

Qualcomm's IPQ9574/9570 Embedded Board Supporting Tri-band WiFi 7

WiFi 7 support / 2x10Gbps / 4x PCIe 3.0 compatibility /
4x4 MU-MIMO OFDMA

Model: AP.AL02.3



KEY FEATURES

- Qualcomm IPQ9570/IPQ9574 Quad-Core ARM-A73 @ 2.2GHz processor.
- 4x4 on-board 2.4GHz radio, up to 1182Mbps physical data rate.
- Flexible Wi-Fi 6E/Wi-Fi 7 radio configurations via 4x M.2 (NGFF) E Key Socket with PCIe 3.0
- 4x 1Gbps ethernet port, 2x 10Gbps ethernet port
- 1x USB 3.0 port

APPLICATIONS

- 802.11be support Access Point
- 802.11ax MU-MIMO OFDMA Access Point
- Internet of Things (IoT)
- HD streaming and gaming

Specifications

Chipset	Qualcomm IPQ9570/IPQ9574 Quad-Core ARM-A73 @ 2.2GHz processor 'Alder' Series
Reference Design	Qualcomm AP.AL02.3
System Memory	2GB (2x1GB), DDR4 32-bit (2x16-bit) interface
Flash	NAND Flash: 256MB NOR Flash: 32MB eMMC: 8GB
Wireless	On-board 4x4 2.4GHz MU-MIMO 802.11b/g/n/ax, max 24dBm per chain 4x U.FL connectors (IPQ9574) No Onboard (IPQ9570)
Frequency Range	2.412~2.472GHz (IPQ9574)
Modulation Techniques	OFDMA: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM
NGFF Slot	4x M.2 (NGFF) E Key Socket with PCIe 3.0
Interface	4x Gigabit Ethernet (1GbE) LAN/WAN RJ45 Port 2x 10Gigabit Ethernet (10GbE) LAN/WAN RJ45 Port 1x SFP+ cage 1x USB 3.0 Port 1x UART 12 Pin Connector 1x JTAG 20 Pin Connector 1x FPC/FCC 20 Pin Connector 2x Rectangular 60 Pin connector
LED	1x LED Indicators
DC Power	1x DC Jack Connector: 12V
Power Consumption (Board only)	13W (Board only) 23W (with onboard WiFi, IPQ9574)

1. The UART is a 12-pin Connector (TTL). A 12-pin Connector is available to change the TTL signals on the board to RS-232 signals for debugging.

2. The JTAG Port is a 20-pin header. A JTAG kit is for writing your self-developed loader and firmware directly.

*Configurations are subject to change without notifications.

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Specifications

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Certification	REACH & 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	203 x 139 x 20

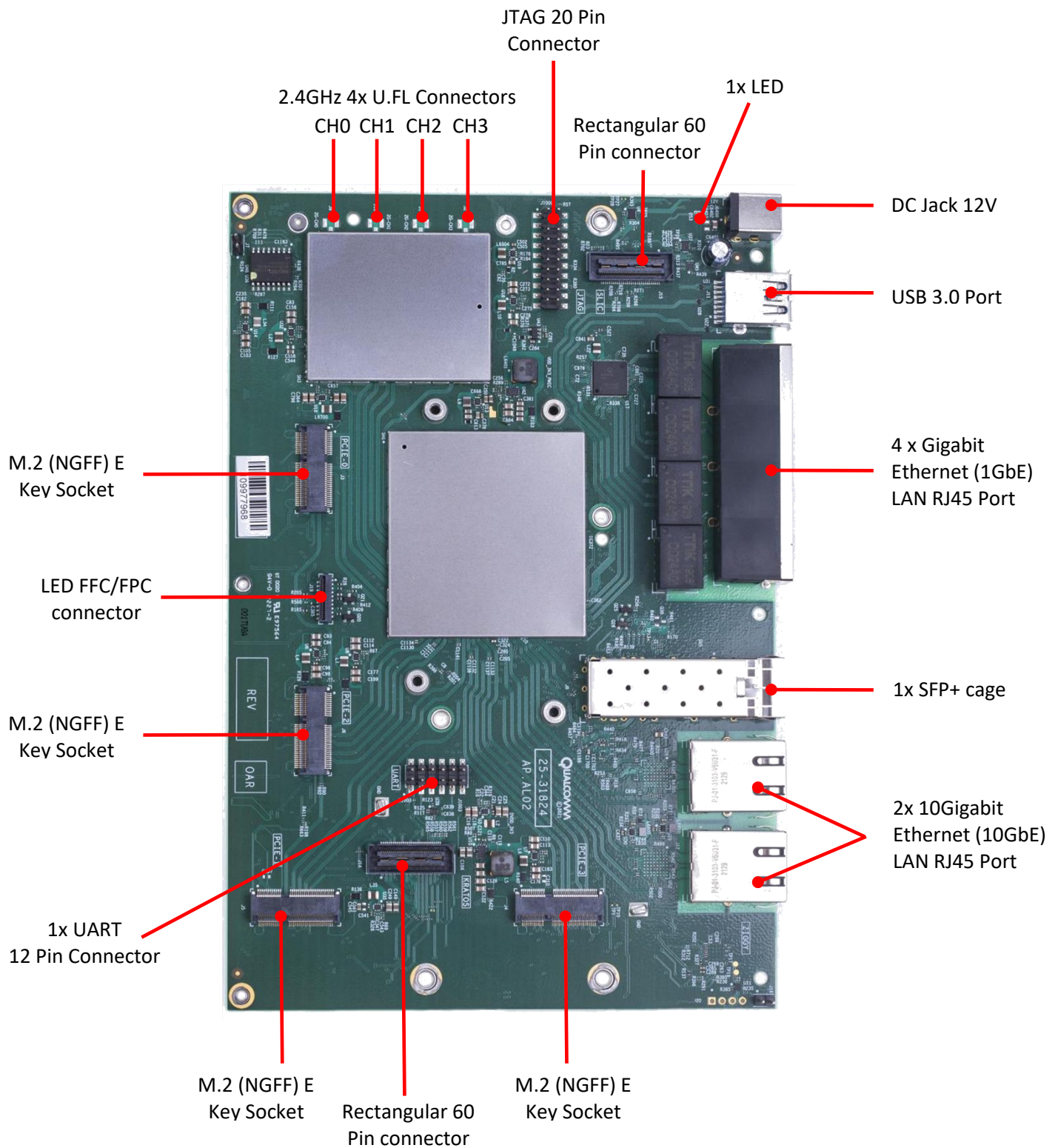
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RF Performance Table for 2.4GHz

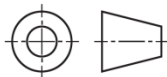
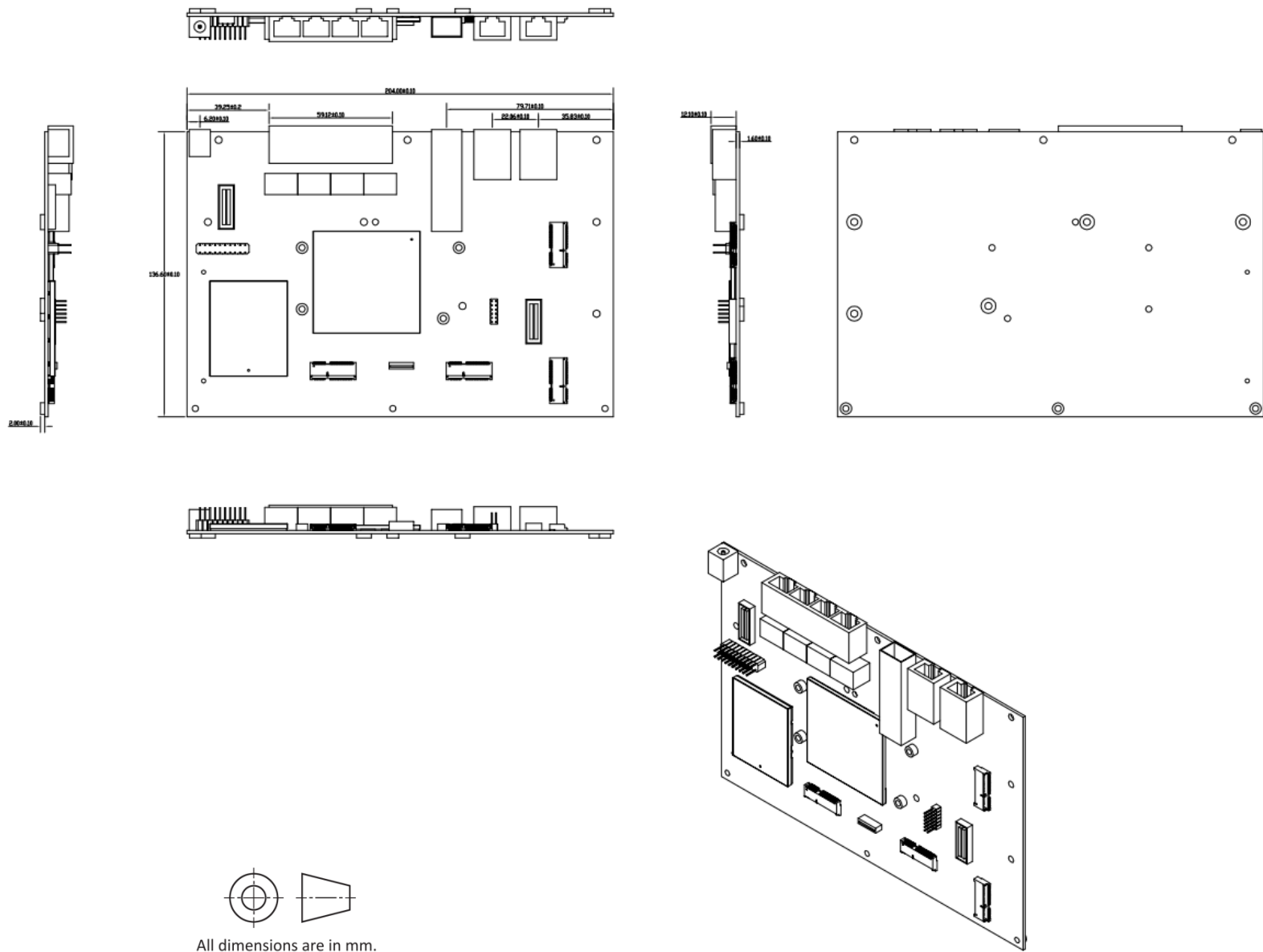
	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
2.4GHz 802.11ax HE20	MCS 0	24dBm	30dBm	±2dB
	MCS 1	24dBm	30dBm	±2dB
	MCS 2	24dBm	30dBm	±2dB
	MCS 3	24dBm	30dBm	±2dB
	MCS 4	23dBm	29dBm	±2dB
	MCS 5	23dBm	29dBm	±2dB
	MCS 6	23dBm	29dBm	±2dB
	MCS 7	23dBm	29dBm	±2dB
	MCS 8	21dBm	27dBm	±2dB
	MCS 9	21dBm	27dBm	±2dB
	MCS 10	20dBm	26dBm	±2dB
	MCS 11	20dBm	26dBm	±2dB
2.4GHz 802.11ax HE40	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	22dBm	28dBm	±2dB
	MCS 7	22dBm	28dBm	±2dB
	MCS 8	20dBm	26dBm	±2dB
	MCS 9	20dBm	26dBm	±2dB
	MCS 10	20dBm	26dBm	±2dB
	MCS 11	20dBm	26dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11ax HE20	MCS 0	-97dBm	±2dB
	MCS 1	-95dBm	±2dB
	MCS 2	-92dBm	±2dB
	MCS 3	-89dBm	±2dB
	MCS 4	-87dBm	±2dB
	MCS 5	-83dBm	±2dB
	MCS 6	-81dBm	±2dB
	MCS 7	-79dBm	±2dB
	MCS 8	-75dBm	±2dB
	MCS 9	-73dBm	±2dB
	MCS 10	-69dBm	±2dB
	MCS 11	-67dBm	±2dB
2.4GHz 802.11ax HE40	MCS 0	-94dBm	±2dB
	MCS 1	-91dBm	±2dB
	MCS 2	-89dBm	±2dB
	MCS 3	-86dBm	±2dB
	MCS 4	-83dBm	±2dB
	MCS 5	-80dBm	±2dB
	MCS 6	-77dBm	±2dB
	MCS 7	-76dBm	±2dB
	MCS 8	-72dBm	±2dB
	MCS 9	-70dBm	±2dB
	MCS 10	-66dBm	±2dB
	MCS 11	-64dBm	±2dB

Component Map



Mechanical Dimensions



All dimensions are in mm.

Firmware / Software

Firmware

OpenWrt 19.07

Development Kits

SDK

SDKs with QCA binary drivers are available for software developers.

Accessory

JTAG Programmer, Serial Converter, Power Supply Only if available

Ordering Options

Item Code	Processor	Onboard WiFi radio
AP.AL02.3 PR322GOR1.00-TE	IPQ9574	✓
AP.AL02.3 PR322G1.00-TE	IPQ9570	-