

SF Software User Manual For SPI NOR Flash

Please read the instructions carefully before use.

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I. Introduction

This user manual illustrates the usage of DediProg SF Software. The software can work with SF100, SF600, SF600Plus, SF700 and SF600Plus-G2 programmers and Backup Boot Flash kit at the same time (SF100/SF600/SF600Plus/SF600Plus-G2 only). 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: www.dediprog.com

2.1 Operating System Requirement

Windows Vista/7/8/8.1/10/11 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 www.dediprog.com/download

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 / 8.1/10/11) ". For 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, SF600Plus, SF700, SF600Plus-G2 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 SF600Plus/SF700/SF600Plus-G2 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 NOR 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 NOR Flash on the application board or the socket. You do not need to select SPI Nand Flash's location.

% Note: If you want to work on the second target SPI NOR Flash soldered on the application board, the application board must be designed with proper schematic and the pin outs must match with DediProg ISP pin outs.

Image: Second	DediProg Software View Help	SF7.3.92.52								_		>
Currently working on: Application Memory Chip 1 Application Memory Chip 2 Region 1 Region 2 Region 3 Region 4 Region 5 20224May-30 15:13:23: Weldome to DedPirog SF7.3.92.52 Start logging 20224May-30 15:13:23: Weldome version: Windows version: 20224May-30 15:13:23: Weldom version: Windows version: 20224May-30 15:13:23: Weldom version: Windows version: 20224May-30 15:13:23: Windows version: Windows version: 20224May-30 15:13:23: Weldom version: Windows version: 20224May-30 15:13:23: Windows version: Windows version: 20224May-30 15:13:38: Create Time: 2025-526 13:39:44 Modify Time: 2014-49:10 15:13:38: Create Time: 2025-526 13:39:44 Modify Time: 2014-49:10 15:13:38: Create Time: 2025-526 13:39:44 Modify Time: 2014-49:10 15:13:38: Create Time: 2025-526 13:39:44 Modify Time: 2015-15:56: Operation Completed. 20224May-30 15:13:38: Create Time: 2025-526 13:39:44 Memory Info Yopzammer Info Ypp/Acc: NK256456E Chip VC	s 💮 (etect File F	O 🥖 Blank Eras	e Prog	Verify Batch	👔 🧐 Edit Conf	ig Load Prj	save Prj	Download Prj	Powered l	y ordered) 9	
20224May-30 15:13:23: Control Understand State Control Un	urrently working on:	Applicat O Region	tion Memory Chi 1 Region	p 1 O Application	Memory Chip 2	Region 5						
Application Memory Programmer Info Type: \$F700 VCC Status: 3.5V / OFF Firmware Version: 4.1.022 VPP/Acc: Not Applicable PFGA Version: 0x0C20 SPI Clock: 12 MHz Hardware Version: 4.1 IO Mode: Single IO Batch Config setting Type: MX25L6436E Memory Info Type: MX25L6436E Manufact: Macronix_MXIC Size(KB): 8.192 Page size(B): 256 Sector Size(B) 4096) 2022-May-30 15:13:) 2022-May-30 15:15:) 2022-May-30 15:15:	23: Welcome 23: Start logg 23: Start logg 23: Windows 24: Checking i 24: Checking i 24: Checking i 24: Detecting 38: Current T 38: Current w 56: Coperation S 56: 0,162 sec	to DediProg SF ing Windows version version: Window USB connction . Chip ype: MX25L643 iorking context: :User/Desktop/te user/Desktop/te user/Desktop/te completed. ioonds elapsed.	7.3.92.52 n vs 10 55 Write Protect mode I sktop (test file (Binar st file (Binary file) (Si	s Normals WP mode y file]\9MB_1.bin MB_1.bin Loaded.				OS Info Windows Versio File Info Name : 8/MB_1.bi Size : 0x800000 Create Time: Modify Time: Byte Checksum(Byte Checksum(CRC32 Checksum CRC32 Checksum	n: Windo) 2020-5-26 13 2014-4-9 10: File size) : (Chip size) : (n(file size): (n(chip ()	ws 10 3:39:44 25:5 0x3F60D10 0x3F60D10 0x334D26 0x334D26	00 00 1E 1E
Memory Info Memory Info Type: SF700 VCC Status: 3.5V / OFF Firmware Version: 4.1.022 VPP/Acc: Not Applicable FPGA Version: 0x0C20 SPI Clock: 12 MHz Hardware Version: 4.1 IO Mode: Single IO					Applica	ition M	emor	У	- Batch Config setting	Full Chip u Partial Upo starting fr	pdate date and om:0x00	
0%	ogrammer Info Type: SF700 Firmware Version: FPGA Version: Hardware Version:	4.1.022 0x0C20 4.1	VCC Status: VPP/Acc: SPI Clock: IO Mode:	3.5V / OFF Not Applicable 12 MHz Single IO	Memory Inf Type : Manufac Manu. II JEDEC II	MX25L6436E t: Macronix 0: 0xc2 0: 0xc2201	_MXIC 7	Chip VCC : Size(KB): Page size(B) : Sector Size(B)	3.3V 8192 256 4096			
						0%						



3.3 Tool Bar Description

The to	ol bar	pro	vides	all S	PI FI	ash c	pera	ation	IS.							
	🖳 DediPr	og Softwa	are 7.4.1.1												-	×
	File View	File View Help														
	 													/ C		
	Currently working on: • Application Memory Chip 1 • Application Memory Chip 2 • Currently working region: • Region 1 • Region 2 • Region 3 • Region 5															

Detect

Detect Chip: when a new SPI NOR 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.

Filters:	Memory List:	Filters:	Memory List:
Manufacturer <auto detected="" type(s)=""> <all> ACE Adesto ALTERA AMIC Atmel ATO Solution BergMicro Boya GFeon/EON Dosilicon DOUQL Technology ESMT Fidelix</all></auto>	Auto detect chip part type	Manufacturer ISSI LRC Macronix Microchip/SST Micron(Numonyx) Nantronics PARAGON PMC. SANYO SiliconBlue Spansion Terra Semiconductor Winbond Electronics Corp Zbit Semiconductor	W25Q40EW W25Q64 W25Q648V W25Q648V W25Q640W W25Q649W W25Q640W W25Q649W W25Q641V W25Q641V W25Q641V-DTR W25Q641V-DTR W25Q600V W25Q800V W25Q800V W25Q80V W25Q800V W25Q80V W25Q80V W25Q80V W25X05 W25X05 W25X10(A) W25X10(A)

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 	
Program as					
Data Format:	Raw Binary	O Intel Hex	O Motorola S19		
Truncate file	e to fit in the target	area.			
		ОК		Cancel	

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

SF600Plus/SF700/SF600Plus-G2 only, please referring to Chapter 7- <u>VI. Stand Alone Mode</u> (SF600Plus/SF700/SF600Plus-G2 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.

Jource																						C		_		-	. "		-			
File: C:\Users\u	ser \De	sktop	test f	file \[Bi	nary f	ile]\8	MB_1	bin						Ор	en		hip: I	4X25L	.6436	E		L	Read)		File	Buffe	r to F	ie	Chi	p Buff	er to
e Checksum															Memo	ry Chec	ksum															
ile = 3F60D100) Buf	fered	File	= 3F(50D1	00					Ca	culatin	ıg		Mer	nory (F	ile siz	e)= 3	F60D	0100	Buff	ered	Mem	iory :	= 3F6	50D1	00				Ca	culate
Swap																																
Byte Swap	Wo	ord Sw	ap	DW	ord Si	wap										Res	et										Shov	v In	Он	lex () as	CII
									File														Men	nory								
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
x00000100	A8	12	4B	1D	66	73	CF	A5	C8	0C	A7	AD	4F	49	79	8D	A8	12	4B	1D	66	73	CF	A5	C 8	0 C	A7	AD	4F	49	79	8D
x00000110	B 3	6E	7B	07	DD	81	9D	F9	CA	69	45	16	97	1F	DB	F4	B 3	6E	7B	07	DD	81	9D	F9	CA	69	45	16	97	1F	DB	F4
x00000120	AB	83	49	80	A7	D1	2F	0E	21	CD	F8	FE	CF	8A	12	E7	AB	83	49	80	A7	D1	2F	0E	21	CD	F8	FE	CF	8A	12	E7
x00000130	21	EE	5E	85	73	EB	B 9	7F	58	6F	A3	BA	A8	88	E1	CD	21	EE	5E	85	73	EB	B 9	7F	58	6F	A3	BA	A8	88	E1	CD
x00000140	4B	E3	27	41	E 6	6D	A 6	BC	04	DE	16	CE	B5	FB	F1	62	4B	E3	27	41	E 6	6D	A6	BC	04	DE	16	CE	B5	FB	F1	62
x00000150	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
x00000160	A8	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	B 0
x00000170	4D	5C	B4	49	63	AB	F8	A9	F1	5A	32	48	F1	9F	FE	B4	4D	5C	B 4	49	63	AB	F8	A9	F1	5A	32	48	F1	9F	FE	B 4
x00000180	29	99	09	33	5D	ED	2C	7A	B 7	03	E3	53	F0	34	B7	1B	29	99	09	33	5D	ED	2C	7A	B 7	03	E3	53	F0	34	B7	1B
x00000190	D6	A9	45	F6	42	36	B9	36	09	5B	CE	24	0F	DB	A7	51	D6	A9	45	F6	42	36	B9	36	09	5B	CE	24	0F	DB	A7	51
x000001A0	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	66	67	CF	30	00	53	FD
x000001B0	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
x000001C0	FC	88	75	67	67	9E	E5	4A	23	36	DC	D7	A7	84	9D	C8	FC	88	75	67	67	9E	E5	4A	23	36	DC	D7	A 7	84	9D	C8
x000001D0	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
x000001E0	6D	B2	36	B 7	CD	C8	A6	B 8	EB	9B	66	A4	D5	E6	CA	80	6D	B 2	36	B7	CD	C 8	A6	B 8	EB	9B	66	A4	D5	E6	CA	80
x000001F0	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
lump To																																
	Ne	xt Dif	feren	ce																												



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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.

ew Contents in the Memory Chip X																																	
Source																																	
File	C:\Us	ers\v	onbi\	Deski	top\te	st file	\8Mb	vte 2	2.bin											Ope	n						File	Buffe	r to F	ile			
-1.								/																			Chin	p66	or to P	ile.			5
Chip:	W250	264F\																		кеа	a						Chip	DUTR	er to r	ne			
Swap																																	
Byte Swap Word Swap DWord Swap																																	
Checksum: File = 3F5FAD8C Memory = 3F60D100 Buffered File = 3F5FADEB Buffered Memory = 3F60D100 Show In O Hex O ASCII																																	
File Memory																																	
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	Be	47	37	81	A6	F7	1E	01	1C	78	ЗF	62	38	BC	06	B9	A8	12	4B	1D	66	73	CF	A5	C8	0C	Α7	AD	4F	49	79	8D	
0x000010	60) BE	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	0,4	47	C1	31	24	A2	8C	1E	ЗF	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	BA	A8	88	E1	CD	
0x000040) 78	55	1B	30	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	
0x000040 78 55 18 3C 84 64 A4 DF AC 98 08 63 FC E2 24 48 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																																	
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 A7 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 B0																																	
0x000070	66	0 3	E1	24	0C	3C	E0	C1	Α7	B4	8E	8B	8B	92	60	AB	4D	5C	Β4	49	63	AB	F8	A9	F1	5A	32	48	F1	9F	FE	B4	
0x000080	D	2 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	F0	34	B7	1B	
0x000090	68	9E	70	96	44	B6	F6	95	6A	A9	04	ED	39	A 3	15	C4	D6	A9	45	F6	42	36	B9	36	09	5B	CE	24	0F	DB	Α7	51	
0x0000A0	30) A:	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	
0x0000B	D BC) BC	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	
0x0000C) 8F	72	85	62	6A	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	
0x0000D	A 4	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	бA	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) FC	53	50	0A	17	91	OF	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	ЗE	44	2F	15	61	Ε7	1D	54	49	F2	0C	3C	BE	BD	B1	3D	v
Jump To	-																																
			Nex	t Diffi	erence	2																											
Address	(Hev)			-	_			Gol																									
Auuress	(rick)							00:																									

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		^
	Batch Operation Options	
	O Download a whole file	to chip (With Blank Check), Fill unused space with(Hex): 🗛 🗌 00
	O Download a whole file	to chip (Without Blank Check) Fill unused space with(Hex): 100
Program	O Update memory only fo	or sector locations with content difference. O Update start from address (Hex)
Configuration		O Update up to address (Hex)
2	O Update memory and ke	eep one protected area unchanged area unchanged. 0 for 0 bytes D
Engineering Mode	 Update memory accord 	ding to Region configuration Region 1 v from (Hex) 0 to fff
@	Note: The batch item 3,4,5	j are only applicable to the DediProg Engineering application.
Modify Status Register		
62	Without Erase for item	1 and item 2 G
Miscellaneous	Enable Freescale EzPor	t MCU & Send DIV value (Hex)
Settings	L I Sand Specific Data lile	
Advanced Settings	Send Specific Data. The	Y PURE
	Identify Chip	J
Batch Operation	Reload file each time	
	Require Verification af	fer completion L
Program	Auto update second m	nemory with file: Find
Configuration	Verify only for project s	saving and using on Production mode and standalone mode
	Standalone start mode:	Start from Programmer Button
Mode		
٠		
Modify Status Register	Sequences Details (Read	Only
88	1	Actions Identify before operation starts.
Miscellaneous	2 3	Read from the chip Blank Check
	4 5	Erase Chip(if not blank) Program Chip
Flash Options	6	Verify after operation completes

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.



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

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 compares 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.

			_	
Update memory according to Region configuration	Region 1 🗸	From(Hex) 0	to	FFF
	\sim			

2) Select working region

PediProg Software SF6.0.5.19													
File Vi	ew Help												
s Detect	eee File	O Blank	Erase	Prog	√ Verify	😿 Batch	Edit	Config	od Load Prj	save Prj	Download Pri		
Curren	tly working a	m: @) Applicatior	Memory C	hip 1 🔾	Application I	Memory Ch	ip 2 U	odate Stand	Alone Proje	ect		
Currently working region: Region 1 Region 2 Region 3 Region 4 Region 5													

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»

₽	DediPro	g Softw	vare SF6.0.5.19	
File	View	Help		
	6	F	Firmware Manual Update(For Experts Only)	6
De	tect]	l	Launch Calculator	E
с	urrently w	U	User Manual	lemo
с	urrently w	E	EzPort User Manual	3
: [7	0 20 18-1	4	About DediProg	F
6	2018-3	an-02 1	5:06:22: Start logging	-

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.



Different Programming Scenarios and Suggestions:

It is recommended to use different methods to program according to the IC memory status, and here are some test results for each scenario.

Scenario 1: The IC has been used or not sure whether it has been used before, and need total erase and program \rightarrow "Update without Blank Check".

Scenario 2: The IC and the memory are in the initial state from the factory \rightarrow "Update with Blank Check" or "Smart update".

Scenario 3: Partial update; update one block or one block size at a specified address → "Smart update"

Scenario 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	with BC	Update v	vithout BC	Smart Update				
Model name	SF100	SF700	SF100	SF700	SF100	SF700			
Memory Read	13	7	х	х	12	6			
Compare	1	1	х	х	1	1			
Erase	21	23	21	23	54	77			
Program	36	23	36	23	58	44			
Verify	13	7	13	7	13	7			
TOTAL	84	61	70	53	138	135			

Time unit: seconds





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 <u>49%</u>; SF700 saves <u>61%</u>



Scenario 2:

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

Function	Update v	with BC	Update without BC		Smart Update	
Model name	SF100	SF700	SF100	SF700	SF100	SF700
Memory Read	12	6	х	х	12	6
Compare	1	1	х	х	1	1
Erase	0	0	21	23	0	0
Program	36	23	36	23	57	44
Verify	13	7	13	7	13	7
TOTAL	62	37	70	53	83	58

Time unit: seconds

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 25%; SF700 saves 36%



Scenario:

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 with BC		Update without BC		Smart Update	
Model name	SF100	SF700	SF100	SF700	SF100	SF700
Memory Read	13	7	х	х	12	6
Compare	1	1	х	х	1	1
Erase	21	23	21	23	1	1
Program	36	23	36	23	1	1
Verify	13	7	13	7	13	7
TOTAL	84	61	70	53	28	16

Time unit: seconds

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 67%; SF700 saves 74%



3.5.2 Program Configurations

Advanced Settings							×
	Program Options:						
Batch	Program a whole file starting	from address 0 of a chip					
Batch	Fill Unused Space with(Hex):	00					
	O Program from specific address	s of a chip					
Prog	Starting Address(Hex):	0×0000000					
Program Configuration	O Program up to specific addres	s of a chip					
2	End Address(Hex):	0X07FFFFF					
Engineering Mode							
SR							
Register							
	* Settings in this page are only me	ant for singly fired program instr	uctions, which must be app	plied to a blank(i.e.	erased) area.		
Miscellaneous	* To configure program instruction	s that are embedded in compos	site sequences, See "Batch (Configurations".			
Settings							
Flash Options							
				確定	取消	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.



3.5.3 Engineering Mode

Advanced Settings		×
	Send single command to Memory:	
Batch	Send byte stream: (example: 03 ff 00 12)	
Batch Operations	Need to return bytes.	
	☐ Monitor SR for second after sending the instruction.	Send single command
Prog Program Configuration	Add command to list ↓	
Engineering Mode SR Modify Status Register Miscellaneous Settings	Steps Command Return by Command : Clear Save Load	yte(s) Response time Send multiple command
Flash Options	N/A Warning: any on-going operation(e.g. erase) will be terminated immediately after closing this p	page.
		確定 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 must be polled to check if the SPI Flash is busy or ready. Send single command by clicking "Send single command" button.



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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:

Batch	 Send single comma Send byte stream 	and to Memory:	(example: 03 ff 00 12)		
Batch Operations	Need to return	n	bytes.		
	Monitor SR fo	r	second after sending the instruction.		Send single command
Prog Program Configuration	Send mutiple comm	and to memory :	Add command to list $\ \downarrow$		
Eng. Engineering 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.		Sende	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



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

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

Advanced Settings					
	 Send single command 	to Memory:			
(S) 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	Send mutiple comman	d to memory :	Add command to list $\ \downarrow$		
	Steps	Command		Return byte(s)	Response time
Eng.	1	06		NONE	NONE
Engineering	2	02 00 00 00 01 02 03		NONE	NONE
Mode	3	03 00 00 00		8	NONE
Miscellaneous Settings	Command : Clea	ar Save L	oad		Send Mutiple command
	SK = 00 0.323 second	is elapsed			
Flash Options	01 02 03 ####### Warning: any on-goin	ng operation(e.g. erase)	will be terminated immediately after cl	osing this page	L.
					確定 取消



3.5.4 Modify Status Register

Advanced Settings	
Rate	Read status register(s) :
Batch	Register1 Value(Hex): 00 Read Again
	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
SR SR Modify Status Register	* NOTE : Not Each Chip Have Two Status Register

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.



3.5.5 Miscellaneous Settings

Advanced Settings		×
8	Vpp Option: Apply Vpp for program and erase when the memory supports it.	.
Program Configuration	Vcc Option: Manual select Vcc Using Fixed Vcc 2.5V 1.8V 1.2V 1.2V 3.8V B B	
Engineering Mode	SPI Clock Setting: Select Clock: 12 MHz V	
Modify Status Register	Blank: Enable Blank Button Brase: Enable Erase Butoon Prog: Enable Prog Button	
Miscellaneou: Settings	Verify: Zenable Verify Button Batch: Enable Batch Button	
Flash Options	Always Single IO Enable Dual IO when available Enable Quad IO when available Enable Octal IO when available	;
	GPIO Setting: GPIO 1 from Low to High GPIO 2 from High to Low	
	OK Cancel	Apply

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, SF700 and SF600Plus-G2 support 1.2V. The default VCCC 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			
Type: SF700		VCC Status:	3.5V / OFF
Firmware Version:	4.1.016	VPP/Acc:	Not Applicable
FPGA Version:	0x0920	SPI Clock:	12 MHz
Hardware Version:	4.1	IO Mode:	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.

S.R Modify Status Register	SPI Clock Setting Select Clock: 12 MHz V
Miscellaneous Settings Flash Options	Toolbar Icon Configuration: Blank: Enable Blank Button Erase: Enable Erase Button Prog: Enable Prog Button Verify: Enable Verify Button Batch: Image: Enable Batch Button Dual/Quad IO Option: Image: Enable Prog
	Always Single IO
DediProg So File View He	oftware SF6.0.5.17 Ip
• Detect File	Image: Second

E. IO Option:

When the selected chip and the software support multiple IO command, it can change the IO Mode when programming. However, the options will be disabled and displayed in grayscale if the software does not support multi-IO programming for the selected chip.

F. GPIO Setting

There two GPIOs, GPIO1 and GPIO2, for using. You can select the behavior you need. When the option is selected, the IO will keep the status until un-plug the programmer. For example, when GPIO1 is selected, the GPIO1 will keep high until un-plug the programmer.



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3.5.6 Flash Option

Advanced Settings	×
Options	
Batch Unprotect block automatically when block(s) protected.	
Operations	
Program Configuration	
Eng.	
Engineering Mode	
S.R Modify Status	
Register	
Miscellaneous Settinos	
Flash Options	
確定 取消	套用(A)

There are three kinds of Flash Options.

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

Advanced Settings	
Batch Operations	Options

Β. 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 Setting	15
	Options
Batch	·
Batch	
	□ Translate program address to page+offset in standard DataFlash page size.
	For example: AT45DB642D program address 0x8000 translate to 0xf820 (page+offset)
Program	

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.





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 SF Programmers (SF100/SF600Plus/SF700/SF600Plus-G2) 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. <u>www.dediprog.com/download</u>

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.



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DediProg Software SF7.1.1.0-Beta I File View Help					- 0	×
Search Batch Load Prj Download						
Site #1 Site #2 Image: SF700 Image: SF700 F/W Ver: 4.0.226 F/W Ver: H/W Ver: 4.1 F/W Ver:	Site #3 Site #4 Site #4 Sit	Site #5	Site #6	Site #7	Site #8	~
Status Window Site Command Status Site ≠1 Search Device Ready	Statistics Success Failure: Total : Count Dr Remains	0 Reset 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Log Window (1) 2019-Mar-27 12:59: (2) 2019-Mar-27 12:59: (2) 2019-Mar-27 12:59: (2) 2019-Mar-27 12:59: (2) 2019-Mar-27 12:59: (1) 2019-Mar-27 12:59: (1) 2019-Mar-27 12:59:	 Start logging Checking Windows version: W Checking USB connet Checking USB connet USB OK. VCC 1.8V is appled. 12WHz SPI clock is ap Site 1 - SF700 	ersion Indows 10 ection	
Project Info Windows Info Windows Version: Windows 10 Memory Info Type: Checksur Manufact: Checksur Size(KB): CRC32 Ch Manu. ID: CRC32 Ch JEDEC ID: SA Opera	n(File size) : n(Chip size) : eecksum(file size): eecksum(chip size): stions:	IO Info IO Mode: Single IO Batch Config setting		_og Windov	w	
No operation on-going.	ndow Programi	mer Site Statu	ıs Bar			

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.





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Site	Programmer	UID	
Site #1	SF700	SF700296	Blink
			Blink

***** 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	Annual Prog. Mc Second Prof.	
File Edit Format View He	p	
2010-Mar-17 14:06:18 2010-Mar-17 14:06:26 2010-Mar-17 14:06:26	USB communication = true Site#1, PASS Site#2, PASS	A

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 Load Project Fail
FAIL Save Fail
FAIL Unknown

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



Window DOS command

😇 Dpcmd		_	\times
SF7.1.1.0-Beta I Engine Versior Last Built on Mar 21 2019 Basic Usages: Dpcmd -uxxx Dpcmd /uxxx Dpcmd /uxxx	n:		^
(space is not needed between th	he switches and parameters. E.g. dpcmd -ubio.bin)		
Basic Switches(switches in this -? [help] s -list p -d [detect] d -b [blank] b -e [erase] e force-erase e	s group are mutual exclusive): show this help message print supported chip list letect chip blank check erase entire chip erase entire chip mark with Mord chip colu		
-r [read] arg n	read chip contents and save to a bin/hex/s19 file		
-p[prog]arg p -u[auto]arg a	- use STIDUT for the console. program chip without erase automatically run the following sequence: - Read the memory content - Compare the memory content		
-z [batch] arg S	- Brase only the sectors with some differences - Program only the erased sectors with the file data from address O wrok with SPI NOR and SPI NAND SPI NOR automatically run the following sequence: about if the atim is highly ar not.		
- 2 8 	- erase the entire chip(if not blank); - program a whole file starting from address O SPI NAND automatically run the following sequence: - check if the chip is blank or not; - erase the chim memory which skim had block(if		
r - nand-batch-forceerase arg a - -	not blank); - program a whole file starting from address O 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 O		
-s [sum] -f [fsum] arg d	Isplay chip content checksum lisplay the file checksum - reeds to mork 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 "1" to send continuous command Example:		
d raw-require-return arg F I I I I I I I I I I I I I I I I I I	dpcmdraw-instruction 06 dpcmdraw-instruction "06102 00 00 00 11 22 33" 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-requi re-return 1 dpcmdraw-instruction "06105"raw-require-ret urn "012"		
Optional Switches that add fine -a [addr] arg hexad 0x100 - woj def	e-tune ability to Basic Switches: decimal starting address hexadecimal(e.g. DD), rks withprog/read/sum/verify/auto/batch only Faults to Dif omitted		
-l [length] arg hexad -woy	decimal length to read/program in bytes, rks withprog/read/sum/auto only faults to mbole file if omitted		
-v [verify] verif	fy checksum file and chip		_



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💼 Dpcmd		_	\times
-v [verify]	verify checksum file and chip		-
-x [fill] arg (=FF)	- works withprograuto/batch/load-file/addf only) fill spare space with an hex value(e.g.FF), - works withprog/hatch only		
type arg	Specify a type to override auto detection		
lock-length arg	- uselist arguement to look up supported type. hexadecimal length of area that will be kept unchanged while updating		
i de la companya de la	- used along withauto/lock-start only. Exammle:		
-	dpcmd -u file.binlock-start 0x1000lock-length 0x100 -v		
lock-start arg	hexadecimal starting address(e.g. 0x1000), - must work withlock-length - defaulta to 0 if omitted		
blink arg	- deraalts to o, 11 omittea.		
	- O : Blink green LED 3 times from USB1 to USBn (Default) note: the sequence is assigned by OS during USB		
	plug-in		
device arg	- 1: Blink the programmer connected to USB1 3 times. - n: Blink the programmer connected to USBn 3 times. (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		
fix-device arg	connected programmer. Fix programmer serial number with programmer sequence.		
	 instructions must be enclosed in double quotation marks("") 		
	Example:		
list-device-id arg	dpcmdfix-device "I DPUUUUUI" - O : List all ID of programmers from USB1 to USBn		
	(Default)		
	plug-in		
	- 1: Prompt the device ID of programmer connected to NSR1		
	- n: Prompt the device ID of programmer connected to		
load-file arg	Load a bin/hex/s19 file and compare with memory		
	content - work withverify only		
	Example:		
	apcmaveiliyload-lile a.vxx.oli		
Miscellaneous options: -t [timeout] arg (=	(1000) Timeout value in seconds. Default value is		
a [torret] are (-1	1000s.		
-g [taiget] aig (=)	Available values:		
	l, Chip l(Default) 2. Chip 2		
	3, Socket		
vcc arg	specify vcc		
	U, 3.5V 1, 2.5V		
	2, 1.8V 1900 - 2000 - 1.9 - 2.9V (minimum atom		
	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		
	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
-i [silent]	suppress the display of real-time timer coun ting - used when integrating with 3rd-party tools (e of IDE)		^
spi-clk arg (=2)	<pre>(6.5; 10D) 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/ 10MHz 7, 375 KHz/ 400MHz</pre>		
set-iol arg (=0)	<pre>specify Level of IO1(SF100) or GPI01(SF600/S F600Plus): 0, Low(Default) 1, High</pre>		
set-io4 arg (=1)	specify Level of IO4(SF100) or GPIO2(SF600/S F600Plus): 0, Low 1, High(Default)		
nand-SpareAreaUseFile arg (=0)) specify if the Spare Area use file: O, Unuse(Default) 1, True work with Nand chip		
nand-skip-bad-block arg (=O)	specify if the Bad Block(s) are skipped: O, Skip(Default) 1, No management work with Nand chin		
nand-internal-ecc arg (=0)	specify if the Enternal ECC enable: O, Enable(Default) 1, Disable work with Nand chip		
:\Program Files (x86)\DediProg\SF	100>		~

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.
- 2. 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

- 1. 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
- 4. dpcmd –p f:\file.bin –a 0x100, writes file.bin in Partition f into the serial flash starting from address 0x100
- 5. dpcmd –p f:\file.bin –x 0xaa, programs file.bin in Partition f into the serial flash and fill the rest area with 0xaa
- 6. Able to open multiple Dpcmd windows to control different programmers.



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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
-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	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
-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 06 dpcmdraw-instruction "06 02 00 00 01 122 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):

-a [addr] arg	hexadecimal starting address hexadecimal (e.g., 0x1000),
	 works withprog/read/sum/auto/batch only
	- defaults to 0, if omitted.
-I [length] arg	hexadecimal length to read/program in bytes,
	 works withprog/read/sum/auto only
	- defaults to the entire file if omitted
-v [verify]	verify checksum file and chip
	 works withprog/auto/load-file only
-x [fill] arg (=FF)	fill spare space with a hex value (e.g., FF),
	- works withprog/batch only
type arg	Specify a type to override auto detection
	- Use –list argument to look up supported type.
lock-start arg	hexadecimal starting address (e.g., 0x1000),
	- must work withlock-length
	- defaults to 0, if omitted.
lock-length arg	hexadecimal length of area will keep unchanged while updating
	- Used along withauto/lock-start only.
	Example:
	dpcmd -u file.binlock-start 0x1000lock-length 0x100 -v
blink arg	- 0: Blink green LED 3 times from USB1 to USBn (Default)
	note: the sequence is assigned by OS during USB plug-in
	- 1: Blink the programmer connected to USB1 3 times.
	- n: Blink the programmer connected to USBn 3 times.
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 guotation marks ("")
	Example:
	dpcmdfix-device "1 DP000001"
list-device-id arg	- 0: List all ID of programmers from LISB1 to LISBn (Default)
	note: the sequence is assigned by OS during LISB plug.in
	- 1: Prompt the device ID of programmer connected to USB1
	- n: Prompt the device ID of programmer connected to USB1.
load-file arg	Load a hin/hev/s19 file and compare with memory content
ivau-ille alg	- work withverify only
	Evample:
	docmdverifyload-file d:\xxx bin
	upeniuvenityioau-ine u. (XXX.Dili



Miscellaneous options:

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

-t [timeout] arg	Timeout value in seconds. Default value is 1000s.
-g [target] arg (=1)	Target Options Available values: 1, Chip 1(Default) 2, Chip 2 3, Socket 0, reference card
VCC arg (=0)	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/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 3 rd -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)



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 FIXDEVICE, EXCODE_FAIL_SAMEID, EXCODE_FAIL_RUNPROJECT, EXCODE FAIL SERIALSN, EXCODE_FAIL_LISTDEVICE, EXCODE FAIL BLINK, EXCODE_FAIL_DEVICE, EXCODE_FAIL_SWINIT, EXCODE FAIL PROGCONNECT, EXCODE FAIL LOADFILEWITHVERIFY, EXCODE_FAIL_SAVEMEM, EXCODE FAIL OTHERS=99,

};



VI. Standalone Mode (SF600Plus/SF700/SF600Plus-G2 Only)

In addition to the functions provided by SF600Plus/SF700/SF600Plus-G2 further allow you to download project to SF600Plus/SF700/SF600Plus-G2 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

PediProg Software SF6.0.5.19 File View Help		X
●1. Detect File Blank Frase Prog v	🖌 🧒 👔 🧐 🔥 🦶 Download erify Batch Edit Config Load Prj Save Prj Prj	Powered by Controp
Currently working on: Application Memory Chip Currently working region: Region 1	OApolication Memory Chip 2 Update Stand Alone Project Manually Select Memory Type	×
(1) 2018-Jan-02 15:14:03: Welcome to DedProg SF6 (1) 2018-Jan-02 15:14:03: Start logging (1) 2018-Jan-02 15:14:04: Checking Windows version ✓ 2018-Jan-02 15:14:04: Windows version: Window (1) 2018-Jan-02 15:14:04: Checking USB connection ✓ 2018-Jan-02 15:14:07: Detecting Chip, (1) 2018-Jan-02 15:14:10: USB OK. (1) 2018-Jan-02 15:14:10: Current Type: W2SQ 32DV ▲2018-Jan-02 15:14:10: VCC 1.BY is applied. (1) 2018-Jan-02 15:14:10: Detecting Chip, (2) 2018-Jan-02 15:14:10: Detecting Chip (2) 2018-Jan-02 15:14:10: Detecting Chip	Filters: Memory List: Maxufactuxer W2SQ20CL Micron(Numonyx) W2SQ255FV Nantronics W2SQ25FV ON Seniconductor W2SQ25FV Pv/C. W2SQ25FV Pvya SQ25FV SaNrO SilconBlue Spanion W2SQ33FV Winbond Electronics Corp W2SQ33FV Winbond Electronics Corp W2SQ33FV W2SQ33FV W2SQ33FV W2SQ33FV W2SQ33FV W2SQ33FV W2SQ33FV W2SQ33FV W2SQ33FV W2SQ33FV W2SQ33FV W2SQ33FV W2SQ33FV W2SQ3FV W2SQ33FV W2SQ3BV W2SQ33FV W2SQ3BV W2SQ3BV W2SQ40BV W2SQ40BV W2SQ40BV W2SQ40BV	fo ows Version: Windows 10 ammer Info : SF600Plus ware Version: 7.2.37 Version: E ware Version: 2.1 Status: 1.8V / OFF Acc: Not Applicable lock 12 MHz /Quad IO: Single IO ry Info : W25Q320W ffact: Windowd Electronics Corp KB): 4096 I. ID: Oxef I. ID: Oxef I. ID: Oxef I. ID: Oxef Size(B): 256 r size(B): 257 r size(B): 257 r size(B): 256 r size(B): V v v v v v v v v v v v v v v v v v v



6.1.3 Load the programing file

Z DediProg Software SF6.0.5.19 File View Help	– 🗆 X
• Detect File 1. Blank Erase Prog Verify Batch Edit Config Load Prj Save Prj Prj	Powered by Desires
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 (1) 2018-Jan-02 15:14:03: Welcome to DedProg SF6.0.5.19 (1) 2018-Jan-02 15:14:04: Checking Windows version (2) 2018-Jan-02 15:14:04: Windows version: (1) 2018-Jan-02 15:14:04: Windows 10 (2) 2018-Jan-02 15:14:04: Windows 10 (2) 2018-Jan-02 15:14:10: (2) Klash-no2 15:14:10: (2) List-Jan-02 15:14:10:	OS Info Windows Version: Windows 10 Programmer Info Tuna: 2. X Frind rston: 7.2.37 n: E Find et al. et al. 8/ / OFF Not Applicable 12. MHz O: Single 10
	Cancel WZSQ322W Winbond Electronics Corp 4096 0xef

6.1.4 Click "Config" icon to set programming flow

% Important Notice:

"Identify Chip" is necessary for standalone programming. Make sure to select "Identify Chip" in programming flow.

Advanced Settings	×
	Batch Operation Options
Batch	○ 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
	O Update memory only on sector locations with content difference. (a) Update start from address (Hex)
Program	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
Eng. 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)
	Send Specific Data. File path: V
Miscellaneous Settings	🗹 Identify Chip
	Reload file each time
Elach Ontions	Require Verification after completion
	Auto update second memory with file: Find
	Verify only for project saving and using on Production mode (for SF600/SF600Plus only)
	Standalone start mode: Start from Programmer Button 🗸
	Current File in Buffer: C:\1Mbyte.bin
	C
	確定 取消



6.1.5 Choosing Standalone start mode

Standalone start mode:	Start from Programmer Button	\sim
	Start from IO Port	
	Start from Programmer Button	

※ Note: SF700 only supports Start from Programmer Button.

6.1.6 Save .sfprj file to PC

Image: DediProg Software SF6.0.5.19 File View Help 1.	– 🗆 X
Detect File O	by our
Currently working on: Application Memory Chip 1 Application Memory Chip 2 Update Stand Alone Project	
Zurrendy working regions: Conceduli 2 Cheduli 2 Cheduli 3 Cheduli 4 Cheduli 3	×
(1) 2018-Jan-02 15: (1) 2018-Jan-02 15: ← → ∨ ↑ → This PC → Desktop → test file v ♂ Search test file	۹
(1) 2018-Jan-02 15: ♥ 2018-Jan-02 15: Organize ▼ New folder 目目	· ()
(i) 2018-Jan-02 15: ✓ 2018-Jan-02 15: □ This PC 2. ^ Name Date modifie	d T ^
() 2018-Jan-02 15: Desktop (%) SDIN8DE20_8G.dprj 11/6/2017 9:4	18 AM D
▲ 2018-Jan-02 15: Documents @ MT25QU128.dprj 12/18/2017 1	2:01 D
(i) 2018-Jan-02 15: Downloads (f) mx25151237f.dprj 8/1/2017 5:10	PM D
	PM D
1) 2018-Jan-02 15: E Pictures	24 AM D
(1 2018-Jan 02 15: ✓ 2018-Jan 02 15: ✓ Videos	DO AMA D Corp
U 2018-Jan-02 15: U 2018-Jan-02 15: File name: W25Q32DW.dpri 3	
Save as type: Dedi Project Files (*.dprj)	~
4.	
A Hide Folders	Cancel
File Info Name : Size:	4mbyte.bin
Checksum(File size)	0x1FACBD31
Checksum(Chip size) CRC32 Checksum(file	: 0x1FACBD31 size): 0xF9399D68
CRC32 Checksun(ch	ip size): 0xF9399D68
No operation on-going.	



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 Detect File Blank Ersee Prog Verify Batch Edit Config Load Pri Save Pri Pri Pri Pri Pri Pri Pri Pri Pri Pri Pri Pri	Powered by	
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 Deno		×
(1) 2018-Jan-02 15; Organize ▼ New folder (2) 2018-Jan-02 15; Organize ▼ New folder (2) 2018-Jan-02 15; Desktop 2, (2) 2018-Jan-02 15; Downloads (2) 2018-Jan-02 15; Downloads (2) 2018-Jan-02 15; Music (2) 2018-Jan-02 15; Wideos (2) 2018-Jan-02 15; Wideos (2) 2018-Jan-02 15; Wideos (2) 2018-Jan-02 15; Wideos (2) 2018-Jan-02 15; O VD RW Drive (I (2) 2018-Jan-02 15; DVD RW Drive (I (3) 2018-Jan-02 15; DVD RW Drive (I (4) 2018-Jan-02 15; DVD RW Drive (I	Proch test file Date modified 10/2//2017 1:58 PM 6/21/2016 12:24 AM 6/21/2016 12:28 AM 6/21/2016 12:28 AM 6/19/2017 11:16 AM 10/17/2017 9:43 AM 1/2/2018 3:02 PM 10/27/2017 3:21 PM 6/21/2016 6:23 PM	P <p< th=""></p<>
File name:	edi Project Files (*.dprj) Open Cancel File Info Iame : Size: Checksum(File size) : Checksum(Chip size) : CRC32 Checksum(Chip size): CRC32 Checksum(chip size):	>

6.1.8 Download project successfully

P DediProg Software SF6.0.5.19	>	×
File View Help		
▶ Detect File Blank Erase Prog Verify Batch (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	Powered by Construent	
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		
Currentry working region: © Regult 1 Or Regult 2 Or Regult 3 Or Regult 4 Or Regult 3 1 2018-Jan-02 15:14-003: Start logging 2018-Jan-02 15:14-004: Start logging 2018-Jan-02 15:14-004: Checking Windows version 2 2018-Jan-02 15:14-004: Checking Windows version 2018-Jan-02 15:14-004: Checking Windows version 2 2018-Jan-02 15:14-004: Checking Undows version 2018-Jan-02 15:14-004: Checking Undows version 2 2018-Jan-02 15:14-004: Checking Undows version 2018-Jan-02 15:14-016: Current Type: W25Q32DW 2 2018-Jan-02 15:14-101: Current Standalone Project decking 2018-Jan-02 15:14-112: Standalone Project thest_1_id-prj 1 2018-Jan-02 15:14-112: Current Standalone Project thest_1_id-prj 2018-Jan-02 15:14-112: Current Standalone Project thest_1_id-prj 1 2018-Jan-02 15:15:14-13: Loadine C-Users/work/Decktop1kets file \4mbyte.bin 2018-Jan-02 15:15:14-14: Operation completed. 1 2018-Jan-02 15:15:14-13: Loadine Project thest 5600Plus 2018-Jan-02 15:27:16: Culsers/work/Decktop1kets file \4mbyte.bin <tr< td=""><td>OS Info Windows Version: Windows 10 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.NHz Dual/Qual IO: Single IO Memory Info Type: W25Q32DW Manufact: Winbond Electronics Corp Size(KB): 4096 Manu. ID: Oxef JEDEC ID: Oxef6016 Chip VCC: 1.8V Page size(B): 255 Sector size(B): 4096 File Info Mame: 4mbyte.bin Size: 0x40000 Checksum(file size): 0x1FACB031 Checksum(file size): 0x1FACB031 CRC32 Checksum(file size): 0x1FACB031 CRC32 Checksum(file size): 0x1939068</td><td>~</td></tr<>	OS Info Windows Version: Windows 10 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.NHz Dual/Qual IO: Single IO Memory Info Type: W25Q32DW Manufact: Winbond Electronics Corp Size(KB): 4096 Manu. ID: Oxef JEDEC ID: Oxef6016 Chip VCC: 1.8V Page size(B): 255 Sector size(B): 4096 File Info Mame: 4mbyte.bin Size: 0x40000 Checksum(file size): 0x1FACB031 Checksum(file size): 0x1FACB031 CRC32 Checksum(file size): 0x1FACB031 CRC32 Checksum(file size): 0x1939068	~
No operation on-going.		

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/SF600Plus 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/SF600Plus 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/SF600Plus.

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. www.dediprog.com/download

SF100				
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 restrictions		

SE100



SF600 / SF600Plus

Windows OS	Current Firmware Version	Upgrade Firmware	Upgrade Software
Win8.1/10/11	6.x.x	6.9.0	SF 6.0.5.19
	7.x.x	Latest firmware version (Please contact DediProg sales)	SF7.4.x.x
Before Win 8.1	6.x.x	earlier than 6.9.0	There are no restrictions

SF700

Windows OS	Current Firmware Version	Upgrade Firmware	Upgrade Software
Win8.1/10/11	4.x.x	Latest firmware version (Please contact DediProg sales)	SF7.4.x.x

SF600Plus-G2

Windows OS	Current Firmware Version	Upgrade Firmware	Upgrade Software
Win8.1/10/11	1.x.x (?)	Latest firmware version (Please contact DediProg sales)	SF7.4.x.x

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



VIII. Revision History

Date	Version	Changes
2022/09/20	1.0	Separated from the original DediProg SF Software User Manual V7.8

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