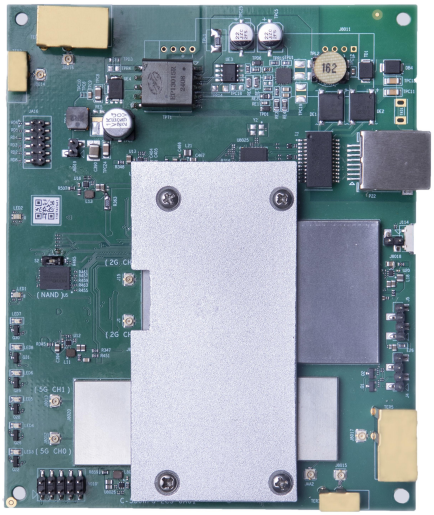
Qualcomm's IPQ5322 Embedded Board Supporting WiFi 7

WiFi 7 support / 2 x 2.5Gbps / 2 x 2.4GHz Copper Antenna / 2 x 5GHz Copper Antenna

Model: WPQ530



KEY FEATURES

- Qualcomm IPQ5322 Quad-Core Cortex-A53 @ 1.5GHz processor.
- 2x2 on-board 2.4GHz radio, up to 573Mbps physical data rate.
- 2x2 on-board 5-6GHz radio, up to 5764Mbps physical data rate.
- 2 x 2.4GHz Copper Antenna, 2 x 5GHz Copper Antenna
- 1x 2.5Gbps Ethernet port
- 6x LED (Green) Indicators, 2x LED (RGB) Indicators

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 24dBm per chain On-board 2x2 5-6GHz MU-MIMO 802.11a/n/ac/ax/be, max 19dBm per chain 4x U.FL connectors (IPQ5322)
Frequency Range	2.412~2.472GHz 5.180~7.125GHz
Peak Gain	3 dBi for 2.4GHz, 5GHz and 6GHz
Modulation Techniques	OFDMA: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM,1024-QAM
NGFF Slot	N/A
Interface	1x 2.5Gigabit Ethernet (1GbE) LAN/WAN RJ45 Port 2x 2.4GHz Copper Antenna 2x 5GHz Copper Antenna 1x LED 12 Pin Connector 1x JTAG 10 Pin Connector 2x 4 Pin Connector 8x UFL Connector 1x SWITCH Button
LED	6x LED (Green) Indicators 2x LED (RGB) Indicators
DC Power	1x DC Jack Connector: 12V
Power Consumption (Board only)	TBD
Certification	REACH & RoHS Compliance

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.

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.*

Continued on Page 2...

Last Updated: 10/05/2024

Specifications

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Environmental Temperature	Operating: -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	135 x 110 x 20 (non-cooling)

**Configurations are subject to change without notifications.*

RF Performance Table for 2.4GHz

	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
2.4GHz 802.11be EHT20	MCS 0	24dBm	27dBm	±2dB
	MCS 1	23dBm	26dBm	±2dB
	MCS 2	22dBm	25dBm	±2dB
	MCS 3	21dBm	24dBm	±2dB
	MCS 4	20dBm	23dBm	±2dB
	MCS 5	20dBm	23dBm	±2dB
	MCS 6	19dBm	22dBm	±2dB
	MCS 7	19dBm	22dBm	±2dB
	MCS 8	18dBm	21dBm	±2dB
	MCS 9	18dBm	21dBm	±2dB
	MCS 10	17dBm	20dBm	±2dB
	MCS 11	17dBm	20dBm	±2dB
2.4GHz 802.11be EHT40	MCS 0	24dBm	27dBm	±2dB
	MCS 1	23dBm	26dBm	±2dB
	MCS 2	22dBm	25dBm	±2dB
	MCS 3	21dBm	24dBm	±2dB
	MCS 4	20dBm	23dBm	±2dB
	MCS 5	20dBm	23dBm	±2dB
	MCS 6	19dBm	22dBm	±2dB
	MCS 7	19dBm	22dBm	±2dB
	MCS 8	18dBm	21dBm	±2dB
	MCS 9	18dBm	21dBm	±2dB
	MCS 10	17dBm	20dBm	±2dB
	MCS 11	17dBm	20dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11be EHT20	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
2.4GHz 802.11be EHT40	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

RF Performance Table for 5 GHz

	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
5 GHz 802.11be EHT20	MCS 0	19dBm	22dBm	±2dB
	MCS 1	19dBm	22dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB
	MCS 3	18dBm	21dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB
	MCS 6	16dBm	19dBm	±2dB
	MCS 7	16dBm	19dBm	±2dB
	MCS 8	16dBm	19dBm	±2dB
	MCS 9	15dBm	18dBm	±2dB
	MCS 10	14dBm	17dBm	±2dB
	MCS 11	14dBm	17dBm	±2dB
	MCS 12	13dBm	16dBm	±2dB
	MCS 13	13dBm	16dBm	±2dB
5 GHz 802.11be EHT40	MCS 0	19dBm	22dBm	±2dB
	MCS 1	19dBm	22dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB
	MCS 3	18dBm	21dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB
	MCS 6	16dBm	19dBm	±2dB
	MCS 7	16dBm	19dBm	±2dB
	MCS 8	16dBm	19dBm	±2dB
	MCS 9	15dBm	18dBm	±2dB
	MCS 10	14dBm	17dBm	±2dB
	MCS 11	14dBm	17dBm	±2dB
	MCS 12	13dBm	16dBm	±2dB
	MCS 13	13dBm	16dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
5 GHz 802.11be EHT20	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
5 GHz 802.11be EHT40	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

RF Performance Table for 5 GHz

	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
5 GHz 802.11be EHT80	MCS 0	19dBm	22dBm	±2dB
	MCS 1	19dBm	22dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB
	MCS 3	18dBm	21dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB
	MCS 6	16dBm	19dBm	±2dB
	MCS 7	16dBm	19dBm	±2dB
	MCS 8	16dBm	19dBm	±2dB
	MCS 9	15dBm	18dBm	±2dB
	MCS 10	14dBm	17dBm	±2dB
	MCS 11	14dBm	17dBm	±2dB
	MCS 12	13dBm	16dBm	±2dB
	MCS 13	13dBm	16dBm	±2dB
5GHz 802.11be EHT160	MCS 0	19dBm	22dBm	±2dB
	MCS 1	19dBm	22dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB
	MCS 3	18dBm	21dBm	±2dB
	MCS 4	17dBm	20dBm	±2dB
	MCS 5	17dBm	20dBm	±2dB
	MCS 6	16dBm	19dBm	±2dB
	MCS 7	16dBm	19dBm	±2dB
	MCS 8	16dBm	19dBm	±2dB
	MCS 9	15dBm	18dBm	±2dB
	MCS 10	14dBm	17dBm	±2dB
	MCS 11	14dBm	17dBm	±2dB
	MCS 12	13dBm	16dBm	±2dB
	MCS 13	13dBm	16dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
5 GHz 802.11be EHT80	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
5 GHz 802.11be EHT160	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

RF Performance Table for 6 GHz

	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
6 GHz 802.11be EHT20	MCS 0	18dBm	21dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	15dBm	18dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB
	MCS 9	12dBm	15dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB
6 GHz 802.11be EHT40	MCS 0	18dBm	21dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	15dBm	18dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB
	MCS 9	12dBm	15dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB

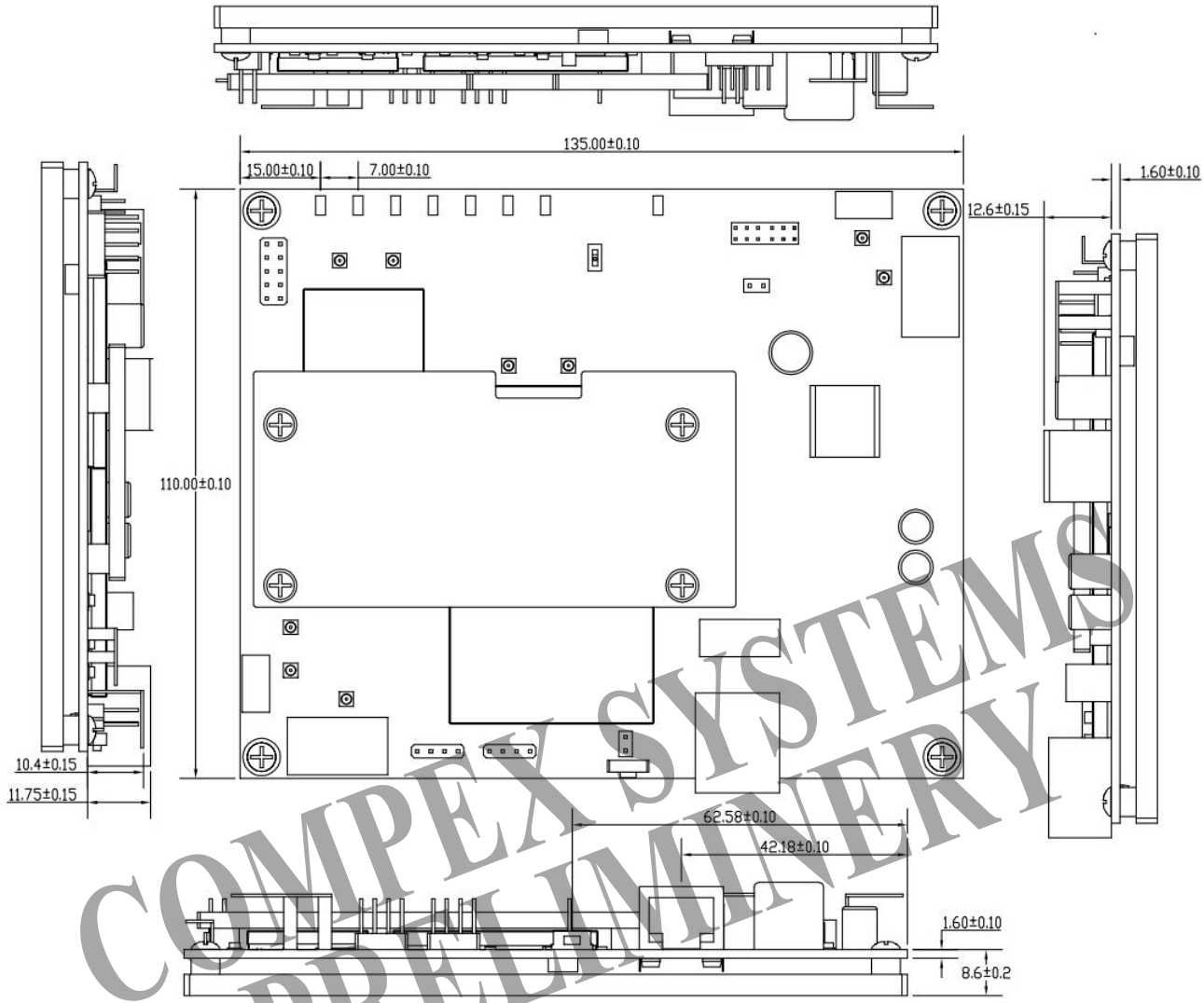
	Data Rate	RX Specifications Sensitivity	Tolerance
6 GHz 802.11be EHT20	MCS 0	TBD	±2dB
	MCS 1	TBD	±2dB
	MCS 2	TBD	±2dB
	MCS 3	TBD	±2dB
	MCS 4	TBD	±2dB
	MCS 5	TBD	±2dB
	MCS 6	TBD	±2dB
	MCS 7	TBD	±2dB
	MCS 8	TBD	±2dB
	MCS 9	TBD	±2dB
	MCS 10	TBD	±2dB
	MCS 11	TBD	±2dB
	MCS 12	TBD	±2dB
	MCS 13	TBD	±2dB
6 GHz 802.11be EHT40	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

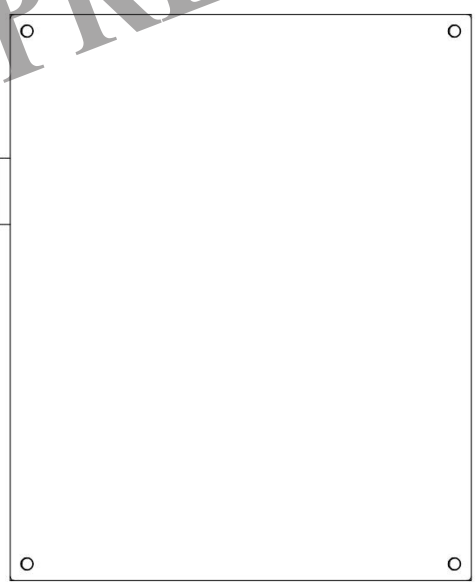
RF Performance Table for 6 GHz

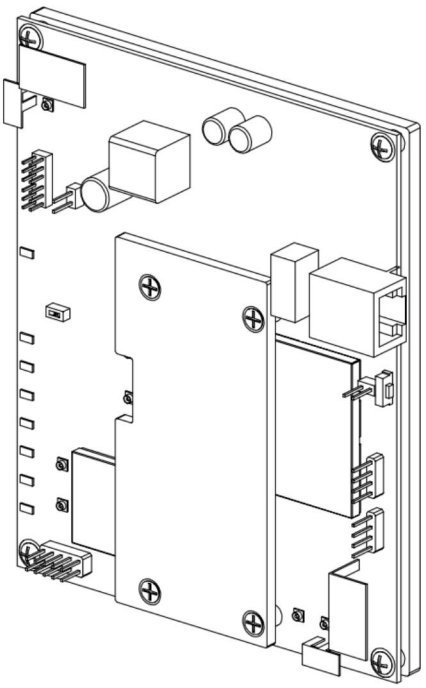
	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
6 GHz 802.11be EHT80	MCS 0	18dBm	21dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	15dBm	18dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB
	MCS 9	12dBm	15dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB
6 GHz 802.11be EHT160	MCS 0	17dBm	20dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	15dBm	18dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB
	MCS 9	12dBm	15dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB
6 GHz 802.11be EHT320	MCS 0	17dBm	20dBm	±2dB
	MCS 1	17dBm	20dBm	±2dB
	MCS 2	17dBm	20dBm	±2dB
	MCS 3	16dBm	19dBm	±2dB
	MCS 4	15dBm	18dBm	±2dB
	MCS 5	15dBm	18dBm	±2dB
	MCS 6	14dBm	17dBm	±2dB
	MCS 7	14dBm	17dBm	±2dB
	MCS 8	13dBm	16dBm	±2dB
	MCS 9	12dBm	15dBm	±2dB
	MCS 10	12dBm	15dBm	±2dB
	MCS 11	12dBm	15dBm	±2dB
	MCS 12	11dBm	14dBm	±2dB
	MCS 13	11dBm	14dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
6 GHz 802.11be EHT80	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
6 GHz 802.11be EHT160	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
6 GHz 802.11be EHT320	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

Mechanical Dimensions

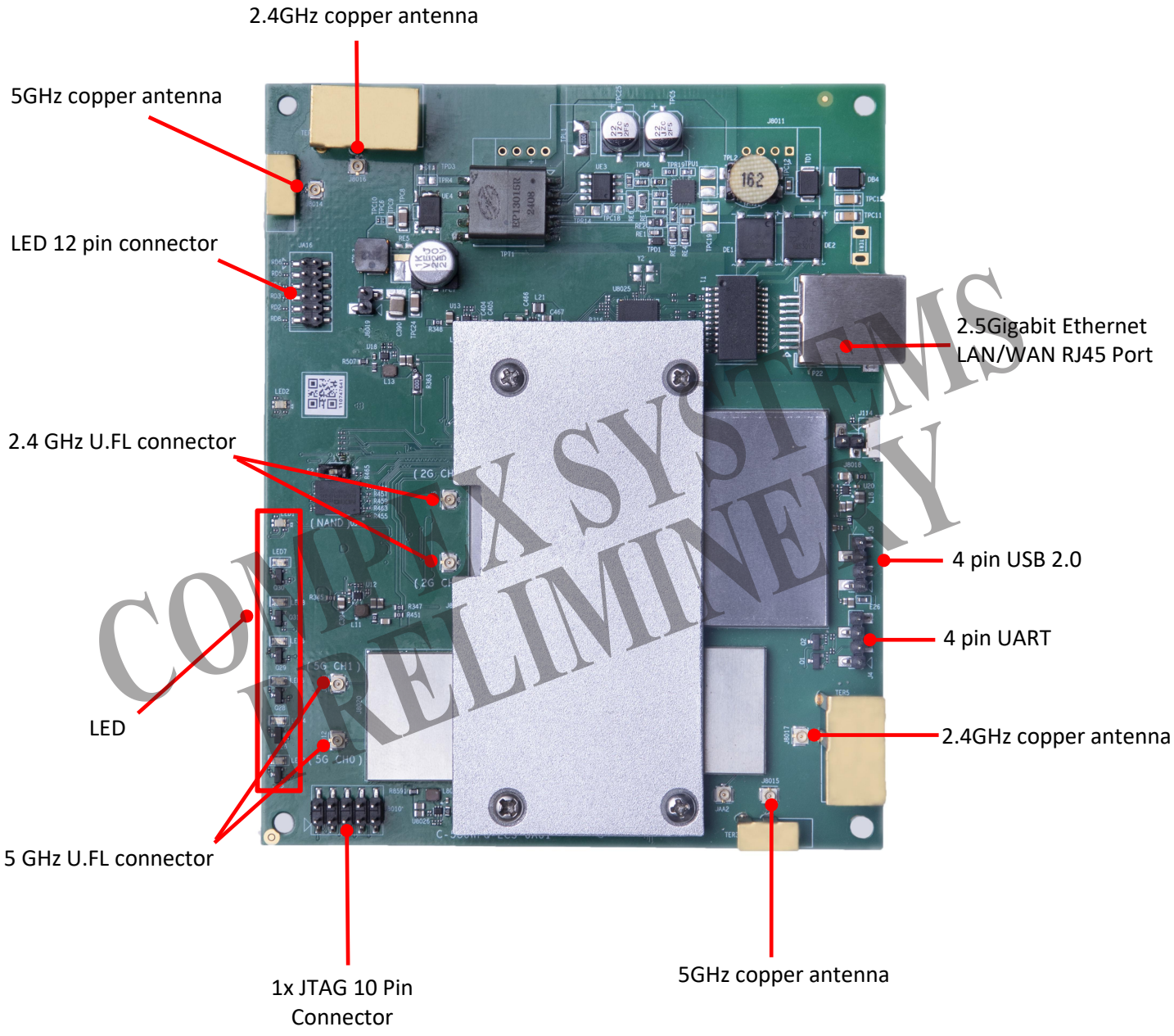






All dimensions are in mm.

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
WPQ530 6A01PR8F1GB-TE	IPQ5322	✓