



## November 15, 2005

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**Driver version:** 200

**Firmware version:** 5.0.11.p0

- Marvell WLAN engineering group has just recently changed the numbering scheme of the release. The SW releases from here on will follow this new scheme.
- In order to explain the new scheme, for example, we consider the firmware version **1.2.3.4**  
Where:
  - **Major Revision (1 in the number above):** currently set at 3 to reflect that the FW corresponds to version 3 of the FW API specifications.
  - **Minor Revision (2 in the number above):** usually denotes a release that contains bug fixes plus a number of features. This number tracks the branch in source code control. When this field reaches 0xFF, it means that it overflowed, and the real value must be read from the FW version extension. More information on the FW version extension will be available when required.
  - **Release Number (3 in the number above):** this number tracks the release given to QA or customers.
  - **Patch Number (4 in the number above):** 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.

**WPA supplicant used:**

- Version 0.3.8\_MSI-8

**Host Platform:** Laptop PC with Linux Slackware 9.1 (kernel 2.4.22) installed.

**Tested HW:**

- SOC chipset: W8385 B0/B1
- RF chipset: W8015 B0/B1

**Systems Software Modules:**

- CF8385 Driver
  - Binary .o file
  - Source files
  - Binary requires kernel with WE16 support

**Test Tools:**

- Chariot 4.3 Console / Endpoint
- Default Chariot script used: FILESNDL ("File Send Long")
- Aironet AiroPeek Wireless Sniffer

**Software Features:**

- 802.11 b/g
- Infrastructure & Ad-Hoc Mode
- WEP Encryption (64 bit/128 bit) for Infrastructure network mode
- WEP Encryption (64 bit/128 bit) for Ad-hoc network (IBSS) mode
- IEEE Power Save Mode
- Transmit Power Control (TPC)
- Rate Adaptation
- WPA-PSK TKIP Security
- 802.1x Support
- Deep Sleep
- Bluetooth Coexistence
- CCX v1
- Host Sleep & Wakeup (Infrastructure network mode only)
- WMM
- Background Scan
- WPA
- WPA2
- 802.11d
- U-APSD

**New Features and Enhancements:**

- Event handling mechanism enhancements:
  - There are a lot of event synchronizations that need to be taken care of while operating in different power management modes, we have improved our current FW (to host) event process scheme to avoid missing events which are crucial in some cases.
  - CF interface:
    - Need to use HostInterruptCauseRegister.CardEvent bit (address offset 0x22, bit 4) as the indication for FW-To-Host Event
    - CardStatusRegister.CardEvent bit (address offset 0x20, bit 4) should not be used as the indication for FW-To-Host Event since this bit will be cleared by HW when driver reads this register.
    - CardStatusRegister.[14-8] is used as To-Host-Event Scratch Pad.
    - When driver reads out the To-Host-Event from CardStatusRegister.[14-8], driver needs to set CardInterruptCauseRegister.HostEvent bit (address offset 0x02, bit 4) to one. HW will generate interrupt to FW to indicate Host(Driver) reads out the event.
    - File changed:
      - if\_cf.c
        - cf\_interrupt()
        - sbi\_get\_int\_status()
        - sbi\_read\_event\_cause().
        - sbi\_read\_event\_cause()
- Device Driver Code Clean Up
  - Removed unsupported features
    - Pass Through related files and functions are removed
  - Removed unsupported APIs and related functions
    - CMD\_802\_11\_ASSOCIATE

- TLV-based CMD\_802\_11\_ASSOCIATE\_EXT is used instead
- Non TLV based SCAN
- Non TLV based CMD\_802\_11\_ASSOCIATE\_EXT
- HostCmd\_CMD\_802\_11\_CAL\_DATA
  - CAL\_DATA\_EXT is used instead
- HostCmd\_CMD\_802\_11\_PRE\_TBTT
- HostCmd\_CMD\_SET\_DTIM\_MULTIPLE
  - In order to set multiple DTIMs, use numDTIMs fields in the CMD\_802\_11\_PS\_MODE
- HostCmd\_CMD\_802\_11\_TX\_MODE
- HostCmd\_CMD\_802\_11\_TX\_CONTROL\_MODE
- PS\_CMD
  - HostCmd\_SubCmd\_TxPend\_PS
  - HostCmd\_SubCmd\_ChangeSet\_PS
  - HostCmd\_SubCmd\_No\_Tx\_Pkt
- HostCmd\_CMD\_802\_11\_QUERY\_STATUS
- HostCmd\_CMD\_802\_11\_QUERY\_TRAFFIC
- HostCmd\_CMD\_BCA\_CONFIG
- HostCmd\_CMD\_802\_11\_PASSTHROUGH
- Old WPA APIs
  - HostCmd\_CMD\_802\_11\_CONFIG\_RSN
  - HostCmd\_CMD\_802\_11\_UNICAST\_CIPHER
  - HostCmd\_CMD\_802\_11\_RSN\_AUTH\_SUITES
  - HostCmd\_CMD\_802\_11\_RSN\_STATS
  - HostCmd\_CMD\_802\_11\_PWK\_KEY
  - HostCmd\_CMD\_802\_11\_GRP\_KEY
  - HostCmd\_CMD\_802\_11\_MCAST\_CIPHER
  - HostCmd\_CMD\_802\_11\_QUERY\_RSN\_OPTION
- Added compiler flag for re-assoc module. It could be enabled or disabled at compiling time
- Added more comments
  - Added more comments in major functions
  - Added more comments in major data structures and variables
- Added Doxygen-compatible format header
- Changed some files
  - e.g if\_ixstatus.h is removed, since the content is not used anymore
  - e.g if\_cfmactreg.h is merged to if\_cf.h, since the content is similar

- Change the name of function `sbi_download_wlan_fw()` to `sbi_prog_firmware_w_helper()`
- Remove the debug code which is not be used anymore:
  - Controlled by `#if DEBUG`
  - Controlled by `#ifdef DEBUG`
  - Controlled by `#if TXRX_DEBUG`
  - Controlled by `#if TX_PRINT_DEBUG`
  - Controlled by `#RX_PRINT_DEBUG`
- Remove the support of Tx Dummy packet as well as SD8305 and SD8385-A0
- Remove the code in driver/firmware for beacon contention window
- Correct the function `sbi_disable_host_int()` and `sbi_enable_host_int()`
  - Separate function enable/disable interrupts and mask/unmask event.
- implement `sbi_enable/disable` function by calling `enable_irq` and `disable_irq` for GSPI and CF

**Bug fixes:**

- Firmware:
  - Throughput starts low and then picks up later (1st time only)
    - The transmit data rate starts with 54Mbps rather than 1Mbps. An increase in the initial throughput should be observed due to this.
  - SNR values fluctuate when going out and coming in range of the associated AP
  - Beacon NF varies
  - Infrastructure mode: TLS-TKIP - reassociation gives error when fragmentation = 500 bytes on AP
  - Remove the code in driver/firmware for beacon contention window. The following MAC register writes replaces this API.
    - Should use the MAC register 0xa0e0 with `wlanconfig`
    - To read the current value of beacon contention window → `wlanconfig eth1 rdmac 0xa0e0`
    - To set a beacon contention window of 1023 → `wlanconfig eth1 wrmac 0xa0e0 1023`
  - Incorrect value of RSSI in Scan results
    - The problem is due to biased offset added on scan result but not on data pkts or beacons
  - Rate adaptation - the starting rate does not go below 11 Mbps even in weak signal zones after lot of retries/ packet loss
  - WMM Access Category parameter change at AP-side is not reflected at STA
  - UUT stops sending beacons after scan when Netgear WG511 joins network
- Driver:
  - Reset some parameters of security when disconnect
    - Adapter->SecInfo.Auth1XAlg = `WLAN_1X_AUTH_ALG_NONE`
    - Adapter->SecInfo.EncryptionMode = `CIPHER_NONE`
    - Adapter->Wpa\_ie\_len = 0
  - Remove the control of WMM compiler flag for priority field in TxPD and RxPD
    - It is enabled for 8385 only if WMM is enabled

**Known issues:**

- None

**Note:**

- Supports new EEPROM structure (rev 0xa)
- Disable 11d in firmware on power on.
- Please refer to the **README file** for updated usage manuals on `iwpriv` and `wlan_config`.