

SPB229 EVB- Quick Start Guide

Introduction

This guide will help you to set-up and use the SPB229 Evaluation Board (EVB) for first time experience. This guide is based on use of the full featured Linux software package shared as a binary image for target host platform or as a source (only HOST driver) with a software license agreement in place, please contact H&D Wireless sales for recommendation.

Scope of the Demonstration

1. Wi-Fi connection and perform a first through-put test using a Linux computer with operational SDIO slot and the SBP229 mounted on a SD carrier board (SPB229-EVB).
2. BT connection using hcitool dev

Requirements

Things you need to have:

- The SPB229-EVB (SPB229 mounted on the SPB111 SD carrier card). Using the onboard dual band antenna.
- A Linux computer or Linux development platform with an operational SDIO slot (SDIO operation verified on Lenovo T530, T430, X220, X230 computers and iMX6 Development Platform). PCs with standard USB memory card readers will not support the SD extension "SDIO. The drivers cannot be loaded via USB device so it has to be direct host connected SD interface with SDIO support, see more details on http://www.thinkwiki.org/wiki/SD_Card_slot
- Linux kernel 3.19 or later and IPERF installed.
- SPB229 Linux software package either as a binary build for target host platform or source released by H&D Wireless
- An 802.11 AP connected with Ethernet to a Linux Host computer with IPERF installed.

Demonstration Example WiFi

In this example an IPERF client resides on the SPB229 Linux computer and a remote IPERF server running on a computer connected to the Ethernet port of an 802.11 AP.

Running the SPB229-EVB IPERF Client Side

- Power up the Linux Computer
- Start a Terminal Window
- Unzip Linux software package binary in a local directory
- If not already existing create a directory, "mrvl", in location "lib/firmware/". Copy the firmware image (sd8977_combo.bin) from local directory "Linux software package/FwImage/" into the "mrvl" directory.
- Make sure that all driver files are executable by changing mod.

```
sudo chmod 777 *.*
```

- Load WiFi driver

```
sudo insmod mlan.ko
```

- Load SD driver and FW

```
sudo insmod sd8xxx.ko drv_mode=3 mfg_mode=0 fw_name=mrvl/sd8977_combo.bin
```

- Insert the SPB229-EVB SD carrier card into the SDIO slot
- Check wireless interface status “ifconfig -a” should show wlan0 device with a MAC address.
- Validate that the SPB229 EVB card have been installed by checking the sys log, enter “dmesg” command in Terminal Window. It should look like below

```
[128281.045202] mmc0: new high speed SDIO card at address 0001
[128281.045705] mlan: rx work enabled, cpus 8
[128281.046930] Bluetooth: vendor=0x2df, device=0x912e, class=255, fn=2
[128282.116764] Bluetooth: FW download over, size XXXXXX bytes
[128282.116796] mlan_sdio mmc0:0001:1: FW already running! Skip FW dnld
[128282.844663] mlan_sdio mmc0:0001:1: WLAN FW is active
[128282.924085] mlan_sdio mmc0:0001:1: info: MWIFIEX VERSION: mwifiex 1.0
(15.68.4.p112)
[128282.924089] mlan_sdio mmc0:0001:1: driver_version = mwifiex 1.0 (15.68.4.p112)
```

- Start the 802.11 AP and a IPERF Server as per [section “Running the IPERF Server Side via 802.11 AP”](#)
- Start a WLAN connection either by using the Network manager located up in the right hand corner or follow the manual set-up below:

```
sudo ifconfig wlan0 up
sudo iwconfig wlan0 essid NETWORK NAME key WIRELESS KEY
sudo dhclient wlan0
```

- Run command “ifconfig” to verify that IP-address has been successfully assigned for the SPB229 EVB interface.
- Then start a IPERF Client as per below:

```
iperf -c <ip-address> -u -i 1 -t 10
```

-c means you are running in client mode, connecting to a "host" which is the IP Address following the -c.
 -u Set-up for UDP traffic or if TCP traffic is target then skip the -u parameter.
 -i 1 means the seconds between periodic graphing and reporting the bandwidth.
 -t 10 means the time in seconds to perform the IPerf test the default is set to 10 seconds.

- RX UDP through-put data speed is presented continuously in the Terminal window for given time “-t 10”

Running the IPERF Server Side via 802.11 AP

- Power up the 802.11 AP (follow AP installation and configuration guide)
- Power up the Linux Host Computer
- Start a Terminal Window
- Enter ifconfig command to get IP address to be used in the IPERF client session
- Start IPERF Server as per below (If TCP traffic is target skip the -u parameter).

```
iperf -s -u
```

Demonstration Example BT

- Power up the Linux Computer and start a Terminal Window
- Insert the SPB229-EVB SD carrier card into the SDIO slot
- Load BT driver

```
sudo insmod bt8xxx.ko
```



- BT driver operation can be validated by checking the module operation with “lsmod” command.
- Validate that the SPB229 EVB card has been installed by checking the sys log, entering “dmesg” command in Terminal Window.
- Install hcitool dev and check for any new hci device according to instruction at the following reference (<https://help.ubuntu.com/community/BluetoothSetup>)
- Use hcitool dev to test Bluetooth functionality