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

**Prerequisite**

* MIO-5377 with Ubuntu 20.04.5 LTS (Linux kernel v5.15.24+) on it
* Stop system background daemons by following commands with console utility.

# systemctl stop NetworkManager

 # killall wpa\_supplicant

* wpa\_supplicant v2.10
* Extract “AIW-169\_MIO-5377\_FW.zip” and copy files to one USB stick and plugged into any one USB port of MIO-5377 platform and follows WiFi/ Bluetooth test steps next.

“*AIW-169\_MIO-5377\_FW.zip*” includes following files:

1. WiFi driver files:
* 8852ce.ko
1. Bluetooth driver and firmware files:
* rtk\_btusb.ko
* rtl8852cu\_config
* rtl8852cu\_fw

 *[\* Notes ] WiFi 6GHz is only supported with Linux 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 MIO-5377

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

 # modprobe cfg80211

# insmod 8852ce.ko rtw\_country\_code=US

*Note: you will see the interface wlp43s0 by “ifconfig –a” command*

 # ifconfig wlp43s0 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)

# Example-1 : /etc/wpa\_supplicant.conf

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

ctrl\_interface\_group=0

update\_config=1

network={

 ssid="TEST"

 psk="123456789"

}

# Example-2 : /etc/wpa\_supplicant.conf

pmf=2

sae\_pwe=1

network={

 ssid="TEST"

 key\_mgmt=SAE

 ieee80211w=1

 sae\_password=”123456789”

 pairwise=CCMP

}

 # wpa\_supplicant -i wlp43s0 -c /etc/wpa\_supplicant.conf -B

# dhclient wlp43s0

* 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 MIO-5377

# 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 on MIO-5377**

* Acquired driver “RTL8852CE\_WiFi\_linux\_v1.19.4.5-0-g285f1de55.20231027(131786).zip”
* Copy driver zipped source file (RTL8852CE\_WiFi\_linux\_v1.19.4.5-0-g285f1de55.20231027(131786).zip) to MIO-5377 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).zip /tmp/

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

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

# sudo make

* 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/”