USB8801 Driver/Firmware Release Note

Table of Contents

1. Package Information 3

2. Version info: 3

3. Host Platform 4

4. Tested HW 4

5. Software Features 4

5.1 Wireless Client Features [1X1 b/g/n] 4

5.2 Access Point Features 2

5.3 Wi-Fi Direct / P2P Features 4

6. Testing 4

6.1 STA Throughput 4

6.2 MMH Throughput 4

6.3 P2P Throughput 5

6.4 TDLS Throughput 5

7. Known Issues 6

8. Notes 6

MARVELL®

January 15, 2015

1. Package Information

- Version: 14.68.36.p57-C3X14084_B0-GPL

2. Version info:

- SOC Version : 88W8801 B0
- Firmware:
  - usb8801_uapsta.bin
- Driver Package:
  - Wlan Driver (mlan.ko , usb8801.ko)
- Linux Kernel
  - 3.4.60

Driver version:

- C : Indicates Marvell OS independent Common driver
- 3X : indicated support for kernel version 3.x
- **Release Number:** this number tracks the incremental changes in the consequent driver releases given to QA or customers.
- **Patch Number:** Customers may want to receive a driver build based on a previous release plus specific bug fixes, or patches. It is not unusual for customers to request this when they are close to production. The patch number starts at zero (no patch), and increments as we release subsequent builds with more bug fixes.

Firmware version:

- Following is an explanation of each digit in the versioning scheme designed for the firmware:
  - **Major Revision (first number from the left):** Tracks the main FW version.
  - **Minor Revision (second number from the left):** Tracks the chip family, firmware branch, custom projects. etc.
  - **Release Number (third number from the left):** this number tracks the incremental changes in

the consequent firmware releases given to QA or customers.

- **Patch Number (fourth number from the left):** Customers may want to receive a firmware build based on a previous release plus specific bug fixes, or patches. It is not unusual for customers to request this when they are close to production. The patch number starts at zero (no patch), and increments as we release subsequent builds with more bug fixes.

3. Host Platform

- BG2CT platform running kernel version 3.4.60.
- Interfaces used
    1. WLAN over USB 2.0

4. Tested HW

- WLAN SOC/RF chipset: 88W8801 B0

5. Software Features

5.1 Wireless Client Features [1X1 b/g/n]

1. 802.11n - High Throughput - Infrastructure Mode
    - 2.4GHz Band Operation
    - 20MHz channel Bandwidth only
    - Short/Long Guard Interval (400ns/800ns)
    - Green Field Operation
    - 1 Spatial stream (1x1)
    - 11n Data rates – Up to 72 Mbps (MCS 0 to MCS 7)
    - Tx MCS Rate Adaptation (BGN)
    - AMPDU Tx and Rx Support
    - AMSDU-4k Tx and Rx Support
    - HT Protection Mechanisms

2. 802.11 b/g Features
    - Data Rates (Up to 54 Mbps)
    - Tx Rate Adaptation (BG)
    - Tx of RTS/CTS based upon RTS Threshold
    - Fragmentation/Defragmentation
    - ERP protection, Slot time, Preamble
    - ERP Protection using macctrl command (RTS-CTS/Self-CTS)

3. 802.11d

- 802.11d - Regulatory Domain/Operating Class/Country Info

4. 802.11e -QoS
   - EDCA[Enhanced Distributed Channel Access] / WMM (Wireless Multi-Media)
   - U-APSD[Unscheduled Automatic Power save and Delivery]/ WMM-Power save

5. 802.11i - Security
   - Open and Shared Authentication
   - WEP Security (64/128 bit)
   - WPA-PSK, WPA2-PSK Security (TKIP and AES-CCMP Encryption)
   - Opensource WPA Supplicant Support

6. General Features
   - Auto Deep Sleep
   - Host Sleep (hscfg)
   - Background Scan
   - Specific scan (scancfg)
   - Network Scan (iwlist scan)
   - Subscriber Event
   - Wakeup on Wireless (WoW)
   - Auto Response (MEF)
   - Auto Tx
   - Vendor Specific IE (Custom IE)
   - Broadcast/Multicast data Tx/Rx Support

7. Power Save Modes
   - IEEE PS (Infrastructure Mode)
   - PPS
   - Inactivity Timeout
   - Listen Interval

8. Loading Driver - Optional Parameters
   - Configuring MAC Address during driver load using init_cfg file
   - Loading Driver Using CFG80211 and mlanutl commands
   - Loading Driver Using WEXT
   - Setting Deep sleep.

9. WPS/WSC2.0 Functionality(PIN and PBC)

10. TDLS
    - TDLS Setup(req/res/confirm)
    - TDLS Teardown(send/receive)
    - TDLS Discovery
    - Max. 2 concurrent TDLS links supported

5.2 Access Point Features

1. 802.11 b/g Features
   - Data Rates (Up to 54 Mbps)
   - Tx Rate Adaptation (BG)
   - Handling Associated STAs with IEEE PS - PS-Poll and Null Data

2. 802.11d
   - 802.11d - Regulatory Domain/Operating Class/Country Info

3. 802.11e -QoS
   - WMM
   - U-APSD/ WMM-Power save

4. 802.11i - Security
   - Opensource Host based Authenticator Support (Hostapd)
   - Open and Shared Authentication
   - WEP Security (64/128 bit)
   - WPA-PSK, WPA2-PSK Security (TKIP and AES-CCMP Encryption)
   - Group Key Refresh (Rekeying GTK)

5. 802.11n - High Throughput
   - 2.4GHz Band Operation
   - 20 MHz channel Bandwidth only
   - Short Guard Interval
   - 1 Spatial stream (1x1)
   - 11n Data rates – Up to 72 Mbps (MCS 0 to MCS 07)
   - Tx MCS Rate Adaptation (ABGN)
   - AMPDU Tx and Rx Support
   - HT Protection Mechanisms

6. General Features
   - Auto Deep Sleep
   - Broadcast/Multicast data Tx/Rx Support

7. Loading Driver - Optional Parameters
   - Configuring MAC Address during driver load using init_cfg file
   - Loading Driver Using CFG80211 and mlanutl commands
   - Setting Deepsleep

8. WPS/WSC2.0 Functionality
   - PIN Config Method – Static/Dynamic PIN
   - PBC - Virtual Push Button Config Method
   - MMH as Wireless Registrar

9. BSS Functionality
   - MMH supports single BSS
   - Max. 8 clients supported

5.3 Wi-Fi Direct / P2P Features

1. P2P Basic Functionality
   - Protocol conformance tests
   - Autonomous GO Mode
   - WFD Client Mode

2. P2P Backward Compatibility
   - Non P2P Client Association with GO

3. P2P Client Power save
   - P2P Client with IEEE Power save enabled
   - P2P Client with WMM PS enabled

4. Other P2P Features
   - Max Client Support (Up to 7 Devices)
   - Provision Discovery

6. Testing

6.1 STA Throughput

STA Infra Throughput - BGN Mode | 2.4GHz Band				
AMPDU Throughput				
Guard Interval: Short GI				
Security	HT20			
	TCP		UDP	
	Tx	Rx	Tx	Rx
OPEN	42.2	40.2	41.2	55.6
WPA2	37.4	38	51.2	56.5

6.2 MMH Throughput

MMH Infra Throughput - BGN Mode | 2.4GHz Band				
AMPDU Throughput				
Guard Interval: Short GI				
Security	**HT20**			
	TCP		**UDP**	
	Tx	Rx	Tx	Rx
OPEN	42.30	41.20	48.90	62.00
WPA2	40.90	38.20	53.50	61.90

6.3 P2P Throughput

P2P (Client) Throughput - BGN Mode | 2.4GHz Band				
AMPDU Throughput				
Guard Interval: Short GI				
Security	HT20			
	TCP		UDP	
	Tx	Rx	Tx	Rx
WPA2	43.00	38.00	50.40	54.40

P2P (GO) Throughput - BGN Mode | 2.4GHz Band				
AMPDU Throughput				
Guard Interval: Short GI				
Security	**HT20**			
	TCP		**UDP**	
	Tx	Rx	Tx	Rx
WPA2	42.90	39.70	51.20	54.60

6.4 TDLS Throughput

STA Infra Throughput - BGN Mode | 2.4GHz Band				
AMPDU Throughput				
Guard Interval: Short GI				
Security	**HT20**			
	TCP		**UDP**	
	Tx	Rx	Tx	Rx
Open	47.10	44.80	56.10	57.50
WPA2	45.30	39.20	54.20	56.40

Confidential

7. Known Issues

Component	Description
P2P	• BG2CT doesn't connect to P2P peer device via Enter PIN method on peer device

8. Notes

1. Abbreviations
   a. Ex-AP - External AP (AP to which mlan0 interface is associated)
   b. In-STA - Internal Station (mlan0 interface)
   c. Ex-STA - External Stations associates to MMH.
   d. uAP - Micro AP/ MMH – (Marvell Mobile Hotspot)

MARVELL®