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Note:

- There may be some changes between versions. So, your software may look a bit different from this manual.
- Applied to yaJFPb and yaJFPs if not mentioned.

### **Main User Interface**



### **Before Start**

- 1. Please get necessary files and the programming file (usually it's a .bin file). Put all these files under the same folder with the software.
  - yaJFPb: Target board configuration file (.ini file), all BSDL files of devices in JTAG chain, and Flash parameter files for non built-in Flash;
  - yaJFPs: Flash parameter file;
- 2. Power off the target board.
- 3. Connect the cables between computer and target board.
- 4. Power up the target board;
- 5. Click to run the software.
- 6. When you see the main UI dialog:
  - 6.1 If the software has loaded the configuration file you want, please go to Step 7;
  - 6.2 If the software doesn't load a configuration file for you, or the loaded file is not what you expect, please select menu File Open Configuration File... to load the configuration file. See screenshot below:

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\$	FI	ash Programmer	-			-	-	-		2	
F	ile	Target Device	JTAG Device	Options	Tools	Help					
		Open Configura	ition File								~
		Exit									
	•									Þ	Ť
l											
F	SL_F	2020RDB_BSTJF	P(NOR@CS0).ir	ni			Idle		Success	В	

If file loaded successfully, the configuration file name will be displayed at the status bar. If any error, please check the configuration file. For detailed error info and instructions please read "FPLib Error Code" manual.

7. After file loaded, please select menu **Target Device – Self Test** to check the Flash ID on target board. See screenshot below.

😺 Fla	ish Programmer			x
File	Target Device JTAG Device Optio	ns Tools Help		
	Self Test			*
	Erase Lock Unlock			
	Program Batch Programming			Ŧ
•	Read Write			F _
FSL_P	NAND Flash Settings	Idle	Success	B

If you see "**CheckFlashID**() **success**" message box, that means the cable is connected OK and the configuration file works.



If any error, please follow instructions below to check.

### What to do if Flash ID check failed

Refer to "FPLib Error Code" manual for error info.

Suggestions for yaJFPb:

- Is the configuration file designed for current target board?
- Is the cable connection right, such as pin order?
- If there is LED controlled by the JTAG device, please <u>Lighten LED</u> to find whether the JTAG function works or not;
- If you are using WH-USB-HiJTAG cable, you could try to slow the TCK frequency, please refer to <u>Set TCK Frequency</u>. When the TCK frequency is too high, you will see info similar to this:

yaJFPbd	
Â	InitJFP() returns 5. BSDL file number (1) does not equal to device number (2).
	确定

Suggestions for yaJFPs:

- Does the Flash parameter file match the device?
- Is the cable connection right, such as pin order?
- Pin HOLD# must be pulled up to VCC. Pin WP# should be connected to GND if programming is expected;

### **Set TCK Frequency**

Menu: Options / TCK Frequency. See screenshot below:

Flash Programmer	
File         Target Device         Image: Ima	
<	-
FSL_P2020RDB_BSTJFP(NOR@CS0).ini 30000000 Idle	Error B

Input the frequency you want to set. For example, if you want to change TCK frequency to 15MHz, you should input 15000000.

See screenshots below:

TCK Frequency		×
Enter frequency to set:		
15000000		
	<u>o</u> ĸ	Cancel

Or:

Cable TCK Frequency
fTCK of Chain: 20000000; Enter fTCK of Cable:
OK Cancel

*Note:* If the software could get max frequency from BSDL file, the software will tell you the max allowed frequency of the JTAG chain ( $f_{TCK of Chain}$ ) which depends on the min value of all devices. To WH-USB-HiJTAG cable, the frequency could be 30000000, 1500000, 10000000, and 6000000 and so on.

To WH-USB-JTAG cable, the frequency could be 6000000, 3000000 and so on.

# **Lighten LED**

Note: yaJFPb only.

To help find the cause when checking Flash ID failed, the software could lighten LED connected to the JTAG device.

Note: This menu is only enabled when you have specified at least one LED connected to the JTAG

device in configuration file.

<u>File</u> Target <u>D</u> evice	<u>JTAG Device</u> Options ]	[ools <u>H</u> elp	
	Lighten LEDs		*
	JTAG Mode	•	
	EJTAG Settings		
4			
		- 11	
FSL_P2020RDB_BSTJFF	P(NOR@CS0).ini	Idle	Success B A

Menu JTAG Device / Lighten LEDs. See screenshot below.

The software will lighten LEDs listed in the configuration file in particular order (*First darken all LEDs, then lighten LED one by one, and lighten all LEDs at last*). The progress bar will move at the same time. See screenshot below:

🐤 Fla	ash Programmer							3 ×	
<u>F</u> ile	Target <u>D</u> evice	JTAG Device	<u>Options</u>	<u>T</u> ools	<u>H</u> elp				
1									~
									_
•								Þ	Ť
									=
Xilinx	ML505 JFP.ini			1	5000000	Lightening LED	Busy	В	

Message box popped when finished:

yaJFPd
ightenLED() success.
确定

Attention: The software only know the LightenLED() function returns

successfully, but you should observe the LEDs on the target board to check whether the LEDs are lightened as the manual describes.

### Erase

*Note: This operation will only erase corresponding blocks without programming. If you want to erase then program Flash, you should select <u>Programming</u>, and tick Auto Erase checkbox. Select menu Target Device / Erase. See screenshot below:* 

😺 Fla	ash Programmer	Cogare No.	1.000.00	
File	Target Device JTAG Device Optio	ns Tools Help		
	Self Test			A
	Erase			
	Lock			
	Unlock			
	Program			
	Batch Programming			+
	Read			•
	Write			
FSL_P	NAND Flash Settings		Idle	Success B at

Input **Begin Block** (0 based) and **End Block**, then click "OK". See screenshot below:



# Programming

Attention: You could program data to blank/erased Flash area. If you are not sure whether the programming area is blank or not, please tick the "**Auto Erase**" checkbox.

1, Select menu "**Target Device / Program**". When **Program** dialog appears, click "**Browse file...**" button to choose the file that you want to program. See screenshot below:

Flash Programming				×
Programming Begin A	ddress			
() Set	0x0	]		
Browse File	E:\demolbin			
Auto Unlock	✓ Auto <u>E</u> rase	File <u>O</u> ffset	0x0	
Check status after	writing, continue ne	ext writing(s) on	y when check passe	d
	ОКС	ancel		

Attention: The file size should be aligned. That is, if the data bus is 16bit wide, the file size should be a multiple of 2. If the data bus is 32bit wide, the size should be a multiple of 4.

2, Confirm the programming options:

- Flash Begin Address: It's 0 in many cases. The default value is 0. Attention: The begin address should be aligned. That is, if the data bus is 16bit wide, the file size should be a multiple of 2. If the data bus is 32bit wide, the size should be a multiple of 4.
- Auto Unlock: If checked, the software will unlock corresponding blocks before programming. By default, the software will set this parameter automatically by the Flash type : to P30, P33 Flash, the software will tick this checkbox by default; to other Flash, the software will not tick this checkbox by default.
- Auto Erase: If checked, the software will calculate begin and end block, then erase the blocks before programming. By default, the software will tick this checkbox. *Note: This operation will erase then program Flash. If you want to only erase corresponding blocks without programming, you should run Erase.*
- Check status after writing, continue next writing(s) only when check passed: This option control the software to check the Flash status register after programming. By default, the software will set this automatically: If the Flash supports Buffer Write, the software will tick the checkbox by default; otherwise not. It's suggested to tick the checkbox.

3, Click "**OK**" button, the software will show confirmation message box. If you want to program, please click "**OK**", click "**Cancel**" if you don't want to program now.

4, The software will be programming after your confirmation.

To get good programming performance, it's strongly recommended that you don't run other software when waiting programming to finish, especially

#### software which will occupy lot of CPU resource.

5, A message box will be popped when finished.

yaJFPsd	
ProgramFlash() success.	
确定	

6, Please follow Finalization to see whether the Flash data is OK or not.

7, Troubleshooting:

- If the board doesn't work as expected, you can read the data from Flash and compare with original file.
- Also, you can program a small file to fasten this troubleshooting. The file size should be greater than 64byte (greater than one Flash programming buffer) and less than 2kbyte (to shorten the programming time).

# **Batch Programming**

Select menu Target Device / Batch Programming. See screenshot below:

훻 Fla	ash Programmer				x
File	Target Device JTAG Device Optio	ns Tools	Help		
	Self Test				~
	Erase				
	Lock				
	Unlock				
	Program				
	Batch Programming				-
•	Read				•
	Write				
	NAND Flash Settings		Idle	Success	B

When **Batch Programming** dialog appears, tick the checkboxes of those files you want to program. See screenshot below:

Ba	atch F	Program	nming	reader being					-	-		
ſ		Area	Begin Addr	Filename	File Offset	ECC Alg	ECC Offset	Auto Erase	Auto Unlock	Check Status	Check Bad Blk	Progress
			0x0	d:\rcw_1.bin	0	0	0	true	false	true	false	
			0x1f00100	d:\bootrom_1.bin	0	0	0	true	false	true	false	
	✓         0x0         d:\rcw_2.bin         0         0         0         true         false         true         false											
	<ul> <li>Image: A start of the start of</li></ul>		0x1f00100	d:\bootrom_2.bin	0	0	0	true	false	true	false	
I												
I												
-[	OK Cancel											
<u> </u>	-										-	

Click **OK** when you have confirmed the selection.

The software will do these jobs one by one automatically.

## **Read Flash**

Select menu "Target Device / Read". See screenshot below:

💝 Fla	ash Programmer			
<u>F</u> ile	Target <u>D</u> evice <u>J</u> TAG Device <u>O</u> pt	ions <u>T</u> ools <u>H</u> elp		
	Self Test			*
	Erase Lock			
	Unlock			
	Program			$\overline{\nabla}$
•	Batch Programming			4
	Read			
FSL_P	Write	30000000 Idle	Error	B
	NAND Flash Settings			_

Read Dialog:

Read			×
Read Address and	d Size		
) Set	<u>A</u> ddress <u>S</u> ize	0x0 ()x0	byte(s)
Storage			
Saved to File	e (View with	external editor)	
<ul> <li>Saved to Bu</li> <li>Saved to Fil</li> </ul>	iffer (Be displ e and Buffer	ayed in internal edit b	oox)
ОК	Cancel		

Parameters:

- **Read Begin Address**: The Flash address you want to read. Integer only. It should be in range of Flash address. Attention: Begin Address should be aligned. That is, if the data bus is 16bit wide, the file size should be a multiple of 2. If the data bus is 32bit wide, the size should be a multiple of 4.
- **Read Size: How many bytes you want to read. Integer only.** It should be in range of Flash address. Attention: Read Size should be aligned. That is, if the data bus is 16bit wide, the file size should be a multiple of 2. If the data bus is 32bit wide, the size should be a multiple of 4.
- **Storage:** Choose whether to put the content: Buffer, Disk File or Both.



Click OK button after setting done. The software will prompt to you confirm:

Click "Yes" to return the main UI. See screenshot below:

🐤 Fla	ash Programmer							X	
<u>F</u> ile	Target <u>D</u> evice	JTAG Device	<u>Options</u>	<u>T</u> ools	<u>H</u> elp				
1								-	
•								Þ	-
									f.
VII.				11	500000	Deedler	Duran	D	
XIIInx	IVILOUS_JEP.INI			1:	5000000	Reading	Busy	в	- #

Message box popped after reading finished:

yaJFPd	<b>X</b>
1	ReadFlashArrayAndSaveToFile() success.
	确定

If you choose to display the content in buffer, you could see them in main UI. See screenshot below:

1	🕨 F	lasł	n Pro	ogra	mn	ner												
F	<u>F</u> ile	Т	arg	et <u>D</u>	evic	e	<u>J</u> TA	G D	evio	ce	<u>O</u> p	tion	IS	<u>T</u> oo	ls	<u>H</u> e	lp	
	31 0d 6f	32 0a 70	33 61 0d	34 62 0a	35 63 51	36 64 52	37 65 53	38 66 54	39 67 55	30 68 56	41 69 57	42 6a 58	43 6b 59	44 6c 5a	45 6d 41	46 6e 42	1	1234567890ABCDEF abcdefghijklmn opORSTUVWXYZAB
	43 ff	44 EE	45 ff	46 ff	0d ff	0a ff	66 ff	65 ff	64 ff	63 ff	62 ff	61 ff	30 ff	39 ff	38 ff	37 ff	i	CDEFfedcba0987
	ff ff	ff ff	ff ff	ff ff	ff ff	ff ff	ff ff	ff ff	ff ff	ff ff	ff ff	ff ff	ff ff	ff ff	ff ff	ff ff	i	
	•																	Þ
	Xilinx_ML505_JFP.ini 15000000 Idle Success																	

If you choose a disk file to store the data, the software will create a new file named yyyyMMdd Hhmmssread.bin (characters in red means the beginning timestamp) at current folder.

# **NAND Flash Settings**

Menu Target Device / NAND Flash Settings. See screenshot below:

ash P	rogrammer	-
Tar	get Device JTAG Device	Option
	Self Test	
	Erase	
	Lock	
	Unlock	
	Program	
	Batch Programming	
	Read	
	Batch Reading	
	Write	
	Write with Script File	
	NAND Flash Settings	

#### Settings:

NAND Flash Settings	
ECC Algorithm: Samsung 5 ECC Begin Offset in Spare Area ECC with Payload in File Check bad block	12bit ▼ a: 6 + N * 16
	OK Cancel

- **Enable ECC**: If checked, the software will calculate ECC values automatically and program them to spare area, also will correct read data according to spare area content. If not checked, the software will not program spare area, and will not correct read data by ignoring spare area when reading.
- ECC with Payload in File: The .bin file is in a special format, it contains all bytes (including

ECC values) in spare area after one page payload data. The software will not calculate ECC and will program all data (including payload and spare area) to Flash. For example, the page size is 2kByte, and every 512 byte payload will have 16 byte spare area, so there are 64 bytes spare area data after each 2kByte payload data. See screenshot below:

張 X	VI32 -	u-b	oot	t-hu	urr7	_ec	c.bi	'n																				C	)	-	x	
<u>F</u> ile	<u>E</u> dit	<u>S</u> e	earc	h	Ad	dre	ess	B	ook	cma	rks	]	00	s	<u>x</u> ν	Isc	ript	ŀ	lel	р												
D	¢[		×	Ж	ß	e (	1	Q	Q	:	Ŷ	ê	N	?																		
	790	01	00	52	E1	00	00	00	0A	F6	FF	FF	EA	C4	4B	9F	E5			R á	i 0			č	i j	ÿ	ê	Ä	K	Ÿ å		]
	7A0	02	10	AO	E3	00	20	94	E5	02	20	02	E2	01	00	52	E1			â	i 🗆		"	å	ו		â			Rá	ŀ	-11
	7B0	63	00	00	0A	в0	1B	9F	E5	в0	2B	9F	E5	00	20	81	E5	c			۰		Ÿ	å	• +	Ÿ	å			å		
	7C0	00	30	99	E5	<b>A</b> 8	1B	9F	E5	A8	2B	9F	E5	00	20	81	E5		0	DI é	l		Ÿ	å	•	Ÿ	å			å		
	7D0	00	30	99	E5	AO	1B	9F	E5	98	2B	9F	E5	00	20	81	E5		0	DI é	1		Ÿ	å	• +	Ÿ	å			å		
	7E0	00	30	99	E5	94	1B	9F	E5	88	2B	9F	E5	00	20	81	E5		0	ы	"		Ÿ	å '	• +	Ÿ	å			å		
	750	00	30	99	E5	88	1B	9F	E5	78	2B	9F	E5	00	20	81	E5		0	ы	<b>۱</b>		Ϋ́	å ı	c +	Ÿ	å			å		
	800	FF	FF	FF	FF	FF	FF	95	<b>A</b> 5	59	FF	FF	FF	FF	FF	FF	FF	ÿ	ÿ	ÿ	żΫ	ÿ	• 1	¥	ζį	ÿ	ÿ	ÿ	ÿ	ÿΫ		
	810	FF	FF	FF	FF	FF	FF	00	03	00	FF	FF	FF	FF	FF	FF	FF	ÿ	ÿ	ÿj	żΫ	ÿ			J ý	ÿ	ÿ	ÿ	ÿ	ÿÿ		
	820	FF	FF	FF	FF	FF	FF	00	00	F3	FF	FF	FF	FF	FF	FF	FF	ÿ	ÿ	ÿj	ΪŸ	ÿ		• d	5 ý	ÿ	ÿ	ÿ	ÿ	ÿÿ		
	830	FF	FF	FF	FF	FF	FF	95	A9	69	FF	FF	FF	FF	FF	FF	FF	ÿ	ÿ	ÿj	żΫ	ÿ	• (	B i	ιý	ÿ	ÿ	ÿ	ÿ	ÿÿ		
	840	00	30	99	E5	7C	1B	9F	E5	68	2B	9F	E5	00	20	81	E5		0	DI 🧯	l I		Ÿ	å ł	1 +	Ÿ	å			å		
	850	00	30	99	E5	70	1B	9F	E5	58	2B	9F	E5	00	20	81	E5		0	DI 🧯	l p		Ÿ	å X	۲ ا	Ÿ	å			å		
	860	00	30	99	E5	64	1B	9F	E5	48	2B	9F	E5	00	20	81	E5		0	DI 2	l d		Ÿ	åł	I +	Ÿ	å			å		
	870	00	30	99	E5	58	1B	9F	E5	38	2B	9F	E5	00	20	81	E5		0	DI 2	i x		Ÿ	å 8	3 +	Ÿ	å			å		
	880	00	30	99	E5	4C	1B	9F	E5	28	2B	9F	E5	00	20	81	E5		0	ы	L		Ϋ́	å	( +	Ÿ	å			å		
	890	00	30	99	E5	40	1B	9F	E5	18	2B	9F	E5	00	20	81	E5		0	ы	1 @		Ϋ́	å C	) +	Ÿ	å			å		
	8A0	00	30	99	E5	34	1B	9F	E5	08	2B	9F	E5	00	20	81	E5		0	DI é	4		Ϋ́	å C	1+	Ÿ	å			å		
	8B0	00	30	99	E5	28	1B	9F	E5	F8	2A	9F	E5	00	20	81	E5		0	ы	i (		Ϋ́	å	a 4	Ÿ	å			å	1,	
Adr.	dr. hex: 800 Char dec: 25 Overwrit																															

# Finalization

Power off the board, and disconnect the cable.

# **PseudoCLI Feature**

Fully automatic operation without any mouse clicking could be implemented with additional PseudoCLI feature. This feature will automatically close GUI and provide return code to caller. Return code:

- -1: License error;
- 0: OK;
- n>0: The *n*th operation failed.

Please note: The GUI will pop up a message box when error occurs. Turn off this by setting

[Option] ExitWhenFail=true in the workspace file. The caller must check the return value.

Date	Version	Author	Changes
2020/4/18			Add PseudoCLI feature;
2018/8/21			Add yaJFPs comments;
2017/3/28			Add 'NAND Flash Settings' section;
2014/6/9			Add line above footer;
2013/9/29			Add 'Attention: You could program data to
			blank/erased Flash area. If you are not sure whether
			the programming area is blank or not, please tick the
			"Auto Erase" checkbox.' to 'Programming' section;
2013/9/27			In Step 6 of 'Before Start' section, add "If the software has loaded
			the configuration file you want, please go to Step 7";
2013/9/27			• Add notice to 'Auto Erase' option of Programming;
			• Add ' <u>Erase</u> ' section;
2013/9/4			Add 'Batch Programming' section;
2013/7/30			Format optimization;
2013/7/28			Fix spelling error;
2013/7/27			Replace Chinese suspension points with dots;
2013/7/26			First Release;

#### **Revision History**