文章目录

硬件平台

移植步骤

1. 修改内核配置

2. 编译驱动文件

3. 驱动模块安装

4. AP模式

5. Station模式

6. AP + Station并发模式

错误

硬件平台

芯片：AM335X

内核版本：Linux/arm 3.14.26

移植步骤

1. 修改内核配置

添加IEEE 802.11协议

[\*] Networking support --->

-\*- Wireless --->

--- Wireless

<\*> cfg80211 - wireless configuration API

[\*] enable powersave by default

[\*] cfg80211 wireless extensions compatibility

<\*> Generic IEEE 802.11 Networking Stack (mac80211)

[\*] Minstrel

[\*] Minstrel 802.11n support

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添加Host AP

Device Drivers --->

[\*] Network device support --->

[\*] Wireless LAN --->

<\*> IEEE 802.11 for Host AP (Prism2/2.5/3 and WEP/TKIP/CCMP)

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2. 编译驱动文件

编译驱动文件，以内核模块方式加载。

驱动源码下载：[RTL8188EUS\_linux\_v4.3.0.7\_12758.20141114.zip]

链接：https://pan.baidu.com/s/1uJDGOOCxiQ8sBTM6oHXp7Q

提取码：3wkd

解压缩RTL8188EUS\_linux\_v4.3.0.7\_12758.20141114.zip，进入RTL8188EUS\_linux\_v4.3.0.7\_12758.20141114/driver/文件夹，解压缩rtl8188EUS\_linux\_v4.3.0.7\_12758.20141114.tar.gz到当前文件夹，修改Makefile文件。

CONFIG\_PLATFORM\_I386\_PC = n //屏蔽默认选项

...

CONFIG\_PLATFORM\_ARM\_AM335X = y //新增此定义

ifeq ($(CONFIG\_PLATFORM\_ARM\_AM335X), y)

EXTRA\_CFLAGS += -DCONFIG\_LITTLE\_ENDIAN

ARCH := arm

CROSS\_COMPILE := /home/mq/project/Dasheng\_AM335X/am335x/tools/x86-linux-gnu/bin/arm-linux-gnueabihf- //交叉编译器路径

KVER := 3.14.26 //内核版本

KSRC := /home/mq/project/Dasheng\_AM335X/am335x/src/am335x-linux-3.14.26/ //内核文件路径

endif

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修改完以上内容，直接编译

make

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拷贝生成的8188eu.ko驱动模块到板子上

参考：《Quick\_Start\_Guide\_for\_Driver\_Compilation\_and\_Installation.pdf》

3. 驱动模块安装

拷贝到板子之后

root@am335x-evm:~/modules# ls

8188eu.ko

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安装内核模块

root@am335x-evm:~/modules# insmod 8188eu.ko

[ 2432.905038] RTL871X: module init start

[ 2432.909282] RTL871X: rtl8188eu v4.3.0.7\_12758.20141114

[ 2432.914775] RTL871X: build time: Mar 11 2019 15:00:26

[ 2432.922312] RTL871X:

[ 2432.922312] usb\_endpoint\_descriptor(0):

[ 2432.928953] RTL871X: bLength=7

[ 2432.932166] RTL871X: bDescriptorType=5

[ 2432.936158] RTL871X: bEndpointAddress=81

[ 2432.940278] RTL871X: wMaxPacketSize=512

[ 2432.944330] RTL871X: bInterval=0

[ 2432.947721] RTL871X: RT\_usb\_endpoint\_is\_bulk\_in = 1

[ 2432.952841] RTL871X:

[ 2432.952841] usb\_endpoint\_descriptor(1):

[ 2432.959271] RTL871X: bLength=7

[ 2432.962479] RTL871X: bDescriptorType=5

[ 2432.966436] RTL871X: bEndpointAddress=2

[ 2432.970462] RTL871X: wMaxPacketSize=512

[ 2432.974508] RTL871X: bInterval=0

[ 2432.977898] RTL871X: RT\_usb\_endpoint\_is\_bulk\_out = 2

[ 2432.983106] RTL871X:

[ 2432.983106] usb\_endpoint\_descriptor(2):

[ 2432.989528] RTL871X: bLength=7

[ 2432.992735] RTL871X: bDescriptorType=5

[ 2432.996692] RTL871X: bEndpointAddress=3

[ 2433.000718] RTL871X: wMaxPacketSize=512

[ 2433.004800] RTL871X: bInterval=0

[ 2433.008189] RTL871X: RT\_usb\_endpoint\_is\_bulk\_out = 3

[ 2433.013428] RTL871X: nr\_endpoint=3, in\_num=1, out\_num=2

[ 2433.013428]

[ 2433.020468] RTL871X: USB\_SPEED\_HIGH

[ 2433.026482] RTL871X: CHIP TYPE: RTL8188E

[ 2433.030694] RTL871X: register rtw\_netdev\_ops to netdev\_ops

[ 2433.037296] RTL871X: Chip Version Info: CHIP\_8188E\_Normal\_Chip\_TSMC\_A\_CUT\_1T1R\_RomVer(0)

[ 2433.046027] RTL871X: RF\_Type is 3!!

[ 2433.049709] RTL871X: \_ConfigNormalChipOutEP\_8188E OutEpQueueSel(0x05), OutEpNumber(2)

[ 2433.058390] RTL871X: EEPROM type is E-FUSE

[ 2433.062829] RTL871X: ====> \_ReadAdapterInfo8188EU

[ 2433.068148] RTL871X: Boot from EFUSE, Autoload OK !

[ 2433.079178] RTL871X: SetHwReg8188EU: bMacPwrCtrlOn=1

[ 2433.089888] bFWReady == \_FALSE call reset 8051...

[ 2433.095716] RTL871X: =====> \_8051Reset88E(): 8051 reset success .

[ 2433.115742] RTL871X: efuse\_read\_phymap\_from\_txpktbuf bcnhead:0

[ 2433.122391] RTL871X: efuse\_read\_phymap\_from\_txpktbuf len:118, lenbak:118, aaa:118, aaabak:118

[ 2433.136235] RTL871X: efuse\_read\_phymap\_from\_txpktbuf read count:116

[ 2433.143102] RTL871X: EEPROM ID=0x8129

[ 2433.147000] RTL871X: VID = 0x0BDA, PID = 0x8179

[ 2433.151761] RTL871X: Customer ID: 0x00, SubCustomer ID: 0xCD

[ 2433.157738] RTL871X: Hal\_ReadPowerSavingMode88E...bHWPwrPindetect(0)-bHWPowerdown(0) ,bSupportRemoteWakeup(1)

[ 2433.168169] RTL871X: ### PS params=> power\_mgnt(1),usbss\_enable(0) ###

[ 2433.175141] RTL871X: ======= Path 0, Channel 1 =======

[ 2433.180538] RTL871X: Index24G\_CCK\_Base[0][1] = 0x25

[ 2433.185684] RTL871X: Index24G\_BW40\_Base[0][1] = 0x2b

[ 2433.190895] RTL871X: ======= Path 0, Channel 2 =======

[ 2433.196313] RTL871X: Index24G\_CCK\_Base[0][2] = 0x25

[ 2433.201435] RTL871X: Index24G\_BW40\_Base[0][2] = 0x2b

[ 2433.206669] RTL871X: ======= Path 0, Channel 3 =======

[ 2433.212064] RTL871X: Index24G\_CCK\_Base[0][3] = 0x25

[ 2433.217207] RTL871X: Index24G\_BW40\_Base[0][3] = 0x2b

[ 2433.222419] RTL871X: ======= Path 0, Channel 4 =======

[ 2433.227836] RTL871X: Index24G\_CCK\_Base[0][4] = 0x25

[ 2433.232957] RTL871X: Index24G\_BW40\_Base[0][4] = 0x2b

[ 2433.238195] RTL871X: ======= Path 0, Channel 5 =======

[ 2433.243613] RTL871X: Index24G\_CCK\_Base[0][5] = 0x25

[ 2433.248735] RTL871X: Index24G\_BW40\_Base[0][5] = 0x2b

[ 2433.253969] RTL871X: ======= Path 0, Channel 6 =======

[ 2433.259365] RTL871X: Index24G\_CCK\_Base[0][6] = 0x25

[ 2433.264509] RTL871X: Index24G\_BW40\_Base[0][6] = 0x2b

[ 2433.269721] RTL871X: ======= Path 0, Channel 7 =======

[ 2433.275138] RTL871X: Index24G\_CCK\_Base[0][7] = 0x25

[ 2433.280260] RTL871X: Index24G\_BW40\_Base[0][7] = 0x2b

[ 2433.285493] RTL871X: ======= Path 0, Channel 8 =======

[ 2433.290888] RTL871X: Index24G\_CCK\_Base[0][8] = 0x25

[ 2433.296048] RTL871X: Index24G\_BW40\_Base[0][8] = 0x2b

[ 2433.301261] RTL871X: ======= Path 0, Channel 9 =======

[ 2433.306681] RTL871X: Index24G\_CCK\_Base[0][9] = 0x24

[ 2433.311804] RTL871X: Index24G\_BW40\_Base[0][9] = 0x2a

[ 2433.317039] RTL871X: ======= Path 0, Channel 10 =======

[ 2433.322526] RTL871X: Index24G\_CCK\_Base[0][10] = 0x24

[ 2433.327765] RTL871X: Index24G\_BW40\_Base[0][10] = 0x2a

[ 2433.333069] RTL871X: ======= Path 0, Channel 11 =======

[ 2433.338578] RTL871X: Index24G\_CCK\_Base[0][11] = 0x24

[ 2433.343811] RTL871X: Index24G\_BW40\_Base[0][11] = 0x2a

[ 2433.349115] RTL871X: ======= Path 0, Channel 12 =======

[ 2433.354623] RTL871X: Index24G\_CCK\_Base[0][12] = 0x22

[ 2433.359836] RTL871X: Index24G\_BW40\_Base[0][12] = 0x28

[ 2433.365163] RTL871X: ======= Path 0, Channel 13 =======

[ 2433.370649] RTL871X: Index24G\_CCK\_Base[0][13] = 0x22

[ 2433.375884] RTL871X: Index24G\_BW40\_Base[0][13] = 0x28

[ 2433.381188] RTL871X: ======= Path 0, Channel 14 =======

[ 2433.386696] RTL871X: Index24G\_CCK\_Base[0][14] = 0x22

[ 2433.391909] RTL871X: Index24G\_BW40\_Base[0][14] = 0x28

[ 2433.397237] RTL871X: ======= TxCount 0 =======

[ 2433.401904] RTL871X: CCK\_24G\_Diff[0][0]= 0

[ 2433.406227] RTL871X: OFDM\_24G\_Diff[0][0]= 2

[ 2433.410622] RTL871X: BW20\_24G\_Diff[0][0]= 0

[ 2433.415035] RTL871X: BW40\_24G\_Diff[0][0]= 0

[ 2433.419425] RTL871X: EEPROMRegulatory = 0x0

[ 2433.423844] RTL871X: mlmepriv.ChannelPlan = 0x20

[ 2433.428692] RTL871X: CrystalCap: 0x20

[ 2433.432536] RTL871X: EEPROM Customer ID: 0x 0

[ 2433.437137] RTL871X: EEPROM : AntDivCfg = 0, TRxAntDivType = 3

[ 2433.443279] RTL871X: Board Type: 0x 0

[ 2433.447124] RTL871X: ThermalMeter = 0x18

[ 2433.451244] RTL871X: <==== \_ReadAdapterInfo8188EU in 390 ms

[ 2433.499563] RTL871X: init\_channel\_set ChannelPlan ID 20 Chan num:13

[ 2433.507932] RTL871X: pwrctrlpriv.bSupportRemoteWakeup~~~~~~

[ 2433.513843] RTL871X: pwrctrlpriv.bSupportRemoteWakeup~~~[1]~~~

[ 2433.519976] RTL871X: can't get autopm:

[ 2433.524047] RTL871X: rtw\_macaddr\_cfg MAC Address = 00:11:7f:45:10:61

[ 2433.530815] RTL871X: bDriverStopped:1, bSurpriseRemoved:0, bup:0, hw\_init\_completed:0

[ 2433.595038] RTL871X: rtw\_ndev\_init(wlan0)

[ 2433.608842] RTL871X: \_rtw\_drv\_register\_netdev, MAC Address (if1) = 00:11:7f:45:10:61

[ 2433.625581] usbcore: registered new interface driver rtl8188eu

[ 2433.631752] RTL871X: module init ret=0

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检查模块是否安装成功

root@am335x-evm:~/modules# ifconfig wlan0 up

[ 2505.334091] RTL871X: +871x\_drv - drv\_open, bup=0

[ 2505.338993] RTL871X: Set RF Chip ID to RF\_6052 and RF type to 1T1R.

[ 2505.347242] RTL871X: rtl8188e\_FirmwareDownload fw:NIC, size: 13904

[ 2505.354022] RTL871X: rtl8188e\_FirmwareDownload: fw\_ver=b fw\_subver=0001 sig=0x88e1, Month=11, Date=27, Hour=30, Minute=36

[ 2505.381116] RTL871X: polling\_fwdl\_chksum: Checksum report OK! (1, 0ms), REG\_MCUFWDL:0x00030005

[ 2505.391338] RTL871X: =====> \_8051Reset88E(): 8051 reset success .

[ 2505.398168] RTL871X: \_FWFreeToGo: Polling FW ready OK! (1, 10ms), REG\_MCUFWDL:0x000300c6

[ 2505.406715] RTL871X: FWDL success. write\_fw:1, 40ms

[ 2505.683516] ==> rtl8188e\_iol\_efuse\_patch

[ 2505.733796] RTL871X: pDM\_Odm TxPowerTrackControl = 1

[ 2505.918341] RTL871X: rtl8188eu\_hal\_init in 580ms

[ 2505.923964] RTL871X: hw\_var\_set\_opmode()-2938 mode = 2

[ 2505.931653] RTL871X: MAC Address = 00:11:7f:45:10:61

[ 2505.937513] RTL871X: -871x\_drv - drv\_open, bup=1

root@am335x-evm:~/modules# [ 2507.936714] RTL871X: ==>rtw\_ps\_processor .fw\_state(8)

[ 2507.942051] RTL871X: ==>ips\_enter cnts:1

[ 2507.946230] RTL871X: nolinked power save enter

[ 2507.950898] RTL871X: ===> rtw\_ips\_pwr\_down...................

[ 2507.956963] RTL871X: ====> rtw\_ips\_dev\_unload...

[ 2507.979046] RTL871X: usb\_read\_port\_cancel

[ 2507.983993] RTL871X: usb\_read\_port\_complete() RX Warning! bDriverStopped(0) OR bSurpriseRemoved(0)

[ 2507.993860] RTL871X: usb\_read\_port\_complete() RX Warning! bDriverStopped(0) OR bSurpriseRemoved(0)

[ 2508.003732] RTL871X: usb\_read\_port\_complete() RX Warning! bDriverStopped(0) OR bSurpriseRemoved(0)

[ 2508.013573] RTL871X: usb\_read\_port\_complete() RX Warning! bDriverStopped(0) OR bSurpriseRemoved(0)

[ 2508.023176] RTL871X: usb\_read\_port\_complete() RX Warning! bDriverStopped(0) OR bSurpriseRemoved(0)

[ 2508.032974] RTL871X: usb\_read\_port\_complete() RX Warning! bDriverStopped(0) OR bSurpriseRemoved(0)

[ 2508.043078] RTL871X: usb\_read\_port\_complete() RX Warning! bDriverStopped(0) OR bSurpriseRemoved(0)

[ 2508.052943] RTL871X: usb\_read\_port\_complete() RX Warning! bDriverStopped(0) OR bSurpriseRemoved(0)

[ 2508.062645] RTL871X: usb\_write\_port\_cancel

[ 2508.067534] RTL871X: ==> rtl8188eu\_hal\_deinit

[ 2508.072411] RTL871X: bkeepfwalive(0)

[ 2508.079923] RTL871X: SetHwReg8188EU: bMacPwrCtrlOn=0

[ 2508.085191] RTL871X: <=== rtw\_ips\_pwr\_down..................... in 140ms

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查看网口信息，多出wlan0网卡

root@am335x-evm:~/modules# ifconfig

eth0 Link encap:Ethernet HWaddr E4:39:80:16:F5:C4

inet addr:192.168.2.125 Bcast:192.168.2.255 Mask:255.255.255.0

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:16901 errors:0 dropped:6 overruns:0 frame:0

TX packets:8824 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:11790505 (11.2 MiB) TX bytes:1371622 (1.3 MiB)

Interrupt:56

lo Link encap:Local Loopback

inet addr:127.0.0.1 Mask:255.0.0.0

UP LOOPBACK RUNNING MTU:65536 Metric:1

RX packets:10 errors:0 dropped:0 overruns:0 frame:0

TX packets:10 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:0

RX bytes:700 (700.0 B) TX bytes:700 (700.0 B)

wlan0 Link encap:Ethernet HWaddr 00:11:7F:45:10:61

UP BROADCAST MULTICAST MTU:1500 Metric:1

RX packets:0 errors:0 dropped:0 overruns:0 frame:0

TX packets:0 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

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4. AP模式

为了让板子上的RTL8188模块，发出WIFI信号，其他设备可以连接进来，即把RTL8188当作WIFI热点来使用，需要借助hostapd来实现。

解压缩wpa\_supplicant\_hostapd.zip，进入wpa\_supplicant\_hostapd-0.8\_rtw\_r7475.20130812/hostapd/文件夹下，修改Makefile并编译源码

//在ifndef CC之前定义CC编译器

CC=/home/mq/project/Dasheng\_AM335X/am335x/tools/x86-linux-gnu/bin/arm-linux-gnueabihf-gcc

ifndef CC

CC=gcc

endif

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执行make编译hostapd。

拷贝wpa\_supplicant\_hostapd/文件夹下的rtl\_hostapd\_2G.conf到板子的/etc/目录下。

root@am335x-evm:~# hostapd -d /etc/rtl\_hostapd\_2G.conf -B

启动hostapd，并置于后台运行。以下为hostapd启动日志。

random: Trying to read entropy from /dev/random

Configuration file: /etc/rtl\_hostapd\_2G.conf

[ 9411.227675] RTL871X: +871x\_drv - drv\_open, bup=1

[ 9411.232722] RTL871X: -871x\_drv - drv\_open, bup=1

drv->ifindex=3

l2\_sock\_recv==l2\_sock\_xmit=0x0x52638[ 9411.240963] RTL871X: \_rtw\_pwr\_wakeup call ips\_leave....

[ 9411.249605] RTL871X: ==>ips\_leave cnts:7

[ 9411.253794] RTL871X: ===> rtw\_ips\_pwr\_up..............

[ 9411.259301] RTL871X: ===> ips\_netdrv\_open.........

[ 9411.267714] RTL871X: SetHwReg8188EU: bMacPwrCtrlOn=1

[ 9411.273013] RTL871X: Set RF Chip ID to RF\_6052 and RF type to 1T1R.

[ 9411.280412] RTL871X: rtl8188e\_FirmwareDownload fw:NIC, size: 13904

[ 9411.286925] RTL871X: rtl8188e\_FirmwareDownload: fw\_ver=b fw\_subver=0001 sig=0x88e1, Month=11, Date=27, Hour=30, Minute=36

[ 9411.314026] RTL871X: polling\_fwdl\_chksum: Checksum report OK! (1, 0ms), REG\_MCUFWDL:0x00030005

[ 9411.324259] RTL871X: =====> \_8051Reset88E(): 8051 reset success .

[ 9411.331203] RTL871X: \_FWFreeToGo: Polling FW ready OK! (1, 10ms), REG\_MCUFWDL:0x000300c6

[ 9411.339706] RTL871X: FWDL success. write\_fw:1, 40ms

[ 9411.610304] ==> rtl8188e\_iol\_efuse\_patch

[ 9411.653651] RTL871X: pDM\_Odm TxPowerTrackControl = 1

[ 9411.834743] RTL871X: rtl8188eu\_hal\_init in 570ms

[ 9411.839775] RTL871X: hw\_var\_set\_opmode()-2938 mode = 2

[ 9411.847909] RTL871X: <=== rtw\_ips\_pwr\_up.............. in 590ms

[ 9411.854276] RTL871X: nolinked power save leave

[ 9411.859176] RTL871X: ==> ips\_leave.....LED(0x00028282)...

[ 9411.864890] RTL871X: set\_mode = IW\_MODE\_MASTER

[ 9411.870200] RTL871X: hw\_var\_set\_opmode()-2938 mode = 3

BSS count 1, BSSID mask 00:00:00:00:00:00 (0 bit[ 9411.876348] RTL871X: rtw\_hostapd\_sta\_flush

s)

Scan for neighboring BSSes prior to enabling 40 MHz channel

Failed to request a scan of neighboring BSSes

HT40: control channel: 6 secondary channel: 10

Completing interface initialization

Mode: IEEE 802.11g Channel: 6 Frequency: 2437 MHz

RATE[0] rate=10 flags=0x1

RATE[1] rate=20 flags=0x1

RATE[2] rate=55 flags=0x1

RATE[3] rate=110 flags=0x1

RATE[4] rate=60 flags=0x0

RATE[5] rate=90 flags=0x0

RATE[6] rate=120 flags=0x0

RATE[7] rate=180 flags=0x0

RATE[8] rate=240 flags=0x0

RATE[9] rate=360 flags=0x0

RATE[10] rate=480 flags=0x0

RATE[11] rate=540 flags=0x0

Flushing old station entries

[ 9412.061635] RTL871X: rtw\_sta\_flush(wlan0)

[ 9412.065871] RTL871X: issue\_deauth to ff:ff:ff:ff:ff:ff

Deauthenticate all stations

+rtl871x\_sta\_dea[ 9412.072003] RTL871X: rtw\_set\_encryption

uth\_ops, ff:ff:ff:ff:ff:ff is deauth, reason=2

[ 9412.079794] RTL871X: clear default encryption keys, keyid=0

rtl871x\_set\_key\_ops

rtl871x\_set\_key\_ops

[ 9412.126527] RTL871X: rtw\_set\_encryption

[ 9412.132059] RTL871X: clear default encryption keys, keyid=1

rtl871x\_set\_key\_ops

[ 9412.138220] RTL871X: rtw\_set\_encryption

[ 9412.144060] RTL871X: clear default encryption keys, keyid=2

rtl871x\_set\_key\_ops

[ 9412.253401] RTL871X: rtw\_set\_encryption

[ 9412.259220] RTL871X: clear default encryption keys, keyid=3

Using interface wlan0 with hwaddr 00:11:7f:45:10:61 and ssid 'rtwap'

Deriving WPA PSK based on passphrase

SSID - hexdump\_ascii(len=5):

72 74 77 61 70 rtwap

PSK (ASCII passphrase) - hexdump\_ascii(len=8): [REMOVED]

PSK (from passphrase) - hexdump(len=32): [REMOVE[ 9412.397508] RTL871X: rtw\_set\_beacon, len=149

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WPS: Use configured UUID - hexdump(len=16): [ 9412.405550] RTL871X: rtw\_check\_beacon\_data, len=135

[ 9412.414878] RTL871X: [HT] Support STBC = 0x01

WPS: Build Beacon IEs

WPS: \* Version (hardcod[ 9412.424120] RTL871X: update\_hw\_ht\_param

ed 0x10)

WPS: \* Wi-Fi Protected Setup State (2)

WPS: Build Probe Response IEs

WPS: \* Versio[ 9412.436121] RTL871X: CH=6, BW=1, offset=1

n (hardcoded 0x10)

WPS: \* Wi-Fi Protected Setu[ 9412.445057] RTL871X: HW\_VAR\_BASIC\_RATE: 0x15f -> 0x15f -> 0x15f

p State (2)

WPS: \* Response Type (3)

WPS: \* [ 9412.455387] RTL871X: ### Set STA\_(1) info

UUID-E

WPS: \* Manufacturer

WPS: \* Model Name[ 9412.463353] RTL871X: update\_bmc\_sta=> mac\_id:1 , raid:6 , bitmap=0xf

WPS: \* Model Number

WPS: \* Serial Number

W[ 9412.474354] RTL871X: rtl8188e\_Add\_RateATid=> mac\_id:1 , raid:6 , ra\_bitmap=0xf, shortGIrate=0x00

PS: \* Primary Device Type

[ 9412.487664] RTL871X: ### MacID(1),Set Max Tx RPT MID(2)

WPS: \* Config Methods (18c)

WPS: \* RF Bands [ 9412.497761] RTL871X: ### rtl8188e\_set\_FwMediaStatus\_cmd: MStatus=1 MACID=1

(1)

rtl871x\_set\_beacon\_ops

[ 9412.510085] RTL871X: assoc success

rtl871x\_set\_hidden\_ssid ignore\_broadcast\_ssid:0,[ 9412.515547] RTL871X: rtw\_set\_hidden\_ssid(wlan0) ignore\_broadcast\_ssid:0, rtwap,5

rtwap,5

rtl871x\_set\_acl

rtl871x\_set\_wps\_[ 9412.527983] RTL871X: rtw\_set\_wps\_assoc\_resp, len=14

assoc\_resp\_ie

rtl871x\_set\_wps\_beacon\_ie[ 9412.536624] RTL871X: rtw\_set\_wps\_beacon, len=30

rtl871x\_set\_wps\_probe\_resp\_ie

[ 9412.544879] RTL871X: rtw\_set\_wps\_probe\_resp, len=136

urandom: Got 20/20 bytes from /dev/urandom

GMK - hexdump(len=32): [REMOVED]

Key Counter - hexdump(len=32): [REMOVED]

WPA: group state machi[ 9412.561890] RTL871X: rtw\_set\_encryption

ne entering state GTK\_INIT (VLAN-ID 0)

GTK - he[ 9412.569634] RTL871X: rtw\_set\_encryption, set group\_key, CCMP

xdump(len=16): [REMOVED]

WPA: group state machi[ 9412.579817] RTL871X: rtw\_ap\_set\_group\_key

ne entering state SETKEYSDONE (VLAN-ID 0)

rtl871x\_set\_key\_ops

[ 9412.589581] RTL871X: set group key camid:1, addr:00:00:00:00:00:00, kid:1, type:AES

[ 9412.602743] RTL871X: SetHwReg8188EU, 3663, RCR= 7000208e

rtl871x\_set\_beacon\_ops

[ 9412.609151] RTL871X: rtw\_set\_beacon, len=171

[ 9412.615687] RTL871X: rtw\_check\_beacon\_data, len=157

[ 9412.620862] RTL871X: [HT] Support STBC = 0x01

[ 9412.625840] RTL871X: update\_hw\_ht\_param

[ 9412.633582] RTL871X: CH=6, BW=1, offset=1

[ 9412.640338] RTL871X: HW\_VAR\_BASIC\_RATE: 0x15f -> 0x15f -> 0x15f

[ 9412.647292] RTL871X: ### Set STA\_(1) info

[ 9412.651567] RTL871X: update\_bmc\_sta=> mac\_id:1 , raid:6 , bitmap=0xf

[ 9412.658248] RTL871X: rtl8188e\_Add\_RateATid=> mac\_id:1 , raid:6 , ra\_bitmap=0xf, shortGIrate=0x00

[ 9412.667518] RTL871X: ### MacID(1),Set Max Tx RPT MID(2)

[ 9412.673386] RTL871X: ### rtl8188e\_set\_FwMediaStatus\_cmd: MStatus=1 MACID=1

rtl871x\_set\_hidden\_ssid ignore\_broadcast\_ssid:0,[ 9412.681310] RTL871X: rtw\_set\_hidden\_ssid(wlan0) ignore\_broadcast\_ssid:0, rtwap,5

rtwap,5

rtl871x\_set\_acl

wlan0: Setup of interface done.

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通过手机或者其它WIFI设备，可以搜索到rtl8188模块发出的无线信号。WIFI名称以及密码，在rtl\_hostapd\_2G.conf文件中进行配置，默认配置为：

##### hostapd configuration file ##############################################

interface=wlan0

ctrl\_interface=/var/run/hostapd

ssid=rtwap

channel=6

wpa=2

wpa\_passphrase=87654321

#bridge=br0

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参考：《Quick\_Start\_Guide\_for\_SoftAP.pdf》

5. Station模式

Station模式下，RTL8188模块可以作为WIFI客户端，去连接其它设备的AP信号，比如连接到路由器级，实现上网功能。

解压缩wpa\_supplicant\_hostapd.zip，进入wpa\_supplicant\_hostapd-0.8\_rtw\_r7475.20130812/wpa\_supplicant/文件夹下，修改Makefile并编译源码

CC=/home/mq/project/Dasheng\_AM335X/am335x/tools/x86-linux-gnu/bin/arm-linux-gnueabihf-gcc

ifndef CC

CC=gcc

endif

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执行make编译，得到wpa\_supplicant和wpa\_cli应用程序，拷贝到板子的/usr/bin目录下，在/etc/目录下，创建wpa\_supplicant.conf文件，内容为

ctrl\_interface=/var/run/wpa\_supplicant

update\_config=1

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通过wpa\_cli配置目标AP的信号，即WIFI用户名和密码。

//首先启动wpa\_supplicant，后台运行

root@am335x-evm:~# wpa\_supplicant -Dwext -iwlan0 -c /etc/wpa\_supplicant.conf -B

//扫描周边的wifi信号

root@am335x-evm:~# wpa\_cli -p/var/run/wpa\_supplicant scan

//查看扫描的结果

root@am335x-evm:~# wpa\_cli -p/var/run/wpa\_supplicant scan\_results

Selected interface 'wlan0'

bssid / frequency / signal level / flags / ssid

68:db:54:30:08:ff 2412 93 [WPA-PSK-TKIP+CCMP][WPA2-PSK-TKIP+CCMP][ESS] 317

40:f4:20:bf:fa:0a 2452 80 [WPA-PSK-TKIP+CCMP][WPA2-PSK-TKIP+CCMP][WPS][ESS] ChinaNet-kisW

8c:14:b4:5a:6f:10 2447 68 [WPA-PSK-TKIP+CCMP][WPA2-PSK-TKIP+CCMP][WPS][ESS] ChinaNet-7ECn

d0:76:e7:2f:6b:20 2437 61 [WPA-PSK-CCMP][WPA2-PSK-CCMP][ESS] myy888

74:7d:24:d2:b5:dc 2422 58 [WPA-PSK-TKIP+CCMP][WPA2-PSK-TKIP+CCMP][ESS] @PHICOMM\_401

50:3a:a0:48:24:1e 2412 56 [WPA-PSK-CCMP][WPA2-PSK-CCMP][ESS] gja2095

d0:c7:c0:e8:84:f4 2452 56 [WPA-PSK-CCMP][WPA2-PSK-CCMP][WPS][ESS] TP-LINK\_84F4

50:bd:5f:10:e0:a4 2437 56 [WPA-PSK-CCMP][WPA2-PSK-CCMP][ESS]

dc:fe:18:00:1e:d7 2462 42 [WPA-PSK-TKIP+CCMP][WPA2-PSK-TKIP+CCMP][ESS] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

50:bd:5f:6b:16:a6 2437 48 [WPA-PSK-CCMP][WPA2-PSK-CCMP][WPS][ESS] TPlink-RunOne

a4:56:02:d6:1f:45 2412 46 [WPA-PSK-CCMP][WPA2-PSK-CCMP][ESS] happle12345

28:f3:66:b3:a2:52 2422 46 [WPA2-PSK-CCMP][WPS][ESS] B-LINK\_B3A252

fc:d7:33:c2:dd:3c 2462 44 [WPA-PSK-CCMP][WPA2-PSK-CCMP][ESS] 401

d4:61:2e:b8:84:80 2462 43 [WPA2-PSK-CCMP][WPS][ESS] HUAWEI-8

0c:ef:af:d0:c5:1c 2462 43 [WPA-PSK-CCMP][ESS] Widora-C51C

8c:14:b4:53:98:08 2427 46 [WPA-PSK-TKIP+CCMP][WPA2-PSK-TKIP+CCMP][WPS][ESS] ChinaNet-sUXm

18:bc:5a:0b:78:90 2462 45 [WPA2-PSK-CCMP][ESS]

1e:bc:5a:0b:78:90 2462 44 [WPA2-PSK-CCMP][ESS] runone

22:bc:5a:0b:78:90 2462 43 [WPA2-PSK-CCMP][ESS] runone\_guest

28:6c:07:45:78:2e 2457 42 [WPA-PSK-TKIP+CCMP][WPA2-PSK-TKIP+CCMP][WPS][ESS] QianDou Technoligy

88:44:77:a8:ec:95 2412 47 [WPA2-PSK-CCMP][ESS]

74:7d:24:ca:76:68 2437 26 [WPA2-PSK-CCMP][ESS] PD

bc:46:99:4a:8b:60 2462 26 [WPA-PSK-CCMP][WPA2-PSK-CCMP][ESS] TP-LINK\_201

8c:be:be:10:0e:23 2432 26 [WPA-PSK-TKIP+CCMP][WPA2-PSK-TKIP+CCMP][WPS][ESS] Xiaomi\_0E22

2a:f3:66:b2:a2:52 2422 44 [ESS] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_WiFi

2a:6c:07:44:78:2e 2457 26 [ESS]

//连接到目标AP

//查看当前连接的AP（没有连接）

root@am335x-evm:~# wpa\_cli -p/var/run/wpa\_supplicant list\_network

Selected interface 'wlan0'

network id / ssid / bssid / flags

//新增网络信息

root@am335x-evm:~# wpa\_cli -p/var/run/wpa\_supplicant add\_network 0

Selected interface 'wlan0'

0

//再次查看网络列表，多了id为0的网络

root@am335x-evm:~# wpa\_cli -p/var/run/wpa\_supplicant list\_network

Selected interface 'wlan0'

network id / ssid / bssid / flags

0 any [DISABLED]

//设置wifi用户名，注意字符串格式

root@am335x-evm:~# wpa\_cli -p/var/run/wpa\_supplicant set\_network 0 ssid '"317"'

Selected interface 'wlan0'

OK

//设置wifi密码

root@am335x-evm:~# wpa\_cli -p/var/run/wpa\_supplicant set\_network 0 psk '"woyaohaohaoxuexi"'

//启动网络连接

root@am335x-evm:~# wpa\_cli -p/var/run/wpa\_supplicant select\_network 0

//保存以上配置

root@am335x-evm:~/modules# wpa\_cli -p/var/run/wpa\_supplicant save\_config

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执行DHCP动态获取IP地址

udhcpc -i wlan0 -q

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设置路由

route add default gw 192.168.2.1 dev wlan0

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参考：《Quick\_Start\_Guide\_for\_Station\_Mode.pdf》

6. AP + Station并发模式

为了能够让WIFI工作在AP+Station模式，RTL8188 需要配置成并发模式（concurrent mode）。具体可以参考RTL8188EUS\_linux\_v4.3.0.7\_12758.20141114/document/的Realtek\_WiFi\_concurrent\_mode\_Introduction.pdf文档。

在driver/rtl8188EUS\_linux\_v4.3.0.7\_12758.20141114/include/autoconf.h文件中，定位到110行，取消//#define CONFIG\_CONCURRENT\_MODE

#define CONFIG\_CONCURRENT\_MODE

#ifdef CONFIG\_CONCURRENT\_MODE

//#define CONFIG\_HWPORT\_SWAP //Port0->Sec , Port1 -> Pri

#define CONFIG\_RUNTIME\_PORT\_SWITCH

//#define DBG\_RUNTIME\_PORT\_SWITCH

#define CONFIG\_STA\_MODE\_SCAN\_UNDER\_AP\_MODE

#define CONFIG\_TSF\_RESET\_OFFLOAD // For 2 PORT TSF SYNC.

#endif

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重新编译内核模块，拷贝到板子，安装内核模块insmod 8188eu.ko。

查看网口信息，可以看到多了wlan0和wlan1，说明已经安装成功。

root@am335x-evm:~/modules# ifconfig -a

eth0 Link encap:Ethernet HWaddr E4:39:80:16:F5:C4

inet addr:192.168.2.132 Bcast:192.168.2.255 Mask:255.255.255.0

UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1

RX packets:55920 errors:0 dropped:33 overruns:0 frame:0

TX packets:12445 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:21227695 (20.2 MiB) TX bytes:1857228 (1.7 MiB)

Interrupt:56

lo Link encap:Local Loopback

inet addr:127.0.0.1 Mask:255.0.0.0

UP LOOPBACK RUNNING MTU:65536 Metric:1

RX packets:10 errors:0 dropped:0 overruns:0 frame:0

TX packets:10 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:0

RX bytes:700 (700.0 B) TX bytes:700 (700.0 B)

wlan0 Link encap:Ethernet HWaddr 00:11:7F:45:10:61

BROADCAST MULTICAST MTU:1500 Metric:1

RX packets:0 errors:0 dropped:0 overruns:0 frame:0

TX packets:0 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

wlan1 Link encap:Ethernet HWaddr 02:11:7F:45:10:61

BROADCAST MULTICAST MTU:1500 Metric:1

RX packets:0 errors:0 dropped:0 overruns:0 frame:0

TX packets:0 errors:0 dropped:0 overruns:0 carrier:0

collisions:0 txqueuelen:1000

RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

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参考：《Realtek\_WiFi\_concurrent\_mode\_Introduction.pdf》

移植dns服务器

首先手动设置wlan0网口的IP地址为192.168.8.1，启动AP模式，root@am335x-evm:~/modules# hostapd /etc/rtl\_hostapd\_2G.conf -B。

要让hostap模式能够自动为连接上来的用户分配IP地址，需要借助dns服务器来实现。dns服务器有很多种，这里选择dnsmasq，下载链接:dnsmasq下载链接

我这里选择的版本是：dnsmasq-2.80.tar.gz

解压缩，进入dnsmasq-2.80/文件夹，修改Makefile文件

CC = /home/mq/project/Dasheng\_AM335X/am335x/tools/x86-linux-gnu/bin/arm-linux-gnueabihf-gcc

# PREFIX = /usr/local

PREFIX = /home/mq/project/Dasheng\_AM335X/wifi\_rtl8188eus/dnsmasq-2.80/\_install

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添加CC变量，指定交叉编译器；修改make install的安装路径为当前路径下的\_install文件夹，\_install文件夹手动创建。修改完之后，保存，然后执行编译并安装。

make;make install

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安装完成之后，在dnsmasq-2.80/\_install/sbin/文件夹下，得到可执行文件dnsmasq，拷贝到板子的/usr/sbin目录下。

接下来是修改dnsmasq的配置文件。

拷贝dnsmasq-2.80/dnsmasq.conf.example到板子系统的/etc/目录下，并改名为dnsmasq.conf。

# If you want dnsmasq to listen for DHCP and DNS requests only on

# specified interfaces (and the loopback) give the name of the

# interface (eg eth0) here.

# Repeat the line for more than one interface.

interface=wlan0 # 指定网口

# Uncomment this to enable the integrated DHCP server, you need

# to supply the range of addresses available for lease and optionally

# a lease time. If you have more than one network, you will need to

# repeat this for each network on which you want to supply DHCP

# service.

#dhcp-range=192.168.0.50,192.168.0.150,12h

dhcp-range=192.168.8.2,192.168.8.255,12h # 指定分配的IP地址范围

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启动dnsmasq服务器，root@am335x-evm:~/modules# dnsmasq -C /etc/dnsmasq.conf

添加端口转发

# echo '1' > /proc/sys/net/ipv4/ip\_forward

# iptables -t nat -A POSTROUTING -o wlan1 -j MASQUERADE

# iptables -A FORWARD -i wlan0 -o eth0 -j ACCEPT

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eth0 连接到路由器，然后，手机连接到rtl8188的AP上，即可实现手机和板子同时上网。

屏蔽调试信息

/RTL8188EUS\_linux\_v4.3.0.7\_12758.20141114/driver/rtl8188EUS\_linux\_v4.3.0.7\_12758.20141114/include/autoconf.h文件的379行，屏蔽

#define CONFIG\_DEBUG /\* DBG\_871X, etc... \*/

//#define CONFIG\_DEBUG\_RTL871X /\* RT\_TRACE, RT\_PRINT\_DATA, \_func\_enter\_, \_func\_exit\_ \*/

#define CONFIG\_PROC\_DEBUG

#define DBG\_CONFIG\_ERROR\_DETECT

//#define DBG\_CONFIG\_ERROR\_DETECT\_INT

#define DBG\_CONFIG\_ERROR\_RESET

===>

//#define CONFIG\_DEBUG /\* DBG\_871X, etc... \*/

//#define CONFIG\_DEBUG\_RTL871X /\* RT\_TRACE, RT\_PRINT\_DATA, \_func\_enter\_, \_func\_exit\_ \*/

//#define CONFIG\_PROC\_DEBUG

//#define DBG\_CONFIG\_ERROR\_DETECT

//#define DBG\_CONFIG\_ERROR\_DETECT\_INT

//#define DBG\_CONFIG\_ERROR\_RESET

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错误

hostapd无法启动

root@am335x-evm:~# hostapd -d /etc/rtl\_hostapd\_2G.conf -B

random: Trying to read entropy from /dev/random

Configuration file: /etc/rtl\_hostapd\_2G.conf

drv->ifindex=5

l2\_sock\_recv==l2\_sock\_xmit=0x0x52638

ioctl[SIOCSIWMODE]: Operation not supported

Could not set interface to mode(3)!

Could not set interface to master mode!

rtl871xdrv driver initialization failed.

rmdir[ctrl\_interface]: No such file or directory

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需要修改内核配置

Device Drivers --->

[\*] Network device support --->

[\*] Wireless LAN --->

<\*> IEEE 802.11 for Host AP (Prism2/2.5/3 and WEP/TKIP/CCMP)

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MASQUERADE 错误

root@am335x-evm:~# iptables -t nat -A POSTROUTING -o eth0 -j MASQUERADE

iptables v1.8.2 (legacy): Couldn't load target `MASQUERADE':No such file or directory

Try `iptables -h' or 'iptables --help' for more information.

root@am335x-evm:~# iptables -h

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编译iptables时候，使用静态链接方式，不要使用动态链接方式。

./configure --host=arm-linux --enable-static --disable-shared --prefix=/home/mq/project/Dasheng\_AM335X/wifi\_rtl8188eus/iptables/\_\_install/ --disable-ipv6 --disable-largefile --disable-nftables CC=/home/mq/project/Dasheng\_AM335X/am335x/tools/x86-linux-gnu/bin/arm-linux-gnueabihf-gcc

make;make isntall

拷贝xtables-legacy-multi到板上的/usr/sbin目录下，手动创建软连接ln -s xtables-legacy-multi iptables。

————————————————

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