Qualcomm's IPQ8072A WiFi 6 (802.11ax) Embedded Board Supporting 5G Cellular Modem

Dual Band Dual Concurrent WiFi 6 (802.11ax) / Support SDX55 Qualcomm's 5G NR NSA / MU-MIMO OFDMA

Model: WPQ873

KEY FEATURES

- Qualcomm Atheros IPQ8072A Quad Core ARM 64 bit A53 2.2GHz processor
- 4x4 on-board 2.4GHz radio, up to 1182Mbps physical data rate
- 4x4 on-board 5GHz radio, up to 2475Mbps physical data rate
- M.2 (NGFF) B Key Socket with PCIe 3.0 to support 5G cellular modem with 4G LTE backward compatible
- Supports Dynamic Frequency Selection (DFS)

APPLICATIONS

- 802.11ax MU-MIMO OFDMA Access Point
- Smart AP TWT
- 5G (Cellular Modem) + WiFi Enhanced Gateway

Specifications

Chipset	Qualcomm Atheros IPQ8072A Quad Core ARM 64 bit A53 2.2GHz processor 'Hawkeye' Series
Reference Design	Qualcomm Atheros HK09
System Memory	1x 512MB, DDR4 16-bit interface
NAND Flash	256MB
NOR Flash	8MB
Wireless	On-board 4x4 2.4GHz MU-MIMO OFDMA 802.11b/g/n/ax, max 17dBm per chain On-board 4x4 5GHz MU-MIMO OFDMA 802.11a/n/ac/ax, max 17dBm per chain 8x U.FL Connectors
Frequency Range	2.412~2.472GHz, 5.150~5.825GHz
Modulation Techniques	OFDMA: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM,1024-QAM
NGFF Slot	1x M.2 (NGFF) B Key Socket with PCIe 3.0 supporting 5G cellular modem 1x M.2 (NGFF) B Key Socket with USB 3.0 and PCIe 2.0
Interface	3x 1Gbps Ethernet Ports, 1x 2.5Gbps Ethernet Port 1x USB 3.0 Port 4x SIM Card Slots 1x JTAG 20 Pin Connector 1x Serial Port 4 Pin Connector
Reset Button	1x S/W Reset Button
LED	1x RGB LED Indicators
Power over Ethernet (PoE)	Supports IEEE 802.3af/at/bt 48~56V
DC Power	1x DC Jack Connector: 12V
Power Consumption (Board only)	22.5W (Including Bluetooth)

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: 19/03/2025

Specifications

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Bluetooth	QCA4024 BLE 5.0
Certification	REACH & RoHS Compliance
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	128 x 255 x 36.8

**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 802.11b	1Mbps	17dBm	23dBm	±2dB
	2Mbps	17dBm	23dBm	±2dB
	5.5Mbps	17dBm	23dBm	±2dB
	11Mbps	17dBm	23dBm	±2dB
2.4GHz 802.11g	6Mbps	17dBm	23dBm	±2dB
	9Mbps	17dBm	23dBm	±2dB
	12Mbps	17dBm	23dBm	±2dB
	18Mbps	17dBm	23dBm	±2dB
	24Mbps	15dBm	21dBm	±2dB
	36Mbps	15dBm	21dBm	±2dB
	48Mbps	15dBm	21dBm	±2dB
	54Mbps	15dBm	21dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	17dBm	23dBm	±2dB
	MCS 1	17dBm	23dBm	±2dB
	MCS 2	17dBm	23dBm	±2dB
	MCS 3	17dBm	23dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	15dBm	21dBm	±2dB
	MCS 6	15dBm	21dBm	±2dB
	MCS 7	15dBm	21dBm	±2dB
2.4GHz 802.11n HT40	MCS 0	16dBm	22dBm	±2dB
	MCS 1	16dBm	22dBm	±2dB
	MCS 2	16dBm	22dBm	±2dB
	MCS 3	16dBm	22dBm	±2dB
	MCS 4	16dBm	22dBm	±2dB
	MCS 5	14dBm	20dBm	±2dB
	MCS 6	14dBm	20dBm	±2dB
	MCS 7	14dBm	20dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11b	1Mbps	-102	±2dB
	2Mbps	-99	±2dB
	5.5Mbps	-97	±2dB
	11Mbps	-95	±2dB
2.4GHz 802.11g	6Mbps	-97	±2dB
	9Mbps	-95	±2dB
	12Mbps	-93	±2dB
	18Mbps	-91	±2dB
	24Mbps	-89	±2dB
	36Mbps	-87	±2dB
	48Mbps	-85	±2dB
	54Mbps	-83	±2dB
2.4GHz 802.11n HT20	MCS 0	-95	±2dB
	MCS 1	-93	±2dB
	MCS 2	-90	±2dB
	MCS 3	-87	±2dB
	MCS 4	-85	±2dB
	MCS 5	-82	±2dB
	MCS 6	-80	±2dB
	MCS 7	-78	±2dB
2.4GHz 802.11n HT40	MCS 0	-93	±2dB
	MCS 1	-90	±2dB
	MCS 2	-87	±2dB
	MCS 3	-94	±2dB
	MCS 4	-81	±2dB
	MCS 5	-78	±2dB
	MCS 6	-75	±2dB
	MCS 7	-73	±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 HE20	MCS 0	17dBm	23dBm	±2dB
	MCS 1	17dBm	23dBm	±2dB
	MCS 2	17dBm	23dBm	±2dB
	MCS 3	17dBm	23dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	15dBm	21dBm	±2dB
	MCS 6	15dBm	21dBm	±2dB
	MCS 7	15dBm	21dBm	±2dB
	MCS 8	14dBm	20dBm	±2dB
	MCS 9	14dBm	20dBm	±2dB
	MCS 10	10dBm	16dBm	±2dB
	MCS 11	10dBm	16dBm	±2dB
2.4GHz 802.11ax HE40	MCS 0	16dBm	22dBm	±2dB
	MCS 1	16dBm	22dBm	±2dB
	MCS 2	16dBm	22dBm	±2dB
	MCS 3	16dBm	22dBm	±2dB
	MCS 4	16dBm	22dBm	±2dB
	MCS 5	14dBm	20dBm	±2dB
	MCS 6	14dBm	20dBm	±2dB
	MCS 7	14dBm	20dBm	±2dB
	MCS 8	14dBm	20dBm	±2dB
	MCS 9	14dBm	20dBm	±2dB
	MCS 10	11dBm	17dBm	±2dB
	MCS 11	11dBm	17dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11ax HE20	MCS 0	-95	±2dB
	MCS 1	-93	±2dB
	MCS 2	-91	±2dB
	MCS 3	-89	±2dB
	MCS 4	-86	±2dB
	MCS 5	-84	±2dB
	MCS 6	-82	±2dB
	MCS 7	-80	±2dB
	MCS 8	-77	±2dB
	MCS 9	-75	±2dB
	MCS 10	-72	±2dB
	MCS 11	-69	±2dB
2.4GHz 802.11ax HE40	MCS 0	-92	±2dB
	MCS 1	-90	±2dB
	MCS 2	-87	±2dB
	MCS 3	-85	±2dB
	MCS 4	-82	±2dB
	MCS 5	-80	±2dB
	MCS 6	-78	±2dB
	MCS 7	-77	±2dB
	MCS 8	-75	±2dB
	MCS 9	-72	±2dB
	MCS 10	-69	±2dB
	MCS 11	-66	±2dB

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RF Performance Table for 5GHz

	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
5GHz 802.11a	6Mbps	17dBm	23dBm	±2dB
	9Mbps	17dBm	23dBm	±2dB
	12Mbps	17dBm	23dBm	±2dB
	18Mbps	17dBm	23dBm	±2dB
	24Mbps	16dBm	22dBm	±2dB
	36Mbps	16dBm	22dBm	±2dB
	48Mbps	16dBm	22dBm	±2dB
	54Mbps	16dBm	22dBm	±2dB
5GHz 802.11n/ac VHT20	MCS 0	17dBm	23dBm	±2dB
	MCS 1	17dBm	23dBm	±2dB
	MCS 2	17dBm	23dBm	±2dB
	MCS 3	17dBm	23dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	16dBm	22dBm	±2dB
	MCS 6	16dBm	22dBm	±2dB
	MCS 7	16dBm	22dBm	±2dB
	MCS 8	15dBm	21dBm	±2dB
5GHz 802.11n/ac VHT40	MCS 0	17dBm	23dBm	±2dB
	MCS 1	17dBm	23dBm	±2dB
	MCS 2	17dBm	23dBm	±2dB
	MCS 3	17dBm	23dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	15dBm	21dBm	±2dB
	MCS 6	15dBm	21dBm	±2dB
	MCS 7	15dBm	21dBm	±2dB
	MCS 8	14dBm	20dBm	±2dB
	MCS 9	14dBm	20dBm	±2dB
5GHz 802.11ac VHT80	MCS 0	17dBm	23dBm	±2dB
	MCS 1	17dBm	23dBm	±2dB
	MCS 2	17dBm	23dBm	±2dB
	MCS 3	17dBm	23dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	14dBm	20dBm	±2dB
	MCS 6	14dBm	20dBm	±2dB
	MCS 7	14dBm	20dBm	±2dB
	MCS 8	13dBm	19dBm	±2dB
	MCS 9	13dBm	19dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11a	6Mbps	-97	±2dB
	9Mbps	-95	±2dB
	12Mbps	-93	±2dB
	18Mbps	-91	±2dB
	24Mbps	-89	±2dB
	36Mbps	-87	±2dB
	48Mbps	-85	±2dB
	54Mbps	-82	±2dB
5GHz 802.11n/ac VHT20	MCS 0	-97	±2dB
	MCS 1	-96	±2dB
	MCS 2	-94	±2dB
	MCS 3	-92	±2dB
	MCS 4	-90	±2dB
	MCS 5	-88	±2dB
	MCS 6	-85	±2dB
	MCS 7	-83	±2dB
	MCS 8	-81	±2dB
5GHz 802.11n/ac VHT40	MCS 0	-95	±2dB
	MCS 1	-93	±2dB
	MCS 2	-91	±2dB
	MCS 3	-89	±2dB
	MCS 4	-87	±2dB
	MCS 5	-85	±2dB
	MCS 6	-83	±2dB
	MCS 7	-80	±2dB
	MCS 8	-77	±2dB
	MCS 9	-74	±2dB
5GHz 802.11ac VHT80	MCS 0	-91	±2dB
	MCS 1	-89	±2dB
	MCS 2	-87	±2dB
	MCS 3	-85	±2dB
	MCS 4	-82	±2dB
	MCS 5	-79	±2dB
	MCS 6	-77	±2dB
	MCS 7	-75	±2dB
	MCS 8	-72	±2dB
	MCS 9	-69	±2dB

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RF Performance Table for 5GHz

	Data Rate	TX Power (per chain)	TX Power (4 chains)	Tolerance
5GHz 802.11ac VHT80+80	MCS 0	17dBm	23dBm	±2dB
	MCS 1	17dBm	23dBm	±2dB
	MCS 2	17dBm	23dBm	±2dB
	MCS 3	17dBm	23dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	14dBm	20dBm	±2dB
	MCS 6	14dBm	20dBm	±2dB
	MCS 7	14dBm	20dBm	±2dB
	MCS 8	11dBm	17dBm	±2dB
	MCS 9	11dBm	17dBm	±2dB
5GHz 802.11ax HE20	MCS 0	17dBm	23dBm	±2dB
	MCS 1	17dBm	23dBm	±2dB
	MCS 2	17dBm	23dBm	±2dB
	MCS 3	17dBm	23dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	16dBm	22dBm	±2dB
	MCS 6	16dBm	22dBm	±2dB
	MCS 7	16dBm	22dBm	±2dB
	MCS 8	15dBm	21dBm	±2dB
	MCS 9	15dBm	21dBm	±2dB
	MCS 10	12dBm	18dBm	±2dB
	MCS 11	12dBm	18dBm	±2dB
5GHz 802.11ax HE40	MCS 0	17dBm	23dBm	±2dB
	MCS 1	17dBm	23dBm	±2dB
	MCS 2	17dBm	23dBm	±2dB
	MCS 3	17dBm	23dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	15dBm	21dBm	±2dB
	MCS 6	15dBm	21dBm	±2dB
	MCS 7	15dBm	21dBm	±2dB
	MCS 8	14dBm	20dBm	±2dB
	MCS 9	14dBm	20dBm	±2dB
	MCS 10	12dBm	18dBm	±2dB
	MCS 11	12dBm	18dBm	±2dB
5GHz 802.11ax HE80	MCS 0	17dBm	23dBm	±2dB
	MCS 1	17dBm	23dBm	±2dB
	MCS 2	17dBm	23dBm	±2dB
	MCS 3	17dBm	23dBm	±2dB
	MCS 4	17dBm	23dBm	±2dB
	MCS 5	14dBm	20dBm	±2dB
	MCS 6	14dBm	20dBm	±2dB
	MCS 7	14dBm	20dBm	±2dB
	MCS 8	13dBm	19dBm	±2dB
	MCS 9	13dBm	19dBm	±2dB
	MCS 10	10dBm	16dBm	±2dB
	MCS 11	10dBm	16dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11ac VHT80+80	MCS 0	-86	±2dB
	MCS 1	-84	±2dB
	MCS 2	-82	±2dB
	MCS 3	-80	±2dB
	MCS 4	-77	±2dB
	MCS 5	-74	±2dB
	MCS 6	-71	±2dB
	MCS 7	-68	±2dB
	MCS 8	-65	±2dB
	MCS 9	-63	±2dB
5GHz 802.11ax HE20	MCS 0	-96	±2dB
	MCS 1	-95	±2dB
	MCS 2	-93	±2dB
	MCS 3	-91	±2dB
	MCS 4	-89	±2dB
	MCS 5	-87	±2dB
	MCS 6	-85	±2dB
	MCS 7	-82	±2dB
	MCS 8	-79	±2dB
	MCS 9	-77	±2dB
	MCS 10	-74	±2dB
	MCS 11	-71	±2dB
5GHz 802.11ax HE40	MCS 0	-94	±2dB
	MCS 1	-93	±2dB
	MCS 2	-91	±2dB
	MCS 3	-89	±2dB
	MCS 4	-86	±2dB
	MCS 5	-83	±2dB
	MCS 6	-81	±2dB
	MCS 7	-79	±2dB
	MCS 8	-76	±2dB
	MCS 9	-74	±2dB
	MCS 10	-71	±2dB
	MCS 11	-68	±2dB
5GHz 802.11ax HE80	MCS 0	-91	±2dB
	MCS 1	-90	±2dB
	MCS 2	-88	±2dB
	MCS 3	-86	±2dB
	MCS 4	-84	±2dB
	MCS 5	-82	±2dB
	MCS 6	-79	±2dB
	MCS 7	-77	±2dB
	MCS 8	-74	±2dB
	MCS 9	-71	±2dB
	MCS 10	-69	±2dB
	MCS 11	-66	±2dB

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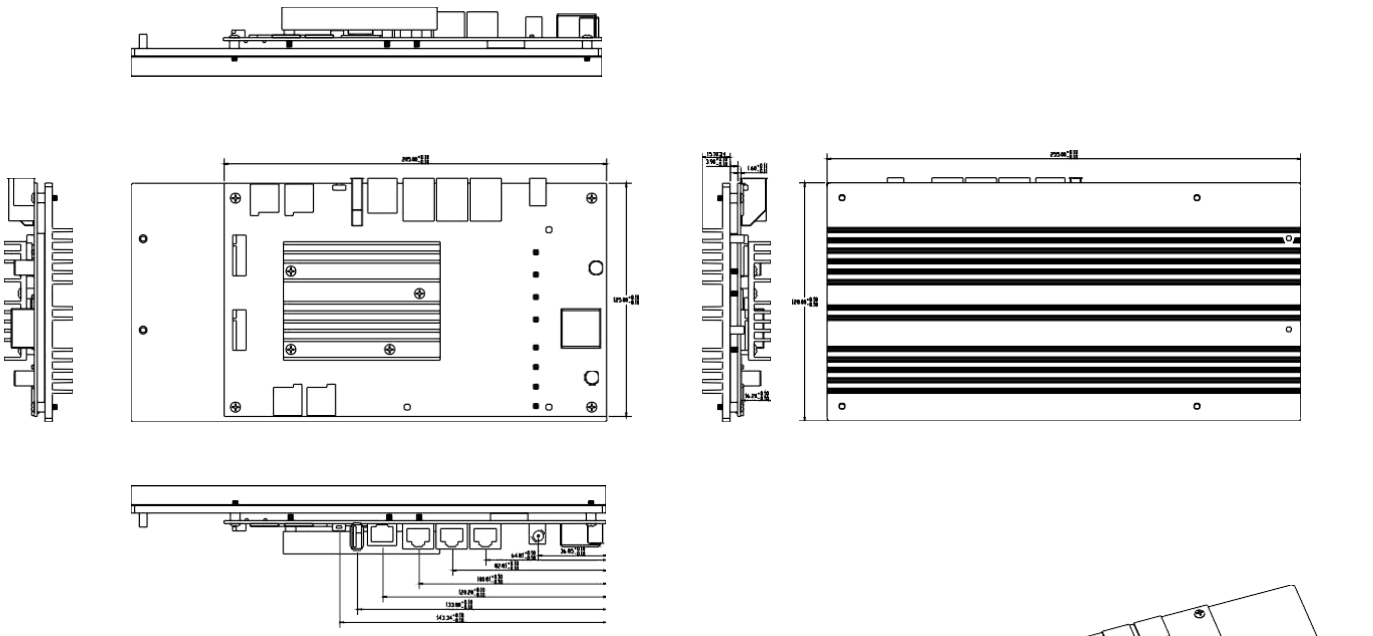
Mechanical Dimensions



All dimensions are in mm.

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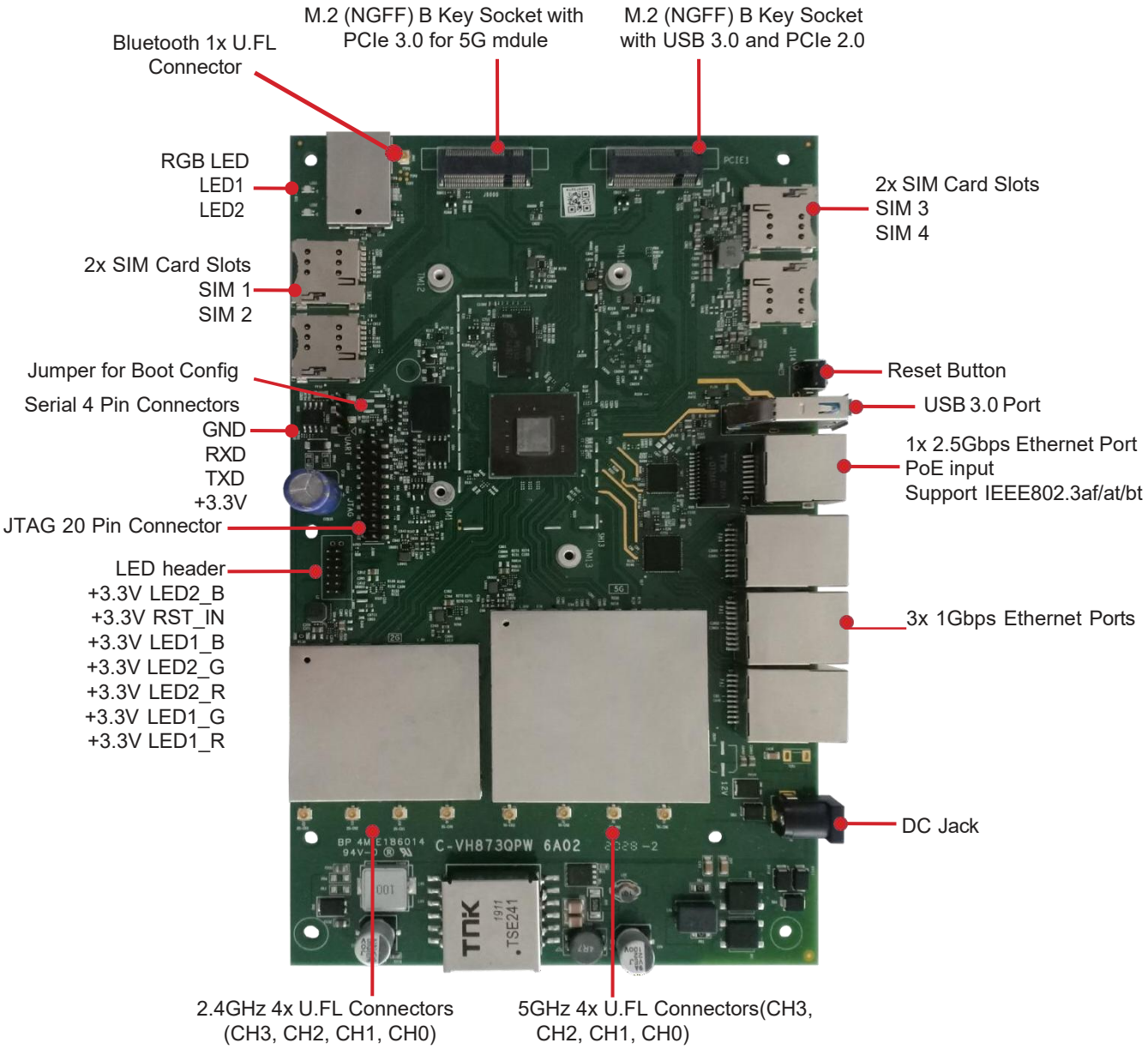
Component Map



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Firmware / Software

Firmware	CompexWRT

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	Power Solutions
WPQ873HV 6A02PR8F1GBR	IPQ8072A	12V DC

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