

cProduct: Realtek OpenWRT SDK
Version: **V2.5**
Date: **Sep 2, 2016**

Description:

Realtek provides WiFi Router/AP SDK based on OpenWRT framework. The firmware could be adopted in Realtek EV (evaluation) board, or platforms designed according to Realtek reference circuit.

The following sections will describe the hardware requirements, feature and the release history.

Hardware Supported:

Realtek 11n FE Router/AP EV board:

- RTL8198C + embedded Giga switch
- RTL8197FS + 8367R Giga Switch
- RTL8197F + embedded 10/100M switch
- RTL8954E + embedded Giga switch
- RTL8197DL + embedded 10/100M switch
- RTL8197DN + 8367R Giga Switch
- RTL8196D + embedded 10/100M switch
- RTL8881AQ/AN + 10/100M embedded switch
- RTL8881AB + 8367R Giga Switch
- RTL8196E + 10/100M embedded switch

Hardware limitation:

→ 98C/97F/8954E platform

- 8M bytes flash , 64M bytes DRAM is minimum requirement for OpenWRT SDK.
- 16M bytes flash is minimum requirement for OpenWRT SDK Dual Image support

→ 97D/96D/8881A/96E platform

- 8M bytes flash , 64M bytes DRAM is minimum requirement for OpenWRT SDK.
- 16M bytes flash is minimum requirement for OpenWRT SDK Dual Image support

OpenWRT version:

- OpenWRT v14.07 BarrierBreaker (r42889)
- Linux kernel : v3.10.49

Features :

- 802.11 a/b/g/n AP mode support
- 2.4G/5G Dual Band support*
- 80211.ac mode (VHT80)*
- Multiple SSID support/ Client mode / Repeater mode / Ad-hoc mode
- Open system support , WEP support
- WPA TKIP and WPA2 AES/Mixed mode for PSK
- 802.1x Radius support for AP mode
- WPS support

- WDS support
- Wifi 5M/10M bandwidth control
- Wifi Auto channel (hostapd-based)
- Wifi Direct support
- PSD control API and Channel utilization information report support
- Firmware upgrade support
- Support Linux InputButton/LEDs device based GPIO driver
- Swconfig support
- USB2.0/USB3.0 ,OTG support*
- SATA support*
- Dual Image support
- HW watchdog support
- Nand flash support*
- Gpio-button-hotplug support
- Proprietary High performance filesystem module (NTFS/exFAT/HFS+)
- Bluetooth support*

** Depend on HW platform*

Release History:

**** Realtek OpenWRT SDK v2.5 – Sep 2, 2016 ****

Change Log

- Update BSP drivers to support RTL8197F platform
- Wifi driver changed as:
 - Add 8822 and 97F Wifi driver support
 - Some fine tune for Wifi performance and stability

**** Realtek OpenWRT SDK v2.4 – July 24, 2015 ****

Change Log

- Refine for NAND flash support
- Add fast NAT and hardware Multicast/NAT support
- Fix some USB OTG driver issue
- Wifi driver changed as:
 - Add 8814AR and 8194AR support
 - Ad-Hoc Mode Support 40M|80M & 11N|11AC
 - Fix client mode rate adaptive function working abnormal issue
 - Fix some universal repeater mode issues
 - Add 8192ER LNA type selection in menu config
 - Fix WDS bandwidth wrong issue in 11ac mode
 - Update rate adaptive function and some settings to improve 8192ER and 8188ER performance
 - Update rate adaptive function to improve 8812AR and 8881A performance
 - Add 8881AM 2 layer board support
 - Modify 92E CCK Cyclic Delay Diversity setting
 - Fix some function_off function issues
 - Fix WAPI group key not working when MBSSID is enabled
 - Fix antenna diversity function not working for station connected in vxd or vap interface

**** Realtek OpenWRT SDK v2.3 – Nov 21, 2014 ****

Change Log

- Upgrade SDK version to base on “OpenWRT v14.07 barrierbreaker”
- Upgrade linux kernel to v3.10.49
- Enable CPU L2 cache function(98C only)
- Fine-tune Samba performance
- Add Proprietary High performance filesystem module (NTFS/exFAT/HFS+)
- Fix 5281(9xD/8881A) toolchain bug to support NPTL
- Gpio driver bug fix to support gpio-button-hotplug module
- 32M flash support(98C only)
- Add Bluetooth support(98C/8881A only)
- Wifi driver changed as:
 - Fix antenna diversity function not working for station connected to virtual interfaces
 - Fix WiFi logo test failed item 4.2.5, 4.2.10, 4.2.47, when station enter power save mode, ping test will fail (for 8192E, 8881A, 8188E, and 8812)
 - Fix 8812 and 8881A frequency deviation issue when doing power tracking for large temperature difference (induced from previous version, v2.2)
 - Improve stability of throughput test for 8812
 - Add external LNA support for 8188E
 - Modify client mode group-key re-key function to support 2 group keys and fix MIC error issue with Apple AP for 8188E pure client mode
 - Fix TRX antenna diversity setting issue for 8188E
 - Add internal PA support for 8881AM and 8881AB
 - Add TRX antenna diversity support for 8881A selectable configuration
 - Update adaptivity function to v7.1 for new test conditions
 - Fix pure WDS mode low throughput issue (for 8192E)
 - Fix TRX antenna diversity setting issue with external LNA (for 8192E)
 - Add PA support of RTC5633 and RTC5634 for 8881AN
 - Fix throughput unstable and beacon missing issues when Tx beamforming is enabled (for 8192E)
 - Add dynamic bandwidth switching function for 5G band
 - Fix WiFi logo test failed item 4.2.25-T06
 - Fix low Rx sensitivity issue for 8188E while MP mode
 - Support DFS function base on Cfg80211 architecture
 - Support auto channel selection by Hostapd
 - Fix repeater mode connectivity lost issue

**** Realtek OpenWRT SDK v2.2 – June 30, 2014 ******Change Log**

- Nand flash support (98C/97D/8881A)
- 512M DRAM support (98C only)
- USB3.0 phy setting fine-tune
- Linux watchdog device support
- 5281/4181(97D/8881A/96E) toolchain bug fix
- Eth driver rx IP checksum offload support
- Fix 256M DRAM memory access issue (8881A/97D)
- Force LUCI version to v0.11 (latest stable release)
- 98C SMP affinity and RPS setting fine tune for better performance
- Fix 98C switch LED not working issue
- Wifi driver changed as:
 - Wifi Direct support
 - Auto channel support (hostapd-based)
 - Disable PCIe spread spectrum when using 8192E

- *Fix WiFi logo test failed item 4.2.47 for 8812 and 8192E*
 - *Fix Tx beamforming not working when MBSSID is enabled for 8812 and 8192E*
 - *Fix CCK power degraded issue for 8192E high power board when power tracking is not enabled*
 - *Fix NSS1 MCS0-MCS3 tx power too large issue for 8812 1T1R mode*
 - *Update power by rate and power limit table for 8192E high power board to avoid burning PA*
 - *Modify adaptivity function for new test plan*
 - *Add RF IQ calibration for 8192E high power board to improve performance*
 - *Disable "Improve more power save in idle mode for 2-receiver devices" by default (can be manually enabled by mib)*
 - *Fix 8192E client mode long connection time issue in channel 11 and 40M mode*
 - *Fix system crash issue when doing traffic with more than 8 stations*
 - *Fix WiFi logo test failed item 4.2.25*
 - *Fix Tx power setting error when repeater mode is enabled*
 - *Fix throughput degrade issue when doing long run test*
 - *Fix Wlan LED is not blinking according to calibration value*
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**** Realtek OpenWRT SDK v2.1 – Mar 14, 2014 ****

Change Log

- *Add 8198C/8954E SOC support*
 - *Add 8196D SOC support*
 - *Upgrade linux kernel version from v3.10.28 to v3.10.32 (OpenWRT trunk)*
 - *Wifi Driver performance and stability fine-tune*
 - *Fix 5281/4181 rsdk toolchain issue for building some package that need "err" uClibc function*
 - *flash utility support to initialize signature while not calibrated*
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**** Realtek OpenWRT SDK v2.0 – Mar 07, 2014 ****

First v2.0 Release