

# PhyPlusKit user guide

Introduction

PRBMD0x module is cored with PhyPlus Bluetooth chip, and PHYPlus Kit is a multi-purpose software for PhyPlus chip, including firmware programming, and RF testing. This document is base on PhyPlus Kit user guide in Chinese from PhyPlus, and modified for PRBMD0x module. If there is any variance between PhyPlus Kit user guide and this document, please refer to hyPlus Kit user guide.

More information and related documents are located at our web site: <u>www.k-sol.com.hk</u>.

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# **1. Functional parts introduction**

### **1.1. Functional parts**

This software consists of four functional parts, the Main Function area, the serial port setting area, the log display area and the serial port information area. In addition, the software supports the command line mode, in the command line mode, you can directly execute some commands by adding relevant parameters to call. See Sections 2.6 and 3.6 for a description of the command-line mode.



(1) Main Function area consists 4 parts: Flash\_Writer  $RF_CMD RF_QuickSet$ .

- Flash\_Writer: program image document;
- RF\_CMD: send out HCI protocol command;
- RF\_QuickSet: send out pre-set test comand.

(2) UART Setting part: set UART configuration and connection;

(3) LOG part: display and print out user operation and communication;

(4) UART Info part: Real time display UART configuration.

### 1.2. Functional part description

### 1.2.1. Main Function part

lab select	 Flash_V	Vriter RF_CMD	RF_QuickSet				
	Config			Time	eout 4000	Save	Clea
			Era	se Size 512k - Add	ess	Erase	Write
	Imag	e					
		TYPE	PATH	SIZE	FLA_ADDR	RUN_ADDR	^
	1						
	2						
	3						
	4						
	5						- 11
	6						
	7						
	8						
	9						~
a tha shutha al asso	Confi	9					
ain window		TYPE	PATH	SIZE	ADDRESS	VALUE	^
	1	•					
	2	•					
	3	•					
	4	•					
	5						
	6						
	8						
	9						
	-						~

User can switch function by clicking different tab select.

# 1.2.2. UART configuration

### Hide UART setting

	UART Setting
Show UA	RT setting
	UART Setting Port Baud Rate 1000000 Stop Bits 1 Parity No Connect AutoCheck Update

In the UART port setting area, the setting parameters can be hidden or displayed, and the connection/disconnection operation can be performed.

- Serial connection with arbitrary baud rate, stop bit and parity bit ;
- It can automatically detect the communication baud rate set by the lower computer ;
- The baud rate can be changed to match with the device it is connected ;

### 1.2.3. Log Display



- Log Display: Print out user operation and UART port communication;
- Log Control: You can enable parsing support for different RX content, as well as timestamps, or directly save log content to any location;

### 1.2.4. UART info part

UART INFO: Port: COM4, Baudrate: 250000, StopBits: 1, Parity: No Parity	V1.2.0
Connect UART	
UART INFO: Not Connected	V1.2.0
Not Connect UART	

UART setting information and the current version number are displayed.

# 2. Feature description

sh_Wr	iter RF_CMD	RF_QuickSet					UART Setting
nfig 🗌			√ Tim	eout 4000	Save	Clear	Port COM4 - Baud Rate 1000000 Stop Bits 1 - Parity No - Connect AutoCheck Up
		Eras	e Size 512k 🗸 Add	ress	Erase	Write	
mage							
1	YPE	PATH	SIZE	FLA_ADDR	RUN_ADDR	^	Name: COM4 Description:USB Serial Device Manufacturer: Microsoft
2							Name: COM7
3							Manufacturer: SEGGER
4							
5							
6							
7							
8							
9						~	
onfig							
1	TYPE	PATH	SIZE	ADDRESS	VALUE	^	
1							
2							
3							
4	*						
5	•						
6							
7	•						
8	•						
9	•					~	
							TimeTick Mode ASCII · Save Log Clear

### 2.1. UART connection and setting

- Click the Port drop-down box to get all available serial port names and output the information of the available serial ports in the Log;
- Able to set baud rate, stop bit and parity bit;
- Click the Connect button to connect the selected serial port according to the custom settings, and display the current serial port setting parameter information in UART Info;
- Click the AutoCheck button to automatically send commands to detect the communication baud rate of the lower computer;
- Click the Update button to send the baud rate modification command to the lower computer, and modify the software communication baud rate at the same time

### 2.2. Flash Programming

	The fails Settings Help	×
Control Port	Fash Weter     bf QuickSet       Config     Timeout 4000       Save     Clear       Log	
Table Part	Image         Image <th< td=""><td></td></th<>	
	0         0         0           Config           1         0         0         0         0           2         0         0         0         0         0           3         0         0         0         0         0           4         0         0         0         0         0           5         0         0         0         0         0           6         0         0         0         0         0	
Command Part	Command: HEX Send ClearSing Cl	
	UART INFO: Not Connected	V2.2.1

1. Table (Table Part)

(1) image / HEX table

HEX: (Recommend to program with HEX file)

onfin				~	1120UL 4000		0
oning			Erase Size	512k 🗸 Ad	dress	Erase	v
MO	V HEX (				EL A	ADDR 100	0.0
MO					r DA	ADDR 100	00
Confi	g						
Confi	9 TYPE	PATH		SIZE	ADDRESS	VALUE	
Confi	g TYPE	PATH		SIZE	ADDRESS	VALUE	
Confi 1 2	9 TYPE -	РАТН		SIZE	ADDRESS	VALUE	
Confi 1 2 3	g TYPE -	РАТН		SIZE	ADDRESS	VALUE	
Confi 1 2 3 4	g TYPE - -	ратн		SIZE	ADDRESS	VALUE	
Confi 1 2 3 4 5	9 TYPE - - - -	PATH		SIZE	ADDRESS	VALUE	
Confi 1 2 3 4 5 6	9 TYPE - - - - -	PATH		SIZE	ADDRESS	VALUE	
Confi 1 2 3 4 5 6 7	g TYPE - - - - - - - - - -	PATH		SIZE	ADDRESS	VALUE	
Confi 1 2 3 4 5 6 7 8	9 TYPE - - - - - - - - - - - - -	PATH		SIZE	ADDRESS	VALUE	
Confi 1 2 3 4 5 6 7 8 9	9 TYPE - - - - - - - - - - - - - - - - - - -	PATH		SIZE	ADDRESS	VALUE	
Confi 1 2 3 4 5 6 7 8 9	g TYPE - - - - - - - - - - - - - - - - - - -	PATH		SIZE	ADDRESS	VALUE	

- UART INFO: Not Connected
- Double-click the area to select the Hex file in the input box, the data in the HEX will be automatically analysed, and the Flash Address to be programmed will be automatically generated according to the starting Start Flash Address set by the user;
- Start Flash Address can be set up at:Settings -> Configuration -> Flash Writer.
- The Run Address of the main program must exist in the Hex file, the default is 0x1FFF4000, the user can set it in Settings -> Configuration -> Flash Writer ;

Image:

Config				neout 4000	Save	Cle
			Erase Size 512k ⊻ Ad	dress	Erase	Wri
/ IMC	G V HEX \					
	TYPE	PATH	SIZE	FLA_ADDR	RUN_ADDR	^
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						~
Conf	fia					
	TYPE	PATH	SIZE	ADDRESS	VALUE	^
1						
2						
3						
4	•					
5	•					
6	•					
	•					
7	•					
7 8						
7 8 9	•					

- In the Image, you can double-click the cell in the PATH column of the current row to add the bin file to be programmed. ;
- Fill in the FLA\_ADDR, RUN\_ADDR to be programmed in the corresponding line

(2) config table

• In Config area, click the drop-down box corresponding to the TYPE column of the current row to select AT or MT mode. The corresponding functions are as follows:

Туре	Feature	Programmable row
AT	Read from the file to write the value of the FLASH register	PATH, SIZE, ADDRESS
MT	Read the value of the register to be written from cell VALUE	ADDRESS, VALUE

• If the AT automatic mode is selected, double-click the corresponding PATH cell to select the file storing the register value. Fill in the register start address in the ADDRESS cell.

If the MT manual mode is selected, fill in the starting address of the register to be written in the ADDRESS cell, and fill in the VALUE cell, the value to be written to the corresponding register.

The starting address of the register write value is the address filled in by ADDRESS. If the file has multiple lines of register values, the corresponding starting address is +4 successively, and the value of 4bytes is written each time.

Note: Right-click in the table to clear the row content, or clear the entire table content



- 2. Control Part
  - Before writing the bin file, you need to erase it first; you can click the Erase button to erase it; after erasing is successful, "erase #ok" will be output in the log;
  - After the erasing is successful, the programming operation can be performed. Click the Write button to program the currently selected bin file to the corresponding address; the default interactive waiting time is 4000ms, and the user can modify the waiting time in Timeout according to the usage;
  - The current bin file configuration information and Timeout settings can be saved; enter the file name to be saved in config, and click the Save button to save the current settings;
  - You can see the previously saved configuration information in the config dropdown list; select it to load.
  - Click Clear to clear the current table content;
- 3. Command Part
  - Any command can be sent in Command, click Send to send the command;
  - The ClearBuf button is used to clear the interactive buffer. When there is an error in the serial port reception, the buffer can be cleared and the command can be sent or programmed again;
  - In the Command drop-down list, the last command sent will be saved.

### 2.3. RF Command

	PhyPlusKit —		×
	File Edit Settings Help		
	Flash Writer RF_CMD RF QuickSet		
Destavel Colect			
Protocol Select	Incl_COMMEND_EVENT_4.2.65V		
	Y [Command]		
	LE Add Device To White List Command Name: C0M4		
	LE Clear White List Command Description:USB Serial Device		
	LE Read Buffer Size Command		
	LE Read Local Supported Features Command Name: COM7		
	LE Read Supported States Command Port		
	Lt Read White List Size Command		
	LE Remove Device From White List Command Back Cell Vision Provide Statistics (Control of Control Contr	geruskrt.	
	LE Set Event wask Command Selected file: (://users/bing/0sitkop/6UTool/Pi	yPlusKit/	
	Read BD ADDR Command v Load system files successfully!		
	1 opCode 28 20:1C		
Command Set →	LE Feature Requirements: Mandatory Description: 7.8.27		
Command Send	UART INFC: Not Connected	Clear	V22.1 =

- 1. Protocol Select
  - In the drop-down list, different versions of the protocol can be selected to load

### 2. Command Set

- Select the type of command (Command, Event, etc.) to be sent in the tree list above; and the specific command;
- In the middle table, the command field can be configured;
- The lower part display the details

### 3. Command Send

- After configuring the parameters in the command settings, you can see the combined command content in Command Send, click Send to send the command;
- In the Command input box, you can enter custom command content; the command format is as follows:

Command	Feature
uarta, "abcd" (abcd can be arbitrary ASCII character)	send ASCII commands;
uarth, 01 02 (01 02 can be arbitrary Hex code)	Send HEX command;
uartf, 01 0C6C	Send auto-combined commands;

### 2.4. RF\_QuickSet quick command



- 1. Command Set
  - In RF Setting, you can select the corresponding PHY hardware device mode (BLE 1M, BLE 2M, BLE 500K, BLE 125K, ZigBee), and the corresponding command mode: TX (BURST\_TEST, Single Tone, Modulation), RX (BURST\_TEST, AUTO) ), set the command parameters Frequency, Length, PKT, TX\_Power, TX\_TPCAL (calibration value);
  - Click the Start button to send corresponding commands in sequence;
  - Click the End button to get the corresponding corresponding results TX (TPCAL), RX (COUNT, FOFF, RSSI, CARR\_SENS);

Note:

- In BLE mode, Frequency is 2402 ~ 2482MHz, step 2MHz, divided into 0 ~ 40 channels; In ZigBee mode, Frequency is 2405 ~ 2485MHz, step 5MHz, divided into 0 ~ 16 channels;
- The default TPCAL is obtained automatically. If you want to manually modify the TPCAL value, you can check the TPCAL\_MANU selection box to modify the TX\_TPCAL value;
- 2. Command Response
  - In RESPONSE, the result obtained by the command can be displayed;

### 2.5. Multi\_FlashWriter multi-UART programming



- 1. Config Control
  - Here you can select and load the saved related configuration files, the file content includes (timeout value interacting with the chip, HEX file path to be programmed, UART PORT parameters, Flash value to be written).
  - Here you can configure the size of the Flash to be erased, and the corresponding address of the Flash to be erased (the default is 512K, which erases all the Flash content).
  - Save button to save configuration, clear to clear table content, Erase to erase Flash, write to program Flash.
- 2. Image Settings
  - Double-click to select the Hex file in the input box, the data in the HEX will be automatically analyzed, and the Flash Address to be programmed will be automatically generated according to the starting Start Flash Address set by the user;
  - The starting Start Flash Address can be set in Settings -> Configuration -> Flash Writer.
  - The Run Address of the main program must exist in the Hex file, the default is 0x1FFF4000, the user can set it in Settings -> Configuration -> Flash Writer;
- 3. Port Settings
  - Configure the PORT connection here, select the appropriate baud rate, stop bit, parity bit, and select the PORT port to be connected in the drop-down box in the table;

The flash address programming of the corresponding row of ALL in the table will take effect on the PORT selected in each row below.

- The flash address programming of the corresponding row of each PORT is valid only for the current row (PORT);
- After setting the PORT connection information, click Multi-Connect to connect

# 2.6. Flash\_Writer HEX Merge

File	nyPlusKit Edit Settings Help	
Fla	sh_Writer RF_CMD RF_QuickSet Multi_FW	
	Config hexf_light1	)
	Erase Size 512k v Address Erase Write	Dual Has FCT
A	IMG \/ HEX \/ HEX Merge     D       BOOT • yPlusKit/Win32/Release/ota_dualbank_fct.hex     Dual Has FCT • HexF	Single No FCT Dual Has FCT Dual No FCT No OTA
B	APP	· · · · · · · · · · · · · · · · · · ·
С	RES     UITool/PhyPlusKit/Win32/Release/bin/100k.bin     FLA_ADDR     50000          FLA_ADDR     FLA_ADDR	E ENC_IV • ENC_IV CHIP_ID
	ChipID/IV           PID[16]         PHY6202AAQB00000         LID[10]         EP5231.770         TID[14]         20180821182017         CheckID           MID[16]         J750EX-S00100000         SID[08]         4883475f         IV[13]         key0K         WriteID	

- 1. HEX Merge
  - A: Used to input the ota\_boot.hex file, you need to select a different OTA\_BOOT mode through the D selection box. A total of 5 modes are currently supported. Different modes of OTA\_BOOT have different mappings to flash addresses. Refer to the table below for flash mapping
  - B: It is used to input the hex file of the APP program, and different encryption methods can be selected through the E selection box.
    - The E:[ENC\_IV] mode is to encrypt and protect the app file using the Identify Vector input by IV.
    - The E:[CHIP\_ID] mode is to encrypt the app file with the unique chip's chip id.IV=function (chipid.TID,chipid.SID)
    - ➤ E:[--]mode, no encryption mode is used.
  - C:Used to input resource files, currently supports binary format and hex format. You can enter the flash storage address of the resource file in FLA\_ADDR.
  - [HexF] button is used to generate a \*.hexf file with one key, which is a combination of multiple hex files of A, B, and C, which can be used for direct burning. The output path of the file is the app file directory.
  - [Encrypt] button is used to generate the encrypted file \*.hexe of the app file, and the output path of the file is the app file directory.
- 2. ChipID/IV
  - CheckID button is used to detect the factory ID of the current chip and needs to be connected to the UART. If the detection result is not [EMPTY], the WriteID button will be activated
  - For the chip without factory ID, it can be burned through the WriteID button. Need to fill in the corresponding PID, LID, MID, TID, SID
  - IV : Identify Vector to be used for the input file, 13Byte. If the encryption method in the figure is selected as CHIP\_ID, this part will automatically generate the IV from the CHIP ID.

### Table 1 flash mapping

	512k versio	n	512k versior	n	512k version	n	512k versio	on	E1.0W	
	(Dual bank)	(Has	(Single bank	) (Has	(Dual bank)	(No	(Single ban)	c) (No	SIZK	
	FCT)		FCT)		FCT)		FCT)		NO OIA	
Reserved By PhyPlus	00000~01fff	8 k	00000~01fff	8 k	00000~01fff	8 k	00000~01fff	8 k	00000~01fff	8 k
1st Boot info	02000~03fff	8 k	02000~03fff	8 k	02000~03fff	8 k	02000~03fff	8 k	02000~03fff	8 k
FCDS	04000~04fff	4 k	04000~04fff	4 k	04000~04fff	4 k	04000~04fff	4 k	04000~04fff	4 k
UCDS	05000~08fff	16k	05000~08fff	16k	05000~08fff	16k	05000~08fff	16k	05000~09fff	20k
2nd Boot info	09000~09fff	4 k	09000~09fff	4 k	09000~09fff	4 k	09000~09fff	4 k		
OTA bootloader	0a000~11fff	32k	0a000~11fff	32k	0a000~11fff	32 k	0a000~11fff	32k		
FCT App	12000~2ffff	120k	12000~2ffff	120k		0k		0k		
App Bank0	30000~4ffff	128k	30000~4ffff	128k	12000~31fff	128k	12000~31fff	128k	0A000~29fff	128k
App Bank1	50000~6ffff	128k		0 k	32000~51fff	128k		0k		
NVM	70000~7ffff	64k	50000~7ffff	192k	52000~7ffff	184k	32000~7ffff	312k	2A000~7ffff	344k

### 2.7. Command Line mode

In command line mode, you can run this program by followed by the specified parameters to burn the specified hex (or hexf) file, or combine several specified files into a hexf file (refer to Section 2.6 for related content). In addition, you can also choose to perform both merging and programming (the actual execution order is merging first and then programming). If you open the program without parameters on the command line, it will directly enter the GUI mode.

The command line parameters supported by this program are as follows (note: the parameters except -a should be followed by -r (see the description of the -a parameter for details), other parameters have no order in theory, and each parameter and its The abbreviated forms are completely equivalent and can be interchanged arbitrarily):

parameter	abbr.	value	Description
combine	-C	NIL	Used to instruct the program to merge hex files to generate a hexf file. This parameter does not need to follow a value. The generated hexf file is determined according to the file name of the app by default, that is, if the app file is app.hex, the merged hexf file and the app are in the same directory and the file name is app.hexf. At least one of this option and the -w option must exist (can exist at the same time)
boot	-b	OTA Bootloader document hex format	Only one OTA Bootloader program can be included. If it is No OTA mode, this parameter is not a necessary parameter. In other cases, this parameter is a necessary parameter when merging the hexf file. The parameter is a string, which can include a path. If the path has spaces, the entire string needs to be Enclose in double quotes and separate options with spaces Example :boot ota.hex 以及 -b "c:\data app\ota.hex"
арр	-p	App document hex format	It can only contain one APP firmware program. This parameter is a necessary parameter. The parameter is a string and can include a path. If the path has spaces, you need to wrap the entire string in double quotation marks, and separate it from the options with a space symbol. Example: -p app.hex
res	-r	Resource document bin/hex format	Can contain more than one resource file (but at most 3), this parameter is not necessary The parameter parameter is a string and can contain a path. If the path has spaces, the entire string needs to be enclosed in double quotes, and the options are separated by a space symbol. If it is a bin format file, you need to specify its starting address (hexadecimal) with the -a option after it. If it is a hex format file, it is not required (if the bin file is not followed by a starting address, it will report an error and exit) Example: -r res.bin -a 70000 (write start from address 0x70000) or -r res.hex

addr	-a	Starting address of bin format Resource document	The starting address is in hexadecimal format, the value is the offset address of Flash starting from 0, and the data size is the file size. This program will check the data length and the validity of the address. If it is an illegal address or the address overlaps, it will be Prompt error, see above for example (The hex file has its own address information, so this option is not needed to set its starting address)
mode	-m	Mix mode	Mix mode needs to be one of the following five:SH (Single Has FCT), SN (Single No FCT), DH (Dual Has FCT), DN (Dual No FCT), NO (No OTA), if it is any other value, an error will be reported, this parameter is a necessary parameter Example : -m DH
enc	-е	encryption mode	This parameter is not a necessary parameter. If there is no such parameter, the default is no encryption. If there is this parameter, its value must be one of the following two cases: chip (indicates encryption with chip id) or iv_xxxx (xxxx is 13 The iv value of the bit, if it is insufficient, add 0 to the right end, and if it exceeds, truncate the left end 13 bits as the iv value), if it is not in these two cases, an error will be reported Example: -e chip or -e iv_1234567890123
write	-w	Write a document hex/hexf format	At least one of this option and the -c option must exist (can exist at the same time). If they exist at the same time, execute the -c option first to merge and then execute this option to write, that is, you can use these two options at the same time to write parameters after merging. It is a string and can contain a path. If the path has spaces, you need to wrap the entire string in double quotes, and separate it from the options with a space symbol Example: -w target.hexf Note: Before writing starts, the program will perform an erase operation by default!
uarts	-u	update baud rate	Parameter is not a must, default baud rate is 115200 if no parameter. Available baud rate are: 1500000,1000000, 500000, 250000, 115200, 76800, 38400 and 9600. It is possible to adjusted base on UART configuration (v2.3.8c currently only supports PHY6212 programming at baud rates of 1500000 and 1000000) Example:-u 500000

Run	-R	Base run address ( 1FFF4000- - PHY6202 , 1FFF4800- - PHY6212 )	Parameter is NEEDED for programming firmware into different chip type, starting programming address of bin file (inside hex file) can be adjust through modifying <b>configuration—base run address</b> Example -R 1FFF4000 (corresponding to 6202 chip ) -R 1FFF4800 (corresponding to 6212 chip)
Port	-P	Obtain port name	Connect multiple UART to the host, obtain the names of the COM ports of multiple UART, and program the firmware for the development board of the specified COM port Example: -P COM3
config	-f	Configurati on document. csv	This parameter is not a necessary parameter, it is mainly used to program the MAC address, set multiple lines of 12-bit mac address in the csv file, and program the mac address value through the 4000 and 4004 addresses (Note: If there are other configuration requirements, you can also do it yourself Add, get the corresponding write address address and value) Example: -f *.csv
line	-1	line value setting of configurati on document	Parameter is not a MUST. Configuration file allows multiple lines of information. MAC address and other parameter can be modified by changing the LINE value in every programming. Example: -I 3 (note: this is capital letter i )
help	-h or -?	NIL	display play

### 2.8. MAC address

ChipID/ <u>I</u> V						
PID[16]	1234567890123456	LID[10]	1234567890	TID[14]	12345678901234	CheckID
MID[16]	1234567890123456	SID[08]	12345678	IV[13]		WriteID
MAC[6]	31-32-33-34-35-36			Hex[xx-	xx-xx-xx-xx]	WriteMAC

Below the ChipID/IV column, there is a MAC address column marked with a red frame in the figure above. This column can view the current MAC address of the device, and can also write a new MAC address (only when the original MAC address is empty).

If you want to check the current MAC address, you need to click CheckID in the above picture after connecting. If the MAC address has been set, the MAC address bar will display the current MAC address. If the MAC address has not been set, the MAC address The column becomes editable and the WriteMAC button on the right becomes available.

If you want to set a new MAC address for a device whose MAC address is empty, you need

to click CheckID to check it first. When it prompts that the MAC address is empty, you can fill in the new MAC address in the MAC address field that has become editable (format xx-xx-xx-xx-xx, and it is required to be in hexadecimal, otherwise the writing will fail) and then click WriteMAC to write the new MAC address.

# 3. Feature example

# 3.1. Obtain UART baud and update

# 3.1.1. Update UART baud

] UART Setting 1		2	
ort COM4 - Baud Rate 250000 - Sto	p Bits 1 Parity No	Disconnect AutoCheck	Update
9			
UART RX : <b>@@@@</b> *)cmd>>:	_		^
Send update command successfully!			
Current baudRate: 250000	2		
	] J		
TimeTick Mode ASCII -	Save Log	Clear	
	-		

- 1. selected UART baud for the connected device (i.e.: 250000);
- 2. Click Update button to send out the command ;
- 3. Change success display in LOG;

# 3.1.2. Obtain UART baud

- 5			
UART RX : ∲∲∲∲*)cmd>>: Send update command success Baud nate modified success Current baudRate: 250000 Check baudRate 250000 Check baudRate 250000 Check baudRate 38400 Check baudRate 38400 Check baudRate 300000 Check baudRate 300000 Check baudRate 350000 Check baudRate 3500000 Check baudRate 35000000000000000000000000000000000000	sfully! fully		

- 1. Click AutoCheck button, it will auto detect the baud of connected device;
- 2. After "UART RX ASCII: #OK>> " is shown, then the current BAUD will be displayed.

### 3.2. Flash programming

### 3.2.1.Hex only programming (recommended)

Use UART for flash programming operation, and power on (or press reset) after TM pin is pulled high, which is the state of UART receiving command, and UART is configured as baud rate: 115200, 8bit, 1 bit stop, None parity, no flow control;

Steps:

1. Prepare software and tools, connect hardware, pull TM (pin8) high, as shown below:



2. Run PhyPlusKit.exe, configure parameters in UART Tab (115200, 8bit, 1 bit stop, None parity, no flow control), then click Connect

unfig	Th _Queneet	Timoo	ut 4000	Cloar	Port CO	M5 Baud Rat	e 115200	Stop Bits	1 Parit	ty No
ting		Erase Size 512k V Addres	is Erase	Write	C	isconnect	Aut	oCheck	Upd	late
IMG HEX					Log					
M0 -			FLA_ADDR	.0000						
					Current Current Current Serial	port: COM5 baudrate: 1152 stopBits: 1 parity: No opened!!				
onfia										
onfig	ратн	SIZE A	DDRESS VALU	E ^						
TYPE 1	РАТН	SIZE A	IDDRESS VALU	E						
TYPE 1 - 2	PATH	SIZE A	IDDRESS VALU	E A						
TYPE 2 3	РАТН	SIZE A	JDRESS VALU	E ^						
TYPE 1 - 2 - 3 - 4 -	PATH	SIZE A	DDRESS VALU	E ^						
TYPE 1 · · 2 · · 3 · · 4 · · 5 · ·	PATH	SIZE A	DDRESS VALU	E						
TYPE 1 - 2 - 3 - 4 - 5 - 6 - 7 -	PATH	SIZE A	IDDRESS VALU							
TYPE 1 • • • • • • • • • • • • • • • • • • •	PATH	SIZE A	DDRESS VALU							
TYPE           1         •           2         •           3         •           4         •           5         •           7         •           8         •           9         •	PATH	SIZE A	IDDRESS VALU							
TYPE  TYPE	PATH	SIZE A	DDRESS VALU							

3. 设置起始Configure the Start Flash Address





### 4. Double-click the input box to select the Hex file

The program automatically parses the data files in the HEX file and displays the last modification time

Parity No Update
Update

### 5. Erase flash before programming, click Erase button

so_writ	iter RF_CM	D RF_QuickSet					Port	COME: Ba	- ud Rate 🖸	250000	Stop Bits	s 1 ×	Parity	N
onfig			√ Tim	eout 4000	Save	Clear	TOTE	Disconnect		AutoCh	ock		Indato	Î
		Erase	Size 512k 🗸 Add	ress	Erase	Write		Disconnect		Autoch	ECK		opuate	
IMG	/ HEX \						Log							
M0 *	C:/Users/De	sktop/bqb_ll_hci.hex		FLA	ADDR 100	00						-		
NO.1 NO.2 NO.3	Size: 0040C Size: 021D8 Size: 0C440	, Flash Address: 1000 , Flash Address: 1100 , Flash Address: 1400	0, Run Address: 0, Run Address: 0, Run Address:	1FFF4000 1FFFC000 20000000			UART	TRX : eras	ie#OK��ci	hip is e	rased!>>:			
											•			
Config T 1 2	TYPE	РАТН	SIZE	ADDRESS	VALUE	^					•			
Config T 1 2 3 4	YPE	РАТН	SIZE	ADDRESS	VALUE	^					•			
Config T 1 2 3 4 5	TYPE · ·	РАТН	SIZE	ADDRESS	VALUE						•			
Config T 1 2 3 4 5 6	TYPE • • •	РАТН	SIZE	ADDRESS	VALUE						•			
Config - T 1 2 3 4 5 6 7	YPE 	РАТН	SIZE	ADDRESS	VALUE						•			
Config T 1 2 3 4 5 6 7 8	YPE • • • •	РАТН	SIZE	ADDRESS	VALUE									
Config T 1 2 3 4 5 6 7 8 8	YPE 	PATH	SIZE	ADDRESS	VALUE	~								

6. Click Write button to start programming of the HEX file

sh_Wr	riter RF_CMI	O RF_QuickSet				_	UART Setting	
onfig		Erase Siz	✓ Time ze 512k ✓ Addre	out 4000 ess	Save Clea	ar te	Log	
IMG M0 The F NO.1 NO.2	HEX C:/Users/Din HEX file has 2 Size: 0040C, Size: 00E0C,	g/Desktop/software/iBeacon parts. Last modified: 201 . Flash Address: 10000, Run Flash Address: 11000, Run	_SDK_Alpha/test 8-03-14 13:45:2 n Address: 1FFF n Address: 2000	hex FL4 7 4000 0000	ADDR 10000		Current purt: CONS Current stopEis: 1 Current purts: 1 Cu	
							Send opbin successfully!	
onfig	TYPE	РАТН	SIZE	ADDRESS	VALUE /		The two Assume roomset more that two Assume roomset more Send image successfull Waiting to receive checksum Send thecksum successfully ( UART & ASCII: checksum Size (web@@BicksedK>): Receix #0K! Receix #0K! UART & ASCII: by hew mode: Receixe ages request (	
Config	TYPE	РАТН	SIZE	ADDRESS	VALUE		UNE VK ASLI: 0y max mode: Send Vinage received Variation of the second second second second second second Variation as the second se	
Config 1 2	TYPE	PATH	SIZE	ADDRESS	VALUE		UNE NK ASCII: 0y new mode: Nealve image request: Sand the second secon	
Config 1 2 3	TYPE -	PATH	SIZE	ADDRESS	VALUE		<pre>basis to Assist of next most basis to Assist of Next most most of Next Next Next Next Next Next Next Next</pre>	
Config 1 2 3 4	TYPE • •	PATH	SIZE	ADDRESS	VALUE		Use NA Asilis of nearmone: Send image successfull Waiting to receive checksum Send thecksum successfully UMAT & ASILI: checksum is: 0x000012800K>>: Receix 0x1: successfully UMAT & ASILI: checksum is: 0x000012800K>>: Receix 0x1: successfully UMAT & ASILI: checksum is: 0x00048e5000K>>: Receix 0x00: muccessfully UMAT K ASILI: checksum is: 0x00048e5000K>>: Receixe 0x00: muccessfully UMAT K ASILI: checksum is: 0x00048e5000K>>: Receixe 0x00: muccessfully Waite all registers successfully	
Config 1 2 3 4 5	TYPE • • •	PATH	SIZE	ADDRESS	VALUE /		UNE NA ASLI: 0y max mode: Send the sociestful initing to receive checksum Send thecksum successfully UNAT V ASCI: checksum is: 0x000013#0K>: Receit 9x: successfull Send che successfully UNAT RACII: by hex mode: Send che successfully! UNAT RACII: checksum is: 0x00048e50#0K>: Receiv 9x: Send che successfully! UNAT RA ASCII: checksum is: 0x00048e50#0K>: Receive 9K! Write all mages successfully! Write all mages successfully!	
Config 1 2 3 4 5 6	TYPE • • • •	PATH	SIZE	ADDRESS	VALUE		<pre>Description Actual of Actual States of Actual States</pre>	
Config 1 2 3 4 5 6 7	TYPE • • • •	РАТН	SIZE	ADDRESS	VALUE		The function of the second sec	
1 1 2 3 4 5 6 7 8	TYPE - - - - - - - - - - - - - - -	PATH	SIZE	ADDRESS	VALUE		Use NA ALLES OF Real mode Sang (image successfully) User (image successfully) User (image successfully) User (image successfully) Recein (image successfully) Recein (image successfully) Recein (image successfully) Recein (image successfully) User (image successfully) Write all registers successfully) Merite all registers successfully)	
Config 1 2 3 4 5 6 7 8 9	TYPE - - - - - - - - - - - - - -	PATH	SIZE	ADDRESS	VALUE		<pre>Use two Assign =0, next Sent image successfull Waiting to receive checksum Send thecksum successfully Uwart K ASCII: checksum is: 0x000012600(&gt;): Receive agesfully Send chen successfully Uwart KK USCII: by hex model Receive ages request Send chen, une successfully! Uwart KK ASCII: checksum is: 0x000485500K&gt;): Receive ages fully! Uwart KK ASCII: checksum is: 0x000485500K&gt;): Receive #0KI uwite ail mages successfully! Write ail registers successfully!</pre>	
Config 1 2 3 4 5 6 7 8 9 10	TYPE 	PATH	SIZE	ADDRESS	VALUE		Use (W Asils of net 000 Sent ings successful Wiling to receive checksum Send thecksum successfully (WAT & ASIL: checksum is: 0x00012000(>): Receive age request Send chr successfully UWAT KA SCII: by hex mode: Receive age request Send chr successfully (Wat KA ASIL: checksum i: Su000486500K>): Receive age successfully (WAT KA ASIL: checksum i: Su000486500K>): Receive ages successfully Write all negisters successfully	

7. After programming successfully, pull-down TM pin, followed with reset, module will go to boot mode.

### 3.2.2. Image only programming

Use UART for flash programming operation, and power on (or press reset) after TM pin is pulled high, which is the state of UART receiving command, and UART is configured as baud rate: 115200 , 8bit, 1 bit stop, None parity, no flow control;

Steps:

1. Prepare software and tools, connect hardware, pull TM (pin8) high, as shown below:



2. Run PhyPlusKit.exe, configure parameters in UART Tab (115200, 8bit, 1 bit stop, None parity, no flow control), then click Connect

sh_	Writer	RF_CMD	RF, O	uickSet			UART Setting	
onfig			- Time	out 4000	Save	Clear	Port COM4 Baud Rate 250000 Stop Bits 1 Parity No Disconnect AutoCheck	Update
	Erase	e Size 512	k 🗸 Addre	ess	Erase	Write		
T							Log	
Ima	ye						Name COM4	
	TYPE	PATH	SIZE	FLA_ADDR	RUN_ADDR	^	Description:USB Serial Device	
1	M0 -	rs/Ding/	AA8	10000	20000		Name   CN7	
2	M0 *	rs/Ding/	AA8	12000	22000		Description:JLink CDC UART Port	
3							Handracture: Stock	
4							Selected file: C:/Users/Dimg/Desktop/GUITool/PhyPluskit/Win32/Release/Din/m@main0.bin Selected file: C:/Users/Dimg/Desktop/GUITool/PhyPlusKit/Win32/Release/bin/m@main1.bin	
5							Lueu system files successfully:	
6							Current baudrate: 250000	
7							Current scopits: 1	
8							Serlal opened!	
9						~		
Cont	fig							
	TYPE	PATH	SIZE	ADDRESS	VALUE	^		
1								
2								
3								
4								
5								
6								
7								
8								
						~		
9								

- 3. Select BIN file after connected. (Double click the cell in the PATH column) , type(MO) , Configure fla\_addr and run\_addr , The configuration information is as follows:
  - 1) fla\_addr:flash offset address, suggest 0x10000
  - 2) run\_addr:APP operation address, default address :0x1FFF4000

Configuration can be saved for future use

onfig mage	test		Time	Erase Vrite	Name: COM6 Description:USB Serial Device Manufacturer: Microsoft Name: COM7 Description:Jick CDC UMAT Best			
	ТҮРЕ	PATH	SIZE	FLA_ADDR RUN_ADDR ^	Manufacturer: SEGGER			
2	dout	ole click 🔪		🗭 Open File				
4				← → × ↑ 📜 « Win32	> Release > bin v 🔇	Search bir	1	
5				Organize • New folder			H • 🔲	
6				This PC	Name		Date modified	
7				e Desktop	刻 1k.txt		2017/8/15 13:14	
8				Documents	🛃 5k.txt		2017/8/15 13:14	
9				Downloads	of 10k.txt		2017/8/15 13:14	
onfia				Music	20k.txt		2017/8/15 13:14	
				- Pictures	40k.txt		2017/8/15 13:14	
	TYPE	PATH	SIZE	Videos	80k.txt		2017/8/15 13:14	
1	•				M 100k.txt		2017/8/15 13:14	
2	•			Masintash HD (			2017/11/3 9:55	
3	•			CD Drive (C)	m0main0 bin		2017/8/15 13:14	
4	•			So Drive (G:)	-			
5	•							
6	•			File name		*.*		
7	•					0.000	n Conce	
8						Ope	Cance	
9	-			*				

In the set of the set	Т	Fla	ash_Writer RF_CMD RF_QuickSet					LOG	
Image         Erase         Write           TYPE         PATH         SIZE         FLA_ADDR         RUN_ADDR         Namescurve: Nicrosoft           M0        hyPluskit/PhyPluskit/bin/m0main0.bin         AA8         10000         20000000         PhyPluskit/cir/memain0.bin           M0        hyPluskit/phyPhyPluskit/bin/m0main0.bin         AA8         10000         20000000         PhyPluskit/cir/memain0.bin           Selected file:         c://user/cing/Desktop/GUITool/PhyPluskit/         PhyPluskit/cir/memain0.bin         AA8         10000         20000000           minimum         Image: Cir/user/cing/Desktop/GUITool/PhyPluskit/         PhyPluskit/bin/memain0.bin         Selected file:         c://user/cing/Desktop/GUITool/PhyPluskit/           fig         Image: Cir/user/cing/Desktop/GUITool/PhyPluskit/         PhyPluskit/bin/memain0.bin         Selected file:         c://user/cing/Desktop/GUITool/PhyPluskit/           fig         Image: Cir/user/cing/Desktop/GUITool/PhyPluskit/         Image: Cir/user/cing/Desktop/GUITool/PhyPluskit/         PhyPluskit/bin/memain0.bin         Selected file:         c://user/cing/Desktop/GUITool/PhyPluskit/           i         Image: Cir/user/cing/Desktop/GUITool/PhyPluskit/         Image: Cir/user/cing/Desktop/GUITool/PhyPluskit/         PhyPluskit/bin/memain0.bin         Selected file:         Selected file:         Selected file:         Selected file:	fig	test		☐ Time	out 4000	Save	Clear	Name: COM6 Description:USB Serial Device	
TYPE       PATH       SIZE       FLA_ADDR       RUN_ADDR       August (Discover)         MO      hyPluskit/PhyPluskit/bin/m0main0.bin       AA8       10000       20000000       August (Discover)       Selected file: C:/Users/Discover)/GUITool/PhyPluskit/         MO      hyPluskit/phyPhyPluskit/bin/m0main0.bin       AA8       10000       20000000       August (Discover)/GUITool/PhyPluskit/         Fig       Function       Function       Function       Function       Function       Function         Nfg       Function						Erase	Write	Manufacturer: Microsoft	
TYPE         PATH         SIZE         FLA.ADDR         RUN.ADDR         A           M0        hyPlusKit/PhyPlusKit/bin/m0main0.bin         AAB         10000         20000000         Selected file: C:/Users/Ding/Desktop/GUITool/PhyPlusKit/PhyPlusKit/PhyPlusKit/Desktop/GUITool/PhyPlusKit/PhyPlusKi	ag	9						Description:JLink CDC UART Port	
M0      hyPluskt/phyPuskt/bin/momain0.bin         AA8       10000       2000000         PhyPluskt/phyPuskt/bin/momain0.bin		TYPE	PATH	SIZE	FLA_ADDR	RUN_AD		Colorted file: C://www.colorted/filtTeol/PhyPlus/it/	
Image: Second Solution (Solution) (Sol		M0 •	nyPluskit/PnyPluskit/bin/m0main0.bin	AA8	10000	200000	00	PhyPlusKit/bin/m@main0.bin Salected file: C://sers/Ding/Desktop/GUITocl/PhyPlusKit/	
Image: Second								PhyPlusKit/bin/m@main@.bin	
Image: Size Address Value									
TYPE PATH SIZE ADDRESS VALUE									
TYPE     PATH     SIZE     ADDRESS     VALUE       •     •     •     •       •     •     •     •       •     •     •     •       •     •     •     •       •     •     •     •       •     •     •     •       •     •     •     •       •     •     •     •       •     •     •     •									
nfig TYPE PATH SIZE ADDRESS VALUE C C C C C C C C C C C C C									
nfig TYPE PATH SIZE ADDRESS VALUE C C C C C C C C C C C C C									
nfig TYPE PATH SIZE ADDRESS VALUE C C C C C C C C C C C C C									
PATH         SIZE         ADDRESS         VALUE           ·         ·         ·         ·         ·           ·         ·         ·         ·         ·           ·         ·         ·         ·         ·           ·         ·         ·         ·         ·           ·         ·         ·         ·         ·           ·         ·         ·         ·         ·           ·         ·         ·         ·         ·							~		
TYPE         PATH         SIZE         ADDRESS         VALUE           •         ·         ·         ·         ·           •         ·         ·         ·         ·           •         ·         ·         ·         ·           •         ·         ·         ·         ·           •         ·         ·         ·         ·           •         ·         ·         ·         ·           •         ·         ·         ·         ·           •         ·         ·         ·         ·	nfi	,							
		TYPE	PATH	SIZE	ADDRESS	VALU	E ^		
			•						
			•						
			•						
· · ·							~		
9 -							v		

### 4. Click Erase, erase flash before programming

IA DO	Ela						106	
Confi	ria g test	Isn_writer RF_CMD RF_QuickSet	✓ Time	out 4000	Save Erase	Clear Write	Neme: COM6 Description:USB Serial Device Manufacture: Microsoft	
Ima	je						Description:JLink CDC UART Port	
	TYPE	PATH	SIZE	FLA_ADDR	RUN_AD	DR ^		
1 2	M0 •	hyPlusKit/PhyPlusKit/bin/m0main0.bin	AA8	10000	200000	00	Selected file: C:/Users/Ding/Desktop/GUITool/PhyPlusKit/ PhyPlusKit/bin/m0main0.bin Selected file: C:/Users/Ding/Desktop/GUITool/PhyPlusKit/ PhyPlusKit/bin/m0main0.bin	
3 4						$-\Lambda$	Current souparts: 250000 Current stopBits: 1	
5						1	Current parity: No Parity Serial opened!!	
6						- I I	Send erase successful! UART RX ASCII: erase#OK: chip is erased!>>:	
7							Receive #OK!	
8								
9						~		
Con	ig							
	TYPE	PATH	SIZE	ADDRESS	VALUE	^		
1	•							
2								
4								
5								
6								
7	•							
8	•							
9	•					~		
omr	nand:				Send	ClearBuf	TimeTick Mode ASCII · Save Log Clea	r

5. Click Write to start programming

Edit	Settin	g Help					
ART	Fla	sh_Writer RF_CMD RF_QuickSet					LOG
onfi <u>c</u> (mag	test		✓ Time	4000	Save Erase	Clear Write	Name: COM5 Description:USB Serial Device Manufacturer: Microsoft Name: COM7
1 2 3 4 5 6	TYPE M0 -	PATH hyPlusKit/PhyPlusKit/bin/m0main0.bin	SIZE AA8	FLA_ADDR 10000	RUN_AD	DR ^	<pre>Description:Jink CUC UAR! Port Hanufacture: SSGGR Selected file: C://Users/Dimg/Destop/GUITool/PhyPlusKit/ PhyPlusKit/bin/Gmain&amp;-bin celected file: C:/Users/Dimg/Destop/GUITool/PhyPlusKit/ PhyPlusKit/bin/Gmain&amp;-bin Curvert port: COM6 Curvert port: COM6 Curvert socpEits: 1 Curvert socpEits: 1 Curvert socpEits: 1 Curvert socpEits: 1 Send erase accessful UART RX ASCITIONSECK: chip is erased!&gt;&gt;: Receive GVI</pre>
7 8 9 Confi	g TYPE	PATH	SIZE	ADDRESS	VALUE	~	Receive >>: successfull Send cpnum successfull Receive POK Bacetive POK Bacetive >>: successfull Send cpbur successfull UAAT RX ASCIT: cpbin sckedenede 0x00010000 0x000000a8 0x20000000 Receive image requesti Send image successfull Send image successfull
2 3 4	•						UARI KK ASLII: Checksum is! exemesore exemesoreemak: program im age donel>: heterize iden: write all images successful! write all registers successful!
5 6 7	•						
8 9	•					>	
omm	and:			V 🗌 HEX	Send	ClearBuf	TimeTick Mode ASCII · Save Log Clear

6. After programming successfully, pull-down TM pin, followed with reset, module will go to boot mode

# 3.2.3. Program image and config

repeat the previous steps 1-5
 Select AT mode to read the file storing the register value, and fill in the starting address
 Starting address such as: 4000



2. Each line in the document represents value to be written, the starting address is specified by the user, and the address written to each row is added 4 units to the starting address.

sh_	Writer	RF_CMD RF_QuickSet					UART Setting
onfig			~ Tim	eout 4000	Save	Clear	Port COM5 · Baud Rate 115200 · Stop Bits 1 · Parity No
		Erase Size 512	k 🗸 Add	ress	Erase	Write	Disconnect AutoCheck Update
IM	S V H	EX					Log
	TYPE	PATH	SIZE	FLA_ADDR	RUN_ADD	R ^	
1	MO	<ul> <li>op/software/iBeacon_SDK_Alpha/test.hex</li> </ul>	34C2	10000	1FFF4000		Current baudrate: 115200
2							Current stopBits: 1 Current parity: No
3							Serial opened!!
4							
5							
6							
7							
8						~	
0							
Con	fig						
	TYPE	PATH	CIZE	ADDRECC	VALUE		
1	AT	C:/Users/Ding/Desktop/test.txt	1C	4000			
3		•					· ·
4		•					
5		•					
6		•					
7		•					
8		•					
٩		*				~	

3. Click Erase to erase the flash



### 4. Click Write to start programming

PhyPl	usKit						- 0
Edit	Setting	s Help					
lash_V	Vriter	RF_CMD RF_QuickSet					UART Setting
Config			√ Time	eout 4000	Save _	Clear	Port COM5 Baud Rate 115200 Stop Bits 1 Parity No
		Erase Size 512	k 🗸 Add	ress	Erase	Write	Disconnect AutoCheck Update
							Log
	TYPE	DATH	6175				
	MO	op/software/iBeacon_SDK_Alpha/test.hex	3403	TLA_ADDR	1FEE400		Current port: COM5
1	140 -		3402	10000	100	,	Current baudrate: 115200 Current stopBits: 1
2						- 1	Current parity: No Serial opened!
4						- 1	Sand arase successfully!
5							UART RX ASCII: #OK>>:
6							Receive #OK! Receive >>: successful!
7						_	Send cpnum successfully! UART RX ASCII: #OK>>:
8							Receive #OK!
~						~	Send cpbin successfully!
Confi	a						UART RX ASCII: by hex mode: Receive image request!
	TYPE	PATH	SIZE	ADDRESS	VALUE	^	Send checksum successfully!
1	AT -	C:/Users/Ding/Desktop/test.txt	1C	4000			Receive #OK!
2							Write all images successfully! UART TX ASCII: write4000 ffffff01
3							UART RX ASCII: #OK>>: UART TX ASCII: write4004 ffffff10
4	•						UART RX ASCII: #0K>>:
5							UART RX ASCII: #OK>>:
6							Write all registers successfully!
7							
8	•						
٥						*	
					Cont	0100	
omma	na:				Send	ClearBut	I Imelic Mode ASCII Save Clear

# 3.2.4. HexMerge programming

onng		~ Tim	eout 4000	Save	Clea	Den File				
	Erase Size 512	2k ~ Add	ress	Erase	Writ	← → ~ ↑ 🖡 « Pi	hyPlusKit > Win32 > Release >	~ Ŭ	搜索"Release"	
						组织 · 新建文件夹			j= •	
IMG \/ HEX	V HEX Merge \					📜 Release	^ 名称	^	修改日期	类型
8001 -			No	• AIO	HexF	OpeDrive	a bin		2018/8/21 19:03	文件字
APP •					Encryp		cmdEvtList		2017/11/7 14:36	文件字
•				FLA_ADDR		- 🤜 此电脑	config		2018/8/20 20:23	文件夹
•				FLA_ADDR		3D 对象	light1.hex		2018/8/21 18:07	HEX \$
*				FLA_ADDR		> 🔠 视频	light2.hex		2018/8/21 18:07	HEX 🞗
ChipID/IV						> 📙 图片	ota_dualbank_fc	t.hex	2018/8/21 18:07	HEX 3
PID[16]	LIC	0[10]	TID[14]	c	heckID	> 📔 文档	ota_dualbank_nd	ofct.hex	2018/8/21 18:07	HEX 兌
										HEY 10
MID[16]	SI	D(08)	IV[13]		VriteID	> 🚺 下载	ota_singlebank_f	fct.hex	2018/8/21 18:07	max x
MID[16]	51	D(08)	IV[13]	V	VriteID	> 🛼 下戰 > 🌗 音乐	<ul> <li>ota_singlebank_t</li> <li>ota_singlebank_t</li> </ul>	fct.hex nofct.hex	2018/8/21 18:07 2018/8/21 18:07	HEX \$
MID[16]	str	D[08]	IV[13]		VriteID	> 🐌 下戰 > 🌗 音乐 > 🏪 桌面	<ul> <li>ota_singlebank_t</li> <li>ota_singlebank_t</li> <li>wrist_115a.hex</li> </ul>	fct.hex nofct.hex	2018/8/21 18:07 2018/8/21 18:07 2018/8/13 17:01	HEX \$
MID[16] Single $\sqrt{Ba}$ TYPE	tch \ PATH	D[08]	IV[13]	VALUE	VriteID	> 🖡 下戰 > 🌗 音乐 > 📠 桌面 > 🔩 OS (C:)	<ul> <li>ota_singlebank_i</li> <li>ota_singlebank_i</li> <li>wrist_115a.hex</li> </ul>	fct.hex nofct.hex	2018/8/21 18:07 2018/8/21 18:07 2018/8/13 17:01	HEX \$
MID[16] Single V Ba TYPE	tch \ PATH	D[08] SIZE	IV[13] ADDRESS	VALUE	VriteID	> 🍹 下载 > 🎝 音乐 > 🚡 桌面 > 🐛 OS (C:) > 🚤 DATA (D:)	<ul> <li>ota_singlebank_1</li> <li>ota_singlebank_1</li> <li>wrist_115a.hex</li> </ul>	fct.hex nofct.hex	2018/8/21 18:07 2018/8/21 18:07 2018/8/13 17:01	HEX 3
MID[16] Single V Ba TYPE 1 • 2 •	sii tch \ PATH	D[08] SIZE	IV[13] ADDRESS	VALUE	VriteID	>	ota_singlebank_t     ota_singlebank_t     wrist_115a.hex	fct.hex nofct.hex	2018/8/21 18:07 2018/8/21 18:07 2018/8/13 17:01	HEX 3
MID[16] Single V Ba TYPE 1 • 2 • 3 •	sii tch \ PATH	D[08]	IV[13]	VALUE	VriteID	<ul> <li>○ 下载</li> <li>○ 音乐</li> <li>○ 編冊</li> <li>○ US (C:)</li> <li>○ DATA (D:)</li> <li>○ C(C)</li> </ul>	<ul> <li>∂ ota_singlebank ;</li> <li>∂ ota_singlebank ;</li> <li>∂ ota_singlebank ;</li> <li>∂ wrist_115a.hex</li> <li>&gt; &lt; </li> <li>+6(N):</li> </ul>	fct.hex nofct.hex	2018/8/21 18:07 2018/8/21 18:07 2018/8/13 17:01	HEX 3
MID[16] Single V Ba TYPE 1 • 2 • 3 • 4 •	steh	D[08]	ADDRESS	VALUE	VriteID	<ul> <li>▶ 下載</li> <li>▶ 音乐</li> <li>▶ 音乐</li> <li>▶ 重 桌面</li> <li>♥ Use OS (C:)</li> <li>&gt; ∠ DATA (D:)</li> <li>&gt; ∠ DATA (D:)</li> </ul>	<ul> <li>a) ota_singlebank_i</li> <li>a) ota_singlebank_i</li> <li>a) wrist_115a.hex</li> <li>v &lt;</li> <li>v &lt;</li> </ul>	fet.hex nofet.hex v	2018/8/21 18:07 2018/8/21 18:07 2018/8/13 17:01 *.hex	HEX 3 HEX 3
MID[16] Single V Ba TYPE 1 * 2 * 3 * 4 * 5 *	st	SIZE	ADDRESS	VALUE	WiteID	<ul> <li>▶ 下载</li> <li>▶ 音乐</li> <li>▶ 音乐</li> <li>▶ 重 桌面</li> <li>&gt; € oS (C)</li> <li>&gt; ↓ DATA (D:)</li> </ul>	<ul> <li>a ta singlebank,</li> <li>ta singlebank,</li> <lita li="" singlebank,<=""> <lita li="" singlebank,<=""> <li>ta si</li></lita></lita></ul>	fet.hex nofet.hex v	2018/8/21 18:07 2018/8/21 18:07 2018/8/13 17:01 *.hex 打开(Q)	HEX 32 HEX 32
MID[16] Single V Ba TYPE 1 * 2 * 3 * 4 * 5 * 6 *	sii PATH	SIZE	ADDRESS	VALUE	WiteID	● 下载 ● 音乐 ● 単面 ● しの5 (C) ● DATA (D:) ● C+	ota singlebank,     ota singlebank,     ota singlebank,     ota singlebank,     ovist_115a.hex     v <     tes(tb):	fet.hex nofet.hex v	2018/8/21 18:07 2018/8/21 18:07 2018/8/13 17:01 *.hex £17F(Q)	HEX 32 HEX 32
MID[16] Single V Ba TYPE 1 * 2 * 3 * 4 * 5 * 6 * 7 *	PATH	SIZE	ADDRESS	VALUE	WiteID	● ● 下乾 ● ● 音乐 ● ● 倉乐 ● ● の面 ● ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	<ul> <li>ota_singlebank,</li> <li>ota_singlebank,</li> <li>wrist_115a.hex</li> <li></li></ul> <li> <ul> <li></li> <li></li></ul> <ul> <li></li> <li></li></ul> <ul> <li></li> <li></li> <li></li> <li></li></ul> <ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li></ul> <ul> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li></ul> <ul> <li></li> <li></li> <li></li> <li></li> <li></li></ul> <ul> <li></li> <li></li></ul> <ul> <li></li> <li></li> <li></li> <li></li></ul> <ul> <li></li> <li></li></ul> <ul> <li></li> <li></li> <li></li> <li></li></ul> <ul> <li></li> <li></li> <li></li> <li></li> <li><!--</td--><td>fethex nofethex v</td><td>2018/8/21 18:07 2018/8/21 18:07 2018/8/13 17:01 *.hex #37#(Q)</td><td>HEX 32 HEX 32</td></li></ul></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li></li>	fethex nofethex v	2018/8/21 18:07 2018/8/21 18:07 2018/8/13 17:01 *.hex #37#(Q)	HEX 32 HEX 32
MID[16] Single V Ba TYPE 1 * 2 * 3 * 4 * 5 * 6 * 7 * 8 *	sii tch \ PATH	D[00]	ADDRESS	VALUE	VriteID	● ● 下载 ● ● 音乐 ● ● 編成画 ● ● の5 (C-) ● ● DATA (D-) ● ■ □ ● Current parts Current basis Current basis	<ul> <li>∂ ota singlebank;</li> <li>∂ ota singlebank;</li> <li>∂ wrist_115a.hex</li> <li>&lt; </li> <li>&lt; </li> </ul>	fethex nofethex	2018/8/2118:07 2018/8/118:07 2018/8/1317:01 *.hex 3777(Q)	HEX 32 HEX 32 HEX 32
MID[16] Single V Ba TYPE 1 2 3 4 5 6 7 8 9 •	sa tch PATH	D(08) SIZE	M(13)	VALUE	VriteID		<ul> <li>a. inglebank;</li> <li>a. inglebank;</li> <li>a. inglebank;</li> <li>b. wrist_115a.bex</li> <li>v. </li> <li>v. </li> <li>v. </li> <li>v. </li> </ul>	fethex nofcthex	2018/8/2118:07 2018/8/2118:07 2018/8/1317:01 *.hex 1771(Q)	HEX 32 HEX 32
MID[16] Single V Ba TYPE 1 2 3 4 5 6 7 7 8 9 •	डा स्टने ् РАТН	SIZE	M(13)	VALUE	VriteID	● ● 下転 ● ● 首乐 ● ● 盧厳 ● ■ 』 血面 ● ■ ○ OS (C:) ● DATA (D:) ● Current part Current part Current part Current part	<ul> <li>a. inglebaki, a. inglebaki, a. inglebaki, b. wrist_115a.hex.</li> <li>× &lt;</li> <li>× &lt;</li> <li>× &lt;</li> </ul>	fethex nofethex ∽	2018/8/2118:07 2018/8/2118:07 2018/8/1317:01	HEX 3 HEX 3

1. Double-click the BOOT file input box and select the ota\*.hex file.

2. Select the appropriate OTA\_BOOT mode

	iter RF_	CMD RF_Qui	ckSet M	ulti_FW			UART Setting					
onfig			~ Tim	eout 4000	Save	Clear	Port COM7 Y Ba	ud Rate 1	15200 ~	Stop Bits	. ~ P	arity N
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BOO	T • lusKit	t/Win32/Release	/ota_dualb	ank_nofct.hex No	OTA •	HexF	Description:蓝牙板	连接上的标准	串行			
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ChipI	ID/IV						Serial opened::		****			
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PID	16]	u	5[10]	(10[14]		HECKID	all driver init (	261				
MID	[16]	SI	D[10]	IV[13]	v	VriteID	all driver init (	26.1				
MID	[16]	sı	D[10]	IV[13]	v	VriteID	all driver init ( appWristInit Old					
MID( Single	16] [16] e V Batch	511 511	D[08]	IV[13]		VriteID	all driver init ( appWristInit Old					
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onfig		V Timeout 400	0 Save	Clea	🔝 Open File		
	Erase Size 512k	<ul> <li>Address</li> </ul>	Erase	Writ	← → × ↑ 📜 « PhyPlus	Kit > Win32 > Release >	Ů 搜索"Re
IMG HEX	HEX Merge				组织 • 新建文件夹		
BOOT -	cKit/Win22/Delease/ota	dualbank nofet	hoy Single No FCT	Hove	📜 Release	A 名称	修改日期
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			ELA_AUU	R	🧏 此电脑	config	2018/8
*			FLA_ADDI	8	👆 3D 对象	light1.hex	2018/8
*			FLA_ADDI	R	■ 视频	light2.hex	2018/8
ChipID/IV					📙 图片	ota_dualbank_fct.hex	2018/8
PID[16]	LID[10]	-	FID[14]	CheckID	📔 文档	ota_dualbank_nofct.hex	2018/
MID[16]	SID[08]		IV[13]	WriteID	🐌 下载	ota_singlebank_fct.hex	2018/8
					▶ 音乐	ota_singlebank_nofct.hex	2018/8
Single / Bat	ch \				🖕 桌面	wrist_115a.hex	2018/8
TYPE	PATH	SIZE ADDRE	SS VALUE		🐛 OS (C:)		
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### 3. Double-click the APP file input box and select the app\*.hex file.

- 4. Select the encryption method of the APP file:
  - a) ENC\_IV: input IV manually
  - b) CHIP\_ID: auto check the connected chip ID, auto calculate the IV
  - c) NO\_ENC: No encryption.

im PhyPluskit File Edit Settings Help	File Edit Settings Help
Flash Writer RE CMD RE QuickSet Multi EW	Flash_Writer RF_CMD RF_QuickSet Multi_FW
	Config V Timeout 4000 Save Clear
	Erase Size 512k V Address Erase Write
	/ IMG V HEX V HEX Merge
IMG V HEX V HEX Merge	BOOT • usKit/Win32/Release/ota_dualbank_nofct.hex Dual No FCT • HexF
BOOT VusKit/Win32/Release/ota_dualbank_nofct.hex Single No FCT HexF	APP
APP V/GUITool/PhyPlusKit/Win32/Release/light1.hex	• FLA_ADDR
	FLA_ADDR
FLA_ADDR	ChipID/IV
ChipID/IV	PID[16] LID[10] TID[14] CheckID
PID[16] LID[10] TID[14] CheckID	MID[16] SID[08] IV[13] 1234567890ABC WriteID
MID[16] SID[08] IV[13] WriteID	Single Batch
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BOOT • lusKit/Win32/Release/ota_dualbank_nofct.hex Dual No FCT • HexF	APP V /GUITool/PhyPlusKit/Win32/Release/light1.hex V Encrypt
APP • //GUITool/PhyPlusKit/Win32/Release/light1.hex CHIP_ID • Encrypt	• FLA_ADDR
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	PID[16] PHY6202AAQ800000 LID[10] EP5231.770 TID[14] 20 80821182017 CheckID
MID[16] J750EX-S00100000 SID[08] 4883475f V[13] 082118201783f WriteID	MID[16] 3750EX-S00100000 SID[08] 4883475f IV[13]
[Candia] [Devik]	

5. Click Erase to erase the flash, then click Write to program.

it Settings Help		File Edit Settings Help	
Writer RF_CMD RF_QuickSet Multi_FW	UART Setting	Flish_Writer RF_CMD RF_QuickGet Multi_FW	UMIT Setting
Timeout 4000 Size Osx	Port COM7 · Baud Rate 115200 · Stop Bits 1 · Parity No ·	Config V Timeout 4000 Sine Clear	Port CON7 / Baud Rate 115200 Y Stop Bits 1 / Parity
trase Size 512k - Address Erase Write	Disconnect AusoCheck Update	Ense Size 512k - Address Crue Write	Disconnect Autocheck Update
NG // HEX // HEX Merge /	Log	(ING) (HEX Merge)	Log
IOOT * Juskit/Win32/Release/ota_dualbank_nofct.hex_Dual No FCT * Heaf	58 C2 81 57 81 20 8 9 42 35 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	BOOT • Juskit/Wn32/Release/ota_duabank_nofct.hex Dual No PCT • Head	Send checkson successfully!
PP • /GUToo//PhyPluskit/Wn32/Release/laht1.hex CHP_10 • Encrypt	UART RX : 000070 I 0gH2'DA'D00295005000021 (A( A'200 A	APP • /GUITool/PhyPlasKit/Win32/Release/light1.hex CHIP_ID • troppt	Receive #OKI
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FLA_ADDR	*010gtt100(( mgn0_000g00g0150msg00g0cad>):	* FLA_ADOR	Send cobin successfully
FLA_ADDR		- • PLA_ADOR	UAWT RX ASCII: by hex mode:
NiplD/TV	Current port: CMV Current basinate: 115200	ChipID/IV	Send image successful! Naiting to receive checksum
PED[16] PHYS282344Q8888888 LED[10] EP5231.778 TED[14] 28188823182817 CheckED	Current stopBits: 1	PID[16] PHY62823MQ888888 LID[10] EP5231.778 TID[14] 20180021182017 CheckID	UNIT RX ASCII: checksum is: 0x00001259a#OK>>:
MED(16) 3750EX-500100000 50D(00) 48834754 JM(13) 0021182017834 WYRAD	Serial opened[]	MED(16) 1756EX-580100000 SED(06) 48834754 IV(23) 0021182017834 WriteED	Receive #OK1 Receive the surressful!
	UART RX : emd>>:		and the second state of th
ngle / Batch \	PHYS282244Q800000EP5231.7703758EX-5001000002018082118201748834754 OHECK_OHEP_IDTW4_ID11	/ Single \/ Batch \	Send opbin successfully!
TYPE PATH SIZE ADDRESS VALUE	CHEP ID: PHY6282A008989895231.7783756EX- September 2018002118201248334256	TYPE PATH SIZE ADDRESS VALUE ^	WART KX ASCII: by hex mode: Receive image request!
•	P20 : PHY6382/WQ8888888	1 •	Send image successfull Maiting to receive checksum Send checksum successfully!
•	LED : EP5231.770 MED : J756EX-580100000	2 •	UART RX ASCII: checksum is: 0x00000057e#CK>>:
•	TID : 20180621182017 STD : 48924754	3 *	Receive >>: successful!
•			Nrite beef File [05/05]
•	CHECK CHIP ID[WLID]:		Send cpbin successfully!
•	CHEP ID: PHYS282A4Q8888862P5231.7783758EX- SAN1888892815862118281248834254	7 .	Receive image request!
*	PID : PHY628244Q888888		Send image successful! Naiting to receive checksum Send checksum successfully!
•	LTD : EPS231.778 HTD : 1750FY.500100000		10087-89-05CTT: charlen 15: 8x083x534780K>>1
•	TED : 20180021182017	· · · · · · · · · · · · · · · · · · ·	Receive #CK1 Write images successfully!
	510 : 46854757		Write registers successfully!
			Interface Made Martin a Come Chan
	Troute Mode ASCE y State Care	Command: U HEX Send Cleareur	L men, Hote Roca - Jane Con

After the burning is completed, the \*.hexf and \*.hexe files and the corresponding files are generated in the app directory.

	2010/0/21 15:05	XIIT	
cmdEvtList	2017/11/7 14:36	文件夹	
config	2018/8/20 20:23	文件夹	
] batchConfigList_compact.csv	2018/7/9 10:23	Microsoft Excel	2 KB
config.ini	2018/8/20 17:46	配置设置	1 KB
light1.hex	2018/8/21 18:07	HEX 文件	83 KB
light1.hexe	2018/8/21 20:26	HEXE 文件	83 KB
light1.hexf	2018/8/21 20:26	HEXF 文件	169 KB
light2.hex	2018/8/21 18:07	HEX 文件	209 KB
ota_dualbank_fct.hex	2018/8/21 18:07	HEX 文件	84 KB
	cmdEvtList config batchConfigList_compact.csv config.ini light1.hex light1.hexe light1.hexf light2.hex ota_dualbank_fct.hex	Dim         Dim <thdim< th=""> <thdim< th=""> <thdim< th=""></thdim<></thdim<></thdim<>	Dim         2010/0/21 13:03         大田天           cmdEvtList         2017/11/7 14:36         文件夹           config         2018/8/20 20:23         文件夹           batchConfigList_compact.csv         2018/7/9 10:23         Microsoft Excel           config.ini         2018/8/20 17:46         配置设置           light1.hex         2018/8/21 18:07         HEX 文件           light1.hexe         2018/8/21 20:26         HEXE 文件           light2.hex         2018/8/21 18:07         HEX 文件           ota_dualbank_fct.hex         2018/8/21 18:07         HEX 文件

- The .hexf file is the combined output of multiple hex files, which can be directly burned by PhyPlusKit.
- The .hexe file is the encrypted output of the app\*.hex file, and it is also the encrypted file of the ota upgrade later.

# 3.3. Using RF Command

# 3.3.1. RF Command TX

1. UART settings are baud rate: 115200, 8bit, 1 bit stop, None parity, no flow control; □PhyPhusKit - ♂ ×

h_Writer RF_CMD	RF_QuickSet							
_COMMEND_EVENT_4.	0.csv	•	EditFile		Port COM4 · Baud Rate 115200 · S	top Bits 1 Parity No	Disconnect AutoCheck	Update
[Command]				^	100		/	
LE Add Device To V	White List Command				209			
LE Clear White List	Command							
LE Read Buffer Size	Command				Current port: COM4			
LE Read Local Supp	orted Features Command				Current baudrate: 115200 Current stopBits: 1			
LE Read Supported	States Command				Current parity: No	🖌		
LE Read White List	Size Command				Serial opened!!			
LE Remove Device	From White List Command							
LE Set Event Mask	Command							
LE Test End Comma	and							
Read BD_ADDR Cor	mmand			×				
	1	2	3					
	onCode	18	20 : 10					
	opeoue							
eature Requirements: cription: 7.8.15	Mandatory							

ash_Writer RF_CMD RF_QuickSet			UART Setting
CI_COMMEND_EVENT_4.2.csv	•	EditFile	Port COM4 Baud Rate 115200 Stop Bits 1 Parity No Disconnect AutoCheck
(Command)			log
[Event]			
[Command Complete Event]			Current port: CON4
[Command Status Event]			Current baudrate: 115200 Current stopBits: 1
[ErrorCode]			Serial openedii
			Load system files successfully!
1	2	3	
opCode	2B	20 : 10	•
Feature Requirements: Mandatory			
cription: 7.8.15			

3. Select the command to send and configure the command content in the form

hyPlusKit				- 0
Edit Settings Help				
lash_Writer RF_CMD RF_QuickSet				UART Setting
CI_COMMEND_EVENT_4.2.csv	•	EditFile		Port COM4 Baud Rate 115200 Stop Bits 1 Parity No Disconnect AutoCheck Update
<ul> <li>[Command]</li> </ul>			^	Log
LE Add Device To White List Command				
LE Clear White List Command				
LE Read Buffer Size Command				Current baudrate: 115200
LE Read Local Supported Features Comn	mand			Current stopBits: 1
LE Read Supported States Command				Serial opened!!
LE Read White List Size Command				********
<ol> <li>LE Remove Device From White List Com</li> </ol>	imand			Load System Tiles Successfully:
LE Set Event Mask Command				
LE lest End Command				
Read BD_ADDR Command			*	
1	2	3		
opCode	2B	20 : 12		
Address_Type	18	01		
Address	6B	01:02:03:04:05:	06	
E Feature Requirements: Mandatory escription: 7.8.17				

### 4. Click Send to send out command



# 3.3.2. RF Command RX

1. First load the protocol file to be parsed

😰 PhyPlusKit File Edit Settings Help						-	ð	×
Flash_Writer RF_CMD RF_QuickSet			UART Setting					
HCI_COMMEND_EVENT_4.2.csv	•	EditFile	100					
> [Command]								
> [Event]			Name: COM4 Description:USB Serial D	Device				
> [Command Complete Event]			Manufacturer: Microsoft					
> [Command Status Event]			Description:JLink CDC UA	ART Port				
> [ErrorCode]			Load system files succes	ssfully!				
field	length	value						
			TimeTick Mode ASCI		Save Log	Cl	ar	

2. Select Automatic Parsing, and select appropriate settings in the floating window

	QuickSet		UART Setting
_COMMEND_EVENT_4.2.csv	·	EditFile	Log
(Command) [Event] (Command Complete Event] (Command Status Event] [ErrorCode]			Log Mass: COM Description:058 Serial Device Renufactures: Nicrosoft Nume: COU Description: Link GCC UMT Port Description: SEGER Log system files successfully
field	length	value	

3. The automatically parsed package content will be output in the Log



# 3.4. Using RF QuickSet

	an aug an an an an an			IIADT Cotting				
ash_Writer	RF_CMD RF_QuickSet			Out CONT	Revel Data 1150	Chan Dite	- Dealter Ma	
F Setting				Port COM5	Baud Rate 1152	00 Y Stop Bits 1	Parity No	0
				Disconnec	ct	AutoCheck	Update	
				Log				
	PHY BLE 1M · Mo	de TX_BURST_TEST •						
	RF_CHN	12 2	2426MHz	Current port: C	COM5			
	Length	25	(HEX)	Current baudrat Current stopBit	:e: 115200 :s: 1			
	PKT	0	(HEX)	Current parity: Serial opened!!	No			
	XTAL_CAP	10	(HEX)	********		••		
	TX_Power	F	(HEX)					
	TX_TPCAL	0	(LIEV)					
	TPCAL_MANU		(nex)					
	TPCAL_MANU	End						
ESPONSE	TPCAL_MANU 🗌	End						
ESPONSE <b>TX</b>	TPCAL_MANU 🗌	End						
ESPONSE TX	TPCAL_MANU 🗌	RX COUNT						
ESPONSE TX	TPCAL_MANU	RX COUNT FORE						
ESPONSE TX TPCAL	TPCAL_MANU	RX COUNT FOFF						
ESPONSE TX TPCAL	TPCAL_MANU  Start	End RX COUNT FOFF RSSI						
ESPONSE TX TPCAL	TPCAL_MANU  Start	RX COUNT FOFF RSSI						

1. UART setting, Baud:115200, 8bit, 1 bit stop, None parity, no flow control;

🕞 PhyPlusKit X File Edit Setting UART Setting Flash\_Writer RF\_CMD RF\_QuickSet Port COM5 Baud Rate 115200 Stop Bits 1 Parity No RF Setting Disc Update oCheck A Log PHY BLE 1M · Mode TX\_BURST\_TEST · port: COM5 baudrate: 115200 stopBits: 1 parity: No opened!! RF\_CHN 12 2426MHz Current Current Current Serial Length PKT 25 (HEX) 0 (HEX) -XTAL\_CAP 10 (HEX) .... RX PHY\_DTM V2.0.0=== PPORT BLE 1M === PPORT BLE 2M === PPORT BLR 500K=== PPORT BLR 125K=== PPORT ZIGBEE === TX\_Power TX\_TPCAL F (HEX) 0 (HEX) ÷. TPCAL\_MANU End RESPONSE TX COUNT FOFF TPCAL RSSI CARR SENS TimeTic Mode ASCII · Clear Save UART INFO: Port: COM5, Baudrate: 115200, StopBits: 1, Parity: No V2.2.4d

### 2. Click QuickSet tag, then reset the connected device(or EVK), it is then at DTM mode

3. Configure the Tx parameter, click Start to send out the command/data.

Edit Settings	Help		
ash_Writer	RF_CMD RF_QuickSet		UART Setting
F Setting			Port COM5 Baud Rate 115200 Stop Bits 1 Parity No
			Disconnect AutoCheck Update
			Log
	PHY BLE 1M · Mo	de TX_BURST_TEST ·	
	RF_CHN	12 2426MHz	Current port: COM5
	Length	25 (HEX)	Current stopBits: 1
	РКТ	0 (HEX)	Serial opened!!
	XTAL_CAP	10 (HEX)	UART RX : ���
	TX_Power	F (HEX)	===RF_PHY_DTM V2.0.0===
	TX_TPCAL	0 (HEX)	=== SUPPORT BLE 2M ===
	TPCAL_MANU		=== SUPPORT BLR 125K===
	Start	End	UART TX HEX : C0 00 response: 80 00 UART TX HEX : 02 04 response: 00 10 UART TX HEX : 38 00 response: 00 7c
ESPONSE			UART TX HEX : 3C 40 response: 00 7e
тх		RX	UART TX HEX : 3D 3C response: 00 80
		COUNT	UART TX HEX : 8C 94 response: 00 02
TRCAL		FOFF	
TFCAL		RSSI	
		CARR_SENS	
			TimeTic Mode ASCII · Save Clear

PHY: Set the physical type:BLE1M, BLE2M, BLE500K, BLE125K or ZIGBEE

- MODE : TX\_BURST\_TEST, Transmits BLE packets at regular intervals. TX\_SINGLE\_TONE,Transmit single tone signal for frequency offset and transmit power and phase noise detection
  - **TX\_MODULATION**, transmits a continuous modulated signal
  - **RX\_BURST\_TEST**, Enter RX demodulation mode, count the number of received packets
  - **RX\_AUTO**, Automatically count the number of correct data packets received every 1000 data packet intervals.
- RF\_CHN: Set the RF Frequency , For BLE , RF\_FREQ=RF\_CHN\*2+2400 For ZIGBEE , RF\_FREQ=RF\_CHN\*5+2400
- Length: TX packet Length Unit=BYTE
- PKT: TX packet type, 0-> prbs9, 1-> 11110000, 2->10101010,3-> prbs15
- XTAL\_CAP: Adjust core chip internal CAP loading, change RF的Frequency Offset。
- TX\_Power: Adjust the RF Tx power, the range is [0-0x1f], which is proportional to the power, when the value is 0x0A, the power is 0dBm

TPCAL\_MANU: Adjust the TX efficiency. If not click Manual, core chip will implement internal automation calibration. If Manual is selected, user needs to fill in the TPCAL value. Manual is NOT recommended to be clicked.

### All new parameter valid only after START is clicked

4. Click End to end the test, and obtain the corresponding parameter (TPCAL)



When the test mode is TX, clicking End will automatically follow the new TPCAL result. When the test mode is RX, update the following parameters:

COUNT: The actual number of correct Packets received. FOFF: RX\_PHY frequency offset estimate (KHZ) • RSSI: Estimated value of received signal strength (dBm) CARR\_SENS: An estimate of signal quality.

RX\_BURST\_TEST mode. The statistical time is from the click of Start to the click of End. RX\_AUTO mode. The statistical time is 1000 Packet Intervals. Automatic update. Click End to exit RX\_AUTO mode.

### 3.5. Multi-FlashWriter

1. Set the appropriate Timeout value (the default is 4000ms), select the HEX file to be burned and check the burned (Flash Address, Run Address), select the PORT port to be burned, and fill in the value of the specified address as needed.

	Pluskit						_	
Edit	Settings H	ielp						
ash	Writer F	RF_CMD RF_Quick	Set Multi_FW			UART Setting		
onfi	a test			Timeout 40	00 Save Clear			
			Frace Si	ize 512k Address	Erase Write	Log		
nao	0		Eldse Si	Address	Lidse Write	Name: COM4		
10	• C:/Ilser	rs/Ding/Deskton/iBear	on hey		FLA ADDR 10000	Manufacturer: FTDI		
he	HEX file b	as 3 narts last mo	dified: 2018-05-04	14-01-52	TEA_ADDK 10000	Name: COM7		
e		as 5 pares. case not	10000 Due 111-04	14.01.52		Description:USB Serial Port Manufacturer: FTDI		
o	2 Size: 0	040C, Flash Address:	: 10000, Run Addres : 14000, Run Addres	s: 1FFF0800		**************************************		
D.:	3 Size: 0	0984, Flash Address:	: 15000, Run Addres	s: 2000000		Description:USB Serial Port		
						Description:USB Serial Port		
						Manufacturer: FTDI		
rt :								
				1		Name: COM11 Description:USB Serial Port		
au	d Rate 2500	000 - Stop I	Bits 1	Parity No	Multi-Connect	Name: COM11 Description:USB Serial Port Manufacturer: FTDI		
au	d Rate 2500 PORT	ADDRESS	Bits 1 VALUE	Parity No     ADDRESS	VALUE ^	Name: COM11 Description:USB Serial Port Manufacturer: FTDI Name: COM12 Description:USB Serial Bost		
9U	i Rate 2500 PORT ALL	ADDRESS 4000	Bits 1 VALUE ABCD	Parity No     ADDRESS	VALUE	Name: CON11 Description UP Berial Port Name: CON12 Description:USB Senial Port Hanvfacturer: FDI		
au	PORT ALL COM4	ADDRESS 4000 4004	Bits 1 VALUE ABCD A1B2	Parity No     ADDRESS	VALUE	Name: CON1 DescriptionUSB Serial Port Name: CON2 DescriptionUSB Serial Port Name: CON2 Save successfully		
3U	PORT ALL COM4 • COM7 •	000 Stop I ADDRESS 4000 4004	Bits 1 VALUE ABCD A1B2	Parity No ADDRESS	VALUE	Name: CON11 DescriptionUSB Serial Port Manufacture: FDI Mameristicure: FDI Manufacturer: FDI Save successfully!		
30	PORT ALL COM4 - COM7 - COM9 -	200  Stop 1 ADDRESS 4000 4004 4004	Bits 1 VALUE ABCD A1B2 C3D4	Parity No ADDRESS	VALUE	Name: CON11 Description:USB Serial Port Hanufacturer: FDI Description:USB Serial Port Hanufacturer: FDI Save successfully!		
	PORT ALL COM4 • COM7 • COM9 • COM10 •	200  Stop I ADDRESS 4000 4004 4004	Bits 1 VALUE ABCD A1B2 C3D4	Parity No     ADDRESS	VALUE	Name: CON11 Descriptions Provide Serial Port Name: CON12 Description:USB Serial Port Harufacturer: FDT Save successfully!		
	PORT ALL COM4 - COM7 - COM9 - COM10 -	000	Bits 1 VALUE ABCD A1B2 C3D4	Parity No     ADDRESS	VALUE	Name: CON11 DescriptionUSB Serial Port Name: CON12 DescriptionUSB Serial Port Haurdschurer: FDI Save successfully!		
au	PORT ALL COM4 - COM7 - COM9 - COM10 - -	000	Bits 1 VALUE ABCD A1B2 C3D4	Parity No     ADDRESS	VALUE	Name: COM11 DescriptionUSB Serial Port Name: COM12 DescriptionUSB Serial Port Name: COM12 Save successfully!		
	I Rate 2500 PORT ALL COM4 - COM7 - COM9 - COM10 - - - -	000	Bits 1 VALUE ABCD A1B2 C3D4	Parity No     ADDRESS	VALUE	Name: CON11 Description:PPD Name: CON12 Description:USB Serial Port Hanufacturer: FPD Save successfully!		
au	PORT ALL COM4 - COM7 - COM9 - COM10 - - -	000	Bits 1 VALUE ABCD A1B2 C3D4	Parity No     ADDRESS	VALUE	Name: CON11 DescriptionUSB Serial Port Name: CON12 DescriptionUSB Serial Port Harvfacturer: FDT Save successfully!		
au 1 2 3 4 5 5 5 7 3 9 10	4 Rate 2500 PORT ALL COM4 • COM7 • COM9 • COM10 • • • • • •	300	Bits 1 VALUE ABCD A1B2 C3D4	Parity No     ADDRESS	VALUE	Name: CON11 DescriptionUSB Serial Port Name: CON12 DescriptionUSB Serial Port Harufacturer: FDI Save successfully!		
au	Rate 2500 PORT ALL COM4 - COM7 - COM9 - COM10 - - - - - - - - - - - - - - -	000	Bits 1 ABCD A1B2 C3D4	Parity No     ADDRESS	VALUE	Name: COM11 DescriptionUSB Serial Port Manufacturer: FTD1 Name: COM12 DescriptionUSB Serial Port Manufacturer: FTD1 Save successfully!		
1 2 3 4 5 5 7 3 € 10 11 12	4 Rate 2500 PORT ALL COM4 - COM7 - COM9 - COM10 - - - - - - - - - - - - - -	000	Bits 1 VALUE ABCD A1B2 C3D4	Parity No     ADDRESS	VALUE	Name: CON11 Description:UBB Serial Port Name: CON12 Description:UBB Serial Port Hanufacturer: FTDI Save successfully!		

### 2. After the port to be burned is set, click Multi-Connect to connect the port

nnig (test hage 10 • C:/Users/Din he HEX file has 3 10.1 Size: 031E0, 0.2 Size: 0040C,	ng/Desktop/iBeaco parts. Last modi	Erase Si n.hex	y Timeout (40 ize 512k y Address	00 Save Clear Erase Write	Log Send connect command! All serial ports work fine!	
ge ) - C:/Users/Din e HEX file has 3 .1 Size: 031E0, .2 Size: 0040C,	ng/Desktop/iBeaco parts. Last modi	n.hex	ize 512k 🗹 Address	Erase	Send connect command! All serial ports work fine!	
C:/Users/Din e HEX file has 3 1.1 Size: 031E0, 2.2 Size: 0040C,	ng/Desktop/iBeaco parts. Last modi	n.hex			Send connect command! All serial ports work fine!	
e HEX file has 3 ( .1 Size: 031E0, .2 Size: 0040C,	parts. Last modi	Cited and an et al.		ELA ADDR 10000		
.1 Size: 031E0, .2 Size: 0040C,	pares. case mour		14-01-52	TEA_ADDK 10000		
.1 Size: 031E0, .2 Size: 0040C,		Tied: 2010-05-04	14:01:52			
12 SIZE: 0040C,	Flash Address:	10000, Run Addres	IS: 1FFF4000			
.3 Size: 00984.	Flash Address: Flash Address:	14000, Run Addres 15000, Run Addres	IS: 1FFF0800			
.5 5122: 00904,	Flash Address:	19000, Kun Addres				
ud Pate 250000	Ctop Bit	to 1	Darity No	Multi-Connect		
du Nate 250000	5100 01			- Huiti-Connect		
PORT	ADDRESS	VALUE	ADDRESS	VALUE ^		
ALL	4000	1000				
		ABCD				
сом4 -	4004	ABCD A1B2				
COM4 - COM7 -	4004	ABCD A1B2				
СОМ4 - СОМ7 - СОМ9 -	4004	A1B2 C3D4				
COM4 - COM7 - COM9 - COM10 -	4004	ABCD A1B2 C3D4				
COM4 • COM7 • COM9 • COM10 •	4004	A1B2 C3D4				
COM4 - COM7 - COM9 - COM10 - - -	4004	ABCD A1B2 C3D4				
COM4 - COM7 - COM9 - COM10 - - - -	4004	ABCD A1B2 C3D4				
COM4 - COM7 - COM9 - COM10 - - - -	4004	ABCD A1B2 C3D4				
COM4 - COM7 - COM9 - COM10 - - - - -	4004	ABCD A1B2 C3D4				
COM4 • COM7 • COM9 • COM10 • • • • • • • • • • • • • •	4004	ABCD A1B2 C3D4				

3. After the port is connected normally, click the Erase button to erase (return the total number/ success/failure count)

Edi	it Sattings k	ielp						
un	ic Settings i	ieip						
sh	n_Writer I	RF_CMD RF_Qu	iickSet Multi_F	FW		UART Setting		
onf	fig test			Timeout 4000     4000	Save Clear	log		
			Erase Size 512	2k 🗸 Address	Erase Write	Log		
mag	ge					Send connect command!		
MO	C:/Use	rs/Ding/Desktop/iB	eacon.hex		FLA ADDR 10000	All serial ports work fine!		
The	HEY file b	as 3 narts last	modified: 2018-0	05-04 14-01-52		Total/ Success/ Failed: 4/1/0		
						Total/ Success/ Failed: 4/2/0 Total/ Success/ Failed: 4/3/0		
10. 10.	.1 Size: 0 .2 Size: 0	31E0, Flash Addre 040C, Flash Addre	ess: 10000, Run / ess: 14000, Run /	Address: 1FFF4000 Address: 1FFF0800		Total/ Success/ Failed: 4/4/0		
ŗ.,	.5 512e: 0	osow, riash Addre	155. 15000, Kun /					
rt								
ort								
ort au	ud Rate 1152	200 – Stop Bi	ts 1	Parity No	V Multi-Connect			
au	ud Rate 1152 PORT	200 Stop Bi ADDRESS	ts 1 VALUE	Parity No	VALUE			
au	ud Rate 1152 PORT ALL	ADDRESS 4000	ts 1 VALUE ABCD	Parity No ADDRESS	VALUE			
ort au	ud Rate 1152 PORT ALL COM4	ADDRESS 4000 4004	VALUE ABCD A1B2	Parity No ADDRESS	VALUE			
ort au 1	Ad Rate 1152 PORT ALL COM4 - COM7 -	ADDRESS 4000 4004	VALUE ABCD A1B2	Parity No ADDRESS	VALUE			
ort iau 1 2 3	PORT ALL COM4 - COM7 - COM9 -	200 Stop Bi ADDRESS 4000 4004 4004	ts 1 VALUE ABCD A1B2 C3D4	Parity No ADDRESS	VALUE			
ort iau 1 2 3 4	Ad Rate 1152 PORT ALL COM4 - COM7 - COM9 - COM10 -	200 Stop Bi ADDRESS 4000 4004 4004	ts 1 VALUE ABCD A1B2 C3D4	ADDRESS	VALUE			
ort iau 1 2 3 4 5	Ad Rate 1152 PORT ALL COM4 - COM7 - COM9 - COM10 -	200 Stop Bi ADDRESS 4000 4004 4004	ts 1 VALUE ABCD A1B2 C3D4	ADDRESS	VALUE			
ort 3au 1 2 3 4 5 6	PORT ALL COM4 - COM7 - COM9 - COM10 -	200 Stop Bi ADDRESS 4000 4004 4004	ts 1 VALUE ABCD A1B2 C3D4	ADDRESS	VALUE			
ort 3au 1 2 3 4 <b>5</b> 6 7	PORT ALL COM4 - COM7 - COM9 - COM10 - -	200 → Stop Bi ADDRESS 4000 4004	ts 1 VALUE ABCD A1B2 C3D4	ADDRESS	VALUE			
ort 3au 1 2 3 4 5 6 7 8	PORT ALL COM4 - COM7 - COM9 - COM10 - - -	200 → Stop Bi ADDRESS 4000 4004 4004	VALUE ABCD A1B2 C3D4	ADDRESS	VALUE			
1 2 3 4 5 6 7 8 9	d Rate 1152 PORT ALL COM4 - COM7 - COM9 - COM10 - - - - -	200 → Stop Bi ADDRESS 4000 4004 4004	ts 1 ABCD A1B2 C3D4	ADDRESS	VALUE			
ort 3au 1 2 3 4 5 6 7 8 9 10	Id Rate 1152 PORT ALL COM4 - COM7 - COM9 - COM10 - - - - - - - - -	200 ✓ Stop Bi ADDRESS 4000 4004 4004	ts 1 VALUE ABCD A1B2 C3D4	ADDRESS	VALUE			
ort 3au 1 2 3 4 5 6 7 8 9 10	Id Rate 1152 PORT ALL COM4 - COM7 - COM9 - COM10 - - - - - - - - -	200 → Stop Bi ADDRESS 4000 4004 4004	ts 1 VALUE ABCD A1B2 C3D4	ADDRESS	VALUE			
1 2 3 4 5 6 7 8 9 10 11	Id Rate 1152 PORT ALL COM4 - COM7 - COM9 - COM10 - - - - - - - - - - - - - -	200 → Stop Bi ADDRESS 4000 4004 4004	ts 1 ABCD A1B2 C3D4	ADDRESS	VALUE			

4. After the device is erased normally, click the Write button to program (return the total number/success/failure count)



### 3.6. Programming and mixed operation under command line

### note:

- 1. PhyPlusKit.exe programming tool, firmware programming, configuration file .csv, etc. need to be in the same directory
- 2. It is written in the form of appending when the log file is saved. The programming process will be saved in a log file. The default log file name is zPhyPlusKit.log, which is in the same path as the programming tool.

### 3.6.1. Program only

1. command: PhyPlusKit.exe -P COM21 -R 1FFF4800 -f 1.csv -l 4 -w ancs\_A2.hex (Program hex file)

Description: Specify the Uart port as COM3, the chip belongs to PHY6212, set the run address to 1FFF4800, and write 1.csv (specified number of lines, the 4th line) and ancs\_A1.hex (in the same directory as the main program) into the chip (The chip needs to be connected to the computer through the serial port), and the erasing will be performed automatically before writing. (Note: TM is pulled high)

### Screen capture:

2. Command: PhyPlusKit.exe -P COM21 -R 1FFF4800 -f 1.csv -l 4 -w ancs\_A2.hexf (Program hexf file)

Description: Specify the Uart port as COM3, the chip belongs to PHY6212, set the run address to 1FFF4800, write 1.csv (specified number of lines, the 4th line) and ancs\_A1.hexf (in the same directory as the main program) into the chip (The chip needs to be connected to the computer through the serial port), and the erasing will be performed automatically before writing.

Screen capture:

```
D:\Users\all\Desktop\Proj\GUITol\PhyPlusKit_2.3.8b_cmd\Win32\Release>
D:\Users\all\Desktop\Proj\GUITol\PhyPlusKit_2.3.8b_cmd\Win32\Release>
D:\Users\all\Desktop\Proj\GUITol\PhyPlusKit_2.3.8b_cmd\Win32\Release>
PhyPlusKit.exe -P COM21 -R 1FFF4300 -f 1.csv -1 4 -w ancs_A2.hexf
D:\Users\all\Desktop\Proj\GUITool\PhyPlusKit_2.3.8b_cmd\Win32\Release>
D:\Users\all\Desktop\Proj\GUITool\PhyPlusKit_3.8b_cmd\Win32\Release>
D:\Users\all\Desktop\Proj\GUITool\PhyPlusKit_3.8b_cmd\Win32\Release>
SeconstructUseTool\PhyPlusKit_3.8b_cmd\Win32\Release>
SeconstructUseTool\PhyPlusKit_3.8b_cmd\Win32\Release>
SeconstructUseTool\PhyPlusKit_3.8b_cmd\Win32\Release>
SeconstructUseTool\PhyPlusKit_3.8b_cmd\Win32\Relea
```

```
Receive #OK!

Receive >>: successful!

========#rite hexf File [01/03]========

Send cpbin successfully!

UART RX ASCII:

Receive image request!

Send checksum successfully!

UART RX ASCII:

Receive #OK!

Receive #OK!

Receive >>: successful!

========#rite hexf File [02/03]========

Send cpbin successful!

UART RX ASCII:

Receive image request!

Send image successful!

Waiting to receive checksum...

Send checksum successful!

UART RX ASCII:

Receive image request!

Send checksum successful!

Hart RX ASCII:

Receive >>: successful!

==========#rite hexf File [03/03]=========

Send cpbin successful!

HART RX ASCII:

Receive image request!

Send image successful!

UART RX ASCII:

Receive image request!

Send image successful!

Waiting to receive checksum...

Send checksum successful!

UART RX ASCII:

Receive image request!

Send image successful!

Waiting to receive checksum...

Send checksum successful!

Press Enter to continue...
```

### 3.6.2. Merge only

Command: PhyPlusKit.exe -c -p wrist\_115a.hex -r E:\test\test\bin\Debug\test.bin -a 70000 -m NO -e chip

Description: Execute the merge command, the mode is No OTA, the app file is wrist\_115a.hex, the resource file is E:\test\test\bin\Debug\test.bin, the writing start address is 0x70000, and the encryption method is chip id encryption

Screen capture:

E:\PhyPlusKitl\Win32\Release> E:\PhyPlusKitl\Win32\Release> E:\PhyPlusKitl\Win32\Release>PhyPlusKit.exe -c -p wrist_115a.hex -r E:\test\test\bin\Debug\test.bin -a 70000 -m NO -e chip
E:\PhyPlusKitl\Win32\Release> Begin parsing the input parameters Merge option is set, ready to merge hex files Checking the merge mode No OTA mode is set, skipping the check of OTA Boot file Checking APP file Checking the binary resource files and addresses Checking the encryption mode Check complete, now start merging the input files
Current port: COM3 Current baudrate: 115200 Current stopBits: 1 Current parity: No Serial opened!! ********************
1234567890123456123456789012345678901234561234567890123412345678 CHECK CHIP ID[VALID]! CHIP ID: 1234567890123456123456789012345678901234561234567890123412345678

### 3.6.3. Merge then program

Command: PhyPlusKit.exe -c -b ota.hex -p wrist\_115a.hex -r E:

\test\test\bin\Debug\test.bin -a 70000 -m DH -e iv\_1234567890123 -w wrist\_115a.hexf
Description: Execute the merge command, the mode is Dual Has FCT, the boot file is ota.hex,
the app file is wrist\_115a.hex, the resource file is E:\test\test\bin\Debug\test.bin, and its writing
start address is 0x70000, the encryption method is iv value encryption and the iv is
1234567890123.

Screen capture:

•					
E:\PhyPlusKitl\Win32\Release>PhyPlusKit.exe -c -b ota.hex -p	> wrist_115a.hex −r	E:\test\test\bin\Deb	ug\test.bin -a 70000	-m DH -e iv_1234567890	123 -w wrist_115a.hexf
E:\PhyPlusKitl\Win32\Release>					
Begin parsing the input parameters					
Merge option is set, ready to merge hex files					
Checking the merge mode					
Checking OTA Boot file					
Checking APP file					
Checking the binary resource files and addresses					
Checking the encryption mode					
Check complete, now start merging the input files					
Current port: COM3					
Current baudrate: 115200					
Current stopBits: 1					
Current parity: No					
Serial opened!!					
jalajajajajajajajajajajajajajajajajajaj					
Start Hex Encrypt					
The HEX file has 3 parts. Last modified: 2018-08-13 17:01:49					
IV:1234567890123					
#O size = 818					
#1 size = 18000					
#2 cizo = 7240					

# 3.7. Additional setting of Flash programming

# 3.7.1. BOOT and APP support Chinese path

	Ancel Ro	F_CMD RF_QuickSet Multi_FW						UART Setting	115200	Stop Bite 1	v Dariby h	
onfi	g	~	limeout 400	0	Save	Clear		Port COM21 P Badd Rat	e 113200	Stop Bits ⊥	Parity	VU
		Erase Size 512k 🗸	Address		Erase	Write		Disconnect	AutoCh	leck	Update	
								Log				
IMG	5 \/ HEX \	/ HEX Merge \1			_	2						-
BC	DOT -	D:/work/测试/ota_dualbank_hasFCT.hex	1	Dual	Has FCT 👻	HexF		=== PHY6212 === Load AppHEx Done[-NO-EN	C-11			
AP	ob 🔺	D:/work/颁试/ancs.hex			•	Encrypt		IV BLOCK GEN [-NO-ENC-]				
	-				FLA_ADDR			[hexPack]: 1FFF4000 bba	8			
	-				FLA_ADDR			[HEXF Generation]::ERRO	R 111			
	-				P. PhyPlusKit	3	×	=== PHY6212 === Load AppHEx Done[-NO-EN	c-j:			
Chi	pID/IV				Error:	File Creation Fa	iled	IV BLOCK GEN [-NO-ENC-] [hexPack]: 1FFF0800 40c				
PIL	0[10]	Lib[10]		U[14]				[hexPack]: 1FFF4000 bba	в			
MI	D[16]	SID[08]	I	V[13]		OK		[app lick der Site]. 1				
						UK.						
мА	C[6]		He	x[xx-xx-xx-x	ox-xx-xx J	WITEMAC						
MA	C[6] gle / Bato	ch \	He	x[xx-xx-xx-x	or-xx-xx]	Writemac						
MA	C[6] gle V Bato TYPE	ch \ PATH	He	ADDRESS	x-xx-xx J VALU							
MA Sini 1	C[6] gle V Bato TYPE MAC V	ch \ PATH	SIZE	ADDRESS	VALU 11:22:11:2:	E ^ 2:11:22						
MA Sini 1 2	C[6] gle V Bate TYPE MAC •	ch \ PATH	SIZE	ADDRESS	VALU 11:22:11:22	E ^ 2:11:22						
MA Sing 1 2 3	C[6] gle \/ Bate TYPE MAC • •	ch ) PATH	SIZE	ADDRESS	VALU 11:22:11:22	E 2:11:22						
MA Sing 1 2 3 4	C[6] gle V Bato TYPE MAC • • •	ch ) PATH	SIZE	ADDRESS	VALU	E 2:11:22						
MA Sing 1 2 3 4 5 6	C[6] gle V Bate TYPE MAC • • • • •	ch ) PATH	SIZE	ADDRESS	VALU	E ^ 2:11:22						
MA Sini 2 3 4 5 6 7	C[6] gle V Bate TYPE MAC • • • • • •	dh ) Path	SIZE	ADDRESS	VALU 11:22:11:22	E ^ 2:11:22						
MA Sing 2 3 4 5 6 7	C[6] gle V Bate MAC V V V V V V	ch ) PATH	SIZE	ADDRESS	VALU 11:22:11:2:	E ^ 2:11:22						

V2.3.7c or earlier version does not support Chinese path:

As shown in the figure, if there are Chinese characters in the file paths of BOOT and APP, an error will be reported: "File Creation Failed", and the next v2.3.7d and later versions will support Chinese paths, which will not affect the generation and programming of hext files.

n_Writer	RF_CMD RF	_QuickSet Multi_FW					URT Setting
onfig			Timeout 400	0	Save	Clear	Log
		Erase Size 512k	~ Address		Erase	Write	Name: COM21
	HEX Merge	<u>م</u>					Description:Silicon Labs CP210x USB to UART Bridge Manufacturer: Silicon Labs
BOOT	▼ D:/work/测	it/ota_dualbank_hasFC	ſ.hex	No OTA	· · ·	HexF	Current port: COM21 Current baudrate: 115200
APP	▼ D:/work/测	it/ancs.hex				Encrypt	Current stopBits: 1 Current parity: No
	•				FLA_ADDR		Serial opened!!
	•				FLA_ADDR		Load AppHEx Done[-NO-ENC-]! TV.BLOCK_GEN_L-NO-ENC-]!
 ChinID/IV	•				FLA_ADDR		[hexPack]: 1FFF0800 hbs8
PID[16]		LID[10]	T	ID[14]		CheckID	[App HexPack Size]: 2 >> BOOT======0x000021000x0000211c=======
MID[16]		SID[08]	I	V[13]		WriteID	>> APP======0x000090000x00014fbc=======
MAC[6]			Не	ex[xx-xx-xx-xx		WriteMAC	[HEXF Generation] Success: D:/work/珈试/ancs.hexf !!! [HEXF Generation]::DONE !!!
Single 🗸	Batch \						UARI KX : cmd>: Send erase successfully! Desclue WCV
түр	E	РАТН	SIZE	ADDRESS	VALUE	^	Erase successfully! === PHY6212 ===
1 MAC	-				11:11:11:11	11:11	Load AppHEx Done[-NO-ENC-]! IV BLOCK GEN [-NO-ENC-]
2	-						[hexPack]: 1FFF0800 40c [hexPack]: 1FFF4000 bba8
4	-						[App HexPack Size]: 2
5	•						>> APP======0x000000000x00014fbc======
6	•						[HEXE Generation] Success: D:/work/WWit/ancs.bexf !!!
7	•					~	Send Cphum Successfully: Receive #OK!
							Receive >>: successful!

### 3.7.2. Program preference when device not connect

Starting from V2.3.7e, when the Uart is not connected, the default setting of the chip model is changed to the optional setting, which is shown in the following figure:

ofia		Timoout 4000	Sava	Clear	
		- 1 Inneodic 4000			Uart处于不连接状态
	Erase Size 512k	✓ Address	Erase	Write	Name: COM21 Description:Silicon Labs CP210x USB to UART Bridge
MG / HEX / HEX Me	erge \		2: 戻	点击产生hexf的按钮	Manufacturer: Silicon Labs
BOOT ·		1. 油标不同(件	No OTA 🔹	HexF	
APP   D:/worl	k/test/test7/ancs.hex		•	Encrypt	
•			FLA_ADDR		
•			FLA_ADDR		
•			FLA_ADDR		
PID[16]	LID[10]	TID[14	PHY6202	PHY6212	
MID[16]	SID[08]	IV[13	2 . 74417	百姓龙氏的刑具	
	010[00]	Havfus	5. 理性,	日初の月的重き	OK
inela) (Batah		nex[xx		WITCHAC	
		1	Beneat	Deleval	
ath		Lines [e.g. 1-5, 8	Repeat	Reload	
			HEX Send	ClearBuf	TimeTic Mode ASCII   Save Clear

- A. Device is not connected through UART
- B. Load application .hex file
- C. Click HexF button, dialog box pop up
- D. Select the corresponding chip model and click the OK button to generate the hexf file of the loaded application firmware.

Writer	RF	_CMD RF_QuickSet Multi_FW				
nfig		V Timeout 4	000	Save	Clear	Log
		Erase Size 512k $\checkmark$ Address		Erase	Write	Name: CON21
IG V H	EX	(HEX Merge)				Description:Silicon Labs CP210x USB to UART Bridge Manufacturer: Silicon Labs
воот	-		No O	TA 🔻	HexF	===PHY6212=== Load AppHEx Done[-NO-ENC-]!
APP	•	D:/work/test/test7/ancs.hex		*	Encrypt	IV BLOCK GEN [-NO-ENC-] [hexPack]: 1FFF0800 40c
-	•			FLA_ADDR		[hexPack]: 1FFF4800 92e4 [App HexPack Size]: 2
-	•			FLA_ADDR		>> BOOT0x000021000x0000211c >> APP=0x000090000x000126f8=
-	•			FLA_ADDR		[HEXE Generation] Success: D:/work/test/test7/ancs.bexf !!!
hipID/ <u>I</u> V						[HEXF Generation]::DONE !!!
ID[16]		LID[10]	TID[14]		CheckID	Load AppHEx Done[-NO-ENC-]! TV_BLOCK_GEN_L-NO-ENC-]!
ID[16]		SID[08]	IV[13]		WriteID	[hexPack]: 1FFF0800 40c [hexPack]: 1FFF0800 40c
AC[6]			Hex[xx-xx-xx-	xx-xx-xx]	WriteMAC	[App HexPack Size]: 2
ingle V	Bato	h \				>> APP======0x000090000x000126f8======
ath		Lines e.g. 1-5,	8	Repeat 🗌	Reload	[HEXF Generation] Success: D:/work/test/test7/ancs.hexf !!!
				_		

### 3.7.3. Programming preference when device is connected

When device is connected, core chip model will be recognised automatically.

Configuration					?	×
Flash Writer	]					
RF Tools	Start Flash address	9000	Base Run address	1FFF4000		
	🗌 Flash Writer Enable A	P Mode				
				C	ок Са	incel

- setting->configuration Start Flash address and Base Run address front setting checkbox, default setting is not ticked : Start Flash address : 9000 , Base Run address : 1FFF4000 ; if ticked, parameter can be adjusted accordingly.
- Configuration of programming flash: PHY6202 -> Base Run address:1FFF4000 PHY6212 -> Base Run address:1FFF4800 Add the input box of RUN\_ADDR on the HEX tab page, you can modify the flash configuration, you do not need to open the configuration to modify the settings, which is convenient for users to operate.



# 3.7.4. Merge 1M flash file for off-line programming

A. Merge the .hexf file generated by the .hex application firmware with the burning boot file \*.hexf through the HEXF button on the HEXMerge page. This function starts from v2.3.7f version.

1. Load the application firmware .hex file to be burned

### PhyPlusKit

_writer RF	_CMD RF_QuickSet Multi_FW			✓ UART Setting		
onfig	V Timeout 40	00 Save	Clear	Port COM21 Y Baud Rat	e 115200 V Stop Bits 1	Parity No
	Erase Size 512k $\checkmark$ Address	Erase	Write	Disconnect	AutoCheck	Update
				Log		
MG (/ HEX (/	HEX Merge \		11-15	Name: COM21		
+00 -			Hexp	Description:Silicon Lab Manufacturer: Silicon L	s CP210x USB to UART Bridge abs	
арр •	D:/work/Pnywriter/wrist.nex	- •	Encrypt	Name: COM20	******	
- •		FLA_ADDR		Description:USB Serial Manufacturer: FTDI	Port	
······································		FLA_ADDR		Current port: COM21	•••••	
				Current baudrate: 11520	8	
<del>-</del>		FLA_ADDR		Current parity: No		
hipID/IV				*****************	*******	
PID[16]	LID[10]	TID[14]	CheckID			
IID[16]	SID[08]	IV[13]	WriteID			
IAC[6]	•	lex[xx-xx-xx-xx-xx]	WriteMAC			
ngle 🗸 Batc	h \					
ath	Lines e.g. 1-5,	8 Repeat 🗌	Reload			

UART INFO: Port: COM21, Baudrate: 115200, StopBits: 1, Parity: No

### 2.Check the Boot\_Loader\_Merge check box in the configuration of setting->configuration

Configuration					?	$\times$
Flash Writer RF Tools	Start Flash address	9000	Base Run address	1FFF4000		
	🗌 Flash Writer Enable AF	Mode				
	☑ Boot_Loader_Merge	]				
				0	КСа	ancel

3.点击HexF按钮

h_Writer	RF	_CMD RF_QuickSet Multi_FW				✓ UART Setting	
onfig		√ Timeout 400	0	Save	Clear	Port COM21 V Baud Rate 115200 V Stop Bits 1 V Parity	No
		Erase Size 512k 🗸 Address		Erase	Write	Disconnect AutoCheck Update	
IMG / H	EX	(HEX Merae)				Log	
BOOT	•		No OTA	· •	HexF	Receive #OK or #ER timeout!	
APP	•	D:/work/Phywriter/wrist.hex		. •	Encrypt		
	-			FLA_ADDR			
	•			FLA_ADDR			
	•			FLA_ADDR			
	•			FLA_ADDR			
	•			FLA_ADDR			
ChipID/ <u>I</u> V	/						
PID[16]		LID[10] TI	D[14]		CheckID		
MID[16]		SID[08]	V[13]		WriteID		
MAC[6]		He	x[xx-xx-xx-xx	(-xx-xx]	WriteMAC		
Single V	Bato	h \					
Path		Lines e.g. 1-5, 8		Repeat 🗌	Reload		

4.Load and select the specified boot\_Loader\*.hexf file and open it

📑 Open File			×
🔶 🔿 🗸 🕇 📙 « 新加港	(D:) > work > Phywriter > ~	∂ 搜索"Phywriter"	م
组织 ▼ 新建文件夹		:==	- 💷 🕐
▲ 这台电脑	名称	修改日期	类型
3D 对象	Doot_Loader_PhyWriter2.hexf	2019/7/1 9:51	HEXF 文件
nova 4	boot_Loader_PhyWriter1.hexf	2019/6/4 17:41	HEXF 文件
📲 视频	boot_Loader_PhyWriter.hexf	2019/7/1 10:54	HEXF 文件
■ 图片	PhywriterV1.0	2019/7/2 15:05	文件夹
	选	择boot_Loader文件	
◆ <sup>ト</sup> 茲 ♪ 音乐			
三 桌面			
🟪 OS (C:)			
🕒 新加卷 (D:)			
👩 CD 驱动器 (E:) HiSι 🗸	<		>
文件名( <u>N</u> )	:	✓ boot_Loader*.hex	f v
		刊 <u>井(O</u> )	取消

5.Generate \*merge.hexf files (with bootloader) and .hexf (without bootloader) files. (Intercept the initial positions of the two \*merge.hexf files for illustration, the two hexf files were successfully merged)

_Writer RF_CMD	RF_QuickSet Multi_FW					UART Setting			_			
nfig	~	Timeout 4000		Save	Clear	Port COM21 Y	Baud Rate	115200	✓ Stop Bits	1 *	Parity	No
	Erase Size 512k V	Address		Erase	Write	Disconne	zt	AutoChe	ck		Update	
						Log						
	Merge \					Name: COV21						
BOOT 👻			No OTA	•	HexF	Description:Si	licon Labs C	P210x USB to	UART Bridge			
APP • D:/w	ork/Phywriter/wrist.hex			-	Encrypt	Name: CON20	silicon Labs	•••••				
•			FLA	A_ADDR		Description:US	8 Serial Por	t				
•			FLA	A_ADDR		Manutacturer:		•••••				
•			FLA	A_ADDR		Current port: Current baudra	te: 115200					
•			FLA			Current stopBi Current parity	: No					
ChipID/IV						Serial opened	:	•••••		_		
PID[16]	LID[10]	TID[14	]		CheckID	Load AppHEx Do	ne[-NO-ENC-]	1				
MID[16]	SID[08]	IV[13	1		WriteID	EV BLOCK GEN [ [hexPack]: 1FF	-NU-ENC-] F0800 40c					
MAC[6]		Hex[x:	-xx-xx-xx-xx-	xx]	WriteMAC	[hexPack]: 1FF [hexPack]: 200	F4000 c000 30000 2708					
						App HexPack S >> BOOT====	ize]: 3	000×000	02128	-		
angle // Batch \						> APP====	0x000100	000x000	10024	-		
TYPE	PATH	SIZE A	DDRESS	VALU	e ^	[HEXF Generati [HEXF Generati	on] Success: on] Success:	D:/work/Phyw D:/work/Phyw	riter/wrist_ riter/wrist.	hexf !!!	X# 111	
2 *						[HEXF Generati	on J :: DONE !!			_		
3 🔹												
4 💌												
5 👻					~							
							_					
nmand:		~	🗆 нех 🗾	Send	ClearBuf	TimeTic	Mode AS	сн 🔹	Save		Clear	
nmand:	audrate: 115200 StopRite: 1 Dar	vitv: No		Send	ClearBuf	TimeTic	Mode AS	сн 🔹	Save		Clear	
1mand:	audrate: 115200_StonBits: 1_Pad	v	- HEX	Send	ClearBuf	TimeTic	Mode AS	сн 🔹	Save		Clear	
Imand:	audrate: 115200_StonBits: 1_Rad		0000040	Send	ClearBuf	TimeTic	Mode AS	сн •	Save		Clear	
Imand:	audrate: 115200_StonBits: 1_Par 004FFFFFC 0000200000000000000000000 00068BD000000C040		О000040 Г1F68	Send FF1F5	ClearBuf 2 538	.10C15000000	Mode AS	0000000	Save	00000	Clear	00
nmand: EO: Port: COM21 Bi :020000 :102100 :0C2110 :020000	audrata: 115200_StonBits: 1_Par 004FFFFFC 000020000000000000 00068BD000000C040 0004FFFFC b00	☆ № 0000601D0 0000008F Dt文件初始	□ HEX 0000040 F1F68 試位置	Send	ClearBuf 2 538 539	:10C15000000	Mode AS		Save	00000	Clear 0000 FF01	00
mmand: E0: Port: COM21 B: : 0220000 : 102100 : 0C2110 : 020000 : 10A000	audrata: 115200_StonBits: 1_Pari 004FFFFFC 00002200000000000 00068BD0000000000 004FFFFFC 0003868F1FD540F	→ 0000601D0 0000008F Dt文件初始	□ HEX 0000040 F1F68 合位置 0000000	Send	ClearBuf 2 538 539 F 540	:10C15000000 :10C16000000 :04C17000910	Mode AS		Save 00000000 001FF01 t文件的	00000 1FF01 2末尾	Clear 00000 FF01 及应	0( F1 月
mmand: E0: Part: COM21 B: 102100 102100 0C2110 020000 10A000 :10A000 :10A010	audata: 115200_StonBits: 1 Par 004FFFFFC 00002000000000000 0068BD00000C040 004FFFFC 0003868FF1FD540F 000000000000000000000	→ 0000601D0 0000008F DT文件初始 FF1F00000	□ HEX 00000040 F1F68 分位置 0000000 0000000	Send FF1F5 000005	ClearBuf 2 538 539 F 540 F 541	:10C15000000 :10C16000000 :04C17000910 :02000004000	Mode AS	□□ · · · · · · · · · · · · · · · · · ·	Save 00000000 001FF01 t文件的 的初始	00000 FF01 D末尾	Clear 00000 FF01: 及应	00 FI 月
mmand: : 020000 : 102100 : 0C2110 : 020000 : 10A000 : 10A000 : 10A020	autrate 115200_StopBite 1_Part 004FFFFC 00068BD000000000000 004FFFFC 0003868FFIFD540F 00000000000000000000000000000000000	→ 0000601D0 0000008F Dt文件初始 FF1F00000 000000000	□ HEX 00000040 F1F68 公置 0000000 0000000 0000000	Send FF1F5 000005 000004 000003	ClearBuf 2 538 539 <b>F</b> 540 541 0 542	:10C15000000 :10C16000000 :04C17000910 :02000004000 :10210000030	Mode AS	cu 、 00000000 00000000 (A) bOO 百件	Save 00000000 001FF01 t文件的 的初始	00000 1FF01 0末尾 位置 00000	Clear 00000 FF01 及应 40FF	0( F1 月 11
mmand: ED: Bort: COM21 B : 0200000 : 102100 : 0C2110 : 020000 : 10A000 : 10A000 : 10A020 : 10A030	auduta-11500 StopBite-1 Bar 004FFFFC 00068BD000000000 004FFFFC b00 0003868FF1FD540F 00000000000000000000000000000000000	→ 0000601D0 00000008F Dt文件初始 FF1F00000 000000000 000000000000000000	0000040 F1F68 公置 0000000 0000000 0000000	Send FF1F5 000005 00004 00003 00002	ClearBuf 2 538 539 F 540 542 0 542 0 543 0 543	:10C15000000 :10C16000000 :04C17000910 :02200004000 :1021000030 :1021100008	Mode AS	cu (0000000 00000000 (A) b00 (百件 00000100 (C040000	5ave 00000000 001FF01 t文件的 的初始 0000005FI	000000 1FF01 0末尾 00000 51F1C	Clear 00000 FF01 天下 40FF C401	0( F1 月 11 0(
mmand: 50 Bott COM21 B 1020000 1020000 1020000 10A0000 10A0000 10A0000 10A0000 10A0000 10A0400 10A0400	audata-11500 StopBit-1 Par 004FFFFC 0002000000000000 00068D000000000 004FFFFC 00000000000000000 00000000000000		□ HEX 00000040 F1F68 公置 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000004 000003 00002 000002	ClearBuf 2 538 539 F 540 541 0 542 0 543 0 544 0 544	:10C15000000 :10C1600000 :04C17000910 :0200004000 :1021000003 :10211000080 :0821200008	Mode AS	cu • 00000000 (00000000 (00000000 (00000000	5ave 00000000 001FF01 大文件的 的初始 0000000 00008FI 068	000000 1FF01 0末尾 位置 00000 51F1C	Clear 00000 FF01: <b>及应</b> 40FF: C401	0( F] 月 11 0(
mmand: E0- Dod: COM21 B :020000 :002110 :0020100 :0020100 :10A000 :10A000 :10A000 :10A040 :10A050	Audata-115200_StopBit-1_Pac 004FFFFC 000020000000000000 00088D000000000 004FFFFC 0000866FF1FD5400 00000000000000000 000000000000000		D HEX 00000040 F1F68 公置 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000004 000003 000002 000001 000001	ClearBuf 2 538 539 F 540 0 542 0 543 0 544 0 544 0 545 0 545 0 545	: 10C15000000 : 10C1600000 : 04C17000910 : 02200004000 : 10210000030 : 10211000082 : 0821200082 : 02200004000	Mode A5	CII ) 00000000 00000000 00000000 00000000	Save 0000000 001FF01 大文件的 的初始 000008FF 00008FF 068	000000 1FF01 0末尾 00000 51F1C	Clear 00000 FF01: 及应 40FF: C401	
mmand: ED: Dot: COM21 B : 102100 : 0C2110 : 002000 : 102100 : 102000 : 10A000 : 10A000 : 10A030 : 10A0450 : 10A066	autrate:         115200.StopBite:         1. Part           004FFFFC         000000000000000000000000000000000000		D HEX 0000040 F1F68 公立置 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000004 000003 000002 000001 000000 000000	ClearBuf 2 538 539 F 540 0 541 0 543 0 544 0 545 0 546 0 546	:10C1500000 :10C1600000 :04C17000910 :0200004000 :1021000003 :0821200003 :0821200003 :1020004000 :1000000068	Mode AS	CII • 00000000 00000000 A boo D0000100 C040000 00000020 00000020	Save 00000000 001FF01 大文件的 000000 00008FF 068 FDD40FF	000000 1FF01 0末尾 00000 F1F1C	00000 FF01 及应 40FF C401	
mmand: ED: Bod: COM21 B 102100 1022110 1022110 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000	Audicate         11500         StonBite         1         Bar           004FFFFC         00000000000         00000000000         000000000000000000000000000000000000	× NA 0000601D0 0000008F Dt文件初始 FF1F00000 000000000 000000000 000000000	ローHEX 00000040 F1F68 公立置 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000004 000003 000002 000001 000000 00000F 00000F	ClearBuf 2 538 539 F 540 0 542 0 543 0 544 0 545 0 546 0 547 0 547 0 547	:10C15000000 :04C17000910 :02200004000 :102100003 :102100003 :0821200008 :02200004000 :100000068 :1000000068	Mode AS	cn ) 00000000 入 DOO 0000000 入 DOO 0000100 0000000 00000000 00000000 000000	53ve 00000000 001FF01 大文件的 0000005F1 068 FDD40FF	000000 1FF01 0末尾 00000 F1F1C F1FDF	00000 FF01 及应 40FF C401 40FF	
mmand: ED: Bort: COM21 B : 1021000 : 102100 : 002010 : 102000 : 1020000 : 1020000 : 1020000 : 1020000 : 1020000 : 1020000 :	audrata:         115200         StooBite:         1           004FFFFFC         000000000000         000000000000000000000000000000000000		0000040 F1F68 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000002 000002 000000 000000 00000F 00000E 00000E	Clearbuf 2 538 539 F 540 0 542 0 543 0 545 0 545 0 545 0 545 0 545 0 546 0 547 0 546 0 547 0 546 0 547 0 546 0 547 0 545 0	:10C15000000 :10C1600000 :04C17000910 :102100003 :102100003 :0821200008 :08212000066 :100010000066 :10001000006	Mode AS	CII	Save 0000000 001FF01 七文件銘 む初始 000008FF 0000000 00008FF 0000000 00000000	000000 1FF01 次定置 00000 F1F1C F1FDF 00000 000E1	00000 FF01 及应 40FF C401 40FF 00000 40FF	
mmand: CO Port COM21 B CO 20000 CO 2010 CO 2010 CO 20000 CO 2010 CO 20000 CO 2	Audicka:         11500         StonBite:         1           004FFFFC         000         000         000           0046BD00000000         000         000         000           0046FFFFC         000         000         000           000000000000000000000000000000000000		0000040 F1F68 分位置 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000002 000002 000000 00000F 00000E 00000D 00000D	Clearbuf 2 538 539 F 540 0 542 0 542 0 544 0 545 0 544 0 545 0 545 0 547 0 548 0 547 0 542 0 547 0 542 0 55 0 55 0 542 0 55 0 55 0 542 0 55 0 55	: 10C15000000 : 10C1600000 : 04C17000910 : 02200004000 : 10210000030 : 10211000082 : 02200004000 : 1000000068 : 10001000000 : 10002000000 : 10003000000	Mode AS	CII	53ve 0000000 001FF0 1文件倍 的000000 00008F1 068 FDD40F1 0000000 0000000 00000000 00000000 00000	000000 1FF01 分末尾 00000 51F1C 51FDF 00000 000E1 51F5	00000 FF01 40FF C401 40FF 40FF 40FF	
mmand: ED: Bott - COM21 B C: 020000 : 102100 : 022110 : 022000 : 10A000 : 10A020 : 10A020 : 10A046 : 10A056 : 10A066 : 10A066 : 10A066 : 10A066 : 10A066 : 10A066	autrata:         115200         StonBite:         1           004FFFFC         000000000000000000000000000000000000		0000040 FIF68 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000004 000000 000000 00000F 00000E 00000C 00000C 00000C	Clearbuf 2 538 539 F 541 0 542 0 543 0 544 0 545 0 546 0 546 0 546 0 548 0 558 0 558	:10C1500000 :10C1600000 :04C17000910 :1021000003 :1021000003 :1021000003 :1021000003 :1000000003 :1000000003 :1000000000 :10002000000 :10004000000	Mode AS	CII	Save 00000000 001FF0 1文件件 0000000 000008FF 0000000 0000000 0000000 0000000 000000	000000 1FF01 分末尾 00000 51F1C 51FDF 00000 00001 51FE5 00000	00000 FF01 20FF 40FF 40FF 40FF 40FF 40FF	
mmand: ED: Bort: COM21 B 102100 102100 102000 102000 1000000 100000 100000 1000000 1000000 100000000	autora:         11500         StonBite:         1           004FFFFC         000         000         000           004FFFFC         000         000         000           004FFFFC         000         000         000           00068B000000000000000000000000000000000		00000040 FIF68 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000004 000002 000000 00000F 00000C 00000C 00000B 00000B	Clearbul 2 538 539 F 541 0 542 0 543 0 545 0 545 0 545 0 547 0 547 0 547 0 549 0 550 0 552 0 552	:10C15000000 :04C17000910 :02200004000 :1021000030 :1021000030 :0221000030 :0221000030 :02200004000 :10001000000 :10001000000 :10004000000 :10004000000 :10005000000	Mode AS	CII ・ 00000000 00000000 本 b00 0000000 0000000 0000000 0000000 000000	Save 00000000 001FF01 大文件的 0000000 000008FF 0000000 0000000 0000000 0000000 000000	000000 1FF01 0末尾 00000 51F1C 51FDF 00000 00001 51FE5 00000 00000	00000 FF01: 及应 40FF: 00000 40FF: 40FF: 00000 00000	
mmand: ED: Dot: COM21 B : 102100 : 102100 : 102100 : 102000 : 100000 : 100000	audrate         115200         StopBite         1           004FFFFC         000000000000         000000000000000000000000000000000000		0000040 F1F63 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000004 000002 000000 000000 000000 000000 000000	Clearbut 2 538 539 540 541 0 542 0 543 0 544 0 544 0 544 0 544 0 544 0 545 0 547 0 548 0 549 0 549 0 550 0 551 0 552	:10C1500000 :10C1600000 :04C1700931 :02200004000 :10211000080 :0821200006 :10001000066 :10001000006 :10002000000 :10002000000 :10004000000 :10005000000 :10006000000	Mode AS	CII ・ 00000000 00000000 00000000 00000000	Save 00000000 001FF0 1文件的 的初始 0000000 0000000 0000000 0000000 000000	000000 1FF01 次定 00000 51F1C 51FDF 00000 00001 51FE5 00000 00000 00000	Clear 00000 FF01 及应 40FF C401 40FF 0000 40FF 40FF 0000 0000 00000	
mmand: E0: Both: COM21 B 1 (20000) 2 :102100 3 :102000 3 :10A000 3 :10A000 3 :10A020 4 :10A020 3 :10A040 3 :10A	autota:         115200         StopBite:         1           004FFFFC         0000         0000         0000           004FFFFC         DOCO         DOCO         0000           004FFFFC         DOCO         DOCO         DOCO           00008BD00000000000000000000000000000000		0000040 FIF63 10000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000004 000002 000000 00000F 00000C 00000B 00000C 00000B 00000C 00000B 00000C 0000C 000C 00C 00C 00C 00C 00C 00C 00C 00C 00C 0	Clearbut 2 538 539 F 540 0 542 0 542 0 544 0 544 0 544 0 544 0 544 0 544 0 545 0 547 0 547 0 548 0 549 0 551 0 552 A 553	:10C1500000 :10C1600000 :04C17000910 :0200004000 :1021000003 :10211000082 :0821200003 :1000000060 :1000000000 :1000200000 :10004000000 :10004000000 :10005000000 :10007000000	Mode AS	cu     cu	Save	000000 IFF01 功末尾 00000 F1F1C F1FDF F1FDF F1FDF F1FDF F1FDF F1FD5 00000 00000 00000 00000	Clear 00000 FF01 及应 40FF C401 40FF 0000 40FF 40FF 0000 0000 00000	
mmand: EC: Dot: COM21 B 1 02000 2 102100 3 0C2110 1 0A000 3 10A000 3 10A000 3 10A000 3 10A040 3	autrata:         115200         StonBite:         1           004FFFFC         0000000040         0           004FFFFC         000         004           004FFFFC         000         000           000000000000000000000000000000000000	、 10000601D0 100000000 100000000 100000000 100000000	0000040 FIF68 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000004 000002 000000 000000 000000 000000 000000	Clearbut 2 538 539 F 541 0 542 0 543 0 545 0 545 0 546 0 545 0 546 0 547 0 549 0 550 0 552 A 553 8 554 0 555	:10C1500000 :10C1500000 :04C17000910 :0200004000 :1021000006 :1021000006 :100000006 :100000006 :1000000000 :1000000000 :1000500000 :1000500000 :1000500000 :10007000000 :10008000000	Mode AS	00000000 0000000 0000000 00000000 000000	Save 0000000 001FF01 七文件的 約初始 00008FF 0000000 00008FF 0000000 0000000 0000000 0000000 000000	000000 1FF01 立大尾 00000 F1F1C F1FDF F1FDF F1FDF F1FDF F1FDF F1FDF F1FDF 00000 00000 00000 00000 00000	Clear 00000 FF01 及近 40FF C401 40FF 0000 40FF 40FF 0000 0000 0000 0	
Immand:           Immand: <td< td=""><td>autora:         11500         StonBit:         1           004FFFFC         000         000         000           004FFFFC         000         000         000           004FFFFC         000         000         000           000000000000000000000000000000000000</td><td></td><td>00000040 FIF68 0000000 0000000 0000000 0000000 000000</td><td>Send FF1F5 00005 00004 00003 00002 000000</td><td>Clearbul 2 538 539 F 541 0 542 0 543 0 544 0 544 0 544 0 544 0 544 0 545 0 547 0 549 0 551 0 551 0 551 0 552 8 554 0 555 8 554 0 555 8 554 0 555 8 554 0 555 8 554 0 555 8 554 0 555 8 555 8</td><td>:10C15000000 :04C17000910 :02C17000910 :02C1000030 :1021000030 :0221000030 :0221000030 :02200004000 :10001000000 :10002000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :100050000000 :100050000000 :100050000000000</td><td>Mode AS</td><td>CII</td><td>Save 00000000 001FF0 10000000 0000000 0000000 0000000 000000</td><td>000000 FFF01 文元尾 C1FDF F1FDF F1FDF F1FDF F1FDF 00000 00000 00000 00000 00000 00000</td><td>Clear 00000 FF01 200 40FF 40FF 40FF 40FF 40FF 0000 0000</td><td></td></td<>	autora:         11500         StonBit:         1           004FFFFC         000         000         000           004FFFFC         000         000         000           004FFFFC         000         000         000           000000000000000000000000000000000000		00000040 FIF68 0000000 0000000 0000000 0000000 000000	Send FF1F5 00005 00004 00003 00002 000000	Clearbul 2 538 539 F 541 0 542 0 543 0 544 0 544 0 544 0 544 0 544 0 545 0 547 0 549 0 551 0 551 0 551 0 552 8 554 0 555 8 554 0 555 8 554 0 555 8 554 0 555 8 554 0 555 8 554 0 555 8	:10C15000000 :04C17000910 :02C17000910 :02C1000030 :1021000030 :0221000030 :0221000030 :02200004000 :10001000000 :10002000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :100050000000 :100050000000 :100050000000000	Mode AS	CII	Save 00000000 001FF0 10000000 0000000 0000000 0000000 000000	000000 FFF01 文元尾 C1FDF F1FDF F1FDF F1FDF F1FDF 00000 00000 00000 00000 00000 00000	Clear 00000 FF01 200 40FF 40FF 40FF 40FF 40FF 0000 0000	
mmand: EC: Both COMPL B 1 102100 2 102100 3 002110 100000 3 100000 3 1000000 1000000 1000000 10000000 100000000	Autora         11500         Storester         Part           204FFFFC         000		0000040 F1F63 10000000 0000000 0000000 0000000 000000	Send FF1F5 000005 00004 000002 000001 000000 00000E 00000E 00000B FF1F4 11A424 FEE79 FF1F5 9673CC	Clearbut 2 538 539 540 541 0 542 0 544 0 544 0 544 0 544 0 544 0 546 0 547 0 548 0 546 0 549 0 550 0 551 0 552 A 555 A 555 A 555 A 555	:10C1500000 :10C1600000 :04C1700931 :02200004000 :10211000080 :0821200006 :10001000006 :10001000006 :1000100000 :10005000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000	Mode AS	CII ・ 00000000 00000000 00000000 00000000	Save 00000000 001FF0 000008F1 0000000 0000000 0000000 0000000 000000	000000 1FF01 功末尾 000000 F1F1C 00000 00000 00000 00000 00000 00000 0000	Clear 00000 FF01 40FF C401 40FF 00000 40FF 40FF 00000 00000 00000 00000 00000	
mmand: E0: Dett: COM21 B 1 020000 2 102100 3 002110 1 000000 3 100000 3 1000000 3 1000000 3 100000000 3 100000000 3 1000000000000000000000000000000000000	autota:         115200         StonBite:         1           004FFFFC         DO00000000000         DO000000000000000000000000000000000000		0000040 FIF68 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000004 000002 000000 000000 000000 000000 000000	Clearbut 2 538 539 F 541 0 542 0 543 0 544 0 545 0 546 0 547 0 548 0 548 0 548 0 548 0 548 0 550 0 552 A 553 8 555 A 555 A 555 A 555 8 555 8 555 8 555 8 555 9 555	:10C1500000 :10C1600000 :04C17000910 :02200004000 :1021000006 :0221000006 :0221000065 :1000000065 :1000000000 :10004000000 :10005000000 :10005000000 :10005000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000 :10006000000	Mode AS	cu     cu	Save 00000000 001FF0 1文件格 约初始 000000 000000 0000000 0000000 0000000 0000	000000 IFF01 功末尾 000000 F1F1C 00000 00000 00000 00000 00000 00000 0000	Clear 00000 FF01 及应 40FF C401 40FF 00000 40FF 40FF 00000 00000 00000 00000 00000 00000	
mmand: EC: Dot: COM21 B EC:	autrata:         115200         StonBite:         1           004FFFFC         0000000040         0           004FFFFC         0000         004           004FFFFC         0000         0000           000000000000000000000000000000000000	هاله المراح           0000601D0           00000008           000000000           000000000           000000000           0000000000           0000000000           0000000000           0000000000           0000000000           0000000000           0000000000           0000000000           0000000000           0000000000           0000000000           0000000000           0000000000           0000000000           00000000000           00000000000           0000000000           00000000000           000000000000000000000000000000000000	00000040 FIF68 0000000 0000000 0000000 0000000 000000	Send FF1F5 000005 000002 000002 000000 00000F 000000 00000E 00000B 00000E FF1F4 FEF79 FF1F2 00000C FF1F4 100005 10005 1005	Clearbul 2 538 539 F 541 0 542 0 543 0 545 0 545 0 545 0 545 0 545 0 547 0 549 0 550 0 552 A 553 8 554 0 555 A 556 A 557 B 558	:10C15000000 :04C17000910 :0217000910 :02200004000 :1021000006 :1021000006 :0221200006 :0221200006 :10001000006 :10001000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :10005000000 :100050000000000	Mode AS	CII	Save 00000000 00000000 00000000 00000000 0000	000000 1FF01 功末尾 000000 F1F1C F1FDFF000 00000 00000 00000 00000 00000 00000 0000	Clear 00000 FF01 2及が 40FF 0000 40FF 40FF 0000 0000 0000 000	0(() FFI 1H 000 000 000 000 000 000 000 000 000

Note: The merge function of two hexfs can be triggered only if Boot\_Loader\_Merge is checked in the configuration of setting->configuration. (Re-opening PhyPlusKit.exe requires re-checking the settings)

B. Combine two .hexf files through the merge button on the HEX page (version V2.4.1a) Note: The format of the firmware after M0 must be .hexf. For details of the merge process between .hex file and .hexf, see content 1. 1. Error message:

1) The HEX page does not load the firmware, click the merge button, Hint: The merge file is empty.

2) The HEX page loads the firmware in .hex format, click the merge button, Hint: The merge file is not valid.

3) The HEX page loads the firmware in .hexf format, without adding a composite file, click the merge button, Hint: [HEXF Merge] Fail:+loaded file path

2.Two .hexf file synthesis steps

1) Load the application firmware .hexf file on the HEX page, and correspondingly modify the RUN\_ADDR of the firmware running, PHY6202--1FFF4000, PHY6212–1FFF4800.

eese seeenige											
sh_Writer RF_CM	D RF_QuickSet Multi_FW					UART Settin	0				
Config		V Timeout 400	0	Save	Clear	Port COM12	<ul> <li>Baud Rate</li> </ul>	115200 ~	Stop Bits 1	<ul> <li>Parity</li> </ul>	No
PHY_fct_Mode	Erase Size 512k	~ Address		Erase	Write	Discon	nect	AutoCheck		Update	
	Merge					Log					
M0 • t_2.4.1a	/Win32/Release/light1.hexf	erge FLA ADDR	9000	RUN ADDR 1FFF	4000						
				tong about prov							
						1.1.1					
						11					
Single V Batch \											
Single V Batch	PATH	SIZE	ADDRESS	VALUE							
Single V Batch	PATH	SIZE	ADDRESS	VALUE	^						
Single V Batch	PATH	SIZE	ADDRESS	VALUE							
Single V Batch	PATH	SIZE	ADDRESS	VALUE	-						
Single V Batch 1 TYPE 1 × 2 × 3 × 4 ×	PATH	SIZE	ADDRESS	VALUE							
Single V Batch V TYPE 2 • 3 • 4 • 5 •	PATH	SIZE	ADDRESS	VALUE							
Single V Batch \ TYPE 1	PATH	SIZE	ADDRESS	VALUE	×						

UART INFO: Port: COM12, Baudrate: 115200, StopBits: 1, Parity: No

2) setting—configuration Set the Boot\_Loader\_Merge check box, after checking, click OK

h_Writer RF_CMD RF	_QuickSet Multi_FW	UART Setting	n Dit
onfig	<ul> <li>Timeout 4000</li> </ul>	0 Save Clear Port COM12 P Baud Rate 115200 V Std	рыс
HY_fct_Mode	Erase Size 512k V Address	Erase Write Disconnect AutoCheck	
IMG V HEX V HEX Merge	Release/li	łog ? ×	
	Flash Writer RF Tools	□ Start Flash address       9000       Base Run address       1FFF4000         □ Flash Writer Enable AP Mode         ☑ Boot_Loader_Merge	
Single V Batch	PAT	3	
5 •			

3) Click the merge button to pop up the .hexf file that needs to be merged

← → • ↑ <mark> </mark>	≪ work →	Phywriter >	~ Ö	搜索"Phywriter"	م	)
组织 ▼ 新建文件	挟				- 🔳 🌘	?
💻 此电脑 🇊 3D 对象	へ 名称 	PhywriterV1.0 RES	修 20 20	改日期 )19/8/30 17:55 )19/9/9 19:03	<u>类型</u> 文件夹 文件夹	^
■ 10000 ■ 图片 ■ 文档		ancs_A1.hexf ancs_A1_merge.hexf ancs_A2.hexf	20 20 20	)19/9/16 16:47 )19/9/16 16:48 )19/9/12 16:26	HEXF 文件 HEXF 文件 HEXF 文件	
↓ 下载 ♪ 音乐		bleController.hexf boot_Loader.hexf	20 20	)19/3/27 10:51 )19/8/16 9:41	HEXF 文件 HEXF 文件	
🔜 桌面 🏪 本地磁盘 (C:)		boot_Loader_PhyWriter.hexf boot_Loader_PhyWriter1.hexf boot_Loader_PhyWriter2.hexf	20	019/7/1 10:54 019/8/16 9:31 019/7/1 9:51	HEXF 文件 HEXF 文件 HEXF 文件	
本地磁盘 (D:)		pwmLight_2.hexf pwmLight_2m.hexf	20 20	)19/7/1 11:39 )19/6/28 9:52	HEXF 文件 HEXF 文件	,
🛁 网络	✓ < 文件名(N):	boot_Loader_PhyWriter.hexf	~	*.hexf	>	·
				打开( <u>0</u> )	取消	

4) After clicking to open, the interface LOG prompts: [HEXF Merge] Success: + loaded firmware path \_merge.hexf

# **3.7.5.** Preserve mode address segment retention and erasure of multiple address segments

Since V2.3.8a, the Preserve mode is added to the Erase erase function, which can realize the flash area reservation of a certain address segment and the direct erase function of multiple specified address segments. The specific performance is as follows:

1. Preserve a address segment (Preserve)

A · Preserve mode selection and reserved address segment input (eg: 4000-12500 as

Delow) PhyPlusKit ile Edit Setti	ngs Help					– ø >
Flash_Writer	RF_CMD RF_QuickSet Mu	ulti_FW			UART Setting	
Config	Erase Size P	<ul> <li>Timeout 400</li> <li>reserve &lt; Address 400</li> </ul>	00 Save	Clear	Port COM21 V Baud Rate 115200 V Stop Bits 1 Disconnect AutoCheck	✓ Parity No ✓ Update
IMG / HE	X / HEX Merge \	1.模式选择 2.4	采留地址段输入		Log	
BOOT	•		No OTA	HexF	Name: COM21 Description:Silicon Labs CP210x USB to UART Bridge Manufacture: Silicon Labs	^
	•		FLA_ADDR		Current port: COM21 Current baudrate: 115200	
	•		FLA_ADDR FLA_ADDR		Current stopBits: 1 Current parity: No Serial opened!!	
	•		FLA_ADDR FLA_ADDR			
ChipID/IV	UD[10]		ID[14]	churlup.		
MID[16]	SID[08]		IV[13]	WriteID		
MAC[6]		н	ex[xx-xx-xx-xx-xx]	WriteMAC		
Single V	Batch \					
1 TYPE	PATH	SIZE	ADDRESS V4	LUE		
2	•					
4	•			~		

### B. Pull high TM pin, reset the EVK

C. Click Erase button, erase all flash memory except the segment 4000-12500

_Writer RF_CMD	RF_QuickSet Multi_FW			UART Setting		
onfig	✓ Timeout 4	000 Save	Clear	Port COM21 🕆 Baud Rate	115200 V Stop Bits 1	<ul> <li>Parity Net</li> </ul>
	Erase Size Preserve V Address 4	000-12500 Erase	Write	Disconnect	AutoCheck	Update
				Log		
MG \ HEX \ HEX M	erge \			News, CONSI		
BOOT -		No OTA 🔻	HexF	Description:Silicon Labs (	P210x USB to UART Bridge	
APP 👻		*	Encrypt	Manufacturer: Silicon Lab		
		FLA_ADDR		Current port: COM21		
*		FLA_ADDR		Current baudrate: 115200 Current stopBits: 1		
•		FLA_ADDR		Current parity: No		
•		FLA ADDR		***********************	*****	
- •		ELA ADDR		JART RX : cmd>>: Send erase successfully!		
hipID/IV				Receive #OK!		
PID[16]	LID[10]	TID[14]	CheckID	Send erase successfully!		
11D[16]	SID[08]	IV[13]	WriteID	Erase successfully!		
			uniteres a	Send erase successfully! Receive #OK!		
AC[6]		nex[xx-xx-xx-xx-xx]	WriteMAC	Erase successfully!		
ingle Batch				Receive #OK!		
TYPE	DATH CI7			Erase successfully! Send erase successfully!		
TIPE	PAIN SIZE	ADDRESS VA	LUE	Receive #OK!		
•				Send erase successfully!		
3 •				Erase successfully!		
4 🔻				Send erase successfully! Receive #OK!		
5 🔻			~	Erase successfully!		
				Receive #OK!		

2.Erase multiple address segments in preserve mode (ie: 2000~5000,8000~12500) Remarks: "," in the middle of multiple address segments must be input in English characters. Only the flash content of the input multiple address segments will be erased

# 3.7.6. PHY\_fct\_Mode feature

Starting from version V2.3.8b, PhyPlusKit supports FCT mode of PRBMD00 products. When the chip enters FCT mode, it cannot read and write registers in the programming mode, which can ensure the security of the program. The specific operation process is as follows:

There are two paths to specifically support the FCT mode:

 The PHY\_fct\_Mode button on the main interface is convenient for users to click to enter FCT mode at any time.

Steps:

- a. Pull high TM pin , reset device/EVK , LOG returns UART RX : cmd>>:
- b. Click PHY\_fct\_Mode button, LOG display :
  - a) === PHY6212 ===
  - b) Send fct cmd successfully!
- c. TM is in a high state, reset the development board, log returns to UART RX : fct>>: then enter FCT mode

_Writer	RF_CMD	RF_QuickSet Multi_FW				<u>c</u> hur	Port COM13 V Baud Rate 115200 V Stop Bit	s 1 · Parity No
HY_fct_Mo	de	Erase Size 512k V A	ddress	<u>,</u>	Erase	Ulear	Disconnect AutoCheck	Update
IMG√н							Log	
BOOT	•	- (		No OTA	-	HexF		
APP	•				•	Encrypt	Serial port COM13 closed!!	
	•				FLA_ADDR		Current port: COM13 Current baudrate: 115200	
	•				FLA_ADDR		Current stopBits: 1 Current parity: No	
	•				FLA_ADDR		Serial opened!!	
	•				FLA_ADDR		UART RX : cmd>>: === PHY6212 ===	
	-				FLA_ADDR		Send fct cmd successfully!	
ChipID/ <u>I</u>	v	10[10]		0[14]		Charles D		
PID[10]				D(14)		CheckID		
MID[16]		SID[08]	n	/[13]		WriteID		
MAC[6]			He	x[xx-xx-xx-xx-	xx-xx]	WriteMAC		
Single \/	Batch							
TYP	PE	PATH	SIZE	ADDRESS	VALU	E ^		
1	-							
2	-							
4	-							
5	-					~		

- 2. Configure FCT mode through setting—configuration: Steps
  - a. Click setting—configuration, enter the settings of the configuration file.

2. Configuration				?	×
Flash Writer RF Tools	Start Flash address	9000	Base Run address	1FFF4000	
	Flash Writer Enable A	P Mode			
	Boot_Loader_PhyWrit	er			
	PHY_fct_Mode 1:				
				2 :	
					Connel

- b. Check the PHY\_fct\_Mode check box, click OK, this setting will always be saved
- c. Pull hight TM pin, reset device or EVK, it returns : UART RX : cmd>>:
- d. Click Erase button, erase process
- e. Click the Write button to write the firmware, the chip will enter the programming mode, and the log information will be printed and displayed. :
  - a) UART RX : #OK>>:
  - b) Write fct cmd successfully!
- f. At this point, the chip has entered the FCT mode, which can be verified by the reset development board, it returns UART RX : fct>>:

h_Writer	RF_CM	D RF_QuickSet Multi_F\	N				✓ UART Setting	
onfig			V Timeout 40	00	Save	Clear	Port COM21 V Baud Rate 115200 V Stop Bits 1 V Parity	No
HY_fct_Mo	de	Erase Size 512k	~ Address		Erase	Write	Disconnect AutoCheck Update	
IMG \/ H	EX V HE	X Merge					Log	
BOOT	•			No OTA	. <b>•</b>	HexF		-
APP	• D:/	work/test/test7/ancs.hex		]	- •	Encrypt	JART RX : cmd>>: Send erase successfully!	
	•				FLA_ADDR		Receive #OK! Erase successfully!	
	•				FLA_ADDR		PHY6212 Load AppHEx Done[-NO-ENC-]!	
	•				FLA_ADDR		IV BLOCK GEN [-NO-ENC-] [hexPack]: 1FFF0800 40c	
	•				FLA_ADDR		[hexPack]: 1FFF4800 92e4 [App HexPack Size]: 2	
	-				FLA_ADDR		>> BOOT======0x000021000x0000211c======	
ChipID/I	/	1005403					THEYE Generation: Suscess Dr/week/test/test/cass heve 111	
PID[10]		LID[10]		10[14]		CheckID	UART RX : #0K>:	
MID[16]		SID[08]		V[13]		WriteID	Send cprum successfully!	
MAC[6]			H	ex[xx-xx-xx-xx	-xx-xx]	WriteMAC	Receive #0K! Receive >>: successful!	
Single 🗸	Batch \						Write hexf File [01/03]	
TYP	ΡE	PATH	SIZE	ADDRESS	VAL	JE ^	UART RX ASCII: by hex mode:	
1	•						Send integer request: Waiting to receive checksum	
2	•						UART RX ASCII: checksum is: 0x0000054c	
3	•						Receive #OK!	
5	•					~	Receive >>: successtul:	
							Send cpbin successfully!	
nmand:				✓ □ HEX	Send	ClearBuf	☐ TimeTic Mode ASCII ▼ Save Clear	r

- 3. Operation to exit FCT mode:
  - a) Erase Size is 512K
  - b) Click Erase button to erase flash
  - c) Reset EVK/device
  - d) Quit from fct mode, and it returns UART RX : cmd>>:

Note: PHY\_fct\_Mode mode currently only supports PRBMD00 chip products.

Method 1: It is convenient for users to quickly enter the FCT mode, click the button to trigger and enter the FCT mode

Mode 2: It is convenient for the user to use the FCT mode many times, and it can keep triggering all the time. Note: Every time you reopen the software, you need to reconfigure the check to keep triggering the FCT mode

# 3.7.7. Support external flash programming function

The main update function of V2.4.1a is to support the programming of external flash. (mainly for PHY6202 products)

1. Write the boot file that supports external flash -- uartextf.hex file

Pull high TM pin, reset, Erase and then Write; after programming success, pull low TM pin, reset, Log returns : UART RX : -boot-cmd>>:

_Writer RF_CM	D RF_QuickSet Multi_FW					UART Setting	
onfig	~ ·	Timeout 400	0	Save	Clear	Port COM12 Y Baud Rate 115200 V	Stop Bits 1 Y Parity No
HY_fct_Mode	Erase Size 512k v	Address		Erase	Write	Disconnect AutoCheck	Update
				1	K	log	
IMG \/ HEX \/ HE)	K Merge \			2	2	LUG	
BOOT 👻			No OT4	A 🔹 🤇	HexF	[hexPack]: 1FFF0800 40c	
APP - D:/	work/kehu/external_flash/uartextf(2	).hex		•	Encrypt	[hexPack]: 1FFF4000 6584	
•	· · · · · · · · · · · · · · · · · · ·		-	FLA ADDR		>> BOOT0x000021000x000021	1c
	1					>> APP======0x000090000x0000f5	98
_						[HEXF Generation] Success: D:/work/kehu/ex	ternal_flash/
				FLA_ADDK		Send cpnum successfully!	
•				FLA_ADDR		Receive #OK!	
*				FLA_ADDR		Receive VV: Successful:	
ChipID/IV						<pre>send cobin successfully!</pre>	
PID[16]	LID[10]	Т	D[14]		CheckID	UART RX ASCII: by hex mode:	
MID[16]	SID[08]	1	V[13]		WriteID	Receive image request: Send image successful! Waiting to receive	checksum
MACIE		н	*****		WriteMAC	Send checksum successfully!	
ince[0]					WITCHING	Receive #OK!	23 2
Single / Batch						Receive >>: successful!	
TYDE	DATU	C17E	ADDRESS	MAL		======================================	.=====
1 *	FAIL	JIZE	ADDICESS	VAL	UL	UART RX ASCII: by hex mode:	
- -						Receive image request!	
2 .						Send checksum successfully!	cnecksum
3 •						UART RX ASCII: checksum is: 0x00246226#0K>	(*)
4						Receive #OK!	
5 👻					~	Write registers successfully!	
						UART RX : -boot-cmd>>:	
mand:				Send	ClearBuf	TimeTic Mode ASCII -	Save Clear

2. External flash programming

IMG page: Double-click to load the \*.bin file in Path; size is the size of the loaded file, which is automatically generated; FLA\_ADDR: The flash address of the external flash is based on 80000000, and the value can be increased by itself; RUN ADDR: The value can be filled in arbitrarily (also supports 1M baud rate for programming) o x

_Writer	RF_CMD	RF_QuickSet Multi_FW						✓ UART Setting		
onfig			<ul> <li>Timeout 40</li> </ul>	00	Save		Clear	Port COM12   Baud Rate	115200 V Stop Bits 1	<ul> <li>Parity No</li> </ul>
Y_fct_Mo	de	Erase Size 512k	∨ Address		Erase		Write	Disconnect	AutoCheck	Update
MG √ H	EX \/ HEX M	erge						Log		
ТҮР	E	PATH		SIZE	FLA ADDR	RUN	ADDR ^	Send cpbin successfully!		
1 MO 1	<ul> <li>D:/work/P</li> </ul>	hywriter/RES/a3.bin		53ac1	80000000	0		UART RX ASCII: by hex mo	de:	
2								Send image successful! W	aiting to receive checksum	
3								Send checksum successful	ly!	
								Receive #OK!	IS: 0X002D90ED#0K>>:	
;								Receive >>: successful!		
-								UART RX ASCII: by hex mo	de:	
								Receive image request!	aiting to produce shortens	
								Send checksum successful: W	ly!	
								UART RX ASCII: checksum	is: 0x003c39c9#OK>>:	
0								Receive >>: successful!		
1								Send cpbin successfully!	le:	
-							~	Receive image request!		
								Send image successful! W Send checksum successful	aiting to receive checksum lv!	
ingle V	Batch \							UART RX ASCII: checksum	is: 0x004c5399#OK>>:	
TYP	ΡE	PATH	SIZE	ADDRESS		VALUE	^	Receive #UK! Receive >>: successful!		
	•							Send cpbin successfully!	10.	
2	•							Receive image request!		
3	•							Send image successful! W	aiting to receive checksum	
1	•							UART RX ASCII: checksum	is: 0x001327a9#0K>>:	
5	•						~	Receive #OK! Write images successfull Write registers successf	y! ully!	
					Cand		ClassRuf	TimeTic Mode		Clear

UART INFO: Port: COM12, Baudrate: 115200, StopBits: 1, Parity: No

# 3.7.8. Support single-wire programming function

One of the main update functions of the V2.4.2c version is to support the single-wire programming function, and the P10 port is used to complete the transmission and reception of data respectively.

One-line programming, TM = 0, need to send uart sequence connection through the tool and enter programming mode, there are three main connection methods for single-line programming: "UXTL16" "URC32M" "UDLL48". Illustrated as below:

UART S	etting						
Port COM	114 🔹 Baud Rate	UXTL16	$\sim$	Stop Bits	1 •	Parity No	•
🗆 swu	Connect	250000 115200 76800	^	heck		Update	
Log Name: CO Descript Manufact	DM14 tion:USB Serial Por turer: FTDI	38400 9600 UXTL16 URC32M UDLL48 UXTDWU other	Ĵ	单线连持	麦方式		^
Name: CO Descript Manufact	DM21 tion:CKLink Serial turer: C-SKY MICROS	Port SYSTEMS CO.,	LTD				

Note: The host computer is compatible with both single-line and dual-line programming modes. The single-line and double-line distinction and data processing are performed by checking the SWU control. When it is checked, it is the single-line processing mode, and the default dual-line programming is not checked. choose.

🗹 UART Settir	Ig					
Port COM14	<ul> <li>Baud Rate</li> </ul>	UXTL16	✓ Stop Bits	1 •	Parity No	•
⊠ swu	Connect		AutoCheck		Update	

Taking "UXTTL16" as an example, the operation flow of single-wire programming is introduced in detail.

The host computer continuously sends the command at 9600 baud rate, and captures through reset or power-on again. After capturing cmd>>:, the connection is successful and automatically switches to 115200 baud rate.

The detailed process and schematic diagram are as follows:

- 1. TM pull low (TM=0)
- 2. Select the single-line connection method, check the SWU control, and click the connect button to connect

					Port COM14	<ul> <li>Baud Rate LIXT</li> </ul>	16 Stop Bits 1	Parity N
onfig	<ul> <li>Timeout 40</li> </ul>	00 Save	Clear					i i i i i i i i i i i i i i i i i i i
_Mode Eras	e Size 512k 🗸 Address	Erase	Write	LW	⊡ swu	Connect	AutoCheck	Update
	lerge				2.勾选 Log	3.点击connect	安钮,发送序列进行连	接
BOOT -		No OTA	•	HexF	Name: COM1	4		
APP -		SEC Auth	•	Encrypt	Descriptio Manufactur	n:USB Serial Port er: FTDI		
•		F	LA_ADDR		Name: COM2	***************************************	*	
•		F	LA_ADDR		Descriptio Manufactur	n:CKLink Serial Port er: C-SKY MICROSYSTE	MS CO., LTD	
•		F	LA_ADDR		Current po	rt: COM14	*	
•		F	LA_ADDR		Current ba Current st	udrate: 115200 opBits: 1		
•		F	LA_ADDR		Current pa Serial ope	rity: No ned!!		
PID[16]	LID[10]	TID[14]	CI	heckID	Serial por	t COM14 closed!!	*	
MID[16]	SID[08]	IV[13]	W	riteID	********	••••••	•	
MAC[6]	KEY[32]	Hex[xx-xx-xx-xx-xx	-xx] Wr	iteMAC				
Single (Batch)								
Path	Lines	.g. 1-5, 8 Rep	eat 🗌 💦 R	eload				

Click connect to continuously send the "UXTL16" sequence at a baud rate of 9600

 <sup>1</sup> ■ Phyletkit
 <sup>-</sup> □ × <sup>1</sup>

h_Writer F	RF_CMD RF_QuickSet Multi_FW					UART Set	ting				
onfig	Timeout	4000	Save	Clear		Port COM14	Baud Ra	ate UXTL16	V Stop E	Bits 1	Parity No
_Mode	Erase Size 512k V Address		Erase	Write			Disconnect		Autocheck		opulic
IMG \/ HEX	V HEX Merge					Log					
BOOT 👻			No OTA	• H	вхF	******	*****	********			
APP -		SEC	Auth	- End	rypt	Current po Current ba	udrate: 9600				
•			FLA_A	DDR		Current st Current pa	opBits: 1 rity: No				
•			FLA_A	DDR		Serial ope	nedil				
•			FLA A	DDR		UART TX AS	CII: UXTL16				
<b>v</b>			FLA A	DDR		UART TX AS	CII: UXTL16				
•			FLA A	DDR		UART TX AS	CII: UXTL16 CII: UXTL16				
ChipID/IV			-			UART TX AS	CII: UXTL16				
PID[16]	LID[10]	TID[14]		Chec	kID	UART TX AS	CII: UXTL16				
MID[16]	SID[08]	IV[13]		Write	D	UART TX AS	CII: UXTL16				
MAC[6]	KEY[32]	Hex[xx	-xx-xx-xx-xx-xx]	Write	MAC	UART TX AS UART TX AS UART TX AS	CII: UXTL16 CII: UXTL16 CII: UXTL16	连续发	送所选择连接	方式的序列	
Single V Bat	tch					UART TX AS	CII: UXTL16 CII: UXTL16				
Dath	Line	0.0.1-5.8	Repeat	Rela	be	UART TX AS	CII: UXTL16 CII: UXTL16				
	Life	a [eigi 1-5, 0	Repear		uu	UART TX AS	CII: UXTL16 CII: UXTL16				
						UART TX AS	CII: UXTL16				
					-	UART TX AS	CII: UXTL16				
		以9600沥	好率发送			UART TX AS	CII: UXTL16				
		-				UART TX AS UART TX AS UART TX AS	CII: UXTL16 CII: UXTL16 CII: UXTL16				
mmand:		~ L	HEX Send	c	learBuf	TimeTic	Mode	ASCII	• Sav	/e	Clear

4. Reset development board, capture cmd>>:

The second second						
PhyPlusKit					- u	×
File Edit Settings Help						
Elach Writer DE CHD DE OvideCat Multi	DW		RT Setting			
Hash_whiter RF_CMD RF_QuickSet Multi_	_FW			15000	D	
Config V Tim	eout 4000 Save Clev	ar	COM14 Baud Rate 1	15200 V Stop Bits 1	Parity No	) Y
		S SW	U Disconnect	AutoCheck	Update	
tct_Mode Erase Size 512k V Add	dress Erase Writ					
		Log				
/ IMG (/ HEX (/ HEX Merge (						
BOOT -	No OTA 👻	HexF UART	TX ASCII: UXTL16			^
ADD Y	SEC Auth *	Encount	TX ASCII: UXTL16			
		UART	TX ASCII: UXTL16			
•	FLA_ADDR	UART	TX ASCII: UXTL16			
•	FLA_ADDR	UART	TX ASCII: UXTL16			
	FLA ADDR	UART	TX ASCII: UXTL16			
	ELA ADDR	UART	TX ASCII: UXIL16			
	PLA_ADDK	UART	TX ASCII: UXTL16			
	FLA_ADDR	UART	TX ASCII: UXTL16			
ChipID/IV		UART	TX ASCII: UXTL16			
PID[16] LID[10]	TID[14]	CheckID UART	TX ASCII: UXTL16			
MID[16] SID[08]	11/131	WriteID	TX ASCII: UXTL16			
		UART	TX ASCII: UXTL16			
MAC[6] KEY[32]	Hex[xx-xx-xx-xx-xx]	WriteMAC UART	TX ASCII: UXTL16			
		UART	TX ASCII: UXTL16			
Single / Batch		UART	TX ASCII: UXTL16			
Path	Lines e.g. 1-5, 8 Repeat	Reload	TX ASCII: UXTL16			
		UART	TX ASCII: UXTL16	eset捕捉到cmd>>:后切掩测	/持來到1152	00
		UAR	TX ASCII. UXTLIG	eserimites suit and and a	10430102	
		UART	RX: cmd>>:			
		Curr	ent baudrate: 115200			
		Curr	ent stopBits: 1			
		Curr	al opened[]			
				***		¥
Command:	V HEX Send	ClearBuf	meTic Mode ASCI	I Save	Clear	
LIART INFO: Port: COM14 Baudrate: 115200 StopPit	te: 1. Parity: No					2 4 20
date in of role contrapodulate. 115200, ptoppic						2.4.20

5. Select the APP firmware to be programmed, erase first and then program. For details of the programming process, please refer to Section 3.2

Edit Settings Help			
ash_Writer RF CMD R	F QuickSet Multi FW		UART Setting
Config	Timoout 4000	Sava	Port COM14 v Baud Rate 115200 v Stop Bits 1 v Parity No
fct_Mode Erase Siz	ze 512k v Address	Erase Write	LW Disconnect AutoCheck Update
IMG / HEX / HEX Merge	e	1.擦除 2.烧写	Log
BOOT -		No OTA • HexF	Current parity: No
APP • Kit 2.4.2c V1	.0.5/Win32/Release/ancs A2.h	ex SEC Auth	
•		FLA_ADDR	Receive #OK!
•		FLA ADDR	PHY6220 CK05
•		FLA_ADDR	Load AppHEx Done[-NO-ENC-]! IV BLOCK GEN [-NO-ENC-]
•		FLA_ADDR	[hexPack]: 1FFF0800 40c [hexPack]: 1FFF4800 9ac8
•		FLA_ADDR	[App HexPack Size]: 2 >> BODT====================================
ChipID/IV			>> APP======0x0000000000x00012edc======
PID[16]	LID[10]	TID[14] CheckID	[HEXF Generation] Success: D:/Proj/GUITool/PhyPlusKit_2.4.2c_V1.0.5/
MID[16]	SID[08]	IV[13] WriteID	Send cpnum successfully!
MAC[6]	KEY[32]	Hex[xx-xx-xx-xx-xx] WriteMAC	Receive #OK! Receive >>: successful!
Single Batch			Write hexf File [01/03] Send cpbin successfully!
Path	Lines e.g	1-5, 8 Repeat Reload	UART RX ASCII: by hex mode: Receive image request!
			Send smage successfull Mating to receive checksum Send hecksum successfully and the second secon
ommand:		V HEX Send Clear	Buf TimeTic Mode ASCII  Save Clear
INFO: Port: COM14 Baudra	ate: 115200 StonBite: 1 Darity	VI HEX Send Clear	Suf IImelic Mode ASCII V Save Clear

The above is the whole process of single-line programming, which mainly includes two steps: connection and programming.

Considering the different flash programming speeds, the kit tool also supports 8k alignment programming mode, which can be selected through the LW control and can be programmed in 8k alignment mode by checking. For details, see the following figure:

h_Writer	RF_CMD RF_QuickSet Multi_FW				UART Set	ting		
Config	V Timeout 40	00 Sav	e Cle	sar	Port COM1	4 🝸 Baud Rate 1	15200 V Stop Bits 1	Parity No
t_Mode	Erase Size 512k V Address	Eras	e Wr	ite 🗹 LW	⊠ swu	Disconnect	AutoCheck	Update
IMG V HE	EX / HEX Merge		8k对齐制	。 客模式选择控件	Log			
BOOT -		No	OTA •	HexF	UART RA A	SCII: by nex mode:		
APP -	Kit_2.4.2c_V1.0.5/Win32/Release/ancs_A2	hex SEC Au	th •	Encrypt	Send imag	e successful! Waiti	ng to receive checksum	
*			FLA_ADDR		UART RX A	SCII: checksum is:	0x000105f1#OK>>:	
•			FLA_ADDR		Receive >	>: successful!		
•			FLA_ADDR			Write hexf File	[02/03]	
•			FLA_ADDR		UART RX A	n successfully! SCII: by hex mode:		
•			FLA_ADDR		Receive i Send imag	mage request! e successful! Waiti	ng to receive checksum	
ChipID/IV					Send check	ksum successfully! SCII: checksum is:	0x000b6610#0K>>:	
PID[16]	LID[10]	TID[14]		CheckID	Receive #	DK!		
MID[16]	SID[08]	IV[13]		WriteID	UART RX A	SCII: by hex mode:	8K对齐拆分	6
MAC[6]	KEY[32]	Hex[xx-xx-xx	-xx-xx-xx]	WriteMAC	Send imag	e successful! Waiti	ng to receive checksum	
	Detals				UART RX A	SCII: checksum is:	0x000b62f0#OK>>:	
Single V	Battil				Send cpbi	UK! n successfully!		
Path	Lines e	g. 1-5, 8	Repeat []	Reload	Receive in	SCII: by hex mode: mage request!		
					Send imag Send chec	e successful! Waiti ksum successfullv!	ng to receive checksum	
					UART RX A	SCII: checksum is:	0x000ba1fb#OK>>:	
					Send cpbi	n successfully!		
					UART RX A	SCII: by hex mode: mage request!		
					Send imag	e successtul! Waiti	ng to receive checksum	_
			Cand	ClassRuf	TimeTic	Mada ASCI	T T Sava	Clear

### 3.7.9. Security boot

After the V2.4.5a version, another function updated by PhyPlusKit is the security boot function, which supports the encrypted boot module function, encrypts the image partition data of the application firmware according to the aes\_ccm algorithm, and adopts the secure boot mode. This function module is mainly supported in the SEC\_MIC mode selected in the following figure. Select the corresponding SEC\_MIC form to use the security boot function. The specific selection is as follows:

	MG \/ HEX \/ HEX Merge \			
[	BOOT 🔻	No OTA 🔹	Hex16	HexF
	APP • •	SEC Auth OTA	ENC_IV CHIP_ID SEC_MIC CRC_CHK	Encrypt
	•		FLA_ADDR	
	•		FLA_ADDR	

When the SEC\_MIC control mode is selected, the IV and Key edit boxes are in editable typing

Flash_Writer RF_CMD	RF_QuickSet Multi_FW			UART Setting
Config	<ul> <li>Timeout 4000</li> </ul>	Save	Clear	Log
fct_Mode Erase :	Size 512k V Address	Erase	Write LW	Name COM16
	<u></u>			Description:Silicon Labs CP210x USB to UART Bridge
	ge (		VIE Have	Name: COM1
APP V			MIC T Encount	Description:Virtual Serial Port (Eltima Softwate) Manufacturer: ELTIMA Software
•			ADDR	Name: COM2
		FLA	ADDR	Description:Virtual Serial Port (Eltima Softwate) Manufacturer: ELTIMA Software
•		FLA	_ADDR	*****
•		FLA	_ADDR	
•		FLA	ADDR	
ChipID/IV PID[16]	LID[10]	TID[14]	CheckID	
MID[16]	SID[08]	IV[13]	WriteID	
MAC[6]	KEY1[32]	KEY2[32]NONE	WriteMAC	
Single Batch				
Path	Lines e.g. 1-5, 8	Repeat 🗌 💦 F	Reload GenKey	

First, the customer is required to provide a series of flash key and efuse key combinations to generate g\_sec\_key for encryption, that is, the corresponding key to the KEY1[32] position in the figure. The specific operations are as follows:

- 1. The generation method of security boot encrypted g\_sec\_key is as follows:
  - a) Double-click to load the \*.key.csv file on the Batch page (be careful to import the .key.csv file type, otherwise an error will be reported)
  - b) Correspondingly display the provided flash key and other content, as shown below:

Single \/ Batch \	
Path Desktop/secure_key.key.csv Lines e.g. 1-5, 8 Repeat Repeat Reload Genk	(ey
Current line number: 2	^
NO. 1 Name: sec_key, Addr: 02808, End: M, Val: 1234567813151719 NO. 2 Name: sec_plaintext, Addr: 02810, End: M, Val: e907c7b41754a060d34a62853cb23de8	
NO. 3 Name: iv, Addr: 02830, End: M, Val: 83663334373835323731343536303030 NO. 4 Name: ota_sec_key, Addr: 02908, End: M, Val: 817e9014a7471cb6 NO. 5 Name: ota_plintavt Addr: 02910 End: M, Val: 31925582a845586c0d7c2086d6aar0	~

b. Click the GenKey button, and the \*.sec.csv file processed by the currently displayed flash key will be generated correspondingly, and the data of the corresponding line (\*.sec.csv file) can be generated according to the Lines value filled in.

sh_Writer RF_CMI	D RF_QuickSet Multi_FW			VART Setting Port COM16 V Baud Rate 115200 V Stop Bib	s 1 × Parity No
Config ct_Mode En	v Timeout 400 ase Size 512k v Address	0 Save	Write LW	SWU Disconnect AutoCheck	Update
TMG \/ HEX \/ HEX           BODT *           APP *           PID[16]	(Merge \ LID(10) SID(20)	Single No FCT	Hexif Hexif Concrypt A_ADDR A_ADDR A_ADDR A_ADDR A_ADDR A_ADDR CheckID WriteID	Log [SIC File Generation] Success   C//Wers/Lasr/Desk KCWR_JNC, ACC. (19   1)	00/
MAC[6] Single & Batch Path [Desktop/sect Current line numt NO. 1 Name: sec NO. 3 Name: sec NO. 4 Name: ota, NO. 5 Name: ota,	KEY1[32]NONE re_key.key.csv Lines [ 	KEY2[32]NONE Repeat val: a7471cb5817e9014 , Val: 300758812e8455565 val: 3805375855227313 Val: 81760524735855227313 Val: 81760524734586603	WriteNAC           Reload         GenKey           6d7c20866dsac0         4353638388           4a62853cb23de8         ¥		

- 2. Security boot hexf merge process
  - a. Select SEC\_MIC mode
  - b. SEC control selection (AUTH control is only used for PHY6220 series products, only used to encrypt and decrypt image info in bootloader)
  - c. In the Batch page, double-click to select the \*.sec.csv file generated by GenKey in 1)
  - d. Click the HexF button (Note: when the uart is not connected, it will be generated according to the corresponding chip model; after connecting the uart, it must be in the burning mode, that is, cmd>>: mode, and click the HexF button to correctly generate, see 3.7.2 for details)

sh_Writer	RF_CMD RF_QuickSet Multi_FW			Port COM1	tting .6 • Baud Rate 1	15200 V Stop Bits	1 • Parity No
Config DDD_	_ota_yi	Erase	Clear Write LW	🗆 swu	Connect	AutoCheck	Update
IMG (HE)			4.点击Hey	Log			
BOOT •	[ [ble_peripheral/pwmLight/bin/pwmLight.hex	No OTA	Hex16 HexF	===PHY623	2===		
*	2.勾选S	EC 1.选择SEC_MIC機量	LA_ADDR	The HEX 4 IV:863478 #0 size =	file has 3 parts. La 15271456 df28	ast modified: 2020-11-26	10:25:59
*		FL	LA_ADDR	#2 size = Output> bin/pwmLi	<pre>bio 8e00 D:/gitroot/bbb_sdk ght.hexe</pre>	_xin_yi/example/ble_perip	oheral/pwmLight/
• ChipID/IV		FI	LA_ADDR	AES ENC D AES ENC D	IONE->#0 size=06f94 IONE->#1 size=0040c IONE->#2 size=04700		
PID[16]	LID[10]	TID[14]	CheckID	Load Appt IV BLOCK	Ex Done[-ENC-]! GEN [OK !!!]		
MID[16] MAC[6]	SID[08] .Sec.099/1[32] c324f128c	IV[13] 8634785271	456 WriteID WriteMAC	[hexPack] [XIP HexF [hexPack] [hexPack]	: 11020000 6 <del>7</del> 94 Pack Size]: 1 : 1FFF0000 40c : 1FFF1838 4700		
Single V B Path Deski	3.选择*.sec.csv文 top/secure_key.sec.csv	件 Repeat 🗹	Reload GenKey	(App HexF >> BOC >> AF >> XIP#	Pack Size]: 2 070x11002000 P=0x11005000 000x11020000	00x11002130 00x11009b14 00x11026f94	
NO. 1 Nar NO. 2 Nar NO. 3 Nar NO. 4 Nar NO. 5 Nar	me: sec_key, Addr: 02808, End: M, me: sec_plaintext, Addr: 02810, End: M me: sec_mic, Addr: 02820, End: M, me: iv, Addr: 02830, End: M, me: g_sec_key, Addr: 0FFF0, End: M,	Val: a7471cb6817e9014 i, Val: 3b92b5882ae845586c Val: e907c7b41754a066034a6 Val: 386334373855237313 Val: ced806bb480622da7c324	0d7c2086d6eac0 2853cb23de8 4353630300 f128ccc71d8	The App H [HEXF Ger ble_perig [HEXF Ger	<pre>lex file Last modif: meration] Success: I wheral/pwmLight/bin, meration]::DONE !!!</pre>	ied: 2020-11-26 10:25:59 D:/gitroot/bbb_sdk_xin_yi /pwmLight.hexf !!!	i/example/
. –			classified		Mode ASC	II - Save	Clear

The values in KEY1[32] and IV[13] are keyed by parsing the \*.sec.csv file and do not need to be entered manually.

3. PhyPlusKit programming process

In addition to the .hexf ciphertext generated by the above configuration, Security boot programming also needs to program the efuse key corresponding to the encrypted g\_sec\_key key. The specific operations are as follows:

Units         Mp_LNR         Mp_LNR </th <th></th> <th>UART Setting</th>		UART Setting
Onfor UbbCycta_vi     V Timeout  4000     See     Clear       Node     Ense Size 512k     Address     Even     WHILE       Node     Ense Size 512k     Address     Userstand     Clear       Node     Ense Size 512k     Address     Userstand     Clear       Node     Options/dot     Userstand     Clear     Userstand       Node     Options/dot     Userstand     Userstand     Userstand       No.1     Filash_dotr     Clear     Userstand     Userstand       No.2     Filash_dotr     Clear     Clear     Userstand       No.3     Filash_dotr     Clear     Clear     Userstand       No.4     Filash_dotr     Clear     Clear     Userstand       No.5     Filash_dotr     Clear     Clear     Userstand       No.6     Filash_dotr     Clear     Clear     Clear<	n_writer RF_CMD RF_QUICKSEt Multi_FW	Port COM16 × Baud Rate 115200 × Stop Bits 1 × Parity No.
Mode     Erase Size     Size     Address     Erase     Write     LW       IND:     HEX./ HEX.Marge     Mode     Barge     Red/Local     LW       IND:     HEX./ HEX.Marge     Herge     FLA_DOR 3000     RUM_DOR [FFF400     UserBar       IND:     Flash_Addr:     Balan_Addr:	ionfig bbb_ota_yi v Timeout 4000 Save Clear	
NO V VEX V HEX V HEX Marge V MO V DrZhin/wmLiphLhed V Hege FLA_ADDR 3000 RUN_ADDR IFFF4000 Lottline The HKX flash file has 9 parts. Last modified: 2020-11-26 20:21:41 NO.1 Flash_ddr: 011002000, Size: 00550 NO.2 Flash_ddr: 011002000, Size: 00550 NO.3 Flash_ddr: 011002000, Size: 00550 NO.5 Flash_ddr: 011002000, Size: 00550 NO.5 Flash_ddr: 011002000, Size: 00550 NO.5 Flash_ddr: 011002000, Size: 00550 NO.5 Flash_ddr: 01102000, Size: 00550 NO.5 Flash_ddr: 01102000, Size: 00550 NO.5 Flash_ddr: 01102000, Size: 00550 NO.5 Flash_ddr: 01102000, Size: 02574 NO.5 Flash_ddr: 01102000, Size: 02574 NO.5 Flash_ddr: 01102000, Size: 02794 NO.5 Flash_ddr: 010000, Size: 02794 N	_Mode Erase Size 512k v Address Erase Write UW	SWU Disconnect AutoCheck Update
M0 v pt/bhr/ywmLight.hed/ Merge FLA_ADDR 3000 RUN_ADDR 1FFF4800 UsetRun The HK7 Hash file has 9 perts. Last modified: 328-11-26 28:21:41 N0.2 Flash_ddr: 01.102809, Size: 00150 N0.5 Flash_ddr: 01.102809, Size: 00160 N0.5 Flash_ddr: 01.102809, Size: 00400 N0.5 Flash_ddr: 01.102809, Size: 04500 N0.5 Flash_ddr: 01.102809,	IMG V HEX V HEX Merge	Log
	NO         Pht/bin/pumuLight.heff         Heage         FLA_ADDR         3000         RUM_ADDR         IFFF4800         Guestion           The MEX Flash file has 9 parts.         Last modifies: 2020-11-26 20:21:41         No.1         Ista-Addr: 0.1102000, Siz: 00100         Siz: 00100         Siz: 0.1102         Siz: 0.1102         Siz: 0.1102         Siz: 0.1102         Siz: 0.1102         Siz: 0.1102         Siz: 0.1002         Siz: 0.1002 <td< td=""><td>Lust 70. doi:10.00000000000000000000000000000000000</td></td<>	Lust 70. doi:10.00000000000000000000000000000000000
	Path //user/Desktop/efuse_wr.csv Lines 1 Repeat Reload GenKey	Receive >>: successful!
Path [/user/Desktop/efuse_wr.csv] Lines 1 Repeat Reload Genkey	Current line number: 1 ND. 1 Name: efuse0, Addr: FFFFF00, End: K, Val: 8765432111223344 ND. 2 Name: efuse1, Addr: FFFFF01, End: K, Val: 876543211223344	<pre>Send cpbin success/Lly! UART KK ASCII: by hex mode: Receive image request! Send image successfull iditing to receive checksum Send checksum successfully iditing to receive checksum UART KK ASCII: checksum is: 0x0001df5500(&gt;&gt;: Receive dOU: How and image successfully idition in the successfully idition in the successfully idition in the successfully idition is not successfully idition in the successfully idition is not successfully idition.</pre>

After the programming is successful, power on again to complete the safe boot steps The offline programmer needs to provide the hexf file generated in the above step 2) and the triple csv file of the corresponding efuse key.

# 3.7.10. Retain Erase Mode for HEXF Parsing

Since V2.4.5a, the HEXF erasing mode is added to the Erase erasing function. By analyzing the content of the hexf file that needs to be written to the flash, it can selectively erase the address segment of the flash that needs to be written, and the remaining locations are not erased. Operation, the specific operation steps are as follows:

- Select the corresponding hexf file to be parsed. Note that it must be a hexf file, and the flash address can be correctly parsed. If there is no selection, there will be a corresponding prompt. If the format is wrong, the erasing method will not take effect.
- 2. Select the erasure method of HEXF parsing
- 3. Click the Write button to erase and write operations. Note that there is no need to manually click the erase button here, just click the Write button.

I TG71XX Programmer	- 🗆 X	List Cont
File Edit Settings Help		1
Flash_Writer RF_CMD RF_QuickSet Multi_FW	✓ UART Setting	1
Config V Timeout 4000 Save Clear	Port COM14   Baud Rate 115200   Stop Bits 1   Parity No	H
fct_Mode Read Erase Size HEXF Address Erase Write	Disconnect AutoCheck Update	
2.切换擦除方式为HEXF解析方式 3.直接点击write按	钮进4项擦除和写操作	1
1.选择需要解析的hexf文件 M0 aL_image_fdff50c7_202007301412.hexf FLA_ADDR 9000 RUN_ADDR 1FFF4000	Current port: COM14	ľ
The HEX Flash file has 8 parts. Last modified: 2019-12-09 18:32:53	Current baudrate: 115200 Current stopBits: 1	
NO.1 Flash_Addr: 0x11002100, Size: 00010	Current parity: No Secial opened!	
NO.2 Flash_Addr: 0x11005000, Size: 02000 NO.3 Flash Addr: 0x11009000, Size: 04610		
NO.4 Flash_Addr: 0x11011000, Size: 00400	end) :	
NO.6 Flash_Addr: 0x11020000, Size: 01974	Erase successfully!	
NO.7 Flash_Addr: 0x10032000, Size: 0t000 NO.8 Flash_Addr: 0x11040000, Size: 030AC	Send cpnum successfully! Receive #OK!	1
	Receive >>: successful!	
	Write hexf File [01/08]	
	UART RX ASCII:by hex mode:	
Single V Batch	Receive image request! Send image successful! Waiting to receive checksum	
Path Lines e.g. 1-5, 8 Repeat Reload	Send checksum successfully! UART RX ASCII:checksum is: 0x00000285#0K>>:	
MAC Secret_Key	Receive #OK!	
	Receive //. Successful:	
	Send cpbin successfully!	H
	UART RX ASCII:by hex mode: Receive image request!	
	Send image successful! Waiting to receive checksum	
	UART RX ASCII:checksum is: 0x001d1ff8#OK>>:	
Command: V HEX Send ClearBuf	TimeTic Mode ASCII  Clear  Clear	
UART INFO: Port: COM14, Baudrate: 115200, StopBits: 1, Parity: No	V2.4.a	

The specific operation process is shown in the figure above. There will be prompts for erasing operations such as Start erase... in the log area.