

524WiFi 600VX ProPlus

2x2 MIMO 802.11ac Mini PCIe Wi-Fi Module, Dual Band, 2,4GHz / 5GHz
Designed for Enterprise Wireless Dual Band Access Points

ProPlus

- Improved QCA XB140 Reference design for QCA 9880 chipset
- Changed the FEM, power - lower real and extended working temperature range
- Improved RF circuits - Higher Tx Power, better RX sensitivity
- Improved & better layout for higher performance
- See comparison protocol **ProPlus** vs *Standard* module for details
- Designed for heavy data loads & higher amount of clients
- Cases studies available ! Approved for WiFi for passengers & Railroads



Features

- Qualcomm-Atheros QCA9880 chipset
- 2.4GHz max 24dBm & 5GHz max 23dBm output power
- IEEE 802.11ac compliant & backward compatible with 802.11a/b/g/n
- 2x2 MIMO Technology, up to 867Mbps
- Mini PCI Express edge connector
- RoHS compliance ensure a high level protection of human health and the environment from risks that can be posed by chemicals
- Supports Spatial Multiplexing, Cyclic-Delay Diversity (CDD), Low-Density Parity Check (LDPC) Codes, Maximal Ratio Combining (MRC), Space Time Block Code (STBC), Support the Frequency 4920MHz~4980MHz for US region.
- Supports IEEE 802.11d, e, h, i, k, r, v time stamp, and w standards
- Supports Dynamic Frequency Selection (DFS)
- Cards are individually calibrated for Quality Assurance
- Designed for higher numbers of clients connections & support for extreme loads
- Linux drivers support – Ath10k, Candela wireless drivers, based on QCA reference design
- Certifications : CE RED, FCC, IC Canada

Applications

- Profi WiFi hotspot coverage
- Commercial radio coverage
- Hotel Wireless application
- Country coverage
- Internet for passengers (bus, train, plane, ...)
- Security Surveillance
- Some special scene application
- Heavy-duty industrial environment use

Product Description

524WiFi 600VX ProPlus based on QCA9880 chipset is an enterprise wireless module integrated with 2x2 5G high power Radio module and 2x2 2.4G high power Radio module designed specifically to provide users with mobile access to high-bandwidth video streaming, voice, and data transmission for office and challenging RF environment in factories, warehouses establishment. Designed for higher volume of clients & loads. CE RED, IC and FCC certified and full test reports available! FCC 4,9GHZ Certified for US market !

Specifications

Symbol	Parameter
Chipset	QCA9880
Host Interface	Mini PCI Express 1.1 Standard
Antenna Connector	2 x UF.L
Frequency Range	2.4GHz: 2.412GHz to 2.472GHz 5GHz: 4.920GHz to 5.825GHz
Operating Voltage	3.3V DC
Power Consumption	5W (Max)
Modulation Techniques	OFDM: BPSK, QPSK, DBPSK, DQPSK, 16-QAM, 64-QAM, 256-QAM
Environmental Temperature	Operating: -40°C to 70°C, Storage: -40°C to 90°C
Environmental Humidity, non-condensing	Operating: 5% to 95%, Storage: Max. 90%
ROHS Compliance	YES
Dimensions (W×H×D)	30.0mm × 50.9mm × 3.2mm

RF Performance Table

Operating Mode	Data Rate	TX Power		Tolerance
		1 Chain	2 Chains	
2.4 GHz 802.11b	1Mbps	20dBm	23dBm	±2dB
	2Mbps	20dBm	23dBm	±2dB
	5.5Mbps	20dBm	23dBm	±2dB
	11Mbps	20dBm	23dBm	±2dB
2.4 GHz 802.11g	6Mbps	21dBm	24dBm	±2dB
	9Mbps	21dBm	24dBm	±2dB
	12Mbps	21dBm	24dBm	±2dB
	18Mbps	21dBm	24dBm	±2dB
	24Mbps	21dBm	24dBm	±2dB
	36Mbps	20dBm	23dBm	±2dB
	48Mbps	19dBm	22dBm	±2dB
	54Mbps	19dBm	22dBm	±2dB
2.4 GHz 802.11n HT20	MCS0	21dBm	24dBm	±2dB
	MCS1	21dBm	24dBm	±2dB
	MCS2	21dBm	24dBm	±2dB
	MCS3	20dBm	23dBm	±2dB
	MCS4	20dBm	23dBm	±2dB
	MCS5	20dBm	23dBm	±2dB
	MCS6	19dBm	22dBm	±2dB
	MCS7	19dBm	22dBm	±2dB
2.4 GHz 802.11n HT40	MCS0	21dBm	24dBm	±2dB
	MCS1	21dBm	24dBm	±2dB
	MCS2	21dBm	24dBm	±2dB
	MCS3	20dBm	23dBm	±2dB
	MCS4	20dBm	23dBm	±2dB
	MCS5	20dBm	23dBm	±2dB
	MCS6	19dBm	22dBm	±2dB
	MCS7	18dBm	21dBm	±2dB

Operating Mode	Data Rate	RX Sensitivity	Tolerance
2.4 GHz 802.11b	1Mbps	-95dBm	±2dB
	2Mbps	-94dBm	±2dB
	5.5Mbps	-92dBm	±2dB
	11Mbps	-90dBm	±2dB
2.4 GHz 802.11g	6Mbps	-94dBm	±2dB
	9Mbps	-93dBm	±2dB
	12Mbps	-92dBm	±2dB
	18Mbps	-90dBm	±2dB
	24Mbps	-88dBm	±2dB
	36Mbps	-85dBm	±2dB
	48Mbps	-81dBm	±2dB
	54Mbps	-80dBm	±2dB
2.4 GHz 802.11n HT20	MCS0	-93dBm	±2dB
	MCS1	-91dBm	±2dB
	MCS2	-89dBm	±2dB
	MCS3	-84dBm	±2dB
	MCS4	-83dBm	±2dB
	MCS5	-78dBm	±2dB
	MCS6	-78dBm	±2dB
	MCS7	-76dBm	±2dB
2.4 GHz 802.11n HT40	MCS0	-92dBm	±2dB
	MCS1	-88dBm	±2dB
	MCS2	-85dBm	±2dB
	MCS3	-82dBm	±2dB
	MCS4	-79dBm	±2dB
	MCS5	-75dBm	±2dB
	MCS6	-75dBm	±2dB
	MCS7	-73dBm	±2dB

Operating Mode	Data Rate	TX Power		Tolerance
		1 Chain	2 Chains	
5 GHz 802.11a	6Mbps	20dBm	23dBm	±2dB
	9Mbps	20dBm	23dBm	±2dB
	12Mbps	20dBm	23dBm	±2dB
	18Mbps	20dBm	23dBm	±2dB
	24Mbps	20dBm	23dBm	±2dB
	36Mbps	18dBm	21dBm	±2dB
	48Mbps	16dBm	19dBm	±2dB
	54Mbps	16dBm	18dBm	±2dB
5 GHz 802.11n/ac HT20	MCS0	19dBm	22dBm	±2dB
	MCS1	19dBm	22dBm	±2dB
	MCS2	19dBm	22dBm	±2dB
	MCS3	18dBm	21dBm	±2dB
	MCS4	18dBm	21dBm	±2dB
	MCS5	17dBm	20dBm	±2dB
	MCS6	16dBm	19dBm	±2dB
	MCS7	15dBm	18dBm	±2dB
	MCS8	14dBm	17dBm	±2dB
5 GHz 802.11n/ac HT40	MCS0	18dBm	21dBm	±2dB
	MCS1	18dBm	21dBm	±2dB
	MCS2	18dBm	21dBm	±2dB
	MCS3	17dBm	20dBm	±2dB
	MCS4	17dBm	20dBm	±2dB
	MCS5	16dBm	19dBm	±2dB
	MCS6	15dBm	18dBm	±2dB
	MCS7	15dBm	18dBm	±2dB
	MCS8	14dBm	17dBm	±2dB
	MCS9	14dBm	17dBm	±2dB
5 GHz 802.11n/ac HT80	MCS0	18dBm	21dBm	±2dB
	MCS1	18dBm	21dBm	±2dB
	MCS2	18dBm	21dBm	±2dB
	MCS3	17dBm	20dBm	±2dB
	MCS4	17dBm	20dBm	±2dB
	MCS5	16dBm	19dBm	±2dB
	MCS6	15dBm	18dBm	±2dB
	MCS7	15dBm	18dBm	±2dB
	MCS8	14dBm	17dBm	±2dB
	MCS9	14dBm	17dBm	±2dB

Operating Mode	Data Rate	RX Sensitivity	Tolerance
5 GHz 802.11a	6Mbps	-94dBm	±2dB
	9Mbps	-94dBm	±2dB
	12Mbps	-92dBm	±2dB
	18Mbps	-90dBm	±2dB
	24Mbps	-86dBm	±2dB
	36Mbps	-84dBm	±2dB
	48Mbps	-81dBm	±2dB
	54Mbps	-80dBm	±2dB
5 GHz 802.11n/ac HT20	MCS0	-93dBm	±2dB
	MCS1	-90dBm	±2dB
	MCS2	-87dBm	±2dB
	MCS3	-83dBm	±2dB
	MCS4	-80dBm	±2dB
	MCS5	-77dBm	±2dB
	MCS6	-74dBm	±2dB
	MCS7	-73dBm	±2dB
	MCS8	-71dBm	±2dB
5 GHz 802.11n/ac HT40	MCS0	-90dBm	±2dB
	MCS1	-88dBm	±2dB
	MCS2	-85dBm	±2dB
	MCS3	-82dBm	±2dB
	MCS4	-79dBm	±2dB
	MCS5	-75dBm	±2dB
	MCS6	-73dBm	±2dB
	MCS7	-73dBm	±2dB
	MCS8	-69dBm	±2dB
	MCS9	-66dBm	±2dB
5 GHz 802.11n/ac HT80	MCS0	-88dBm	±2dB
	MCS1	-86dBm	±2dB
	MCS2	-84dBm	±2dB
	MCS3	-81dBm	±2dB
	MCS4	-77dBm	±2dB
	MCS5	-74dBm	±2dB
	MCS6	-73dBm	±2dB
	MCS7	-70dBm	±2dB
	MCS8	-67dBm	±2dB
MCS9	-65dBm	±2dB	

MiniPCle Slot Pin Assignment

TOP Side		Bottom Side	
1	PCIE_WAKE_L	2	VCC_3V3
3	NC	4	GND
5	NC	6	NC
7	PCIE_CLKREQ_L	8	NC
9	GND	10	NC
11	PCIE_REFCLK_N	12	NC
13	PCIE_REFCLK_P	14	NC
15	GND	16	NC
Mechanical key			
17	NC	18	GND
19	NC	20	GPIO0_WLAN_DIS
21	GND	22	PCIE_RST_L
23	PCIE_TX_N	24	VCC_3V3
25	PCIE_TX_P	26	GND
27	GND	28	NC
29	GND	30	NC
31	PCIE_RX_P	32	NC
33	PCIE_RX_N	34	GND
35	GND	36	NC
37	GND	38	NC
39	VCC_3V3 (RESERVED)	40	GND
41	VCC_3V3 (RESERVED)	42	NC
43	GND	44	GPIO1_WLAN_LED
45	NC	46	GPIO17_BT_LED
47	NC	48	NC
49	NC	50	GND
51	NC	52	VCC_3V3

GPIO Pin Mapping

GPIO Pin	Function		
GPIO0	WLAN_DIS		
GPIO1	WLAN_LED		
GPIO2	MCI_CLK_IN		
GPIO3	MCI_CLK_OUT		
GPIO4	MCI_DATA_OUT		
GPIO5	MCI_DATA_IN		
GPIO12	TMS		
13	TCK		
14	TDI		
15	TDO		
16	CPU_WARM_RESET / JTEG RESET		
17	GPIO17_BT_LED		
19	ANT_A		
20	ANT_B		
21	FEM_BS		
22	FEM_MODE		

Versions

Version	CPU	Feature
524WiFi 600VX-7A	QCA9880	ProPlus commercial grade advanced version
524WiFi 600VX-I	QCA9890	Industrial grade, Operation Temp. up to 85°
524WiFi 600VX-4.9	QCA9880	Calibrated for 4.9GHz (US)

For more protocols and details check:

<http://wifi5.eu/dls/524wifi/524wifi600vxProPlus/>

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