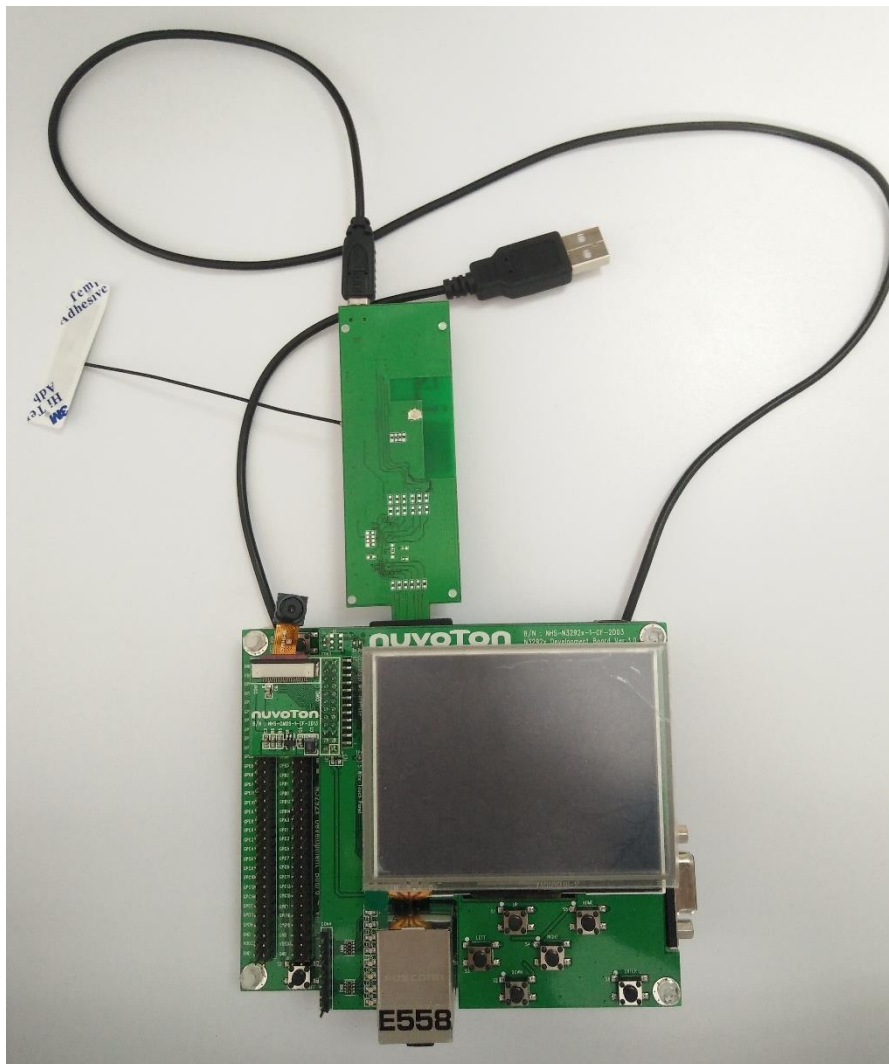# Video Over WiFi Application Note

Amp'ed RF Technology, Inc.

9/21/2016

Evaluation platforms

- **SD-WB61S-DevKit**: Amp'ed RF WiFi development kit with SDIO interface. Contains WB61S-EXT combo module.
- **N3292x Development Platform Ver:3.0**: Nuvoton development kit for ND-N32926 Video MCU.

1. Demo platform setup

a. Prepare the Nuvoton platform as below.
   Connect the PC to the Nuvoton EVB via serial port as marked No. 6 in figure 1.
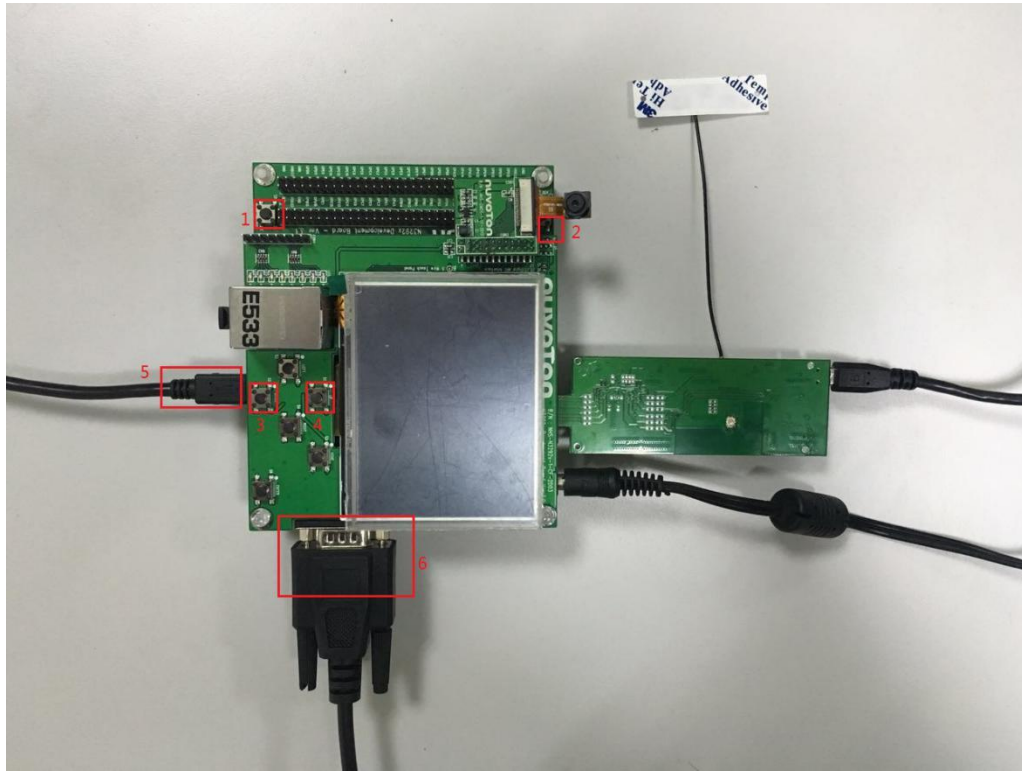

Figure 1

b. Insert the SD adapter into the Nuvoton EVB as shown above. And power it with USB(micro USB) external cable as in figure 2.
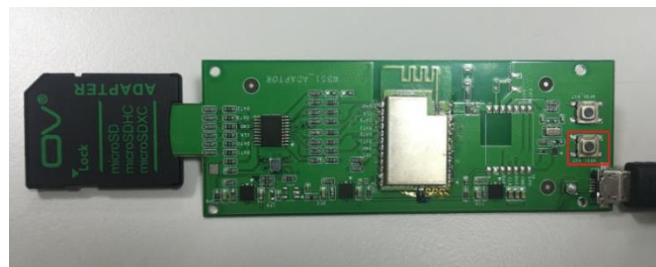

Figure 2

c. Connect Nuvoton EVB to the PC via mini USB cable as marked No. 5 in figure 1.
d. Press the power button(button 1) to get Nuvoton EVB powered on.
e. After several seconds, press the reset button (button 2) first, then press button 3 and 4 simultaneously (see figure 1).   The serial port display is shown below:

Figure 3

f. Note that a new hardware device will be enumerated onto the PC:
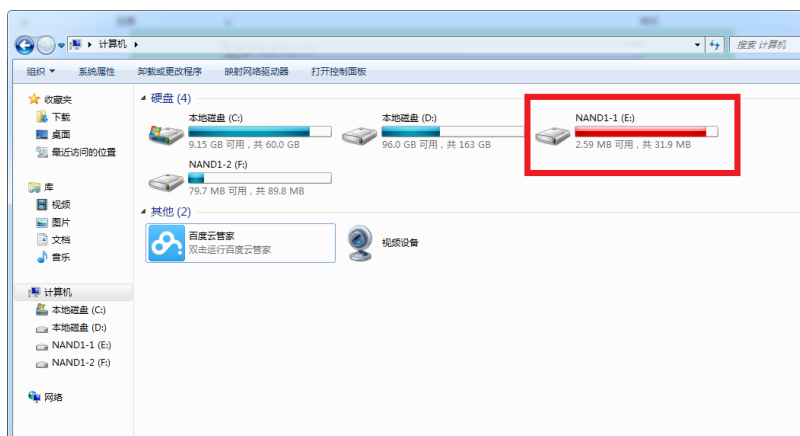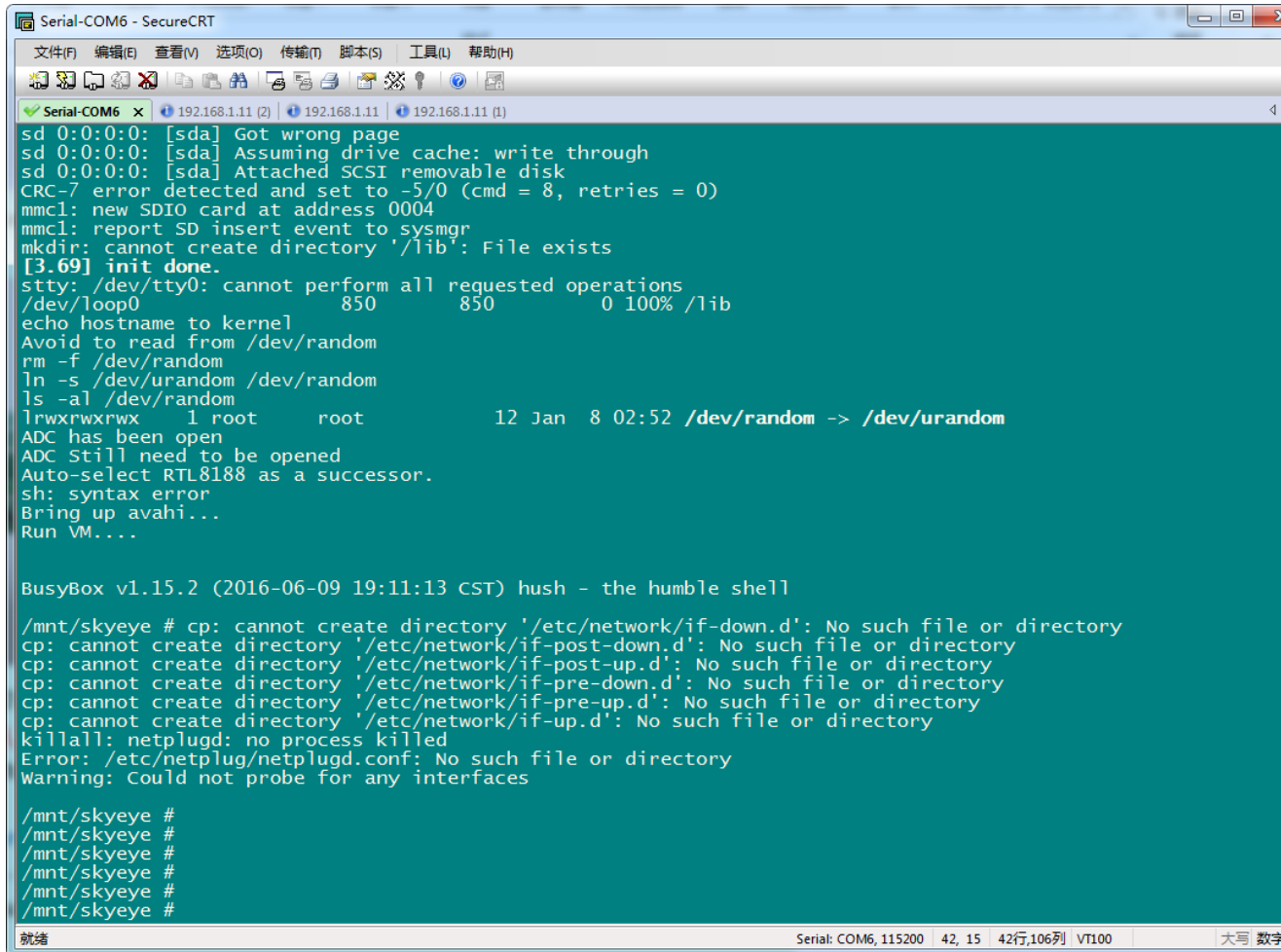

Figure 4

g. Copy the files c*fg80211.ko, compat.ko, conprog.bin, cw1200_drv.ko, mac80211.ko*   to folder "nand1-1" on Nuvoton EVB.
h. Note that mini USB cable as marked No.5 in figure 1 is not necessary in the

following test.

2. Start the Demo

a. Press the button shown in figure 6 to reset the WB61S WiFi module. Press Button 2 in figure 2 to reset Nuvoton EVB. (Make sure WB61S WiFi module reset before Nuvoton EVB starts up.)

Figure 5
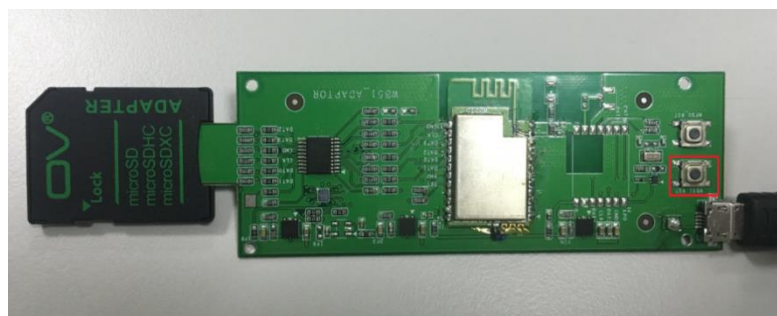

Figure 6

b. Install kernel modules.

Change the working path to "/mnt/nand1-1" and execute the following commands on the console window:

cd /mnt/nand1-1

insmod compat.ko

insmod cfg80211.ko

insmod mac80211.ko

insmod cw1200_drv.ko

c. Enable the wireless interface "wlan0" with this command:

  ifconfig wlan0 up

d. Connect to the router with "wpa_supplicant" tool.

  First, use the default configuration file to connect to the router. Modify items "ssid" and "psk" with matching items to those of the router with an editor: such as *vi* or *vim*.

  If SSID of the router is 'Amped AP-5G' and password is '12345678', edit the file 'wpa_supplicant_default.conf' like as follows:

Figure 7

i. Then execute the following to connect to the router:
  wpa_supplicant -B -iwlan0 -c ./wpa_supplicant_default.conf

j. Execute the following command to comfirm whether the device is connected to the router.
  iwconfig wlan0
  The AP mac address is obtained instead of *"Not-Associated" as shown below:*

Figure 8

If it fails, the wireless encryption type of the router must be examined and the corresponding file edited.
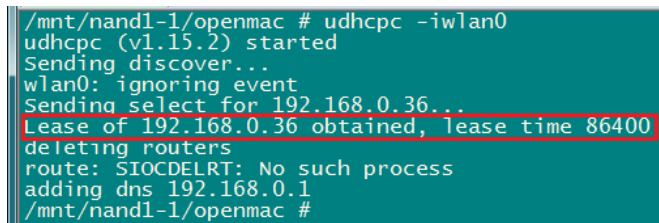
Example:

The router uses WPA-TKIP encryption, the file "wpa_supplicant_wpa_tkip.conf" should be used.

On Nuvoton EVB, edit the configuration file and then execute the below command:

wpa_supplicant -B -iwlan0 -c ./wpa_supplicant_wpa_tkip.conf

k. Obtain an IP address with "udhcpc" tool:

udhcpc -iwlan0

```
/mnt/nand1-1/openmac # udhcpc -iwlan0
udhcpc (v1.15.2) started
Sending discover...
wlan0: ignoring event
Sending select for 192.168.0.36...
Lease of 192.168.0.36 obtained, lease time 86400
deleting routers
route: SIOCDELRT: No such process
adding dns 192.168.0.1
/mnt/nand1-1/openmac #
```

Figure 9

l. After an IP address is obtained successfully, use the "VLC" software of PC or phone in the same local area network with the Nuvoton board to open a network stream.

    Click the 'play' button to start the video.

    (VLC software is located here: http://download.ampedrftech.com/utilities/)

Figure 10