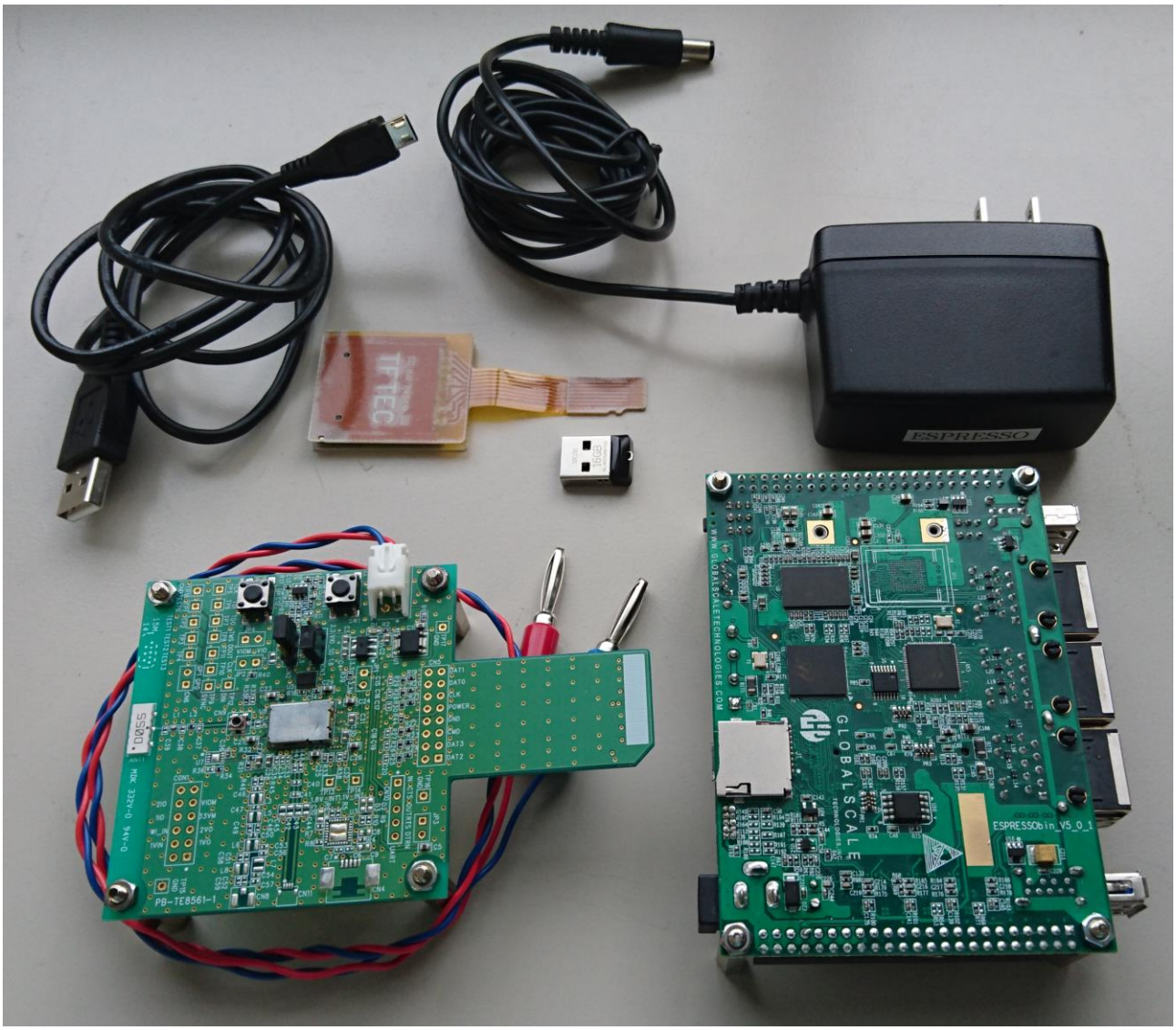
ワイヤレス LAN ＆ *Bluetooth*®
モジュール評価キット

WKSBHVGXG



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注意:このモジュールは、日本の輸出管理下にあるデバイスドライバが必要です。 お客様の国やアプリケーション(武器など)によっては、これらのドライバをすべてのお客様に提供することができない場合があります。

詳細はお近くの太陽誘電営業所までお問い合わせください。
***www.ty-top.com*.**

目次

Rev. Records

May.27.2019> Ver.1.0 Release

Jun.19.2020> Ver.1.1 Release

1. 紹介

本評価キットは、太陽誘電が開発・販売する無線 LAN と Bluetooth®モジュールの通信テスト用に開発されたものです。本評価キットにより、太陽誘電の無線 LAN と Bluetooth®モジュールの通信テストを容易に行うことができます。

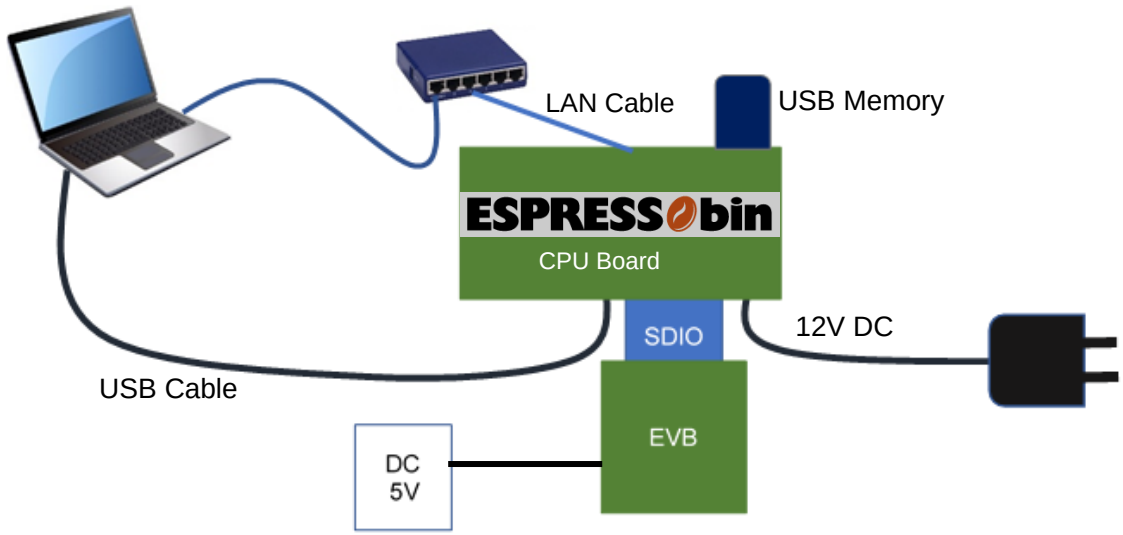
2. 適合モジュール

WYSBHVGXG

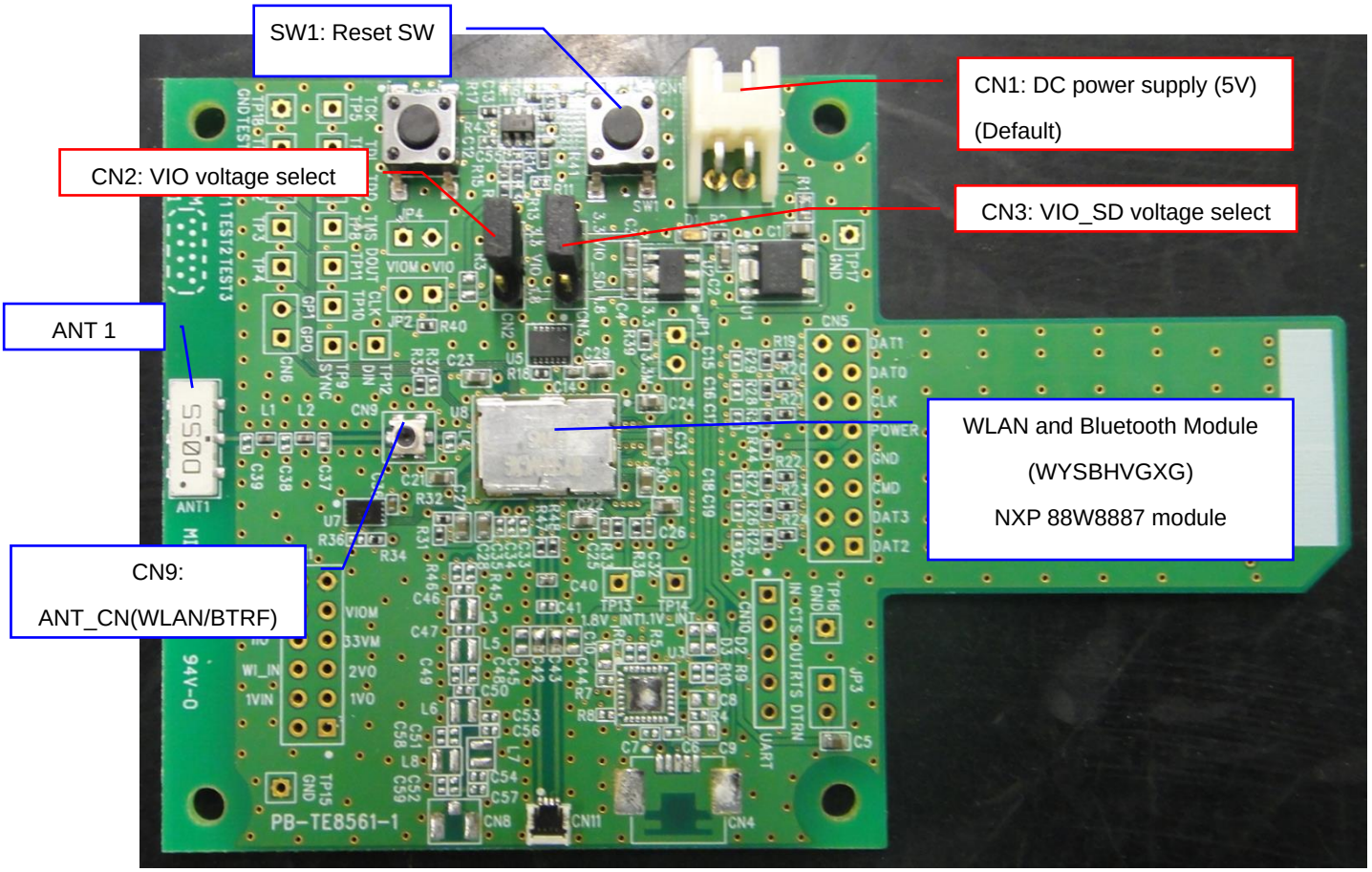
3. 付属品

1	Evaluation Board (WBSBHVGXG)	1 piece
2	DC Power Cable	1 piece
3	ESPRESSObin	1 piece
4	AC Adapter	1 piece
5	USB Memory	1 piece
6	USB Cable	1 piece
7	SD – Micro SD Conversion Cable	1 piece

4. 接続例



5. 評価ボードレイアウト



6. 評価ボード PIN 説明

TE8561-1

CN1: DC Power Supply

No.	Pin name	Direction	Description
1	5V	Input	5.0V input.
2	GND	GND	Ground

CN2: VIO Voltage Select (Default Setting: 1-2 short.)

No.	Pin name	Direction	Description
1	3.3V	Output	3.3V output.
2	VIO	Input	Input for VIO.
3	1.8V	Output	1.8V output.

CN3: VIO_SD Voltage Select (Default Setting: 2-3 short.)

No.	Pin name	Direction	Description
1	3.3V	Output	3.3V output.
2	VIO	Input	Input for VIO_SD.
3	1.8V	Output	1.8V output.

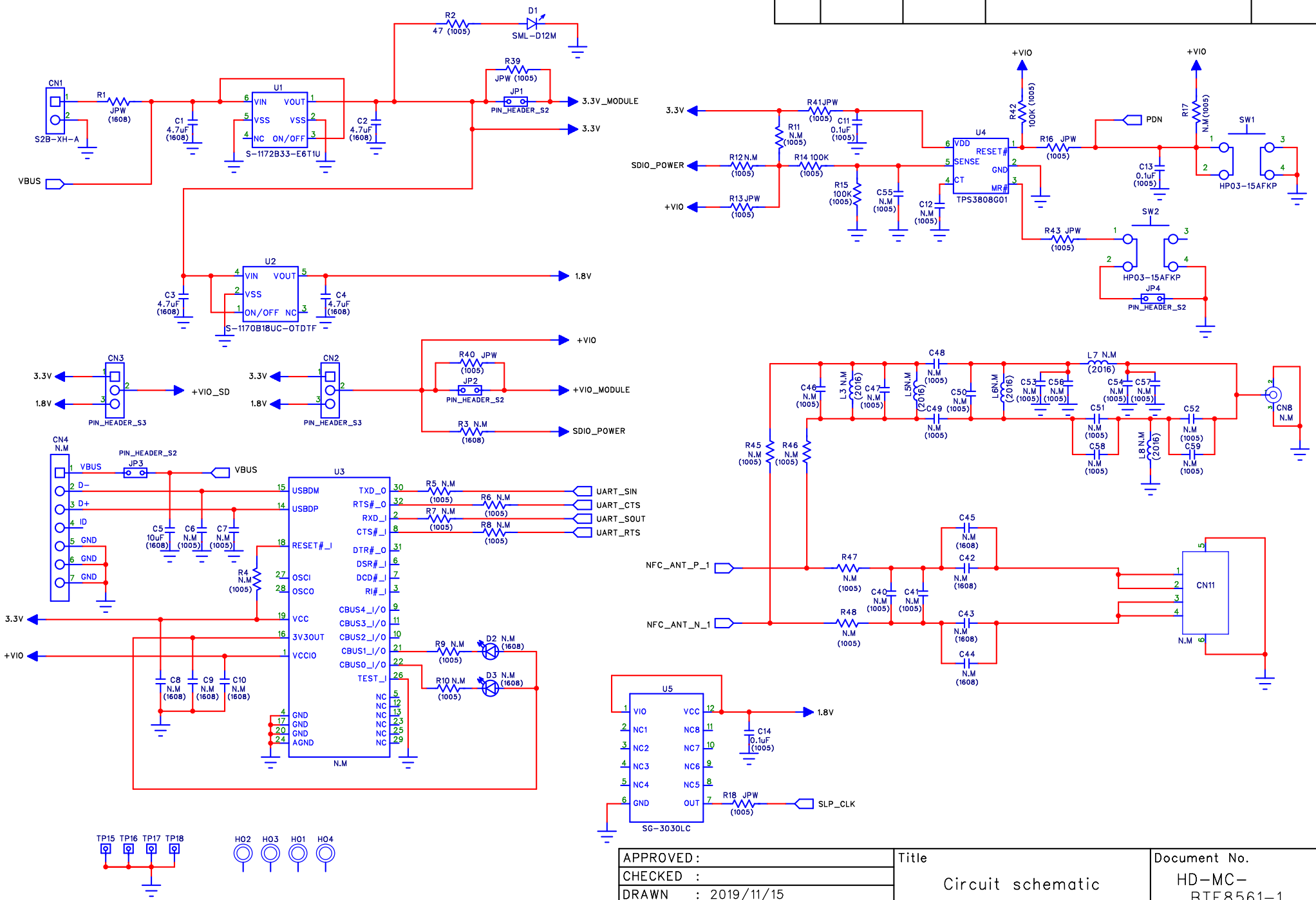
7. 評価ボード部品表

WBSBHVGXG

Ref Name	Description	Parts name and standard	Supplier
ANT1	Dual ANTENNA	AH104N2450D1	TAIYO YUDEN
U1	IC(LDO 3.3V)	S-1172B33-E6T1U	SII or equivalent
U2	IC(LDO1.8V)	S-1170B18UC-OTDTF	SII or equivalent
U3	N.M.	N.M.	
U4	IC (Reset voltage detector)	TPS3808G01DBVT	TI or equivalent
U5	IC(32.768kHz clock)	SG-3030LC	EPSON or equivalent
U7	N.M	N.M.	
U8	Module	WYSBHVGXG	TAIYO YUDEN
SW1	SWITCH	HP03-15AFKP2	Nikkai or equivalent
SW2	SWITCH	HP03-15AFKP2	Nikkai or equivalent
CN1	CONNECTOR	S2B-XH-A	JST or equivalent
CN2	CONNECTOR	PIN_HEADER_S3	
CN3	CONNECTOR	PIN_HEADER_S3	
CN4 - CN6	N.M.	N.M.	
CN8	N.M.	N.M.	
CN9	RF CONNECTOR	MM8430-2610	MURATA
CN10 - CN11	N.M.	N.M.	
CON1	N.M.	N.M.	
JP1 - JP4	N.M.	N.M.	
C1	CAPACITOR	LMK107 BJ475KA	TAIYO YUDEN
C2	CAPACITOR	LMK107 BJ475KA	TAIYO YUDEN
C3	CAPACITOR	LMK107 BJ475KA	TAIYO YUDEN
C4	CAPACITOR	LMK107 BJ475KA	TAIYO YUDEN
C5	CAPACITOR	JMK107 BJ106MA	TAIYO YUDEN
C6 - C10	N.M.	N.M.	
C11	CAPACITOR	TMK105BJ104KV	TAIYO YUDEN
C12	N.M.	N.M.	
C13	CAPACITOR	TMK105BJ104KV	TAIYO YUDEN
C14	CAPACITOR	TMK105BJ104KV	TAIYO YUDEN
C15 - C20	N.M.	N.M.	
C21	CAPACITOR	JMK107 BJ106MA	TAIYO YUDEN
C22	CAPACITOR	JMK107 BJ106MA	TAIYO YUDEN
C23	CAPACITOR	JMK107 BJ106MA	TAIYO YUDEN
C24	CAPACITOR	JMK107 BJ106MA	TAIYO YUDEN
C25	CAPACITOR.	UMK105 CH100DV	TAIYO YUDEN
C26	CAPACITOR	JMK107 BJ106MA	TAIYO YUDEN
C27	CAPACITOR	JMK107 BJ106MA	TAIYO YUDEN
C28	CAPACITOR	JMK107 BJ106MA	TAIYO YUDEN
C29	CAPACITOR	JMK107 BJ106MA	TAIYO YUDEN
C30	CAPACITOR	JMK107 BJ106MA	TAIYO YUDEN
C31	CAPACITOR	JMK107 BJ106MA	TAIYO YUDEN
C32	CAPACITOR.	UMK105 CH100DV	TAIYO YUDEN
C33 - C35	N.M.	N.M.	
C36	CAPACITOR	EMK105 BJ103KV	TAIYO YUDEN
C37	INDUCTOR	HK 1005 2N2S	TAIYO YUDEN
C38 - C59	N.M.	N.M.	
L1	CAPACITOR	EVK105 CH0R6BW	TAIYO YUDEN
L2	RESISTOR	MCR01 MRT J000	ROHM or equivalent
L3-L8	N.M.	N.M.	
R1	RESISTOR	MCR03 EZP J000	ROHM or equivalent
R2	RESISTOR	MCR01 MZP J470	ROHM or equivalent
R3 - R12	N.M.	N.M.	
R13	RESISTOR	MCR01 MRT J000	ROHM or equivalent
R14	RESISTOR	MCR01 MZP J104	ROHM or equivalent
R15	RESISTOR	MCR01 MZP J104	ROHM or equivalent
R16	RESISTOR	MCR01 MRT J000	ROHM or equivalent

Ref Name	Description	Parts name and standard	Supplier
R17	N.M.	N.M.	
R18	RESISTOR	MCR01 MRT J000	ROHM or equivalent
R19	RESISTOR.	MCR01 MZP J220	ROHM or equivalent
R20	RESISTOR.	MCR01 MZP J220	ROHM or equivalent
R21	RESISTOR.	MCR01 MZP J220	ROHM or equivalent
R22	RESISTOR.	MCR01 MZP J220	ROHM or equivalent
R23	RESISTOR.	MCR01 MZP J220	ROHM or equivalent
R24	RESISTOR	MCR01 MZP J220	ROHM or equivalent
R25	RESISTOR	MCR01 MRT J473	ROHM or equivalent
R26	RESISTOR	MCR01 MRT J473	ROHM or equivalent
R27	RESISTOR	MCR01 MRT J473	ROHM or equivalent
R28	RESISTOR	MCR01 MRT J473	ROHM or equivalent
R29	RESISTOR	MCR01 MRT J473	ROHM or equivalent
R30	N.M.	N.M.	
R31	RESISTOR	MCR01 MRT J000	ROHM or equivalent
R32	RESISTOR	MCR01 MRT J000	ROHM or equivalent
R33	RESISTOR	MCR01 MRT J000	ROHM or equivalent
R34 - R38	N.M.	N.M.	
R39	RESISTOR	MCR01 MRT J000	ROHM or equivalent
R40	RESISTOR	MCR01 MRT J000	ROHM or equivalent
R41	RESISTOR	MCR01 MRT J000	ROHM or equivalent
R42	RESISTOR	MCR01 MZP J104	ROHM or equivalent
R43	RESISTOR	MCR01 MRT J000	ROHM or equivalent
R44	CAPACITOR	TMK105BJ104KV	TAIYO YUDEN
R45 - R48	N.M.	N.M.	
D1	LED	SML-310	ROHM or equivalent
D2 - D3	N.M.	N.M.	

REV	ECO	APPROVED	DESCRIPTION	DATE



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CHECKED :		Circuit schematic	HD-MC-BTE8561-1
DRAWN : 2019/11/15			(1/3)
DESIGNED :			

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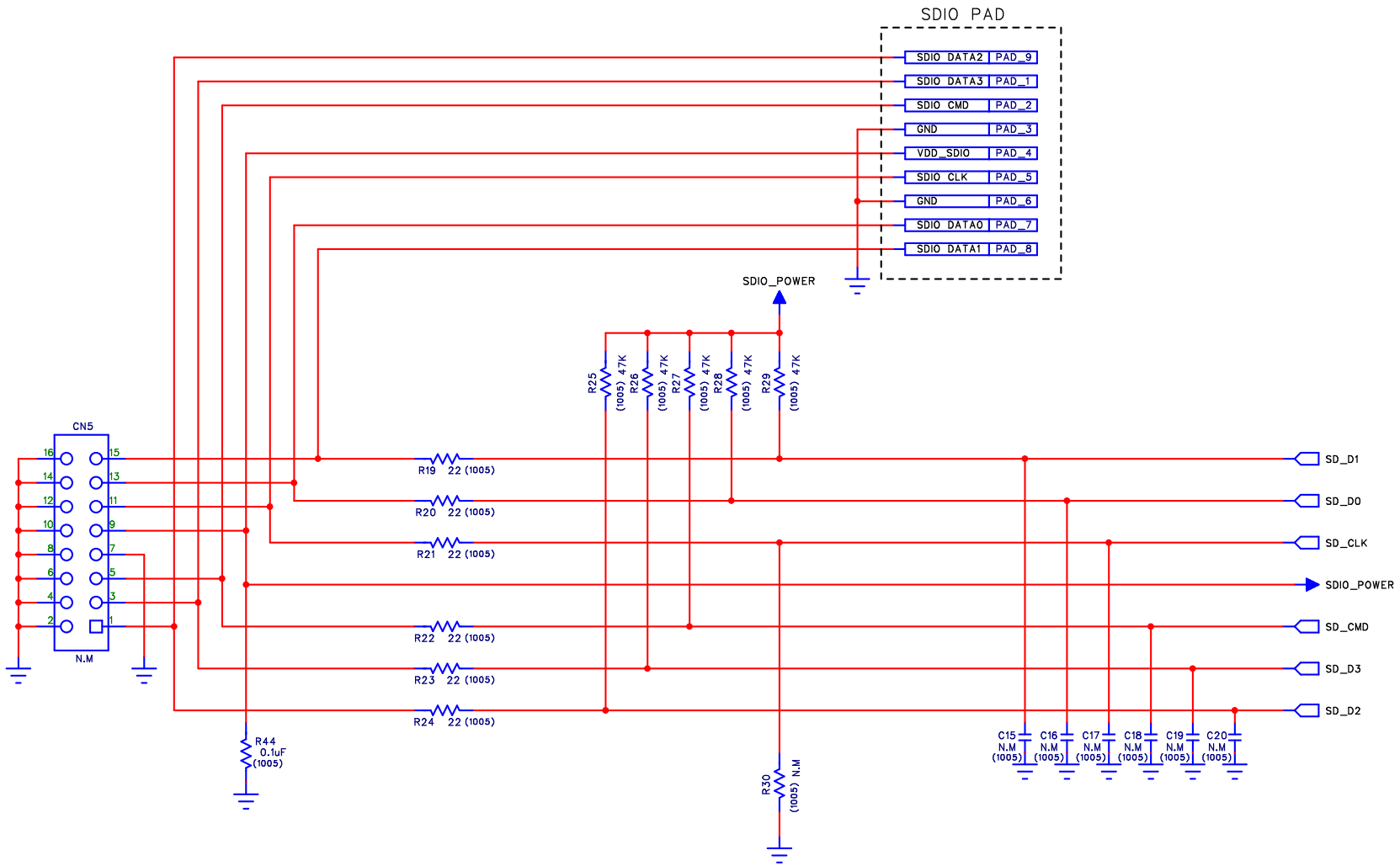

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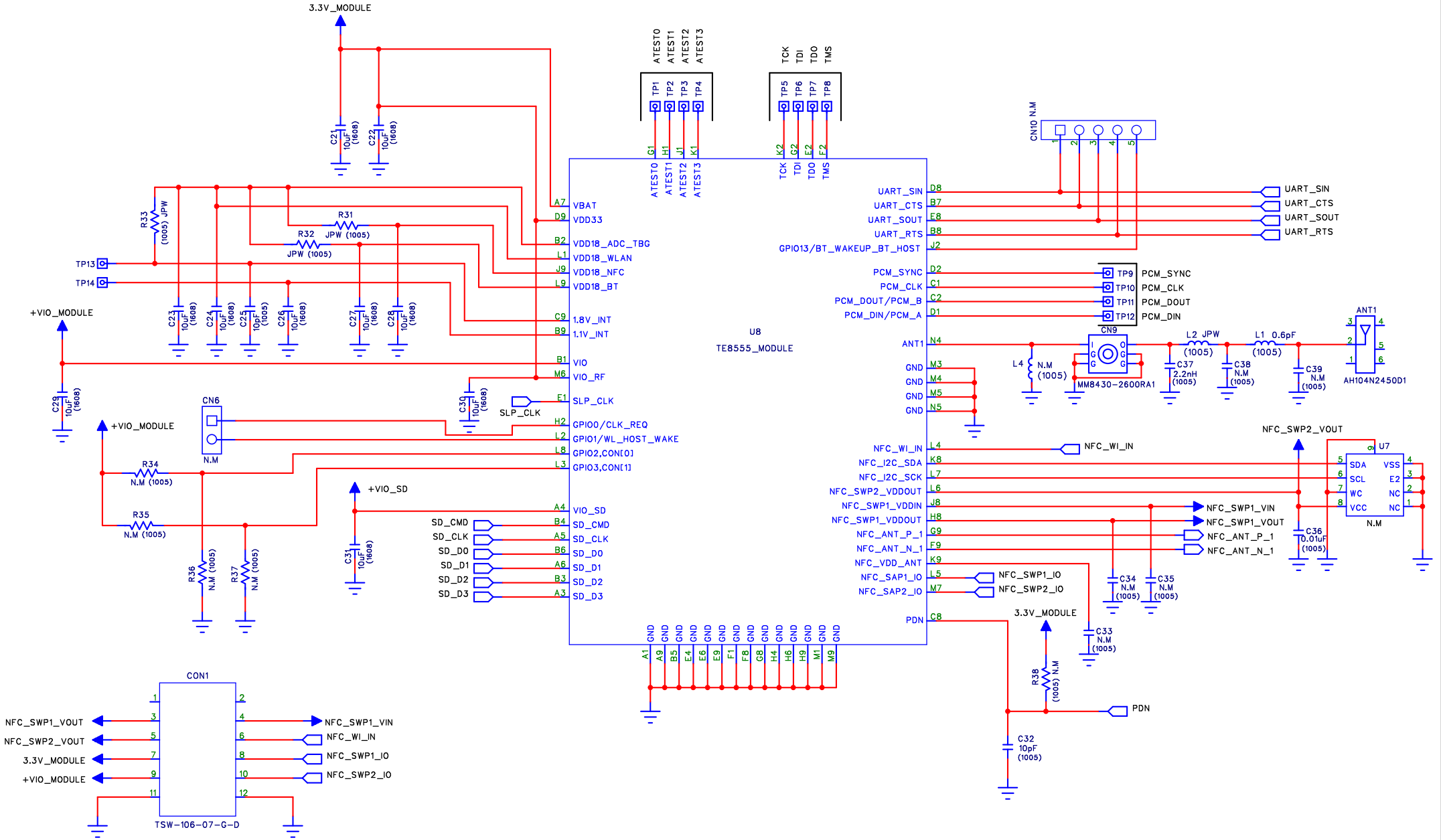

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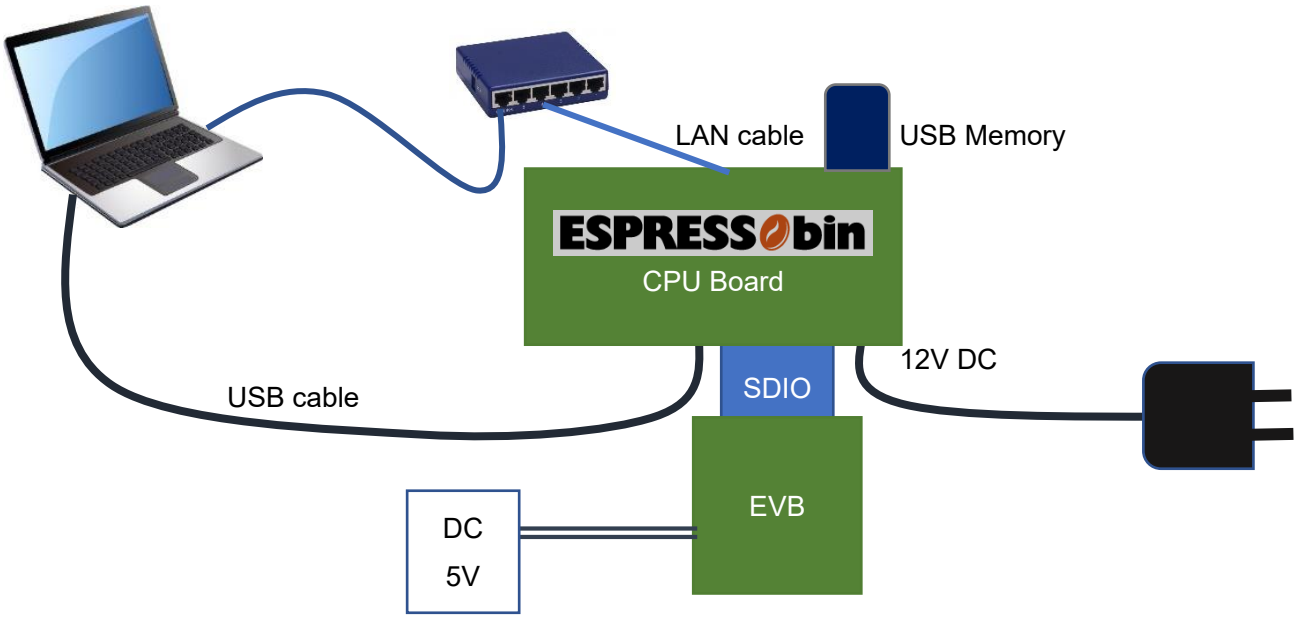
CHECKED :		Circuit schematic	HD-MC-BTE8561-1
DRAWN :	2019/11/15		(3/3)
DESIGNED :			

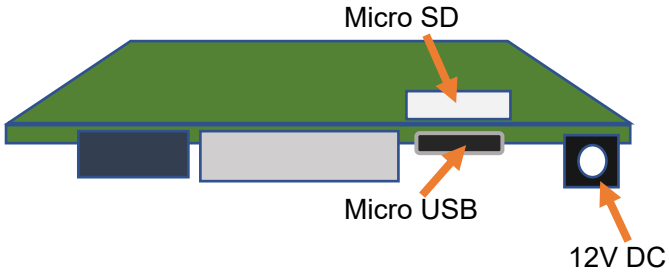
Evaluation guide book of TAIYO YUDEN Wireless Module on the ESPRESSObin (88W8887)

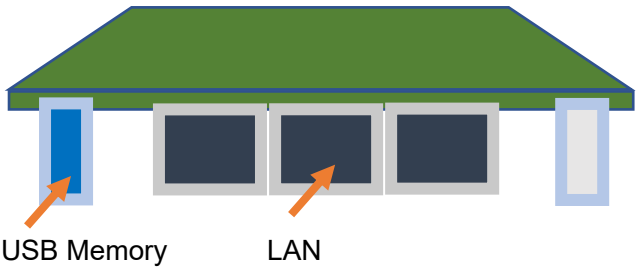
Version 1.2: 19-Jun-2020

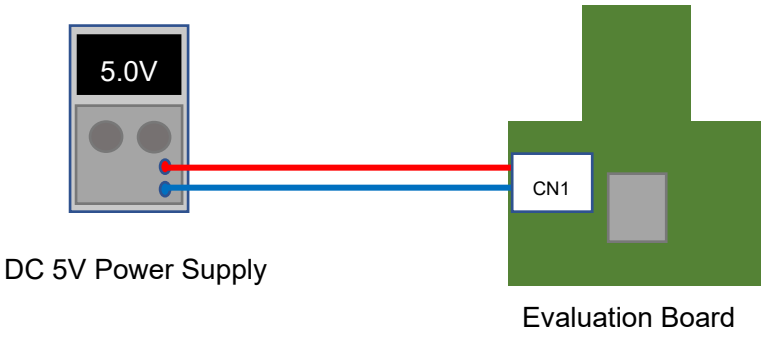
1. Block Diagram for H/W



Detailed Block Diagram







2. Open serial console on the PC

First connect the ESPRESSObin and the PC with the USB cable.

ESPRESSObin power supply remains OFF.

Open the corresponding port with serial communication software. (terminal software)

Follow the tutorial for your OS to make sure you have everything needed.

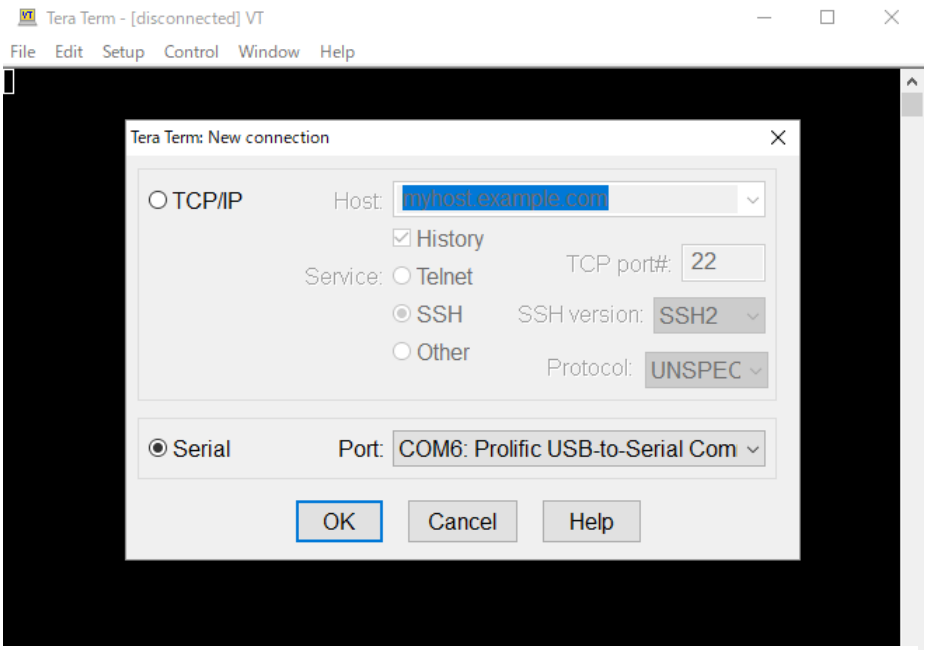
Windows:

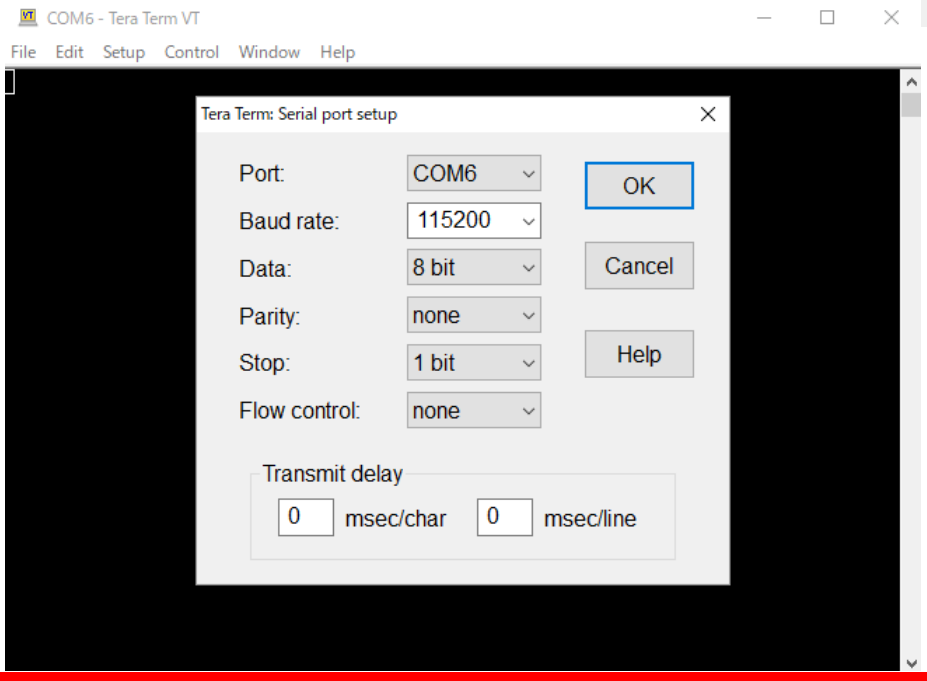
http://wiki.espressobin.net/tiki-index.php?page=Serial+connection+-+Windows

Linux

http://wiki.espressobin.net/tiki-index.php?page=Serial+connection+-+Linux

For example
Tera Term on the Windows PC





3. Power on the ESPRESSObin

Plug your power adapter to the 12V DC Jack.
When the ESPRESSObin starts to boot, you can check following messages.

```
TIM-1.0
WTMI-armada-17.10.1-b90dbf0
ENTER init_ddrgen
DDR_TOPOLOGY is 4 :        DDR3, 1CS 1G
WTMI_CLOCK=2
    《 (skip)
MMC:     sdhci@d0000: 0, sdhci@d8000: 1
SF: Detected w25q32dw with page size 256 Bytes, erase size 4 KiB, total 4 MiB
Net:     eth0: neta@30000 [PRIME]
Hit any key to stop autoboot:   0
```

Please press "ENTER" key when the above message is displayed.

```
Marvell>>
```

Enter the following in order. (**Blue** letter part)

```
Marvell>> run bootusb
starting USB...
USB0:     Register 2000104 NbrPorts 2
Starting the controller
    《 (skip)
Ubuntu 14.04 LTS localhost.localdomain ttyMV0

localhost login: root (automatic login)

 Last login: Thu Jan    1 00:00:20 UTC 1970 on ttyMV0
Welcome to Ubuntu 14.04.5 LTS (GNU/Linux 4.4.8-armada-17.02.2-g8148be9-dirty aarch64)
```

When the ESPRESSObin starts normally, you can check above message.

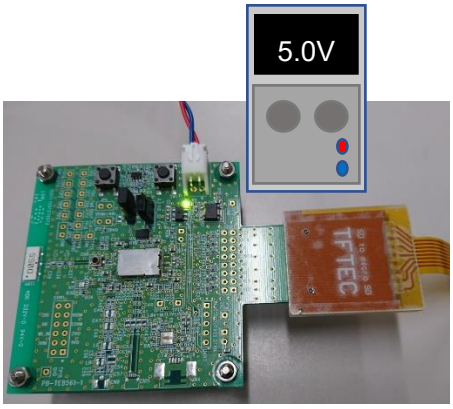
“bootusb” works with SDIO 3.0. (ultra-high speed)
If you want to operate with SDIO 2.0 (high speed), please change to "bootusbH". (**run bootusbH**)
Refer to “6. About SDIO switching” for setting on the evaluation board.

4. Load WLAN and Bluetooth driver

root@localhost:~# **cd /home/8887/bin_sd8887**
root@localhost:/home/8887/bin_sd8887# **insmod mlan.ko**
root@localhost:/home/8887/bin_sd8887# **insmod sd8887.ko cal_data_cfg=none**
[169.071741] wlan: Loading MWLAN driver
[169.076218] wlan: Driver loaded successfully
root@localhost:/home/8887/bin_sd8887# **cd ../bin_sd8887_bt/**
root@localhost:/home/8887/bin_sd8887_bt# **insmod bt8887.ko**
[178.215970] BT: Loading driver
[178.219525] BT: Driver loaded successfully
root@localhost:/home/8887/bin_sd8887_bt#

Insert 88w8887 evaluation board into SDIO of ESPRESSObin.
Please note that it is easy to come off.

Turn on the power of evaluation board



The evaluation board will be recognized and the following message will be displayed.

root@localhost:/home/8887/bin_sd8887_bt# [68.499234] vendor=0x02DF device=0x9135 class=0 function=1
[68.504945] SDIO: max_segs=128 max_seg_size=65536
[68.509804] rx_work=1 cpu_num=2
[68.524226] Request firmware: mrvl/sd8887_uapsta_a2.bin
[69.651638] ***WLAN FW is active***
[74.665275] wlan: version = SD8887-15.68.7.p189-C4X15C605-GPL-(FP68)
[74.673418] ahci-mvebu d00e0000.sata: couldn't get PHY in node sata: -517
[74.696088] orion-ehci d005e000.usb: init d005e000.usb fail, -517
[74.721036] ahci-mvebu d00e0000.sata: couldn't get PHY in node sata: -517
root@localhost:/home/8887/bin_sd8887_bt#

When the driver install succeed, you can check “WLAN FW is active” message.
*If “WLAN FW is active” is not displayed, power off evaluation board, remove the evaluation board from the SD slot, insert it in the SD slot again, and turn the power of the evaluation board on again.

4.1 WLAN operation check

Confirmation of wireless LAN interface

```
root@localhost:/home/8887/bin_sd8887_bt# iwconfig
mlan0     IEEE 802.11-DS  ESSID:""
          Mode:Managed  Access Point: Not-Associated   Bit Rate:1 Mb/s
          Tx-Power=17 dBm
          Retry limit:9   RTS thr=2347 B   Fragment thr=2346 B
          Encryption key:off
          Power Management:on
          Link Quality=0/5  Signal level=0 dBm  Noise level=0 dBm
          Rx invalid nwid:0  Rx invalid crypt:0  Rx invalid frag:0
          Tx excessive retries:0  Invalid misc:0   Missed beacon:0

wfd0      IEEE 802.11-DS  ESSID:""
          Mode:Managed  Access Point: Not-Associated   Bit Rate:1 Mb/s
          Tx-Power=17 dBm
          Retry limit:9   RTS thr=2347 B   Fragment thr=2346 B
          Encryption key:off
          Power Management:on
          Link Quality=0/5  Signal level=0 dBm  Noise level=0 dBm
          Rx invalid nwid:0  Rx invalid crypt:0  Rx invalid frag:0
          Tx excessive retries:0  Invalid misc:0   Missed beacon:0

uap0      IEEE 802.11-DS  ESSID:""
          Mode:Master  Frequency:2.437 GHz  Access Point: Not-Associated
          Encryption key:off
          Link Quality:0  Signal level:0  Noise level:0
          Rx invalid nwid:0  Rx invalid crypt:0  Rx invalid frag:0
          Tx excessive retries:0  Invalid misc:0   Missed beacon:0
```

Perform a “scan”

```
root@localhost:/home/8887/bin_sd8887_bt# iwlist mlan0 scan
mlan0     Scan completed :
          Cell 01 - Address: 1C:**:**:**:**:**
                    ESSID:"WG1400HP-2G" [4]
                    Mode:Master
                    Frequency=2.417 GHz (Channel 2)
                    Quality:5/5  Signal level:-45 dBm  Noise level:-96 dBm
                    Encryption key:on
                    Bit Rates:1 Mb/s; 2 Mb/s; 5.5 Mb/s; 11 Mb/s; 6 Mb/s
                              9 Mb/s; 12 Mb/s; 18 Mb/s; 24 Mb/s; 36 Mb/s
                              48 Mb/s; 54 Mb/s
                    Extra:Beacon interval=100
                    IE: IEEE 802.11i/WPA2 Version 1
                        Group Cipher : CCMP
                        Pairwise Ciphers (1) : CCMP
                        Authentication Suites (1) : PSK

          Cell 02 - Address: 1C:**:**:**:**:**
                    ESSID:"WG1400HP-5G" [24]
                    Mode:Master
                    Frequency=5.18 GHz (Channel 36)
                    Quality:5/5  Signal level:-42 dBm  Noise level:-96 dBm
                    Encryption key:on
                    Bit Rates:6 Mb/s; 9 Mb/s; 12 Mb/s; 18 Mb/s; 24 Mb/s
                              36 Mb/s; 48 Mb/s; 54 Mb/s
                    Extra:Beacon interval=100
                    IE: IEEE 802.11i/WPA2 Version 1
                        Group Cipher : CCMP
                        Pairwise Ciphers (1) : CCMP
                        Authentication Suites (1) : PSK
```

Connection to Access Point

Access Point configuration example.

SSID="WG1400HP-5G"

passphrase="830420MUSEN"

```
root@localhost:/home/8887/bin_sd8887_bt#
    iwpriv mlan0 passphrase "1;ssid=WG1400HP-5G;passphrase=830420MUSEN"
mlan0       passphrase:1;ssid=WG1400HP-5G;passphrase=830420MUSEN
root@localhost:/home/8887/bin_sd8887_bt# iwconfig mlan0 essid WG1400HP-5G
root@localhost:/home/8887/bin_sd8887_bt# iwconfig mlan0
mlan0       IEEE 802.11-DS  ESSID:"WG1400HP-5G" [33]
            Mode:Managed  Frequency=5.18 GHz  Access Point: 1C:B1:7F:E4:82:23
            Bit Rate:433.5 Mb/s     Tx-Power=15 dBm
            Retry limit:9     RTS thr=2347 B     Fragment thr=2346 B
            Encryption key:****-****-****-****-****-****-****-****-****-****-****-****-****-****-****-****-****-
****-****-****-****-****-****-****-****-****-****-****     Security mode:restricted     Security mode:open
            Power Management:on
            Link Quality=5/5  Signal level=-42 dBm  Noise level=-93 dBm
            Rx invalid nwid:0  Rx invalid crypt:0  Rx invalid frag:1114
            Tx excessive retries:0  Invalid misc:0     Missed beacon:0
```

Set IP address and "ping"

```
root@localhost:/home/8887/bin_sd8887_bt# dhclient mlan0
root@localhost:/home/8887/bin_sd8887_bt# ifconfig mlan0
mlan0       Link encap:Ethernet  HWaddr ac:3f:a4:84:d1:88
            inet addr:192.168.10.12  Bcast:192.168.10.255  Mask:255.255.255.0
            UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
            RX packets:7 errors:0 dropped:0 overruns:0 frame:0
            TX packets:6 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:1840 (1.8 KB)  TX bytes:2052 (2.0 KB)

root@localhost:/home/8887/bin_sd8887_bt# ping 192.168.10.1 (*Access Point IP address)
PING 192.168.10.1 (192.168.10.1) 56(84) bytes of data.
64 bytes from 192.168.10.1: icmp_seq=1 ttl=255 time=2.88 ms
64 bytes from 192.168.10.1: icmp_seq=2 ttl=255 time=1.33 ms
```

4.2 Bluetooth operation check

Confirmation of wireless Bluetooth interface

```
root@localhost:/home/8887/bin_sd8887_bt# hciconfig
hci0:   Type: BR/EDR   Bus: SDIO
        BD Address: AC:3F:A4:84:D1:89   ACL MTU: 1021:7   SCO MTU: 120:6
        UP RUNNING PSCAN
        RX bytes:918 acl:0 sco:0 events:42 errors:0
        TX bytes:1182 acl:0 sco:0 commands:42 errors:0
```

Perform a “inquiry” and “connection”

```
root@localhost:/home/8887/bin_sd8887_bt# hcitool -i hci0 scan
Scanning ...
        XX:D2:24:BA:9C:02       n/a
        XX:E0:10:E2:48:89       n/a
        XX:CB:57:6A:9A:5C       n/a
        E4:A7:A0:4A:C7:42       H00028472-PC

root@localhost:/home/8887/bin_sd8887_bt# hcitool -i hci0 cc E4:A7:A0:4A:C7:42
root@localhost:/home/8887/bin_sd8887_bt# hcitool -i hci0 con
Connections:
        < ACL E4:A7:A0:4A:C7:42 handle 1 state 1 lm SLAVE
```

4.3 wpa_supplicant operation check

```
root@localhost:/home/8887/bin_sd8887_bt# cd /home/wpa_supplicant/
root@localhost:/home/wpa_supplicant# wpa_supplicant -Dwext -imlan0 -c ./wpa01.conf
Successfully initialized wpa_supplicant
rfkill: Cannot open RFKILL control device
ioctl[SIOCSIWESSID]: Bad address
mlan0: Trying to associate with 1c:b1:7f:e4:82:22 (SSID='WG1400HP-2G' freq=2417 MHz)
mlan0: Associated with 1c:b1:7f:e4:82:22
mlan0: WPA: Key negotiation completed with 1c:b1:7f:e4:82:22 [PTK=CCMP GTK=CCMP]
mlan0: CTRL-EVENT-CONNECTED - Connection to 1c:b1:7f:e4:82:22 completed [id=0 id_str=]
```

*Please create "conf" file according to your environment and use it.

4.4 hostapd operation check

Confirmation of hostapd is done by loading WLAN driver.

root@localhost:~# **cd /home/hostapd/bin_sd8887_hostapd/**

root@localhost:/home/hostapd/bin_sd8887_hostapd# **insmod mlan.ko**

root@localhost:/home/hostapd/bin_sd8887_hostapd# **insmod sd8887.ko cal_data_cfg=none**

[48.945206] wlan: Loading MWLAN driver

[48.950034] wlan: Driver loaded successfully

root@localhost:/home/hostapd/bin_sd8887_hostapd# [67.816250] vendor=0x02DF device=0x9135 class=0 function=1

[67.821827] SDIO: max_segs=128 max_seg_size=65536

[67.826581] rx_work=1 cpu_num=2

[67.833097] Request firmware: mrvl/sd8887_uapsta_a2.bin

[68.959540] ***WLAN FW is active***

[73.962215] creating custom regulatory domain failed

[73.990290] wlan: version = SD8887-15.68.7.p189-C4X15C605-GPL-(FP68)

[73.998035] orion-ehci d005e000.usb: init d005e000.usb fail, -517

[74.006669] ahci-mvebu d00e0000.sata: couldn't get PHY in node sata: -517

[74.049723] orion-ehci d005e000.usb: init d005e000.usb fail, -517

[74.057792] ahci-mvebu d00e0000.sata: couldn't get PHY in node sata: -517

*Please create "conf" file according to your environment and use it.

root@localhost:/home/hostapd/bin_sd8887_hostapd# **cd ..**

root@localhost:/home/hostapd# **hostapd ./test_hostapd.conf**

Configuration file: ./test_hostapd.conf

rfkill: Cannot open RFKILL control [246.128457] get_channel when AP is not started device

[246.137962] get_channel when AP is not started

[246.143303] get_channel when AP is not started

uap0: interface state UNINITIALIZED->COUNTRY_UPDATE

Using interface uap0 with hwaddr ac:3f:a4:84:d2:88 and ssid "ESP_AP_test"

[246.233170] wlan: Starting AP

[246.248426] wlan: AP started

[246.253711] Set AC=3, txop=47 cwmin=3, cwmax=7 aifs=1

[246.259356] Set AC=2, txop=94 cwmin=7, cwmax=15 aifs=1

[246.265744] Set AC=0, txop=0 cwmin=15, cwmax=63 aifs=3

[246.271371] Set AC=1, txop=0 cwmin=15, cwmax=1023 aifs=7

uap0: interface state COUNTRY_UPDATE->ENABLED

uap0: AP-ENABLED

uap0: STA e4:a7:a0:4a:c7:3e IEEE 802.11: associated ← Connection from client (station)

uap0: AP-STA-CONNECTED e4:a7:a0:4a:c7:3e

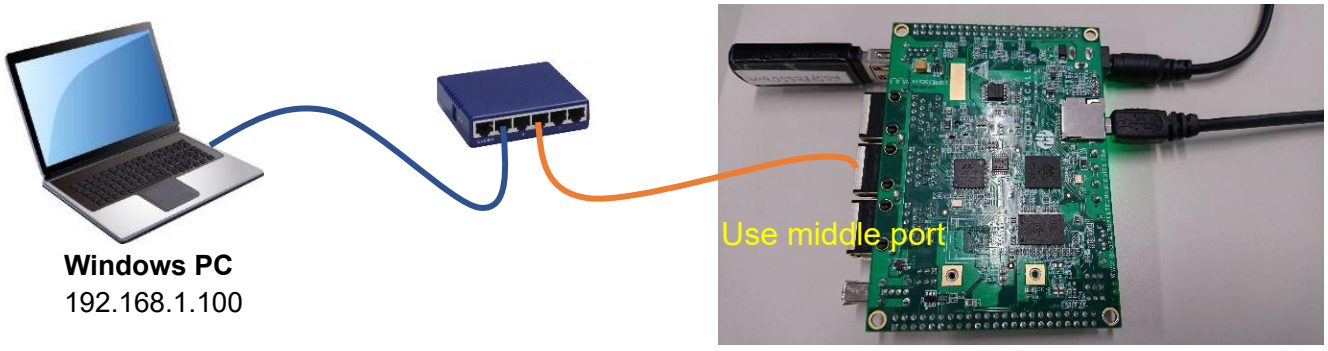
uap0: STA e4:a7:a0:4a:c7:3e RADIUS: starting accounting session 00000041-00000000

uap0: STA e4:a7:a0:4a:c7:3e WPA: pairwise key handshake completed (RSN)

5. Manufacturing utility (MFG)

*Please restart ESPRESSObin before MFG operation.

5.1 Wired network settings



Windows PC
192.168.1.100

root@localhost:~# **ifconfig eth0 up**
root@localhost:~# **ifconfig lan0 192.168.1.10 up**
You can set the IP address arbitrarily.

*If eth0 cannot be updated, refer to the notes.
(This is the last page)

5.2 Load WLAN and Bluetooth driver with MFG firmware

root@localhost:~# **cd /home/8887/bin_sd8887**
root@localhost:/home/8887/bin_sd8887# **insmod mlan.ko**
root@localhost:/home/8887/bin_sd8887#
insmod sd8887.ko cal_data_cfg=none mfg_mode=1 fw_name=mrvl/sdio8887_sdio_combo.bin
[127.544784] wlan: Loading MWLAN driver
[127.552974] wlan: Driver loaded successfully
root@localhost:/home/8887/bin_sd8887# **cd ../bin_sd8887_bt/**
root@localhost:/home/8887/bin_sd8887_bt# **insmod bt8887.ko**
[287.204131] BT: Loading driver
[287.207515] BT: Driver loaded successfully

Turn on the power of the evaluation board and insert it into SDIO of ESPRESSObin.

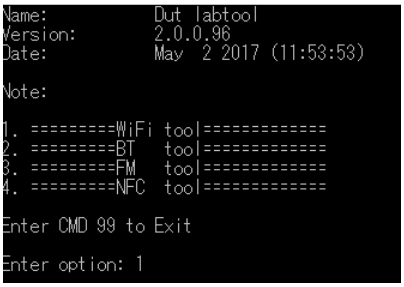
root@localhost:/home/8887/bin_sd8887_bt#
[328.904607] vendor=0x02DF device=0x9135 class=0 function=1
[328.912467] SDIO: max_segs=128 max_seg_size=65536
[328.917119] rx_work=1 cpu_num=2
[328.925621] Request firmware: mrvl/sdio8887_sdio_combo.bin
[329.963455] WLAN FW is active
[329.985829] IOCTL failed: ffffffc038154800 id=0x20000, sub_id=0x20006 action=1, status_code=0x2
[329.994793] set mac address failed! status=-1, error_code=0x2
[330.011301] wlan: version = SD8887-0.0.0.p0-C4X15C605-GPL-(FP68)
[330.021305] ahci-mvebu d00e0000.sata: couldn't get PHY in node sata: -517
[330.030038] orion-ehci d005e000.usb: init d005e000.usb fail, -517
[330.053699] ahci-mvebu d00e0000.sata: couldn't get PHY in node sata: -517
[330.069738] orion-ehci d005e000.usb: init d005e000.usb fail, -517

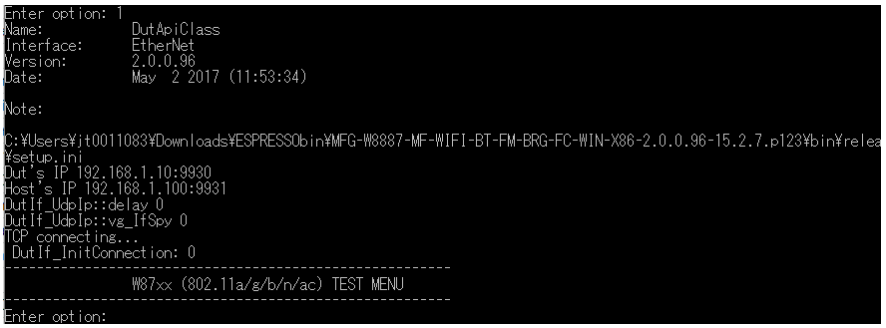
5.3 Run “MFG Bridge” application

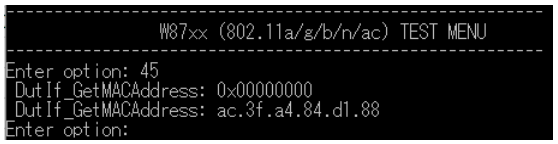
```
root@localhost:/home/8887/bin_sd8887_bt# cd ../bin_mfgbridge/
root@localhost:/home/8887/bin_mfgbridge# ./mfgbridge
UART: initialize ...
Can't get port settings: Input/output error
NET:   initialize ...
NET:   socket bind is completed!
NET:   initialization is completed.
NET:   server port: 9930
NET:   client port: 9931
```

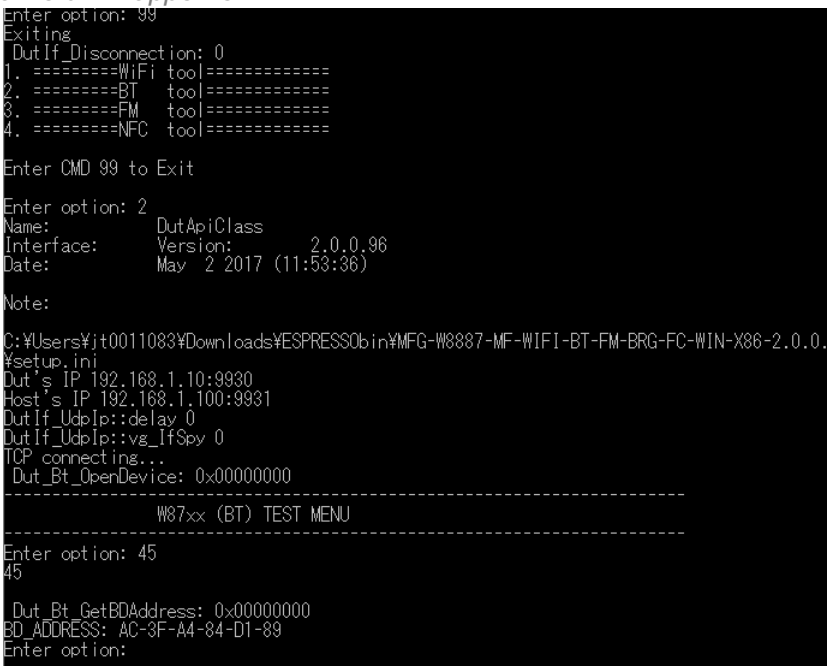
Execute "DutApi_w8887_BrdigeEth.exe" on the Windows PC side.
(Please refer to " 8887_MFG_Bridge_User_Guide" for details. It can be download from Taiyo Yuden's web site. At first, please register according to the procedure described in the document enclosed with this evaluation kit.)

NET: new connection from 192.168.1.100
Initialize drvwrapper ....
no nfc /dev/mnfcchar0no nfc /dev/mfmchar0Initialize drvwrapper for BT ....
DRV: driver is initialized.
NET: socket FD = 5
NET: receive a packet (bytes = 40
BRDG: process Rx msg ...
NET: WLAN command.
DRV: send host cmd thr ioctl
DRV: host cmd is completed
NET: send a msg.
NET: the msg is sent.
NET: socket FD = 5
NET: receive a packet (bytes = 36
BRDG: process Rx msg ...
NET: WLAN command.
DRV: send host cmd thr ioctl
DRV: host cmd is completed
NET: send a msg.
NET: the msg is sent.
NET: socket FD = 5
NET: receive a packet (bytes = 0
NET: close client socket
De-Initialize drvwrapper for BT....
De-Initialize drvwrapper ....
NET: socket FD = 4
NET: new connection from 192.168.1.100
Initialize drvwrapper ....
no nfc /dev/mnfcchar0no nfc /dev/mfmchar0Initialize drvwrapper for BT ....
DRV: driver is initialized.
NET: socket FD = 5
NET: receive a packet (bytes = 16
BRDG: process Rx msg ...
HCI Command
Rx Event E for 09 10
In Cmd 09 10
NET: send a msg.
NET: the msg is sent.









6. About SDIO switching

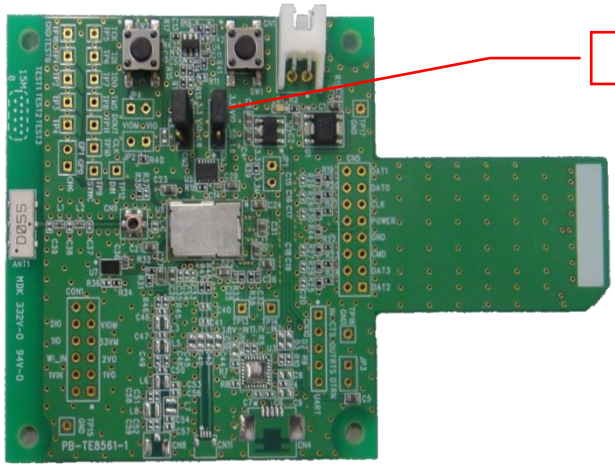
This is the setting of SDIO bus speed switching on each evaluation board.

CN3(WBSBHVGXG) / CN2(WBSA(E)GVDXG) : VIO_SD Voltage Select

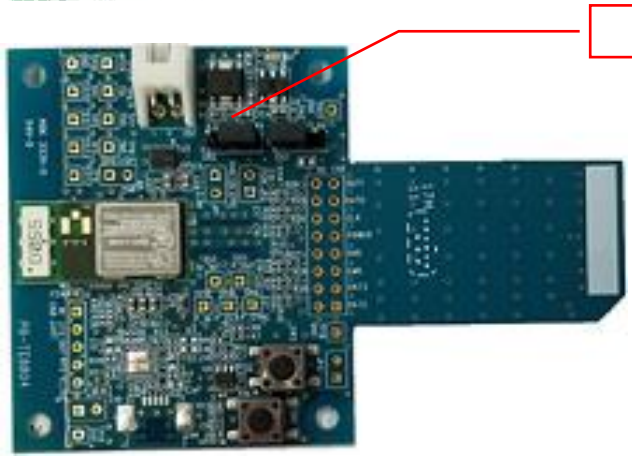
No.	Pin name	Direction	Description
1	3.3V	Output	3.3V output. (high speed)
2	VIO	Input	Input for VIO_SD.
3	1.8V	Output	1.8V output. (ultra-high speed)

Setting: 1-2 short -> high speed

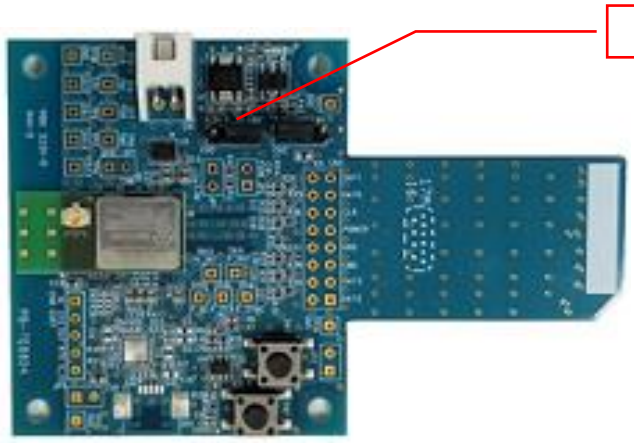
Setting: 2-3 short -> ultra-high speed



WBSBHVGXG



WBSAGVDXG



WBSEGVDXG

Notes.

About “5.1 Wired network settings”.

If an error occurs with "ifconfig eth0 up", perform the following procedure.

root@localhost:~# **iwconfig**

bond0 no wireless extensions.

lan0 no wireless extensions.

wan no wireless extensions.

lan1 no wireless extensions.

lo no wireless extensions.

eth5 no wireless extensions.

root@localhost:~# **ifconfig eth5 up**

Use ethX displayed in "iwconfig" instead of eth0.