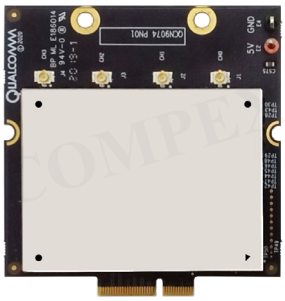
WiFi 6 (802.11ax) 4x4 MU-MIMO OFDMA 2.4GHz Single Band Wireless Module



Model: PN01.1

KEY FEATURES

- Qualcomm Atheros QCN9024/9074
- 2.4GHz, 4x4 MU-MIMO OFDMA Technology, up to 1376.4Mbps physical data rate
- Single Band 2.4GHz 4x4 WiFi 6 (802.11ax)
- M.2 E Key interface with PCIe 3.0
- 4 spatial streams (4SS)

Specifications

Chipset	Qualcomm Atheros QCN9024/9074 'PINE' Series
System Memory	2Mbit serial I²C bus EEPROM
Reference Design	Qualcomm Atheros PN01.1
Host Interface	M.2 E Key interface with PCIe 3.0
Operating Voltage	5V
Power Consumption	15W
Wireless	2.4GHz 802.11b/g/n/ax, max 24dBm per chain 4x U.FL Connectors
Frequency Range	2.412~2.472GHz
Modulation Techniques	OFDMA: BPSK, QPSK, DBPSK, DQPSK,16-QAM, 64-QAM, 256-QAM,1024-QAM, 4096-QAM
Channel Spectrum Widths for WLAN	Supports 20/40MHz at 2.4GHz
Operating Systems	OpenWRT
Certification	REACH and RoHS Compliance
Environmental Temperature	Operating: -20°C to 70°C, Storage: -40°C to 90°C
Environmental Humidity, Non-Condensing	Operating: 5% to 95%, Storage: Max. 90%
Dimensions (W x H x D) in mm	57 x 60 x 6.3

**Configurations are subject to change without notifications.*

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RF Performance Table for 2.4GHz

	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
2.4GHz 802.11b	1Mbps	24dBm	30dBm	±2dB
	2Mbps	24dBm	30dBm	±2dB
	5.5Mbps	24dBm	30dBm	±2dB
	11Mbps	24dBm	30dBm	±2dB
2.4GHz 802.11g	6Mbps	24dBm	30dBm	±2dB
	9Mbps	24dBm	30dBm	±2dB
	12Mbps	24dBm	30dBm	±2dB
	18Mbps	24dBm	30dBm	±2dB
	24Mbps	24dBm	30dBm	±2dB
	36Mbps	23dBm	29dBm	±2dB
	48Mbps	23dBm	29dBm	±2dB
	54Mbps	23dBm	29dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	24dBm	30dBm	±2dB
	MCS 1	24dBm	30dBm	±2dB
	MCS 2	24dBm	30dBm	±2dB
	MCS 3	24dBm	30dBm	±2dB
	MCS 4	23dBm	29dBm	±2dB
	MCS 5	23dBm	29dBm	±2dB
	MCS 6	23dBm	29dBm	±2dB
	MCS 7	23dBm	29dBm	±2dB
2.4GHz 802.11n HT40	MCS 0	24dBm	30dBm	±2dB
	MCS 1	24dBm	30dBm	±2dB
	MCS 2	24dBm	30dBm	±2dB
	MCS 3	24dBm	30dBm	±2dB
	MCS 4	23dBm	29dBm	±2dB
	MCS 5	23dBm	29dBm	±2dB
	MCS 6	23dBm	29dBm	±2dB
	MCS 7	23dBm	29dBm	±2dB
2.4GHz 802.11ax HE20	MCS 0	24dBm	30dBm	±2dB
	MCS 1	24dBm	30dBm	±2dB
	MCS 2	24dBm	30dBm	±2dB
	MCS 3	24dBm	30dBm	±2dB
	MCS 4	23dBm	29dBm	±2dB
	MCS 5	23dBm	29dBm	±2dB
	MCS 6	23dBm	29dBm	±2dB
	MCS 7	23dBm	29dBm	±2dB
	MCS 8	22dBm	28dBm	±2dB
	MCS 9	22dBm	28dBm	±2dB
	MCS 10	21dBm	27dBm	±2dB
	MCS 11	21dBm	27dBm	±2dB
	MCS 12	12dBm	18dBm	±2dB
	MCS 13	12dBm	18dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11b	1Mbps	TBD	±2dB
	2Mbps	TBD	±2dB
	5.5Mbps	TBD	±2dB
	11Mbps	TBD	±2dB
2.4GHz 802.11g	6Mbps	TBD	±2dB
	9Mbps	TBD	±2dB
	12Mbps	TBD	±2dB
	18Mbps	TBD	±2dB
	24Mbps	TBD	±2dB
	36Mbps	TBD	±2dB
	48Mbps	TBD	±2dB
	54Mbps	TBD	±2dB
2.4GHz 802.11n HT20	MCS 0	TBD	±2dB
	MCS 1	TBD	±2dB
	MCS 2	TBD	±2dB
	MCS 3	TBD	±2dB
	MCS 4	TBD	±2dB
	MCS 5	TBD	±2dB
	MCS 6	TBD	±2dB
	MCS 7	TBD	±2dB
2.4GHz 802.11n HT40	MCS 0	TBD	±2dB
	MCS 1	TBD	±2dB
	MCS 2	TBD	±2dB
	MCS 3	TBD	±2dB
	MCS 4	TBD	±2dB
	MCS 5	TBD	±2dB
	MCS 6	TBD	±2dB
	MCS 7	TBD	±2dB
2.4GHz 802.11ax HE20	MCS 0	TBD	±2dB
	MCS 1	TBD	±2dB
	MCS 2	TBD	±2dB
	MCS 3	TBD	±2dB
	MCS 4	TBD	±2dB
	MCS 5	TBD	±2dB
	MCS 6	TBD	±2dB
	MCS 7	TBD	±2dB
	MCS 8	TBD	±2dB
	MCS 9	TBD	±2dB
	MCS 10	TBD	±2dB
	MCS 11	TBD	±2dB
	MCS 12	TBD	±2dB
	MCS 13	TBD	±2dB

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RF Performance Table for 2.4GHz

	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
2.4GHz 802.11ax HE40	MCS 0	24dBm	30dBm	±2dB
	MCS 1	24dBm	30dBm	±2dB
	MCS 2	24dBm	30dBm	±2dB
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	MCS 13	12dBm	18dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11ax HE40	MCS 0	TBD	±2dB
	MCS 1	TBD	±2dB
	MCS 2	TBD	±2dB
	MCS 3	TBD	±2dB
	MCS 4	TBD	±2dB
	MCS 5	TBD	±2dB
	MCS 6	TBD	±2dB
	MCS 7	TBD	±2dB
	MCS 8	TBD	±2dB
	MCS 9	TBD	±2dB
	MCS 10	TBD	±2dB
	MCS 11	TBD	±2dB
	MCS 12	TBD	±2dB
	MCS 13	TBD	±2dB

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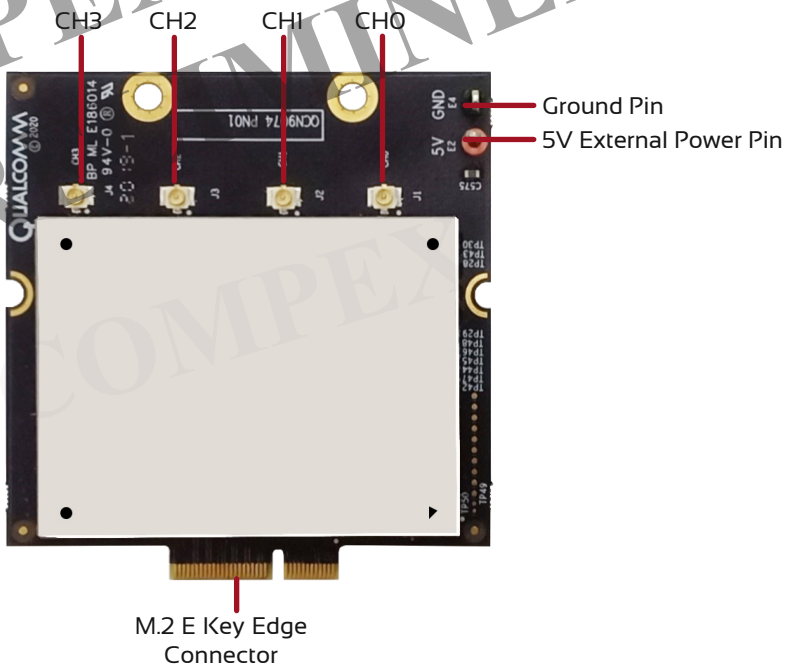
Component Map



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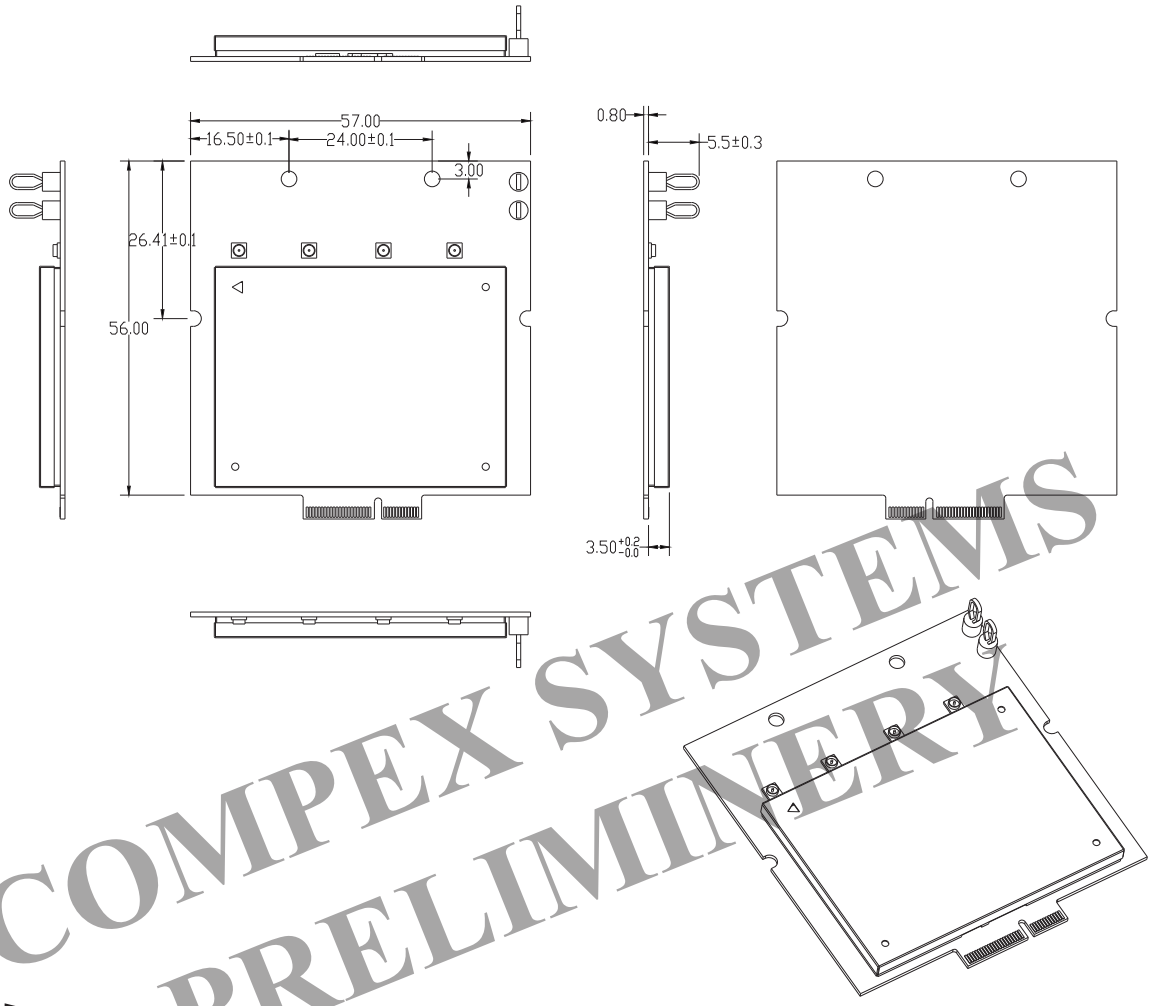
Mechanical Dimensions



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All dimensions are in mm.

Ordering Configuration

Item Code	Model	Description
RA.PN01.1 8A00PML-TE	PN01.1	4x4 802.11b/g/n/ax support 2.4GHz M.2 Module

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