

AW-CU484

IEEE 802.15.4 and Bluetooth LE 5.0 wireless microcontroller Stamp LGA Module

Environment Kit

Rev. A

(For Standard)



Revision History

Version	Revision Date	Description	Initials	Approved
Α	2020/12/16	Initial Version	Shihhua Huang	N.C. Chen



1. System Setup

(1) Hardware Requirements

- AW-CU484 TA Board + Carrier Board
- Host system need running the Windows10 x64 operating system
- IQxel-M8
- RF isolation chamber for receive measurements.
- RF attenuators
- RF cable
- NFC reader



(2) Software Requirements PL-2303GC Driver

> PL23XX_Prolific_DriverInstaller_v200 > PL23XX_Prolific_DriverInstaller_v200 v ひ 授尋 PL23	3XX
名稱 ^ 修改日期 類型 大小	
₱ PL23XX-M_LogoDriver_Setup_v200_20190815.exe 2019/8/15下午 0 應用程式 9,974 KB	
PL2303 Windows Driver Manual v1.23.0.pdf 2019/6/17 下午 0 Adobe Acrobat D 1,815 KB	
PL2303_CheckChipVersion_v1006.exe 2013/1/15 下午 0 應用程式 208 KB	
■ PL2303_DriverInstallerv1.23.0_ReleaseNote.txt 2019/8/15 下午 0 文字文件 15 KB	
■ PL2303CheckChipVersion_ReadMe.txt 2015/6/17下午1 文字文件 2 KB	
■ PL2303G_DriverInstallerv1.4.0_ReleaseNote.txt 2019/7/16下午 0 文字文件 5 KB	

Tera Term (tool) •

Note: Tera Term is our suggestion, you can try any terminal tool.

名稱	\sim	修改日期	類型	大小	
뤻 teraterm-4.63.exe		2009/9/8 下午 04	應用程式	7,045 KB	

DK6Production flash programmer folder (please contact FAE) •

Note: You must have below files

機	營碟 (C:) → nxp → DK6ProductionFlashProgrammer		✓ ³	叟尋 DK6ProductionFlash
^	名稱	修改日期	類型	大小
	DK6Programmer.exe	2019/11/16 上午 02:02	應用程式	588 KB
	🚳 ftd2xx.dll	2019/5/28 下午 07:15	應用程式	擴充 215 KB
	📄 jn5189dk6_hello_world.bin	2020/4/15 上午 10:11	BIN 檔案	17 KB
	JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin	2020/2/28 下午 05:23	BIN 檔案	69 KB
	JN-AN-1242-K32W061-Customer-Module-Evaluation-Tool.bin	2020/5/1 下午 09:52	BIN 檔案	56 KB
	🚳 libgcc_s_dw2-1.dll	2019/5/28 下午 07:15	應用程式	摘充 110 KB
	🚳 pdcurses.dll	2019/5/28 下午 07:15	應用程式	摘充 116 KB
	🚳 programmer.dll	2019/11/16 上午 02:02	應用程式	摘充 972 KB
	📄 qn9090dk6_hci_black_box_bm.bin	2020/3/3 下午 02:03	BIN 檔案	149 KB
	📄 qn9090dk6_hello_world.bin	2020/2/20 上午 10:53	BIN 檔案	21 KB
	🎯 uninstall.exe	2020/2/13 下午 02:22	應用程式	323 KB

Mbt.exe (please contact FAE) •

Note: mbt is our suggestion. You can try any hci tool.

名稱	修改日期	頬型	大小
📧 mbt.exe	2020/7/21 上午 1	應用程式	50 KB
📓 mbt_setup.ini	2020/7/21 下午 0	組態設定	1 KB



2. AW-CU484 EVK





3. How to download the image

1. You must check the COM number (can check the value by the following picture) Note: J9 for DUT COM port



2. Find the folder of DK6ProductionFlashProgrammer, and type cmd to get into the Dos window.





- 3. Key in
- ZIGBEE IMAGE: DK6Programmer ovo -s
- DK6Programmer.exe -s com6 -p JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin > BLE IMAGE:

DK6Programmer.exe -s com6 -p qn9090dk6_hci_black_box_bm.bin

*You must note the step. If you key in the format before getting into download mode

(DK6Programmer.exe -s com6 -p JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin), you need to keep holding the ISP button and Reset button, and then release the ISP button after releasing the reset button.

To open the tool and download the image file (com6 is your DUT J9 COM port)



4. Select Y

■ 系統管理員: C:\Windows\System32\cmd.exe - DK6Programmer.exe -s com6 -p JN-AN-1242-JN518x-Customer-Module-Evalua	ation-Tool.bin —	
NXP DK6 Device Programmer (Build 2282)		
Detected JN5189. WARNING: Bootloader in device is out of date. See application note JN-AN-12 Partial erase required on memory FLASH, addr=0x00000000, length=69676 Confirm Operation (COM6)	263 or contact su	pport for
The area to erase is not an exact multiple of the erase block size. Erase data from 0x00000000 to 0x00011200?		



5. Finish

■ 条統管理員: C:\Windows\System32\cmd.exe - DK6Programmer.exe -s com6 -p JN-AN-1242-JN518x-Customer-Module-Evaluation-Tool.bin — □ ×
NXP DK6 Device Programmer (Build 2282)
COM6
Detected JN5189. WARNING: Bootloader in device is out of date. See application note JN-AN-1263 or contact support for
Memory programmed successfully
[_______] 100%





4. Test mode(In Zigbee)

- 1. Open the Tera Term
- 2. Select setup \rightarrow Serial port
 - Setting COM port (J9 com port)
 - Baud rate is 115200
- 3. Select setup \rightarrow Terminal
 - Receive select LF
 - Transmit select CR+LF

Tera Term - [disconnected] VT File Edit Setup Control Window Resize Help	- □ ×	× Kommer Kanner	×
Tera Term: Serial port setup Port: COM6 ~ Baud rate: 115200 ~ Data: 8 bit ~ Parity: none ~ Stop: 1 bit ~ Flow control: none ~ Transmit delay 0 0 msec/char 0	OK Cancel Help	▲ Tera Term: Terminal setup Terminal size New-line 96 × 37 ☑ Term size = win size Receive: ▲uto window resize Transmit: CR+LF Cancel Help Terminal ID: VT100 ✓ Local echo Answerback: Auto switch (VT<->TEK) Kanji (receive) Kanji (transmit) UTF-8 ✓ Kanji-in: ①Fbit katakana Tobit katakana Kanji-out: ①B Iocale: chs	



4. Select a) standard module

**************************************	***
a) Standard Module b) High Power Module (RFTX/RFRX on PI04/5) c) High Power Module (RFTX/RFRX on PI020/21) /) Reset CMET)
Please choose an option > A Standard Module Selected	
**************************************	K X X K X

5. Select a) Regular



- 6. Customer Module Evaluation Tool (main menu)
 - Select "g" trigger packet test (Rx test)
 - Select "i" transmit packet test (Tx test)

 a) TX Power Test (CW) b) TX Power Test (Modulated) c) Receive Test d) Oscillator Frequency Test e) Current Measurement Test f) RF Power Measurement g) Trigger Packet Test h) Receive Packets Test i) Transmit Packets Test j) Connectionless Packet Error Rate Test k) CCA Test l) LQI Test m) Turnaround Tests n) NTAG Tests /) Return to root menu
Please choose an option >

- 1. RX test (Select g)
 - g → Start test (start to receive the package)
 Enter any keywords (0~F) into testing.
 - +/- \rightarrow Increment or decrement channel
 - $X \rightarrow$ Return to main menu
 - $/ \rightarrow$ Return to root menu

* * * * * *	**************************************	**************************************	* * * * * * * * * * * * * * * *
* * * * *	+ Increr - Decrer] Increr [Decrer > Increa < Decrea	ment Channel ment Channel ment Repetitions ment Repetitions ase Trigger Delay ase Trigger Delay	* * * * *
* * * *	g Go x Return ⁄ Return	n to main menu n to root menu	*****
* (* * j	Connect p: !!!!!! Tr: input on f *********	in DIO2 to the trigger ig on RAISING edge !!!!! the signal generator *******	* * * **
Cha Rep Tri	annel Detitions igger dela	11 (2.405 GHz) 100 ay 1 mS	



- 2. TX test (Select "I")
 - +/- \rightarrow Can control the channel
 - $F \rightarrow$ Fast transmit rate (fast transmit can help modulation to catch signal)
 - $X \rightarrow$ Return to main menu
 - $/\rightarrow$ Return to root menu

```
ж
   Transmit Packet Test In Progress
                                        ¥
   Slow Rate (~1 Pkt/sec)
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                                        ж
******
 Key
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             Function
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      Faster transmit rate
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      Lower transmit rate
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ж
      Increment Channel
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      Decrement Channel
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      Reduce output power by 0.25 dBm *
Increase output power by 0.25 dBm *
ж
¥
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¥
      Reduce power step
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      Increase power step
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      Return to main menu
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      Return to root menu
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Channel 11 (2.405 GHz)
Power Level 10.00 dBm
MAC Address 00:15:8D:00:04:A5:A8:3F
Packets Sent 9
```



3. NTAG tests(Select n)

Select Internal or External NTAG

Select a) internal NTAG

NTAG Tests (Internal)

- Select a) read contents of EEPROM
- Select b) write data to EEPROM

* Select Internal or External NTAG ж a) Internal NTAG b) External NTAG on DK6 (FD to PI01) Please choose an option >A * NTAG Tests (Internal) a) Read contents of EEPROM Write data to EEPROM Reset NTAG address to 0x55 Monitor FD pin Test FD pin Wake up Б) c) d) e) x) Return to main menu
 /) Return to root menu Please choose an option >



4. Read contents of EEPROM

Can read the NFC MAC in Block 0: 04830C3AE26180

COM6:115200baud - Tera Term VT	_		×
File Edit Setup Control Window Resize Help		_	
* NTAG Tests (Internal) *			^

a) Read contents of EEPROM b) Write data to EEPROM c) Reset NTAG address to 0x55 d) Monitor FD pin e) Test FD pin Wake up x) Return to main menu /) Return to root menu			
Please choose an option A			
Found NIAC 12C address: 0.55 Block 0: 04 83 0c 3a e2 61 80 00 44 00 00 00 00 00 00 00			
Block 1. 00 01 02 03 04 03 00 07 08 09 0a 0b 0c 0d 0e 0f Block 2: 00 00 00 00 00 00 00 00 00 00 00 00 00			
Block 3: 00 00 00 00 00 00 00 00 00 00 00 00 00			
Block 5: 00 00 00 00 00 00 00 00 00 00 00 00 00			
Block 5: 00 00 00 00 00 00 00 00 00 00 00 00 00			
BIOCK 4: 00 00 00 00 00 00 00 00 00 00 00 00 00			
Block 9: 00 00 00 00 00 00 00 00 00 00 00 00 00			
Block 13: 00 00 00 00 00 00 00 00 00 00 00 00 00			
Block 14: 00 00 00 00 00 00 00 00 00 00 00 00 00			
Block 16: 00 00 00 00 00 00 00 00 00 00 00 00 00			
Block 17: 00 00 00 00 00 00 00 00 00 00 00 00 00			
Block 19: 00 00 00 00 00 00 00 00 00 00 00 00 00			
Block 20: 00 00 00 00 00 00 00 00 00 00 00 00 0			~

Open the NFC Taginfo on you smart phone, and scan the NFC, Then you will get the information from NFC.

ull 中華電信 4G 下午 3:42 History NFC TagInfo S	59% D 和日中華電信 Settings History	4G 下午 3:42 NFC TagInfo	Settings	中華電信 4G 下午 3:42 Close	59% 📼	・III 中華電信 4G T くBack	下午 3:42 59% 🔳
				NO NDEF Reco	ords	Tag Detail	ls
			N	TAG IZC Plus		UID	0x04830C3AE26180
						IC Type	NTAG
		<u>可</u> 建行掃拍				IC Subtype	50 pF
						IC Name	I2C Plus
						Memory Information	2048 Bytes
Scan & Launch						Technologies supported	ISO14443-3
Coop & Chow	Hole	d iPhone near a NFC Tag to	scan			Major Version	0x02
Scan & Show		取消	- 1 -	NP		Minor Version	0x02
H	0						



Write data to EEPROM

Use this test to write data to EEPROM. Format is:

1:0123456789ABCDEF

Programs 0 to F in block 1

Read contents of EEPROM Write data to EEPROM Reset NTAG address to 0x55 Monitor FD pin Test FD pin Wake up Return to main menu Return to root menu a) b) c) d) e) Please choose an option > Using Address: 0x55 Enter Data to Program:1:0 1 2 3 4 5 6 7 8 9 0 A B C D E F□

Check the Format again.

Block Block

* NTAG Tests (Internal)

Read contents of EEPROM Write data to EEPROM Reset NTAG address to 0x55 Monitor FD pin Test FD pin Wake up a) ь) c) d) e) Return to main menu x) /) Return to root menu Please choose an option > Found NTAG I2C address: 0x55 Block 0: 04 83 0c 3a e2 61 80 00 44 00 00 00 00 00 00 00 Block 1: 00 01 02 03 04 05 06 07 08 09 0a 0b 0c 0d 0e 0f
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5. Test mode(In BLE)

1. Open the folder of mbt

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				- 71	搜클 mbt
A THE A	2番	修改日期	箱刑	*/\	124 mbr
📌 快速存取			林王	- X41	
🛄 桌面 🛛 🖈	mbt.exe	2020///21 上午 1	應用程式 49年50元	50 KB	
🕹 下載 🛛 🖈	in mot_setup.ini	2020/1/21 11 0	ME SERRIAE	T ND	
🔮 文件 🛛 🖈					
📰 圖片 🛛 🖈					
2477pic					
2480 pic					
2480_V.3.1.6_20200716					
2485					
OneDrive					
- 100					
DOWNLOAD [Solution]	_DELAY = 50				
Type=2			_	~	
mpt_setup.ini - 記事本	\$250 / n		- ⊔	X	
画義(ア) 前離年(日) 1日丸(日) 住死(V) System] BT_TRANSPORT=COM3 OWNLOAD_BAUDRATE=115200 PPLICATION_BAUDRATE=11520(nable_Debug_Message=1	, (T) (T)			^	
DWNLOAD_DELAY = 50					
Solution] 7pe = 2					
0 = Broadcom/Cypress 1 = Dialog 2 = Atmosic and NXP					



3. And type cmd to get into the Dos window.

📙 🕑 📙 🖵	管理	mbt				— C	x c
檔案 常月 共用 磁倪	應用程式工具						~ 🕐
$\leftarrow \rightarrow \vee$ \land cmd					$\vee \Rightarrow$	搜尋 mbt	Q
	名稱	^	修改日期	類型	大小		
	mbt.exe		2020/7/21 上午 1	應用程式	50 KB		
	📓 mbt_setup.i	ini	2020/7/21 下午 0	組態設定	1 KB		
2477pic							
2480 pic							
2480_V.3.1.6_20200716							
2485							
 OneDrive 							
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]] 3D 物件							
🕹 下載							
🏥 文件							
♪ 音樂							
2 個項目 已選取 1 個項目 49.5 KB							
I 系統管理員: C:\Windows\System Microsoft Windows [版本 10 (c) 2018 Microsoft Corpora C:\Users\shihhua\Desktop\r	h32\cmd.exe).0.17763.10 ation. 著作 wbt>mbt.exe	039] 權所有,並保留一切和	雚禾√。				— — Х



5. Main menu

If you need more information, please key in mbt help.

■ 条統管理員: C:\Windows\System32\cmd.exe X Send HCI Success Success ** mbt command finish ** C:\Users\shihhua\Desktop\mbt>mbt help MBT_TRANSPORT: COM3 DOWNLOAD_BAUDRATE: 115200 APPLICATION_BAUDRATE: 115200 Usage: mbt help Usage: mbt reset Usage: mbt le_receiver_test <rx_channel> Usage: mbt le_receiver_test <rx_channel> Usage: mbt le_transmitter_test <tx_channel> <data_length> <packet_payload> Usage: mbt le_test_end Usage: mbt set_tx_frequency_arm <carrier on/off> <tx_frequency> <tx_mode> <tx_modulation_type> <tx_power> Usage: mbt receive_only <rx_frequency> Usage: mbt read_bd_addr Usage: mbt write_bd_addr Usage: mbt write_bd_addr . Usage: mbt radio_tx_test <bd_addr> <frequency> <modulation_type> <logical_channel> <bb_packet_type> <packet_length> <tx_ power> . Ūsage: mbt radio_rx_test <bd_addr> <frequency> <modulation_type> <logical_channel> <bb_packet_type> <packet_length> Usage: mbt connectionless_dut_loopback_mode Usage: mbt download <hcd_pathname> Check Bluetooth Core 4.1 spec vol. 2 Sections 7.8.28–7.2.30 for details of LE Transmitter and Receiver tests ** mbt command finish ** :\Users\shihhua\Desktop\mbt>

6. Key in mbt reset

Make sure the DUT have been reset.

C:\Users\shihhua\Desktop\mbt>mbt reset MBT_TRANSPORT: COM3 DOWNLOAD_BAUDRATE: 115200 APPLICATION_BAUDRATE: 115200 Sending HCI Command: 0000 < 03 OC 00 > Received HCI Event: 0000 < 0E 04 05 03 OC 00 > Send HCI Success Success ** mbt command finish ** C:\Users\shihhua\Desktop\mbt>















