**How to enable WiFi/Bluetooth with AIW-169**

**Prerequisite**

* RSB-4810 with Debian 10.12 (Linux kernel v4.19.232) on it
* Stop system background daemons by following commands with console utility.

# systemctl stop NetworkManager

# killall wpa\_supplicant

* Extract “AIW-169\_RSB4810\_FW.zip” and copy files to one USB stick and plugged into any one USB port of RSB-4810 platform and follows WiFi/ Bluetooth test steps next.

“*AIW-169\_RSB4810\_FW.zip*” includes following files:

1. WiFi driver files:

* rtkm.ko
* 8852ce.ko

1. Bluetooth driver and firmware files:

* rtk\_btusb.ko
* rtl8852cu\_config
* rtl8852cu\_fw

*[\* Notes ] WiFi 6GHz is only supported if RSB-4810 kernel 5.4 or above*

**Test WiFi**

1. **Bring up WiFi driver** :

* Bring up WiFi driver with 8852ce.ko if mount USB stick underlying /run/media/sda1 on RSB-4810

# cp /run/media/sda1/\*.ko /tmp

# insmod rtkm.ko

# insmod 8852ce.ko

*Note: you will see the interface wlan0 by “ifconfig –a” command*

# ifconfig wlan0 up

1. **Test with WiFi AP**

* Using editor (such as Vim) to create WiFi client configuration in /etc/wpa\_supplicant.conf

(Following is one example as one AP named as “TEST” with pre-shared key

“123456789” for your reference)

# cat /etc/wpa\_supplicant.conf

ctrl\_interface=/var/run/wpa\_supplicant

ctrl\_interface\_group=0

update\_config=1

network={

ssid="TEST"

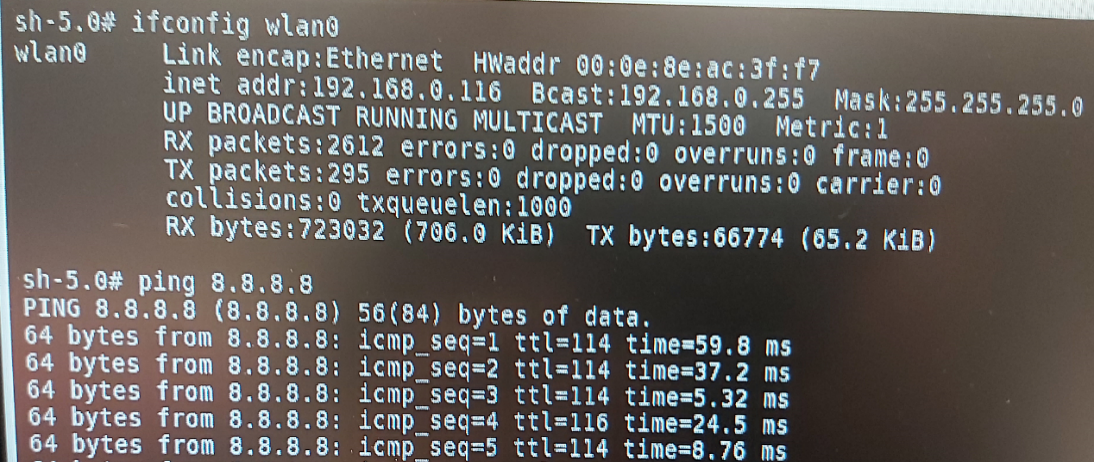
psk="123456789"

}

# wpa\_supplicant -i wlan0 -c /etc/wpa\_supplicant.conf -B

# dhclient wlan0

* If AP is configured with internet connection, user can use ping to check the internet availability as follows.
  + Check network connection after obtained IP address

# ping 8.8.8.8****

**Test Bluetooth**

1. **Bring up Bluetooth Interface**

* Bring up Bluetooth driver with follows if have mount USB stick underlying /run/media/sda1 on RSB-4810

# cp /run/media/sda1/rtl8852cu\_\* /lib/firmware/

# cp /run/media/sda1/rtk\_btusb.ko /tmp/

# sudo insmod /tmp/rtk\_btusb.ko

*Note: you will see the interface hci0 by “hciconfig –a” command*

1. **Test Bluetooth Interface**

* Using Bluetooth with following commands

# hciconfig hci0 up

# bluetoothctl

[bluetooth]# scan on

[bluetooth]# scan off

If there are any Bluetooth devices nearby you will see some devices listed by “devices” command as follows.

[bluetooth]# devices

**How To Build Driver with RSB-4810 BSP**

* Download RSB-4810 BSP with following URL:

<http://ess-wiki.advantech.com.tw/view/Linux_BSP_User_Guide_for_rk3568_series_Debian10>

* Checkout RK3568\_RISC\_DIV130035 source code

**#** cd kernel

# git checkout rk3568\_RISC\_DIV130035

# make ARCH=arm64 rk3568\_adv\_defconfig

# make ARCH=arm64 rk3568-rsb4810-a2.img

* Copy driver zipped source file (RTL8852CE\_WiFi\_linux\_v1.19.4.5-0-g285f1de55.20231027\_RSB4810.zip) to your BSP build host with USB stick (assumed USB stick is mounted on /run/media/sda1/)

# cp /run/media/sda1/RTL8852CE\_WiFi\_linux\_v1.19.4.5-0-g285f1de55.20231027(131786)\_RSB4810.zip /tmp/

* To build Wi-Fi driver (rtkm.ko, 8852ce.ko) as following steps:

# cd RTL8852CE\_WiFi\_linux\_v1.19.4.5-0-g285f1de55.20230127

# sudo make ARCH=arm64 –C /home/adv/BSP/rk3568\_linux\_risc/kernel M=`pwd` modules

* To build Bluetooth driver (rtk\_btusb.ko) as following steps:

# cd 20230413\_LINUX\_BT\_DRIVER\_RTL8852C\_COEX\_v0707/

# sudo make INTERFACE=usb

Notes: Bluetooth firmware (rtl8852cu\_fw&rtl8852\_config) is available at “rtkbt-firmware/lib/firmware/”