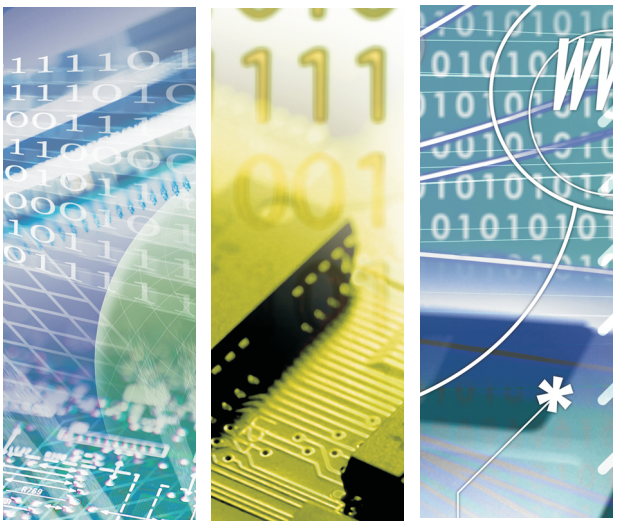
CPE109A

WLAN 802.11 a/ac 3T3R miniPCIe Module



CPE109A

5GHz WLAN 802.11 a/ac 3T3R miniPCIe module

Introduction of Products

Bointec CPE109A mini PCI Express (CPE109A miniPCIe hereafter) is a Wi-Fi module form factor, performing as 3x3 Wi-Fi client mode solutions with compact size. In addition the module is designed to deliver up to 1.3Gbps wireless data rate and target for next-generation home and enterprise wireless access points for a variety of high-reliable and bandwidth-intensive video-over-wireless applications.

A state-of-the-art and highly efficient architecture decrease the process requirements and power consumption while acting wireless performance of 802.11ac 3X3 to enable broad adoption of home and enterprise wireless networking. A significant high level of integration reduces external components in order to enhance reliability and promote the industry forwarding for advanced features. Therefore, it is able to diverse needs of high reliable home and enterprise networking. This document describes the system specification of the 3x3 Wi-Fi 802.11 a/ac based on 5GHz frequency band. The CPE109A is compliant with external PA and LNA for extreme performance.

Product Highlight

- main chip Qualcomm Atheros QCA9880
- Bands: 5GHz
- IEEE 802.11 and 802.11ac standard
- Interfaces: mini PCI Express
- 3T3R
- 3 IPEX antenna connector
- External PA and LNA for Extreme Performance
- Single band support, IEEE 802.11a/ac
- Support 20MHz, 40MHz and 80MHz Bandwidth
- Support 256 QAM Modulation
- Antenna Port Data rate up t 1.3Gbps
- 30 X 50 mm size with the same mounting hole location as the standard full mini card
- Operating temperature:0~60 degrees C
- Power input requirement : 1.2V DC in
- RoHS compliance

Specification

Module (PCB-A)	
Dimensions	50.8(+/-0.2mm)*29.85(+/-0.2mm)
Main Chip	QualComm Atheros QCA9880(3x3)
Host Interface	PCI Express Mini Card Electromechanical Specification Revision 1.2.
Operation voltage	3.3V +/- 5%
Standard Conformance	IEEE 802.11a and IEEE 802.11ac
Frequency Range	• USA: 5.15-5.35 GHz, 5.47-5.725 GHz, 5.725-5.825GHz • Europe: 5.15-5.35GHz, 5.47-5.725GHz • Japan: 5.15-5.35GHz, 5.47-5.725GHz • China 5.725GHz-5.85GHz
Operation voltage	3.3V +/- 5%
RF connector	3x SMT Ultra-miniature coaxial connectors(U.FL-R-SMT)
TX/RX	3T3R, RX diversity
Electronics characteristics	
Operating Temperature	0℃ ~60℃
Storage Temperature	-20℃~+80℃
Operating Humidity	15%~95%, non-condensing
Storage Humidity	Max.95%, non-condensing

Power Consumption

		Avg./Max.(mA)
Power consumption (typical level with +/- 50mA tolerance)	11a continue Tx @ GM_18dBm	1120
	11a continue Tx @ HT20 MCS16 (MIMO)_18dBm	1070
	11a continue Tx @ HT40 MCS16 (MIMO)_18dBm	980
	11a continue Tx @ HT20 MCS23 (MIMO)_14dBm	800
	11a continue Tx @ HT40 MCS23 (MIMO)_14dBm	740
	11ac continue Tx @ VHT40 MCS0_NSS3_18dBm	1070
	11ac continue Tx @ VHT80 MCS0_NSS3_18dBm	750
	11ac continue Tx @ VHT40 MCS9_NSS3_14dBm	750
	Idle	80
	Standby	260

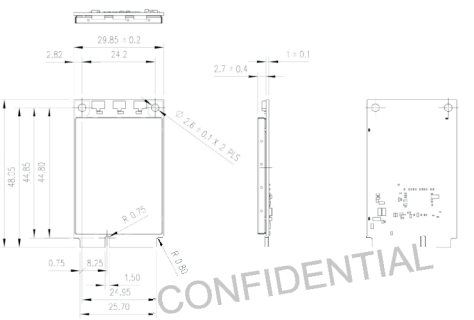
		IEEE 802.11a/ac		
		CH36~48	CH52~64	CH100~165
Average TX Power(typical power level per chain, with +/- 2dB tolerance)	20MHz BW	6Mbps	18	18	18
		9Mbps	18	18	18
		12Mbps	18	18	18
		18Mbps	18	18	18
		24Mbps	18	18	18
		36Mbps	18	18	18
		48Mbps	18	18	18
		54Mbps	16	16	16
		HT20 MCS0	18	18	18
		HT20 MCS1	18	18	18
		HT20 MCS2	18	18	18
		HT20 MCS3	18	18	18
		HT20 MCS4	18	18	18
		HT20 MCS5	18	18	18
		HT20 MCS6	18	18	18
		HT20 MCS7	16	16	16
		VHT20_MCS8	15	15	15
	40MHz BW	HT40 MCS0	18	18	18
		HT40 MCS1	18	18	18
		HT40 MCS2	18	18	18
		HT40 MCS3	18	18	18
		HT40 MCS4	18	18	18
		HT40 MCS5	18	18	18
		HT40 MCS6	18	18	18
		HT40 MCS7	16	16	16
		VHT40_MCS8	15	15	15
		VHT40_MCS9	14	14	14
	80MHz BW	VHT80_MCS0	18	18	18
		VHT80_MCS1	18	18	18
		VHT80_MCS2	18	18	18
		VHT80_MCS3	18	18	18
		VHT80_MCS4	18	18	18
		VHT80_MCS5	18	18	18
		VHT80_MCS6	18	18	18
		VHT80_MCS7	16	16	16
		VHT80_MCS8	15	15	15
		VHT80_MCS9	14	14	14

Receiver Sensitivity

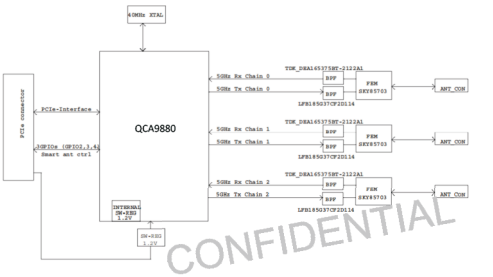
		IEEE 802.11a/ac		
		CH36~48	CH52~64	CH100~165
Receiver Sensitivity(typical 3 chains combined sensitivity level with +2/-2dB tolerance)	20MHz BW	6Mbps	-95	-95	-95
		9Mbps	-94	-94	-94
		12Mbps	-93	-93	-93
		18Mbps	-90	-90	-90
		24Mbps	-88	-88	-88
		36Mbps	-85	-85	-85
		48Mbps	-78	-78	-78
		54Mbps	-76	-76	-76
		HT20 MCS0	-94	-94	-94
		HT20 MCS1	-92	-92	-92
		HT20 MCS2	-90	-90	-90
		HT20 MCS3	-86	-86	-86
		HT20 MCS4	-83	-83	-83
		HT20 MCS5	-78	-78	-78
		HT20 MCS6	-77	-77	-77
		HT20 MCS7	-76	-76	-76
		VHT20_MCS8	-72	-72	-72
	40MHz BW	HT40 MCS0	-92	-92	-92
		HT40 MCS1	-91	-91	-91
		HT40 MCS2	-90	-90	-90
		HT40 MCS3	-85	-85	-85
		HT40 MCS4	-82	-82	-82
		HT40 MCS5	-78	-78	-78
		HT40 MCS6	-77	-77	-77
		HT40 MCS7	-76	-76	-76
		VHT40_MCS8	-71	-71	-71
		VHT40_MCS9	-70	-70	-70
	80MHz BW	VHT80_MCS0	-90	-90	-90
		VHT80_MCS1	-89	-89	-89
		VHT80_MCS2	-87	-87	-87
		VHT80_MCS3	-82	-82	-82
		VHT80_MCS4	-79	-79	-79
		VHT80_MCS5	-75	-75	-75
		VHT80_MCS6	-74	-74	-74
		VHT80_MCS7	-72	-72	-72
		VHT80_MCS8	-68	-68	-68
		VHT80_MCS9	-67	-67	-67

Product quick glance

ME Drawing/placement



Block diagram



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