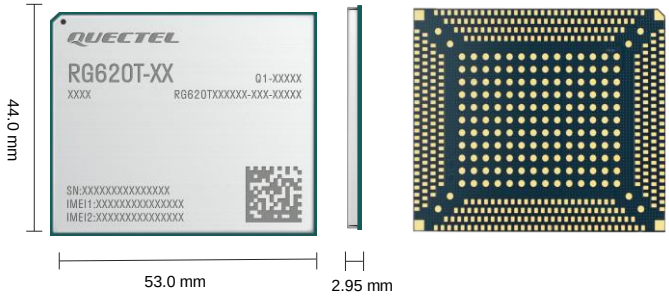
Quectel RG620T Series

IoT/ eMBB-Optimized
5G Sub-6 GHz LGA Module



Quectel RG620T is a series of 5G Sub-6 GHz LGA modules optimized specially for IoT/ eMBB/ uRLLC applications. Adopting the 3GPP Release 16 technology, the module supports the 5G modes of both NSA and SA and the deployment of Option 3x, 3a, 3, and 2. It also supports 4G or 3G.

RG620T series are industrial-grade for industrial and commercial applications only.

The module integrates a multi-constellation GNSS receiver that supports GPS, GLONASS, BDS, Galileo and QZSS. It helps to simplify the product design and can achieve high-precision, fast, and dependable positioning.

RG620T series have a quad-core 2.2 GHz CPU and integrate network and VPN accelerators, which extends the applicability of the module to a wide range of eMBB , IoT and uRLLC applications such as 5G router, CPE, MiFi, industrial router, and home gateway.

Key Features

- Sub-6 GHz 5G module with LGA form factor, optimized for IoT/ eMBB/ /uRLLC applications
- Both NSA and SA modes supported
- 5G 4CA supported
- Multi-mode network coverage, compatible with 4G network (Cat 19)
- Transmission Mode 9 (TM9) supported, increased spectral efficiency and improved performance
- Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment

5G Sub-6 GHz Bands Supported

Max. 1.6 Gbps (DL)
Max. 211 Mbps (UL)

Multi-Constellation GNSS

Embedded Abundant Protocols

LGA Form Factor

USB 3.2/ PCIe 4.0 Super Speed Interface

VoLTE/ VoNR (Optional)

Quectel Enhanced API

Version: 1.4 | Status: Released

Quectel RG620T Series

5G Sub-6		RG620T-NA	RG620T-EU	RG620T-EM	RG620T-EG
Region/Operator		North America	EMEA/ APAC①/ Brazil	EMEA/ APAC①/ 巴西	EMEA/ APAC/ 巴西
Dimensions (mm)		53.0 × 44.0 × 2.95	53.0 × 44.0 × 2.95	53.0 × 44.0 × 2.95	53.0 × 44.0 × 2.95
Temperature Range					
Operation Temperature		-30 °C to +70 °C	-30 °C to +70 °C	-30 °C ~ +70 °C	-30 °C ~ +70 °C
Extended Temperature		-40 °C to +85 °C	-40 °C to +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C
Frequency Band					
5G	**NR NSA**	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	n1/ 3/ 5 / 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n1/ 3/ 5 / 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 77/ 78	n1/ 3/ 5 / 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78/ 79
	NR SA	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	n1/ 3/ 5 / 7/ 8/ 20/ 28/ 38/ 40/ 41/75/ 76/ 77/ 78	n1/ 3/ 5 / 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 77/ 78	n1/ 3/ 5 / 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78/ 79
	DL CA	DL 4CA/ UL 2CA	DL 4CA/ UL 2CA	DL 4CA/ UL 2CA	DL 4CA/ UL 2CA
	DL 4 × 4 MIMO	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	n1/ 3/ 5 / 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78	n1/ 3/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78	n1/ 3/ 5 / 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78 / 79
	UL 2 × 2 MIMO	n2/ 5/ 25/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	n38/ 40/ 41/ 77/ 78	n38/ 40/ 41/ 77/ 78	n38/ 40/ 41/ 77/ 78/79
LTE	**LTE-FDD**	B2/ 4/ 5/ 7/ 12 (17)/ 13/ 14/ 25/ 26/ 29/ 30/ 66/ 70/ 71	B1/ 3/ 5 / 7/ 8/ 20/ 28/ 32	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 71	B1/ 3/ 5 / 7/ 8/ 20/ 28
	LTE-TDD	B38/ 41/ 42/ 43/ 48	B38/ 40/ 41/ 42/ 43	B38/ 40/ 41/ 42/ 43	B38/ 40/ 41/ 42/ 43
	LAA	B46	-	-	-
	DL 4 × 4 MIMO	B2/ 4/ 5/ 7/ 12 (17)/ 13/ 14/ 25/ 26/ 30/ 38/ 41/ 42/ 43/ 48/ 66/ 70/ 71	B1/ 3/ 5 / 7/ 8/ 20/ 28/ 38/ 40/ 41/ 42/ 43	B1/ 3/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 42/ 43	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 42/ 43
UMTS	**WCDMA**	-	B1/ 5/ 8	B1/ 5/ 8	B1/ 5/ 8
GNSS		GPS/ BDS/ GLONASS/ Galileo/ QZSS, L1 + L5	GPS/ BDS/ GLONASS/ Galileo/ QZSS, (L1 + L5) ②	GPS/ BDS/ GLONASS/ Galileo/ QZSS, L1 + L5	-
Certification					
Carrier (Based on Carrier's RFP)		**America:** T-Mobile/ Verizon*/ AT&T/ EchoStar(DISH)	**Europe:** Deutsche Telekom③/ British Telecom③ **France:** Orange③ **Australia:** Telstra*	**Europe:** Deutsche Telekom③/ British Telecom③ **France:** Orange③	**Europe:** Deutsche Telekom③/ British Telecom③ **France:** Orange③
Regulatory		**Global:** GCF **North America:** PTCRB **America:** FCC **Canada:** IC	**Global:** GCF **Europe:** CE **Australia/ New Zealand:** RCM	**Global:** GCF③ **Europe:** CE③ **Australia/ New Zealand:** RCM③	**Global:** GCF③ **Europe:** CE③ **Australia/ New Zealand:** RCM③
Others		RoHS	RoHS	RoHS	RoHS
Data Rate (Max.)					
5G SA Sub-6 GHz		7.01 Gbps (DL)/ 2.5 Gbps (UL)	7.01 Gbps (DL)/ 2.5 Gbps (UL)	7.01 Gbps (DL)/ 2.5 Gbps (UL)	7.01 Gbps (DL)/ 2.5 Gbps (UL)
5G NSA Sub-6 GHz		5.67 Gbps (DL)/ 1.46 Gbps (UL)	5.67 Gbps (DL)/ 1.46 Gbps (UL)	5.67 Gbps (DL)/ 1.46 Gbps (UL)	5.67 Gbps (DL)/ 1.46 Gbps (UL)
LTE		1.6 Gbps (DL)/ 211 Mbps (UL)	1.6 Gbps (DL)/ 211 Mbps (UL)	1.6 Gbps (DL)/ 211 Mbps (UL)	1.6 Gbps (DL)/ 211 Mbps (UL)
DC-HSPA+		-	42.2 mbps (DL)/ 11.5 mbps (UL)	42.2 mbps (DL)/ 11.5 mbps (UL)	42.2 mbps (DL)/ 11.5 mbps (UL)
Interface					
Antenna		Cellular: × 8 GNSS: × 1	Cellular: × 8 GNSS: × 1	Cellular: × 8 GNSS: × 1	Cellular: × 8 GNSS: × 1
(U)SIM		× 2 (DSSS)	× 2 (DSSS)	× 2 (DSSS)	× 2 (DSSS)
UART		× 3	× 3	× 3	× 3
USB 3.2/2.0		USB 3.2 Gen2 × 1, USB 2.0 × 1	USB 3.2 Gen2 × 1, USB 2.0 × 1	USB 3.2 Gen2 × 1, USB 2.0 × 1	USB 3.2 Gen2 × 1, USB 2.0 × 1
USXGMII		× 2	× 2	× 2	× 2
PCIe		PCIe 4.0 × 1, PCIe 3.0 × 2	PCIe 4.0 × 1, PCIe 3.0 × 2	PCIe 4.0 × 1, PCIe 3.0 × 2	PCIe 4.0 × 1, PCIe 3.0 × 2

Note:
1. ①: Exclude China/Japan.
2. ②: Optional.
3. ③: To Be Determined.
4. * : Under development/planned/in progress.

HQ address: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Tel: +86 21 51086236 Email: info@quectel.com

5G Sub-6	RG620T-NA	RG620T-EU	RG620T-EM	RG620T-EG
PCM	× 2	× 2	× 2	× 2
SPI	× 3	× 3	× 3	× 3
I2C	× 4	× 4	× 4	× 4
ADC	× 7	× 7	× 7	× 7
SDIO	× 1	× 1	× 1	× 1
DBI	× 1	× 1	× 1	× 1
Voice				
Voice	Digital Audio and VoLTE/ VoNR (Voice over LTE/ New Radio)①	Digital Audio and VoLTE/ VoNR (Voice over LTE/ New Radio)	Digital Audio and VoLTE/ VoNR (Voice over LTE/ New Radio)	Digital Audio and VoLTE/ VoNR (Voice over LTE/ New Radio)
Enhanced Feature				
DTMF	●	●	●	●
FOTA	●	●	●	●
(U)SIM Card Detection	●	●	●	●
Electrical/ RF Feature				
Power Supply	3.3–4.4 V, typical 3.8 V	3.3–4.4 V, typical 3.8 V	3.3–4.4 V, typical 3.8 V	3.3–4.4 V, typical 3.8 V
Power Consumption	135 μA @ Power down 6 mA @ Sleep 145 mA @ Idle (USB connected)	135 μA @ Power down 6 mA @ Sleep 145 mA @ Idle (USB connected)	135 μA @ Power down 6 mA @ Sleep 145 mA @ Idle (USB connected)	135 μA @ Power down 6 mA @ Sleep 145 mA @ Idle (USB connected)
Transmit Power	Class 3 (23 dBm ±2 dB) for LTE-FDD bands Class 3 (23 dBm ±2 dB) for LTE-TDD bands Class 2 (26 dBm +2/ -3 dB) for LTE HPUE B38/ 41 Class 3 (23 dBm ±2 dB) for 5G NR bands Class 2 (26 dBm +2/ -3 dB) for 5G NR HPUE n38/ 41/ 77/ 78 Class 1.5 (29 dBm +2/ -3 dB) for 5G NR HPUE n41/ 77/ 78	Class 3 (23 dBm ±2 dB) for WCDMA bands Class 3 (23 dBm ±2 dB) for LTE-FDD bands Class 3 (23 dBm ±2 dB) for LTE-TDD bands Class 2 (26 dBm +2/ -3 dB) for LTE HPUE B41 Class 3 (23 dBm ±2 dB) for 5G NR bands Class 2 (26 dBm +2/ -3 dB) for 5G NR HPUE n41/ 77/ 78 Class 1.5 (29 dBm +2/ -3 dB) for 5G NR HPUE n41/ 77/ 78	Class 3 (23 dBm ±2 dB) for WCDMA bands Class 3 (23 dBm ±2 dB) for LTE-FDD bands Class 3 (23 dBm ±2 dB) for LTE-TDD bands Class 2 (26 dBm +2/ -3 dB) for LTE HPUE B38/ 41 Class 3 (23 dBm ±2 dB) for 5G NR bands Class 2 (26 dBm +2/ -3 dB) for 5G NR HPUE n38/ 41/ 77/ 78 Class 1.5 (29 dBm +2/ -3 dB) for 5G NR HPUE n41/ 77/ 78	Class 3 (23 dBm ±2 dB) for WCDMA bands Class 3 (23 dBm ±2 dB) for LTE-FDD bands Class 3 (23 dBm ±2 dB) for LTE-TDD bands Class 2 (26 dBm +2/ -3 dB) for LTE HPUE B38/ 41 Class 3 (23 dBm ±2 dB) for 5G NR bands Class 2 (26 dBm +2/ -3 dB) for 5G NR HPUE n38/ 41/ 77/ 78/79 Class 1.5 (29 dBm +2/ -3 dB) for 5G NR HPUE n41/ 77/ 78 /79

Note:
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2. ①: Optional.

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