PASS, EXCODE_FAIL_ERASE, EXCODE_FAIL_PROG, EXCODE_FAIL_VERIFY, EXCODE_FAIL_READ, EXCODE_FAIL_BLANK, EXCODE_FAIL_BATCH, EXCODE_FAIL_CHKSUM, EXCODE_FAIL_IDENTIFY, EXCODE_FAIL_FIRMWARE, EXCODE_FAIL_SAVELOG, EXCODE_FAIL_SAMEID, EXCODE_FAIL_SAMEID, EXCODE_FAIL_OTHERS=99,

};



VI. Standalone Mode (SF600Plus/SF700 only)

In addition to the functions provided by SF600*Plus*/SF700 further allow you to download project to SF600*Plus*/SF700 directly and program serial flash memories in standalone mode.



6.1 Project Preparation

Prepare a standalone programming project.

6.1.1 Open DediProg Engineer software.



6.1.2 Select IC brand and part number.

File View Help		oad Prj Save Prj Dowhlosd Prj Stand Alone Project	Powered by 600Pmp
	Manually Select Memory Type Manually Select Memory Type Filters: Manufacturer Microchip/SST Micron(Numonyx) Nantronics ON Semiconductor PWc. Puya SANYO SiliconBlue Spansion Terra Semiconductor XMC XTX Zbit Semiconductor	Memory List: W25Q20CL W25Q20EW W25Q256FV W25Q256JV W25Q256JV W25Q2556JV W25Q2556JV W25Q2556JW W25Q257W W25Q257W W25Q257W W25Q257W W25Q257W W25Q257W W25Q257W W25Q257W W25Q32FW W25Q32FW <t< th=""><th>fo ows Version: Windows 10 ammer Info : SF600Plus ware Version: 7.2.37 Vversion: E ware Version: 2.1 Status: 1.8V / OFF Acc: Not Applicable Jock: 12 MHz /Quad IO: Single IO ry Info W25Q32DW fact.: Winbond Electronics Corp KB: 4096 i. ID: 0xef6 ID: 0xef6 VCC: 1.8V size(B): 256 r size(B): 4096 ifo ::</th></t<>	fo ows Version: Windows 10 ammer Info : SF600Plus ware Version: 7.2.37 Vversion: E ware Version: 2.1 Status: 1.8V / OFF Acc: Not Applicable Jock: 12 MHz /Quad IO: Single IO ry Info W25Q32DW fact.: Winbond Electronics Corp KB: 4096 i. ID: 0xef6 ID: 0xef6 VCC: 1.8V size(B): 256 r size(B): 4096 ifo ::

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6.1.3 Load the programing file.

Z DediProg Software SF6.0.5.19 File View Help	- 🗆 X
▶ Etit Config Load Prj Save Prj Deviljed Prig	Powered by Oudprog
Currently working on:	
(1) 2018-Jan-02 15:14:03: Welcome to DedProg SF6.0.5.19 (1) 2018-Jan-02 15:14:03: Start logging (1) 2018-Jan-02 15:14:03: Checking Windows version (2) 2018-Jan-02 15:14:03: Checking Windows version (2) 2018-Jan-02 15:14:03: Checking Windows version (2) 2018-Jan-02 15:14:03: Checking USB complexity (Vindows 10) (2) 2018-Jan-02 15:14:03: Checking USB complexity (Vindows 10) (2) 2018-Jan-02 15:14:03: Current Type: W25 (2) 2018-Jan-02 15:14:03: Current Type: W25 (2) 2018-Jan-02 15:14:03: Current Standalore (2) 2018-Jan-02 15:14:03: Current Standalore (2) 2018-Jan-02 15:14:03: Detecting Chin (2) 2018-Jan-02 15:14:03: Detecting Chin (2) 2018-Jan-02 15:16:13: Type W25Q32DWi	OS Info Windows Version: Windows 10 Programmer Info Tunee: SF600Plus 2. Find Find Find VICE VICE VICE VICE VICE VICE VICE VICE
OK 3.	Cancel 4096 Dxef 0xef JEDEC ID: 0xef6016 Chip VCC: 1.8V Page size(8): 256 Sector size(8): 4096 File Info Name : Size: Checksum(File size) : Checksum(Chip size) : Checksum(Chip size) : CRC32 Checksum(chip size): CRC32 Checksum(chip size) :

6.1.4 Click "Config" icon to set programming flow.

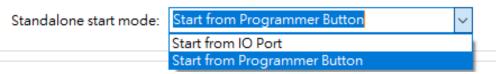
Important Notice:

"Identify Chip" is necessary for SF600*plus*/SF700 standalone programming. Make sure to select "Identify Chip" in programming flow.

Advanced Settings	Х
	Batch Operation Options
Batch	O Download a whole file to chip (With Blank Check), Fill Unused Space with(Hex): 00
Operations	Download a whole file to chip (Without Blank Check), Fill Unused Space with(Hex): □ 00
Prog	O Update memory only on sector locations with content difference. (a) Update start from address (Hex)
Program Configuration	O Update up to address (Hex) 7FFFF
	O Update memory and keep one protected area unchanged. Protect area at address(Hex) 0 for 0 bytes
Engineering Mode	O Update memory according to Region configuration Region 1 v From(Hex) 0 to FFF
*	Erase the rest of the selected but not updated region
S.R Modify Status	Without Erase for item 1 and tiem 2
Register	Enable Freescale EzPort MCU & Send the DIV value (Hex)
88	Send Specific Data. File path:
Miscellaneous Settings	🗹 Identify Chip
	Reload file each time
	Require Verification after completion
Flash Options	Auto update second memory with file:
	Verify only for project saving and using on Production mode (for SF600/SF600Plus only)
	Standalone start mode: Start from Programmer Button v
	Current File in Buffer: C\1Mbyte.bin



6.1.5 Choosing Standalone start mode



Note : SF700 only supports Start from Programmer Button.

6.1.6 Save .dprj file to PC

View Help	Blank Erase Pr		😿 👔 Batch Edit	i (config	Load Prj S.	I. Dowialoud Prj		Ŧ	?owered by		
rrently working on	0 +	Dry Chip 1 O App		Chip 2 U	pdate Stand Alc						
	🖳 Save As		integion o		() Ada					×	
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	Save as type:	Dedi Project Files (*	.dprj)							~	
								4.	۲		
	∧ Hide Folders						S	ave	Cancel		
							File I Nam Size	e:		4mbyte.bin 0x400000	
							Chee		ip size) :	0x1FACBD31 0x1FACBD31	l.
									sum(file size): sum(chip size):	0xF9399D68	



6.1.7 Press "Download Prj" button to download project to SF600Plus/SF700 embedded memory

Z DediProg Software SF6.0.5.19 File View Help		– 🗆 X
• •	Powered by	DodProg
Currently working on: Application Memory Chip 1 Application Memory Chip 2 Update Stand Alone Project		
Currently working region: Region 1 Region 2 Region 3 Region 4 Region 5 Region 5 Region 4 Region 5 Region 6 Region 6 Region 7 Reg		×
(i) 2018-Jan-02 15: (i) 2018-Jan-02 15: ← → ✓ ↑ → This PC → Desktop → test file → ✓ ♂	Search test file	<u>م</u>
(i) 2018-Jan-02 15: ✓ 2018-Jan-02 15: Organize ▼ New folder	III 🔻 🔳	0
(1) 2018-Jan-02 15: ✓ 2018-Jan-02 15: (1) 2018-Jan-02 15: (2) Documents ↓ Documents	Date modified 10/2//2017 1:58 PM	
① 2018-Jan-02 15: ↓ Downloads	6/21/2016 12:24 AM 6/21/2016 12:28 AM 6/21/2016 12:28 AM	D
	6/19/2017 11:16 AM 10/17/2017 9:43 AM	D
(i) 2018-Jan-02 15: Section OS (C:) W25Q32DW.dprj 3.	1/2/2018 3:02 PM	D
	10/27/2017 3:21 PM 6/21/2016 6:23 PM	D Corp
(II) 2018-Jan-02 15: Data_1 (F:)		>
File name: 🗸 🗸	Dedi Project Files (*.dprj)	~
4.	Open Cancel	
	File Info Name : Size: Checksum(File size) : Checksum(Chip size) :	4mbyte.bin 0x400000 0x1FACBD31 0x1FACBD31
	CRC32 Checksum(file size): CRC32 Checksum(chip size)	0xF9399D68
No operation on-going.		

6.1.8 Download project successfully

🖉 DediProg Software SF6.0.5.19		\times
File View Help		
▶ Detect File Blank File File Blank File File Blank File File File File File File File File	Powered by oceanoo	
Currently working on: • Application Memory Chip 1 • Application Memory Chip 2 • Update Stand Alone Project Currently working region: • Region 1 • Region 3 Region 4 Region 5		
() 2018-Jan-02 15:14:03: Welcome to DedProg SF6.0.5.19 () 2018-Jan-02 15:14:03: Start logging	OS Info Windows Version: Windows 10	^
1 2018-Jan-02 15:14:03: Checking Windows version: 2018-Jan-02 15:14:04: USB connection 2018-Jan-02 15:14:04: USB oK. 2018-Jan-02 15:14:04: USB oK. 2018-Jan-02 15:14:04: USB oK. 2018-Jan-02 15:14:04: USB oK. 2018-Jan-02 15:14:07: Detecting Ohj: 2018-Jan-02 15:14:01: Current Type: W25Q320W Abais-Jan-02 15:14:10: Current Type: W25Q320W Abais-Jan-02 15:14:10: Current Standalone Project test_1.dprj 2018-Jan-02 15:14:12: Standalone Project test_1.dprj 2018-Jan-02 15:14:12: Detecting ohj: 2018-Jan-02 15:18:14:12: Detecting ohj: 2018-Jan-02 15:18:14:12: Detecting ohj: 2018-Jan-02 15:18:14:13: Loadione Project test_1.dprj 2018-Jan-02 15:18:14:13: Loadione Cillers/Work/Desttop/test file/\mbyte.bin Loaded. 10:2018-Jan-02 15:18:14:1 Operation completed. 10:2018-Jan-02 15:27:14: Operation completed. 10:2018-Jan-02 15:27:14: Operation completed. 10:2018-Jan-02 15:27:14: Current Standalone Project W25Q320W.dprj download OK 2018-Jan-02 15:27:16: Cillers-molicitus K25Q320W.	Programmer Info Type: SF600Plus Firmware Version: 7.2.37 FPGA Version: E Hardware Version: 2.1 VCC Status: 1.8V / OFF VPP /Acc: Not Applicable SPI Clock: 12 MHz Dual/Quad IO: Single IO Memory Info Type: W2SQ32DW Manufact: Winbond Electronics Corp Size(KB): 4096 Manu. ID: 0xef JEDEC ID: 0xef6016 Chip VCC: 1.8V Page size(B): 256 Sector size(B): 4096 File Info Name : 4mbyte.bin Size: 0x40000 Checksum(File size): 0x1FACBD31 Checksum(Chip size): 0xF939068	
No operation on-going.		

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6.2 Standalone Programming

Start Standalone programming.

6.2.1 "Start from Programmer Button" mode

Press "Start" button for two seconds to run the project in Standalone mode.

6.2.2 "Start from COM Port" mode

The Com Port design is for integrating SF600/SF600*Plus* with customer's system. All programmer pin outs (except 5V and NC) are default with Low status. Once customer/system sends a High signal to trigger START which needs hold for one second and make the programmer working (i.e. BUSY becomes High status accordingly), SF600/SF600*Plus* will also feedback PASS or FAIL result with High signal after programming.





VII. Firmware Support for Microsoft Windows

Check the Windows OS version and refer to the following table before you upgrade to the new firmware and software for SF100/SF600/SF600*Plus*.

If you are using Windows 8.1/Windows 10, please make sure the programmer firmware and SF software are the latest version. However, for older Windows OS version, there is no need to upgrade the programmer FW to the latest version.

You can download the latest version on DediProg website. <u>www.dediprog.com/download</u>

Windows OS	Current Firmware Version	Upgrade Firmware	Upgrade Software
Win8.1/Win10	6.х.хх	6.5.03	SF 6.0.5.19
	5.x.xx	5.5.03	SF 6.0.5.19
	1.x.x to 4.x.x	Please contact DediProg sales	
Older versions	5.x.xx and later	5.5.xx	SF 6.0.5.19
	1.x.x to 4.x.x	There are no restriction	

SF100

SF600 / SF600Plus

Windows OS	Current Firmware Version	Upgrade Firmware	Upgrade Software
Win8.1/Win10	6.x.x	6.9.0	SF 6.0.5.19
	7.x.x	<u>Latest firmware version</u> (Please contact DediProg sales)	SF 6.0.5.19
Before Win 8.1	6.х.х	earlier than 6.9.0	There are no restriction

*Please note that support and updates for older hardware versions are no longer available.



VIII. Revision History

Date	Version	Changes
2010/03/19	5.5	Added: Enable EzPort Function on Configuration; log.txt file available on Commend line; Blink/Device/Fix-Device on Dpcmd.
2010/04/14	5.6	Added: Update up to address option on Batch and Program Configuration operation options.
2010/05/10	5.7	Minor improvement
2011/05/18	5.8	 Added specific function. Added region configuration programming function.
2011/08/26	5.9	Added SF600 Hold pin status setting method.
2012/01/09	6.0	Added SF600 standalone programming.
2012/12/20	6.1	Revise the CLI detail and add exit codes.
2013/08/23	6.2	 Added status register-2 function Added the multiple-Dpcmd function.
2013/12/18	6.3	 Remove part of SF200 and SF300 Remove "isolation free" from software
2014/02/25	6.4	New feature for SF600 <i>Plus</i>
2014/04/28	6.5	Replenish COM Port feature of Stand Alone mode
2014/05/20	6.6	Modify log saving command
2014/06/04	6.7	 Add –load-file command for "verify only" feature Updated case study contents and testing time.
2014/08/01	6.8	Added IO1/IO4(SF100) and GPIO1/GPIO2(SF600/SF600 <i>Plus</i> setting)
2014/10/28	6.9	Added Chapter VIII. Firmware Support for Microsoft Windows
2015/04/28	7.0	 Added Chapter 3.5.3.2 Send multiple commands -raw-instruction arg use " " to send continuous command Modified Chapter 3.5.3 Engineering Mode- send command function on Engineering mode Added scroll bar for the software window Updated Chapter VIII. Firmware version
2016/03/01	7.1	1. Remove Dual and Quad IO function



7.2	1. Modify the USB driver installation content
	2. Modify Edit content about Go button
	3. Add multiple DpCmd window function
	4. Update firmware version and software version
7.3	Update the latest software version.
7.4	EzPort programming support on DpCmd (batch command).
7.5	1. Add DpCmd Remark content
	2. Update Engineering GUI pictures (Logo changed, Programmer and
	Memory Info display more information)
7.6	1. Add DpCmd Remark content.
	2. Add "verify only for project saving and using on Production mode and Standalone mode" feature.
	3. Modify region programming including feature which rest of selected region is erased.
	4. Delete icons on production mode.
7.7	1. Add SF700 information
	2. Modify the picture of engineering mode in Ch.3.5.3.
	3. Modify picture of standalone start mode.
7.8	1. Add SPI NAND information in Ch.3.7.
	2. Update Command line information in Ch.5
	7.3 7.4 7.5 7.6 7.7



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