Product Name	GAOTek Dual Band Enterprise WIFI
Product SKU	GAOTek-EWIFI-142
Product URL	https://gaotek.com/product/gaotek-dual-band-enterprise-wifi/

Contents

1. Product Introduction

Based on Qualcomm IPQ9574+QCN9274/6224 triple band concurrent WiFi solution, 2.4G 4x4 (max 1376Mbps), 5G 4x4 (max 5764Mbps), 6G 4x4 (max 5764Mbps). This document provides quick start guide for bring up basic wireless service via CLI.

Hardware Interface:
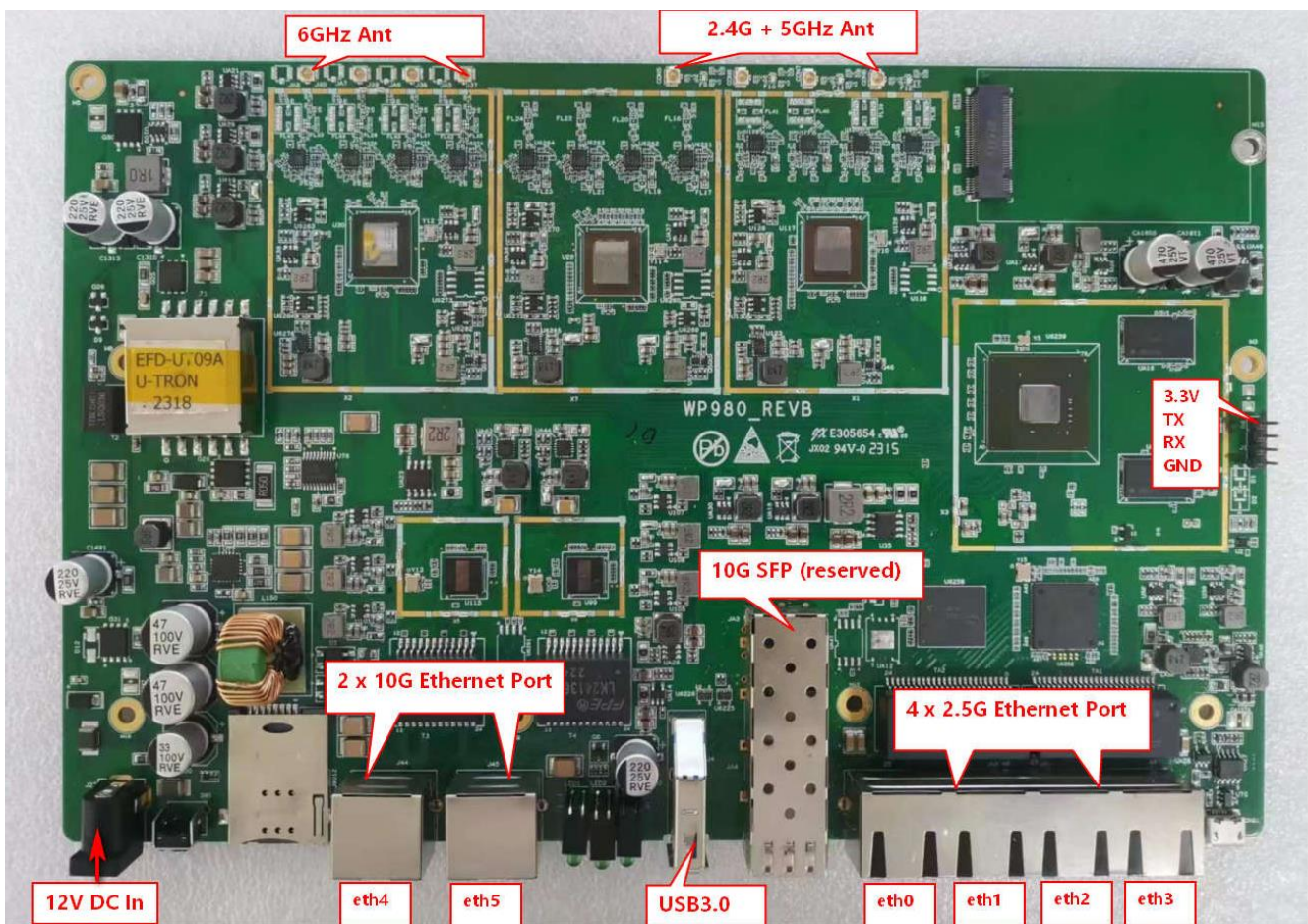
2. Configure Network via CLI

2.1. Setup

CLI is available via Telnet or serial port.

Preparation:
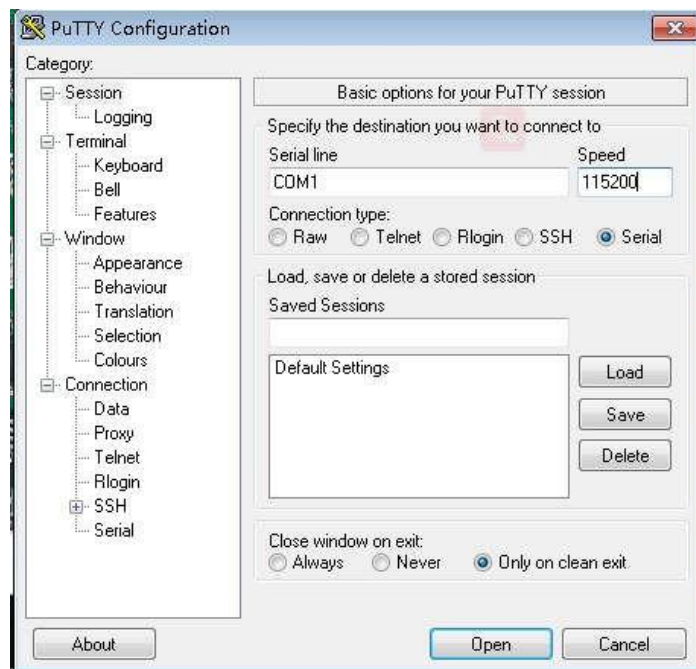
1) 12V 2A or PoE (802.3bt) power adapter.
2) The configuration for the serial UART Port:

Bits per second / Data bits / Parity / Stop bits / Flow control: 115200/8/None/1/None

2.2. Power on and Login

Power on by PoE adapter (either of Ethernet port).

Serial Console (putty.exe for example**):**

SSH/UART Login

2.3. Configure LAN IP

Configure LAN IP address: e.g. 192.168.1.1

uci set network.lan.proto=static

*uci set
network.lan.ipaddr=192.168.1.1uci
commit
/etc/init.d/network restart*

2.4. Configure Wi-Fi AP Setting

Wireless setting example for AP mode

2.4G+5G:

uci set wireless.wifi0.disabled=0
uci set
wireless.wifi0.hwmode=11beguci
set wireless.wifi0.htmode=HT40
uci set wireless.wifi0.channel=1
uci set wireless.@wifi-iface[0].device=wifi0

uci set wireless.@wifi-iface[0].mode=ap
uci set wireless.@wifi-iface[0].ssid=OpenWrt2G uci set

wireless.@wifi-iface[0].encryption=noneuci set
wireless.@wifi-iface[1].disablecoext=1 uci set
wireless.wifi1.disabled=0
uci set wireless.wifi1.hwmode=11axauci set

wireless.wifi1.htmode=HT160uci set

wireless.wifi1.channel=40

uci set wireless.@wifi-
iface[1].device=wifi1uci set wireless.@wifi-
iface[1].mode=ap
uci set wireless.@wifi-
iface[1].ssid=OpenWrt5G uci set
wireless.@wifi-iface[1].encryption=noneuci
commit wireless
wifi

For WIFI6E, WPA3 is must. AP example settings as bellow:

uci set wireless.wifi2.channel=auto
&&uci set
wireless.wifi2.hwmode=11bea &&
uci set
wireless.wifi2.htmode=HT320 &&
uci set wireless.wifi2.disabled=0
&& uci set wireless.wifi2.band=3
&&
uci set wireless.@wifi-iface[2].mode=ap &&

uci set wireless.@wifi-iface[2].ssid=OpenWrt6G && uci set wireless.@wifi-iface[2].encryption=ccmp &&uci set wireless.@wifi-iface[2].key=1234567890 &&

uci set wireless.@wifi-iface[2].sae=1 &&

uci set wireless.@wifi-iface[2].sae_pwe=1 &&

uci set wireless.@wifi-iface[2].sae_password=1234567890 &&uci set wireless.@wifi-iface[2].ieee80211w=2 &&

uci commit &&wifi

Check supported channel list

iwlist ath0 channel iwlist

ath1 channel iwlist ath2 channel

For more detail information

wlanconfig ath0 list chan

wlanconfig ath1 list chan

wlanconfig ath2 list chan

Major Wireless Setting

Item	Option	Notes
wireless.@wifi-iface[x].mode	**ap**	
	sta	

wireless.@wifi-device[x].htmode	HT20, HT40, HT80,		Bandwidth
	HT160		
wireless.@wifi-device[x].hwmode	11axa,11axg,11ng,		
	11ac, 11an		
wireless.@wifi-iface[x].encryption	none		Security is open
	psk2,	psk,	Passphrase:
	psk-mixed		wireless.@wifi-iface[x].key=xxx
	psk2+tkip+ccmp		xxxxx
	psk+tkip+ccmp		
	psk-mixed+tkip+ccm		
	p		
	psk2+ccmp,		
	psk+ccmp		
	psk-mixed+ccmp		
	psk2+tkip,		
	psk+tkip		
	psk-mixed+tkip		
	ccmp		
wireless.@wifi-iface[0].wds	1, 0		Enable WDS or not.

For sae on 5G VAP:

uci set wireless.@wifi-iface[1].encryption=ccmpuci set wireless.@wifi-iface[1].key=1234567890
uci set wireless.@wifi-iface[1].sae=1
uci add_list wireless.@wifi-iface[1].sae_password=1234567890uci set wireless.@wifi-iface[1].ieee80211w=2

uci commit wirelesswifi

For wpa2+sae on 5G VAP:

uci set wireless.@wifi-iface[1].encryption=psk2+ccmpuci set wireless.@wifi-iface[1].key=1234567890 uci set wireless.@wifi-iface[1].sae=1

uci add_list wireless.@wifi-iface[1].sae_password=1234567890uci set wireless.@wifi-iface[1].ieee80211w=2 uci
commit
wireless
wifi

For sae on 6G VAP:

uci set wireless.@wifi-iface[2].encryption=ccmpuci set wireless.@wifi-iface[2].key=1234567890 uci set wireless.@wifi-iface[2].sae=1 uci add_list wireless.@wifi-iface[2].sae_password=1234567890uci set wireless.@wifi-iface[2].ieee80211w=2 uci commit wirelesswifi

NOTE：

By default, security should be SAE on 6GHz radio and other security isn't allowed.

Other Network Setting:

Use command "uci show network" and "uci show dhcp".

Use command "uci set xxxx=yyyy && uci commit" to save setting.

iwconfig show VAP interface:

```
root@OpenWrt:/#
root@OpenWrt:/# iwconfig ath0
ath0      IEEE 802.11beg  ESSID:"OpenWrt2G"
          Mode:Master  Frequency:2.437 GHz  Access Point: 00:03:7F:12:F0:F0
          Bit Rate:1.3764 Gb/s   Tx-Power:28 dBm
          RTS thr:off    Fragment thr:off
          Encryption key:off
          Power Management:off
          Link Quality=0/94  Signal level=-88 dBm  Noise level=-88 dBm (BDF aver
aged NF value in dBm)
          Rx invalid nwid:1680  Rx invalid crypt:0  Rx invalid frag:0
          Tx excessive retries:0  Invalid misc:0   Missed beacon:0

root@OpenWrt:/#
root@OpenWrt:/# iwconfig ath1
ath1      IEEE 802.11bea  ESSID:"OpenWrt5G"
          Mode:Master  Frequency:5.2 GHz  Access Point: 00:03:7F:12:E7:E7
          Bit Rate:5.7648 Gb/s   Tx-Power:27 dBm
          RTS thr:off    Fragment thr:off
          Encryption key:off
          Power Management:off
          Link Quality=0/94  Signal level=-101 dBm  Noise level=-101 dBm (BDF av
eraged NF value in dBm)
          Rx invalid nwid:480  Rx invalid crypt:0  Rx invalid frag:0
          Tx excessive retries:0  Invalid misc:0   Missed beacon:0

root@OpenWrt:/#
```

2.5. Configure Wi-Fi Client Mode

Wireless setting for STA mode

2.4G

uci set wireless.wifi0.disabled=0
uci set wireless.wifi1.disabled=1
uci set wireless.wifi2.disabled=1
uci set
wireless.wifi1.hwmode=11beguci
set wireless.wifi1.htmode=auto
uci set
wireless.wifi1.channel=auto
uci set wireless.@wifi-iface[0].device=wifi0uci set

wireless.@wifi-iface[0].mode=sta

uci set wireless.@wifi-iface[0].extap=1

uci set wireless.@wifi-iface[0].disablecoext=1
uci set wireless.@wifi-
iface[0].ssid=OpenWrt2G uci set
wireless.@wifi-iface[0].encryption=noneuci
commit wireless

wifi

5G

uci set wireless.wifi0.disabled=1 uci set

wireless.wifi1.disabled=0 uci set

wireless.wifi2.disabled=1 uci set

wireless.wifi1.hwmode=11beauci set

wireless.wifi1.htmode=auto uci set

wireless.wifi1.channel=auto

*uci set wireless.@wifi-
iface[1].device=wifi1uci set wireless.@wifi-
iface[1].mode=sta
uci set wireless.@wifi-iface[1].extap=1*

*uci set wireless.@wifi-
iface[1].ssid=OpenWrt5G uci set
wireless.@wifi-iface[1].encryption=noneuci
commit wireless*
wifi

6G

*uci set wireless.wifi0.disabled=1
uci set wireless.wifi1.disabled=1
uci set wireless.wifi2.disabled=0
uci set
wireless.wifi2.hwmode=11beauci
set wireless.wifi2.htmode=auto
uci set
wireless.wifi2.channel=auto
uci set wireless.@wifi-
iface[2].device=wifi2uci set
wireless.@wifi-iface[2].mode=sta
uci set wireless.@wifi-iface[2].extap=1*

uci set wireless.@wifi-iface[2].encryption=ccmpuci set wireless.@wifi-iface[2].key=1234567890 uci set wireless.@wifi-iface[2].sae=1

uci set wireless.@wifi-iface[2].sae_pwe=1

uci set wireless.@wifi-iface[2].sae_password=1234567890uci set wireless.@wifi-iface[2].ieee80211w=2

uci commit wireless

wifi

3. Upgrade Firmware

3.1. In U-boot

setenv machid 8040001

setenv bootargs 'console=ttyMSM0,115200n8 cnss2.enable_mlo_support=0'setenv ipaddr 192.168.1.3 && setenv serverip 192.168.1.100
save

tftpboot nand-ipq9574-single.img && imgaddr=$fileaddr && source $imgaddr:script

3.2. In Linux

cd/tmp/&&tftp192.168.11.00-g-rnand-ipq9574-single.img-lfw.img&&sysupgradefw.img

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