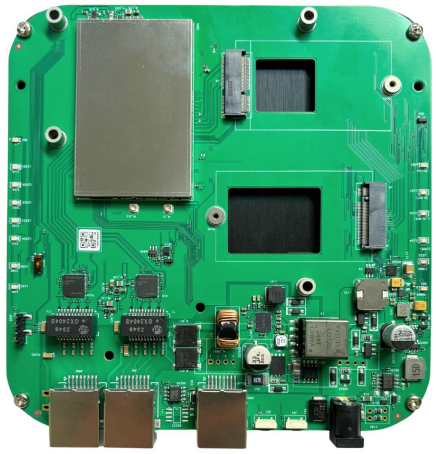
Qualcomm's IPQ5322 Embedded Board Supporting WiFi 7 and 5G Cellular Modem

Tri-Band WiFi 7 support / MU-MIMO OFDMA

Model: WPQ530MR



KEY FEATURES

- Qualcomm IPQ5322 Quad-Core Cortex-A53 @ 1.5GHz processor
- 2x2 on-board 2.4GHz radio, up to 688Mbps physical data rate
- M.2 (NGFF)E-Key slot with PCIe 3.0 Interface for additional 2ndWi-Fi Module support
- M.2 (NGFF) B-Key slot with USB3.0 Interface for 5G cellular/LTE modem
- Concurrent Tri-Band Wi-Fi 7 and 5G cellular/LTE support

APPLICATIONS

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

Specifications

Chipset	Qualcomm IPQ5322 Quad-Core Cortex-A53 @ 1.5GHz processor 'Miami' Series
Reference Design	Qualcomm AP.MI01.2
System Memory	1GB, DDR4 16-bit (1x16-bit) interface
Flash	NAND Flash: 512MB NOR Flash: 8MB
Wireless	On-board 2x2 2.4GHz MU-MIMO 802.11b/g/n/ax/be, max 22dBm per chain 2x U.FL connectors (IPQ5322)
Frequency Range	2.4GHz: 2.412~2.472GHz
Modulation Techniques	OFDMA: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM,1024-QAM, 4096-QAM
NGFF Slot	1x M.2 (NGFF) E Key Socket with PCIe 3.0 1x M.2 (NGFF) B Key Socket with USB 3.0
Interface	2x 2.5Gigabit Ethernet LAN/WAN RJ45 Port 1x Serial Input Interface 2x SIM card 1x UART 4 Pin Connector 1x DC Jack Connector 2x U.FL connectors
LED	11x LED (Green) Indicators 3x LED (RGB) Indicators
DC Power	19v
Power Consumption (Board only)	11.3W (Max)
Power over Ethernet (PoE)	Supports up to 3bt standard through the 2.5Gbps Ethernet port
Certification	REACH & RoHS Compliance
Environmental Temperature	Operating temperature: -20ºC to 70ºC, Storage: -40ºC to 90ºC
Environmental Humidity, Non-Condensing	Operating: 5% to 95%, Storage: Max. 90%
Dimensions (W x H x D) in mm	142 x 142 x 19.2 mm

1.The Serial Port is a 4-pin header (TTL). A Serial Converter is available to change the TTL signals on the board to RS-232 signals for debugging.

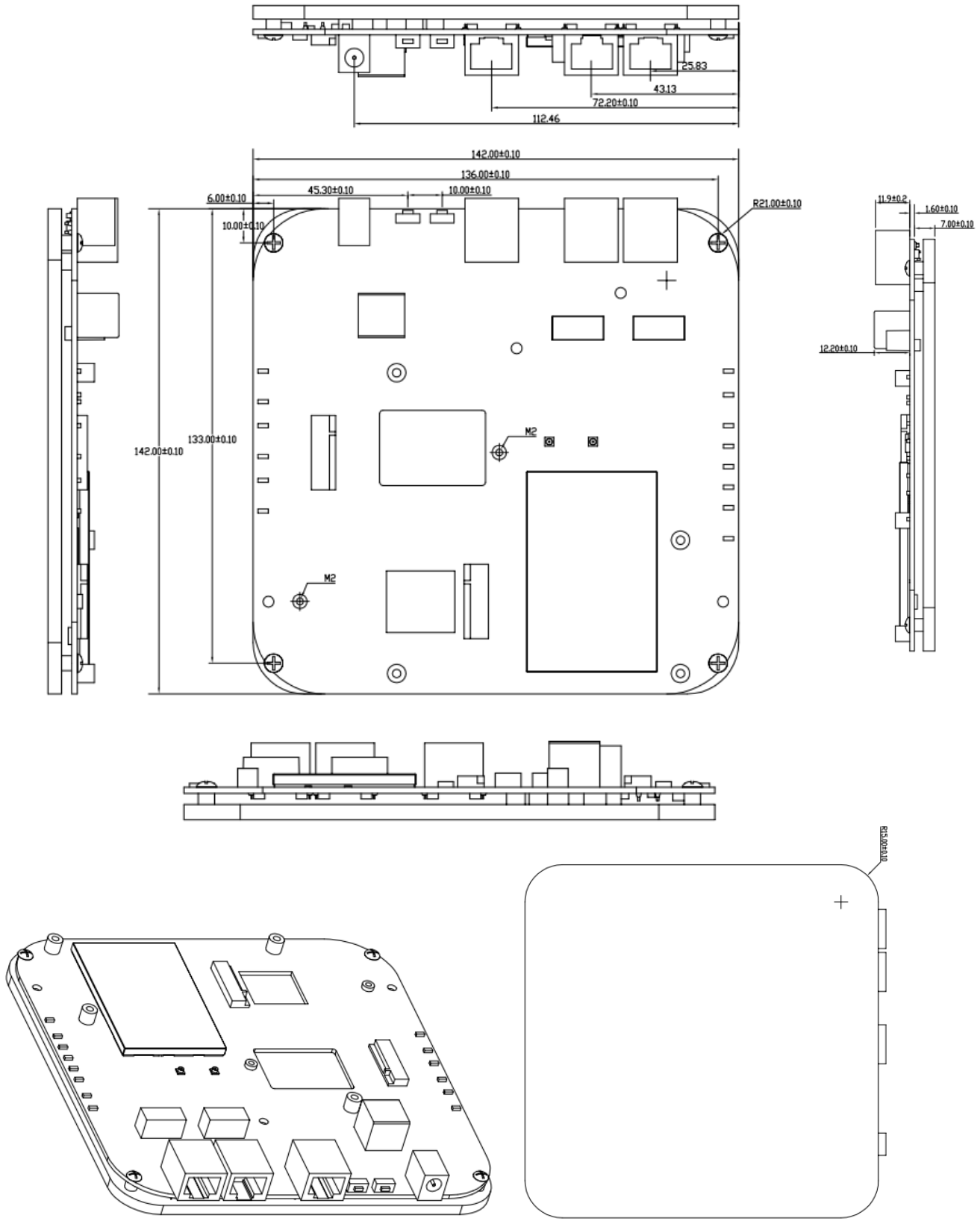
**Configurations are subject to change without notifications.*

RF Performance Table for 2.4GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
2.4GHz 802.11be EHT20	MCS 0	22dBm	25dBm	±2dB
	MCS 1	22dBm	25dBm	±2dB
	MCS 2	21dBm	24dBm	±2dB
	MCS 3	20dBm	23dBm	±2dB
	MCS 4	19dBm	22dBm	±2dB
	MCS 5	19dBm	22dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	18dBm	21dBm	±2dB
	MCS 8	17dBm	20dBm	±2dB
	MCS 9	17dBm	20dBm	±2dB
	MCS 10	16dBm	19dBm	±2dB
	MCS 11	16dBm	19dBm	±2dB
	MCS 12	15dBm	18dBm	±2dB
	MCS 13	15dBm	18dBm	±2dB
2.4GHz 802.11be EHT40	MCS 0	22dBm	25dBm	±2dB
	MCS 1	22dBm	25dBm	±2dB
	MCS 2	21dBm	24dBm	±2dB
	MCS 3	20dBm	23dBm	±2dB
	MCS 4	19dBm	22dBm	±2dB
	MCS 5	19dBm	22dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	18dBm	21dBm	±2dB
	MCS 8	17dBm	20dBm	±2dB
	MCS 9	17dBm	20dBm	±2dB
	MCS 10	16dBm	19dBm	±2dB
	MCS 11	16dBm	19dBm	±2dB
	MCS 12	15dBm	18dBm	±2dB
	MCS 13	15dBm	18dBm	±2dB

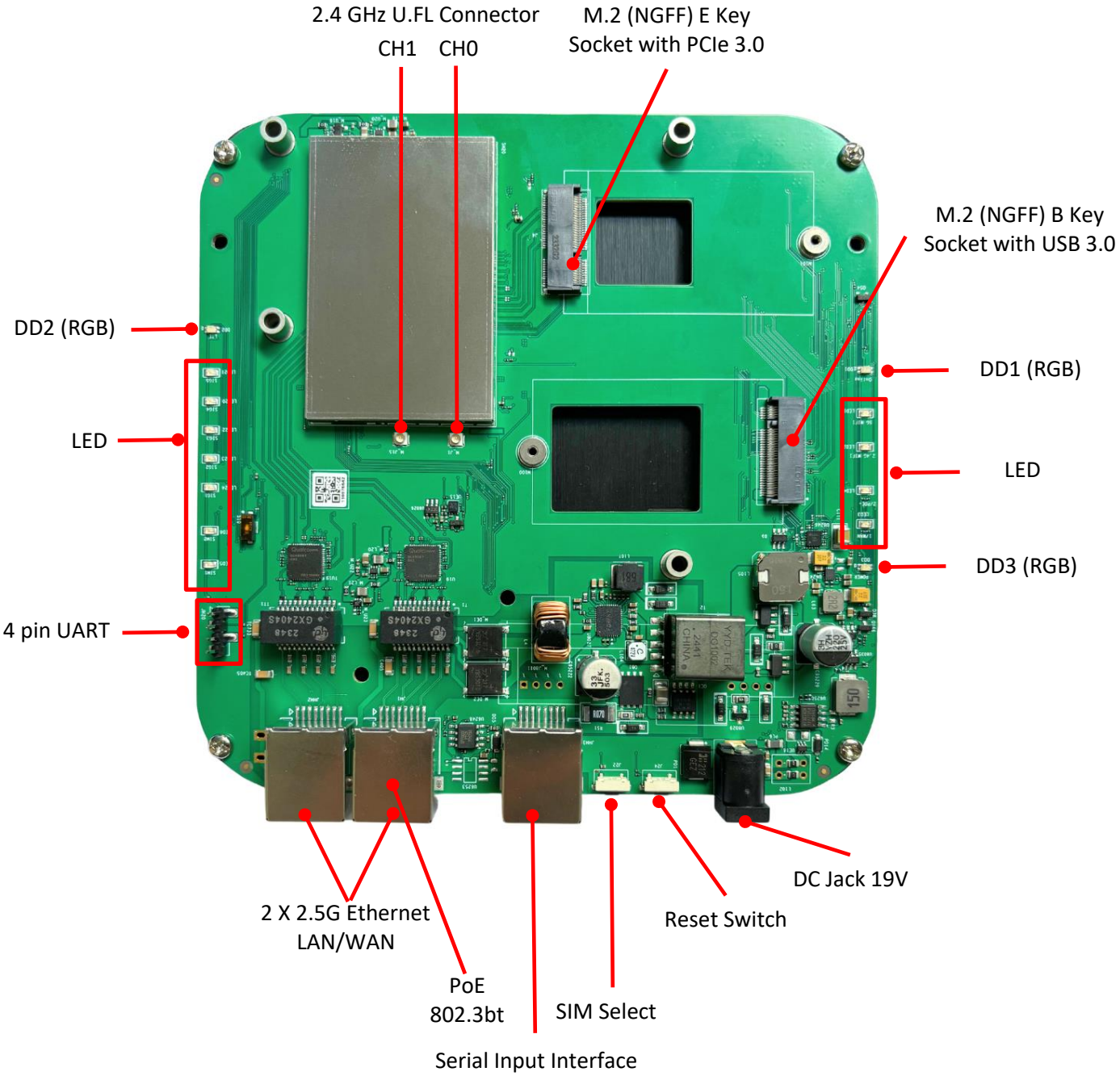
	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11be EHT20	MCS 0	-94dBm	±2dB
	MCS 1	-91dBm	±2dB
	MCS 2	-88dBm	±2dB
	MCS 3	-86dBm	±2dB
	MCS 4	-83dBm	±2dB
	MCS 5	-79dBm	±2dB
	MCS 6	-77dBm	±2dB
	MCS 7	-75dBm	±2dB
	MCS 8	-72dBm	±2dB
	MCS 9	-70dBm	±2dB
	MCS 10	-67dBm	±2dB
	MCS 11	-65dBm	±2dB
	MCS 12	-	±2dB
	MCS 13	-	±2dB
2.4GHz 802.11be EHT40	MCS 0	-91dBm	±2dB
	MCS 1	-88dBm	±2dB
	MCS 2	-85dBm	±2dB
	MCS 3	-83dBm	±2dB
	MCS 4	-80dBm	±2dB
	MCS 5	-77dBm	±2dB
	MCS 6	-75dBm	±2dB
	MCS 7	-72dBm	±2dB
	MCS 8	-68dBm	±2dB
	MCS 9	-66dBm	±2dB
	MCS 10	-64dBm	±2dB
	MCS 11	-61dBm	±2dB
	MCS 12	-	±2dB
	MCS 13	-	±2dB

Mechanical Dimension



All dimensions are in mm.

Component Map



Firmware / Software

Firmware	OpenWrt 23.05

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
WPQ530MR 6A01PR8F1GB-TE	IPQ5322	✓