



Build a Smarter World

The Leading Global Supplier of

IoT&M2M Modules

For more information contact
us at www.quectel.com

LTE

5G

LTE-M

NB-IoT

Wi-Fi

GNSS

About Quectel Wireless Solutions

Quectel's passion for a smarter world drives us to accelerate IoT innovation. A highly customer-centric organization, we create superior cellular and GNSS modules and antennas backed by outstanding support and services. Our growing global team of over 3,000 professionals, the largest in the IoT modules industry worldwide, ensures we are first to market and continue to set the pace of development. Listed on the Shanghai Stock Exchange (603236.SS), our international leadership is devoted to advancing IoT across the globe.

For more information visit: www.quectel.com or find us on Linked In, Twitter and Facebook.

UMTS/
HSPA(+)

C-V2X

Antenna

LPWA

GSM/
GPRS

IoT Applications



Telematics and Transport

Automotive OEM
 Vehicle Tracking
 Asset Tracking
 Ship Tracking
 Fleet Management
 OBD
 Vehicle Digital Video Recorders (DVR)
 Special Purpose Vehicles (SPV)
 Usage-Based Insurance (UBI)



Energy

Electricity Meters
 Gas Meters
 Water Meters
 Heat Meters
 Smart Grids
 Wind Turbines
 Solar Panels
 Charging Piles



Payment

Wireless POS
 Cash Registers
 ATMs
 Vending Machines
 Top-up Machines



Safety

Alarms
 Intrusion Detection
 Smoke Detectors
 Gas Detectors
 Motion Sensors
 Asset Protection



Smart Cities

Street Lighting
 Traffic Lights
 Sharing Economy
 Smart Elevators
 Smart Parking
 Parking Meters
 Toll Collection Systems
 Digital Signage
 Smart Bins
 Outdoor LED Lighting



Gateways

DTUs
 Consumer Routers
 Industrial Routers
 VOIP
 Wi-Fi Hotspots



Industry

Industrial PDAs/ Scanners
 Industrial PCs
 Rugged Tablet PCs
 Pipeline Monitoring
 Robots
 Flowmeters
 Unmanned Aerial Vehicles (UAV)
 Industrial Refrigerators
 Indoor Air Monitoring
 Water Valves/ Pump Controls



Life & Healthcare



Personal Trackers
 Pet Trackers
 Wearables
 Home Automation
 Elderly Monitoring
 Remote Medical Equipment
 Glucometers
 Blood Pressure Monitors
 Recreational Machines
 Patient Monitoring Laptops



Agriculture & Environment

Trail Cameras
 Food Traceability
 Farmland Monitoring
 Farm Machinery Management
 Meteorological Stations
 Wildlife Tracking
 Irrigation
 Environmental Monitoring

Quectel 5G NR Module Family




Product	RG500Q-EA	RG502Q-EA
		
Form Factor	LGA	LGA
Dimensions (mm)	41.0 × 44.0 × 2.75	41.0 × 44.0 × 2.75
5G	Sub-6 GHz	Sub-6 GHz
Frequency Bands (MHz)	5G NR: n41/n77/n78/n79/n1/n3/n5/n7/n8/n20/n28/n38/n40 LTE-FDD: B1/B3/B5/B7/B8/B18/B19/B20/B26/B28/B32 LTE-TDD: B34/B38/B39/B40/B41/B42/B43 WCDMA: B1/B3/B5/B6/B8/B19	5G NR: n41/n77/n78/n79/n1/n3/n5/n7/n8/n20/n28/n38/n40 LTE-FDD: B1/B3/B5/B7/B8/B18/B19/B20/B26/B28/B32 LTE-TDD: B34/B38/B39/B40/B41/B42/B43 WCDMA: B1/B3/B5/B6/B8/B19
Region	EMEA/ APAC	EMEA/ APAC
Weight (approx.) g	11	11
Operating Temperature	-30°C ~ +75°C	-30°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data Transmission¹		
5G	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 2.5Gbps (DL)/ Max. 600/650Mbps (UL) ²	5G SA Sub-6: Max. 4.2Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 5.0Gbps (DL)/ Max. 600/650Mbps (UL) ²
LTE	LTE-FDD: Max. 1Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 2Gbps (DL)/ Max. 200Mbps (UL)
UMTS	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)
SMS	•	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS
Interfaces		
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V
UART	× 3	× 3
USB	2.0/3.0/3.1	2.0/3.0/3.1
PCIe	PCIe Gen3 × 2 Lane	PCIe Gen3 × 2 Lane
RGMI	•	•
PCM	•	•
I2C	× 1	× 1
SPI	•	•
GPIO	•	•
ADC	× 2	× 2
SD Card	•	•
RESET_N	•	•
Antenna	Cellular: 6 + 2 (n79), GNSS: × 1	Cellular: 6 + 2 (n79), GNSS: × 1
Enhanced Features		
MIMO	4 × 4 DL	4 × 4 DL
Digital Audio	•	•
VoLTE	Optional	Optional
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo
(U)SIM Card Detection	•	•
Electrical Features		
Supply Voltage Range	3.3V~4.3V, 3.8V Typ.	3.3V~4.3V, 3.8V Typ.
Power Consumption	0.033mA @ Power off 1.45mA @ Sleep, Typ. 20.1mA @ Idle	0.033mA @ Power off 1.45mA @ Sleep, Typ. 20.1mA @ Idle
Software Features		
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10
MBIM Driver	Windows 7/8/8.1/10, Linux 3.18~5.8	Windows 7/8/8.1/10, Linux 3.18~5.8
Gobinet Driver	Linux 2.6~5.8	Linux 2.6~5.8
QMI_WWAN Driver	Linux 3.4~5.8	Linux 3.4~5.8
PCIe Driver	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
Certifications	LGU-/ Telstra*/ China Telecom/ China Mobile/ China Unicom / CE/ SRRC/ NAL/ CCC/ KC/ RCM/ JATE/TELEC	CE/ RCM
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage	

Note 1: means the data transmission is theoretical data rate and depends on network condition.

Note 2: 600 Mbps is the typical value; while 650 Mbps is the theoretical data rate when the UL 256QAM of both LTE and 5G NR are enabled (LTE UL 256QAM in EN-DC is disabled by default and has not been deployed by operators, and it is not fully tested).

* Under development

Quectel 5G NR Module Family


Product	RM500Q-GL	RM502Q-GL	RM500Q-AE	RM502Q-AE
				
Form Factor	M.2	M.2	M.2	M.2
Dimensions (mm)	52.0 × 30.0 × 2.3	52.0 × 30.0 × 2.3	52.0 × 30.0 × 2.3	52.0 × 30.0 × 2.3
5G	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz	Sub-6 GHz
Frequency Bands (MHz)	5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48*/n66/n71/n77/n78/n79 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48; LAA: B46 WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48*/n66/n71/n77/n78 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48; LAA: B46 WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48*/n66/n71/n77/n78/n79 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12(B17)/B13/B14/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48 LAA: B46 (only support 2 × 2 MIMO) WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48*/n66/n71/n77/n78/n79 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12(B17)/B13/B14/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48 LAA: B46 (only support 2 × 2 MIMO) WCDMA: B1/B2/B3/B4/B5/B6/B8/B19
Region	Global (except for US)	Global (except for US, China, JP)	Global (except for China)	Global (except for China)
Weight (approx.) g	9	9	8.7	8.7
Operating Temperature	-30°C ~ +70°C	-30°C ~ +70°C	-30°C ~ +70°C	-30°C ~ +70°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data Transmission¹				
5G	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 2.5Gbps (DL)/ Max. 600/650Mbps (UL) ²	5G SA Sub-6: Max. 4.2Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 5.0Gbps (DL)/ Max. 600/650Mbps (UL) ²	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 450Mbps (UL) 5G NSA Sub-6: Max. 2.5Gbps (DL)/ Max. 600/650Mbps (UL) ²	5G SA Sub-6: Max. 4.2Gbps (DL)/ Max. 450Mbps (UL) 5G NSA Sub-6: Max. 5.0Gbps (DL)/ Max. 600/650Mbps (UL) ²
LTE	LTE-FDD: Max. 1Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 2Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 1Gbps (DL)/ Max. 200Mbps (UL)	LTE-FDD: Max. 2Gbps (DL)/ Max. 200Mbps (UL)
UMTS	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)
SMS	•	•	•	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS
Interfaces				
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 1, 1.8V/ 3.0V	× 1, 1.8V/ 3.0V
USB	2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1	2.0/3.0/3.1
PCIe	PCIe Gen3 × 1 Lane	PCIe Gen3 × 1 Lane	PCIe Gen3 × 1 Lane	PCIe Gen3 × 1 Lane
PCM	× 1	× 1	× 1	× 1
GPIO	•	•	•	•
RESET_N	•	•	•	•
Antenna	Cellular: × 4, GNSS: × 1	Cellular: × 4, GNSS: × 1	Cellular: × 4, GNSS: × 1	Cellular: × 4, GNSS: × 1
Enhanced Features				
MIMO	DL: 4 × 4, UL: 2 × 2	DL: 4 × 4, UL: 2 × 2	DL: 4 × 4, UL: 2 × 2(Only N41)	DL: 4 × 4, UL: 2 × 2(Only N41)
Digital Audio	•	•	•	•
VoLTE	Optional	Optional	Optional	Optional
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo	GPS/ GLONASS/ BeiDou/ Galileo
(U)SIM Card Detection	•	•	•	•
Electrical Features				
Supply Voltage Range	3.135~4.4V, 3.7V Typ.	3.135~4.4V, 3.7V Typ.	3.135~4.4V 3.7V Typ.	3.135~4.4V 3.7V Typ.
Power Consumption	70μA @Power off 5mA @Sleep, Typ. 39mA, USB 2.0 @Idle 64mA, USB 3.0 @Idle	72μA @Power off 6mA @Sleep, Typ. 42mA, USB 2.0 @Idle 65mA, USB 3.0 @Idle	80μA @Power off 4.2mA @Sleep, Typ. 39mA, USB 2.0 @Idle 54.5mA, USB 3.0 @Idle	80μA @Power off 4.2mA @Sleep, Typ. 39mA, USB 2.0 @Idle 54.5mA, USB 3.0 @Idle
Software Features				
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 7/8/8.1/10, Linux 2.6~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10
MBIM Driver	Windows 10, Linux 3.18~5.8	Windows 10, Linux 3.18~5.8	Windows 10, Linux 3.18~5.8	Windows 10, Linux 3.18~5.8
Gobinet Driver	Linux 2.6~5.8	Linux 2.6~5.8	Linux 2.6~5.8	Linux 2.6~5.8
QMI_WWAN Driver	Linux 3.4~5.8	Linux 3.4~5.8	Linux 3.4~5.8	Linux 3.4~5.8
PCIe Driver	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
Certifications	CE/RCM/CCC/SRRC/NAL/KC/GCF	CE/RCM/FCC*/IC/GCF/PTCRB	CE/RCM/FCC*/IC/GCF/PTCRB/T-mobile*/AT&T*/ Verizon*/Telstra*/JATE/TELEC	CE/RCM/FCC*/IC/GCF/PTCRB/T-mobile*/AT&T*/ Verizon*/Telstra*/JATE/TELEC
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage			

Note 1: means the data transmission is theoretical data rate and depends on network condition.

Note 2: 600 Mbps is the typical value; while 650 Mbps is the theoretical data rate when the UL 256QAM in EN-DC is disabled by default and has not been deployed by operators, and it is not fully tested).

* Under development

Quectel 5G NR Module Family


Product	RM510Q-GL
	
Form Factor	M.2
Dimensions (mm)	52.0 × 30.0 × 2.3
5G	Sub-6 GHz/ mmWave
Frequency Bands (MHz)	5G NR: n1/n2/n3/n5/n7/n8/n12/n20/n25/n28/n38/n40/n41/n48/n66/n71/n77/n78/n79/n257/n260/n261 LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12 (B17)/B13/B14/B18/B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE-TDD: B34/B38/39/B40/B41/B42/B43/B48 LAA: B46 WCDMA: B1/B2/B3/B4/B5/B6/B8/B19
Region	Global
Weight (approx.) g	9.1
Operating Temperature	-30°C ~ +70°C
Extended Temperature	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data Transmission¹	
5G	5G SA Sub-6: Max. 4.2Gbps (DL)/ Max. 450Mbps (UL) 5G NSA Sub-6: Max. 5.0Gbps (DL)/ Max. 600/650Mbps (UL) ² 5G NSA mmWave: Max. 7.5Gbps (DL)/ Max. 2.9Gbps (UL)
LTE	LTE-FDD: Max. 2Gbps (DL)/ Max. 200Mbps (UL)
UMTS	WCDMA: Max. 42Mbps (DL)/ Max. 5.76Mbps (UL)
SMS	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS
Interfaces	
(U)SIM	× 1, 1.8V/ 3.0V
USB	2.0/3.0/3.1
PCIe	PCIe Gen3 × 1 Lane
PCM	•
GPIO	•
RESET_N	•
Antenna	Cellular: × 4, GNSS: × 1; mmWave IF *4 pairs
Enhanced Features	
MIMO	Sub-6: DL 4 × 4, UL 2 × 2 (Only n41) mmWave: DL 2 × 2, UL 2 × 2
Digital Audio	•
VoLTE	Optional
DTMF	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo
(U)SIM Card Detection	•
Electrical Features	
Supply Voltage Range	3.135~4.4V, 3.7V Typ.
Power Consumption	80 μA @ Power down 4.2 mA @ Sleep 39 mA @ USB 2.0, Idle 54.5 mA @ USB 3.0, Idle
Software Features	
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
NDIS Driver	Windows 7/8/8.1/10
MBIM Driver	Windows 10, Linux 3.18~5.8
Gobinet Driver	Linux 2.6~5.8
QMI_WWAN Driver	Linux 3.4~5.8
PCIe Driver	Windows 10, Linux 3.10~5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
Certifications	FCC/IC/BCF/PTCRB/CE/RCM
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage

Note 1: means the data transmission is theoretical data rate and depends on network condition.

Note 2: 600 Mbps is the typical value; while 650 Mbps is the theoretical data rate when the UL 256QAM of both LTE and 5G NR are enabled (LTE UL 256QAM in EN-DC is disabled by default and has not been deployed by operators, and it is not fully tested).

* Under development

Quectel 5G NR Module Family




Product	RG501Q-EU
	
Form Factor	LGA
Dimensions (mm)	41.0 × 44.0 × 2.75
5G	Sub-6 GHz
Frequency Bands (MHz)	5G NR Bands: n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78 LTE bands: LTE-FDD: B1/B3/B5/B7/B8/ B20/B28/B32 LTE-TDD: B38/B40/B41/B42/B43 WCDMA Bands: B1/B5/B8
Region	EMEA/ Oceania/ Brazil
Weight (approx.) g	11
Operating Temperature	-30°C ~ +75°C
Extended Temperature	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data Transmission¹	
5G	5G SA Sub-6: Max. 2.1Gbps (DL)/ Max. 900Mbps (UL) 5G NSA Sub-6: Max. 3.3Gbps (DL)/ Max. 600/650Mbps (UL) ²
LTE	LTE-FDD: Max. 2Gbps (DL)/ Max. 200Mbps (UL)
UMTS	WCDMA: Max. 42 Mbps (DL)/ Max. 5.76Mbps (UL)
SMS	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS/PING/SMS
Interfaces	
(U)SIM	× 2, 1.8V/ 3.0V
UART	× 3
USB	2.0/3.0/3.1
PCIe	PCIe Gen3 × 2 Lane
RGMI	•
PCM	•
I2C	× 1
SPI	•
GPIO	•
ADC	× 2
SD Card	•
RESET_N	•
Antenna	Cellular: × 4 + 2 (Optional), GNSS: × 1
Enhanced Features	
MIMO	4 × 4 DL
Digital Audio	•
VoLTE	Optional
DTMF	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo
(U)SIM Card Detection	•
Electrical Features	
Supply Voltage Range	3.3V~4.3V, 3.8V Typ.
Power Consumption	TBD @Power off/ TBD @Sleep, Typ. TBD @Idle
Software Features	
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6-5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x/10
NDIS Driver	Windows 7/8/8.1/10
MBIM Driver	Windows 10, Linux 3.18-5.8
Gobinet Driver	Linux 2.6-5.8
QMI_WWAN Driver	Linux 3.4-5.8
PCIe Driver	Windows 10, Linux 3.10-5.8, Android 4.x/5.x/6.x/7.x/8.x/9.x/10
Certifications	CE*/RCM*/GCF*
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage

Note 1: means the data transmission is theoretical data rate and depends on network condition.

Note 2: 600 Mbps is the typical value; while 650 Mbps is the theoretical data rate when the UL 256QAM of both LTE and 5G NR are enabled (LTE UL 256QAM in EN-DC is disabled by default and has not been deployed by operators, and it is not fully tested).

* Under development


Quectel LTE-A Module Family

Product	EP06	EG06	EG060V	
				
Form Factor	Mini PCIe	LGA	LGA	
Dimensions (mm)	51.0 × 30.0 × 4.0	37.0 × 39.5 × 2.8	37.0 × 39.5 × 3.05	
4G	LTE Cat 6	LTE Cat 6	LTE Cat 6	
Frequency Bands (MHz)	-E (EMEA/ Australia/ Brazil)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 ¹ LTE-TDD: B38/B40/B41 Up to 2 × CA: B1+B1/B5/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20+B32; B38+B38; B40+B40; B41+B41; WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 ¹ LTE-TDD: B38/B40/B41 Up to 2 × CA: B1+B1/B5/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20+B32; B38+B38; B40+B40; B41+B41 WCDMA: B1/B3/B5/B8	/
	-EA (EMEA/ Australia/ Brazil)	/	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 ¹ LTE-TDD: B38/B40/B41 Up to 2 × CA: B1+B1/B3/B5/B7/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20+B32 ¹ ; B38+B38; B40+B40; B41+B41 WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 2 × CA: B1+B1/B3/B5/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B38+B38; B40+B40; B41+B41 WCDMA: B1/B5/B8
	-A (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29 ² /B30/B66 Up to 2 × CA: B2+B2/B5/B12/B13/B29; B4+B4/B5/B12/B13/B29; B7+B5/B7/B12/B26; B25+B5/B12/B25/B26; B30+B5/B12/B29; B66+B5/B12/B13/B29/B66 WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29 ² /B30/B66; Up to 2 × CA: B2+B2/B5/B12/B13/B29; B4+B4/B5/B12/B13/B29; B7+B5/B7/B12/B26; B25+B5/B12/B25/B26; B30+B5/B12/B29; B66+B5/B12/B13/B29/B66 WCDMA: B2/B4/B5	/
	-AULT (Australia)	/	LTE-FDD: B3/B7/B28 Up to 2×CA: B3+B3/B7/B28; B7+B7/B28	/
Weight (approx.) g	10.1	9.1	6.7	
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	-20°C ~ +55°C	
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-25°C ~ +60°C	
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	
Data Transmission				
LTE	LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 226Mbps (DL)/ Max. 28Mbps (UL)	LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 226Mbps (DL)/ Max. 28Mbps (UL)	LTE-FDD: Max. 300Mbps (DL)/Max. 50Mbps (UL) LTE-TDD: Max. 220Mbps (DL)/Max. 30Mbps (UL)	
UMTS	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA*: Max. 42Mbps HSDPA: Max. 21Mbps HSUPA: Max. 5.76Mbps WCDMA: Max. 384Kbps (DL)/Max. 384Kbps (UL)	
SMS	•	•	•	
Protocols	TCP/ UDP/ FTP/ HTTP/ HTTPS/ PING/ SMS	TCP/ UDP/ FTP/ HTTP/ HTTPS/ PING/ SMS	TCP/PPP/FTP/HTTP/SMP*/MMS*/POP3/SSL/HTTPS/SMP* [*]	
Interfaces				
USB	2.0/3.0, Slave Mode	2.0/3.0, Supports Master* and Slave Modes	2.0, Support Slave and Master* Modes	
PCM	•	•	•	
I2C	× 1	× 1	× 1	
(U)SIM	× 2, 1.8V/ 3.0V	1.8V/ 3.0V	× 1, 1.8V/ 3.0V	
GPIO	× 4	× 2	× 2	
UART	/	× 3	× 2	
ADC	/	× 2	× 2	
RESET_N	•	•	•	
PCIe	/	Optional	Optional	
Antenna	× 3	× 3	Main, Diversity	
Enhanced Features				
MIMO	2 × 2, 4 × 2, DL	2 × 2, 4 × 2, DL	2 × 2, 4 × 2, DL	
eCall	Emergency Service*	Emergency Service*	Emergency Service	
Digital Audio	•	•	•	
VoLTE	Optional	Optional	Optional	
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	/	
FOTA	•	•	Firmware over the Air	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	/	
(U)SIM Card Detection	•	•	•	
Electrical Features				
Supply Voltage Range	3.1~4.4 V, 3.3 V Typ.	3.3~4.3 V, 3.8V Typ.	3.3~4.3V 3.8V Typ.	
Power Consumption	3.3mA@Sleep, Typ. 32.1mA@Idle	10µA @Power off 1.5mA @LTE Sleep (PF=128) 1.5mA @LTE Sleep (PF=64) 18mA @Idle	10µA@Power off 3.7mA@Sleep (PF=128) 5.0mA@Sleep (PF=64) 30mA@Idle	
Software Features				
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6/3.x/4.1~4.15, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.1~4.15, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10 Linux 2.6~5.9 Android 4.x~10.x	
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x~10.x	
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	/	
RNDIS Driver	/	/	Windows 7/8/8.1/10 Linux 2.6~5.9	
ECM Driver	Linux 2.6/3.x/4.1~4.14	Linux 2.6/3.x/4.1~4.14	Linux 2.6~5.9	
Gobinet Driver	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x	/	
QMI_WWAN Driver	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.1~4.15	/	
Certifications	Telstra/ Deutsche Telekom/ GCF/ CE/ NCC/ RCM/ FCC/ IC/ CCC/ PTCRB/ AT&T/ Verizon/ Telus/ Sprint/ Rogers/ Bell (TBD)/ ICASA	Deutsche Telekom/ Telstra/ GCF/ CE/ KC/ RCM/ FCC/ CCC/ PTCRB/ IC/ AT&T/ Verizon/ USCC/ British Telekom	TBD	
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage		Router, MIFI, home gateway, set-top box, PDA, tablet PC and digital signage	

Note 1: B32 is only for secondary component carrier.
Note 2: B29 is only for secondary component carrier.

* Under development



Quectel LTE-A Module Family

Product	EG12	EG18	EG512R-EA	
				
Form Factor	LGA	LGA	LGA	
Dimensions (mm)	37.0 × 39.5 × 2.8	37.0 × 39.5 × 2.8	38.0 × 42.0 × 2.65	
4G	LTE Cat 12	LTE Cat 18	LTE Cat 12	
Frequency Bands (MHz)	-EA (EMEA/ Australia/ Brazil)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B38/B41/B42/B43 Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B3/B5/B8
	-NA (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B25/B26/B29/B30/B66/B71 LTE-TDD: B41 Up to 3 × CA: Intra-band and Inter-band WCDMA Bands: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17 ¹ /B25/B26/B29/B30/B66/B71 LTE-TDD: B41 Up to 5 × CA: Intra-band and Inter-band WCDMA Bands: B2/B4/B5	/
Weight (approx.) g	9	9	8.7	
Operating Temperature	-30°C ~ +75°C	-30°C ~ +75°C	-30°C ~ +75°C	
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	
Data Transmission				
LTE	LTE-FDD: Max. 600Mbps (DL) / Max. 150Mbps (UL) LTE-TDD: Max. 430Mbps (DL) / Max. 90Mbps (UL)	LTE-FDD: Max. 1.2Gbps (DL) / Max. 150Mbps (UL) LTE-TDD: Max. 573Mbps (DL) / Max. 90Mbps (UL)	LTE-FDD: Max. 600Mbps (DL) / Max. 75Mbps (UL) LTE-TDD: Max. 310Mbps (DL) / Max. 90Mbps (UL)	
UMTS	DC-HSDPA: Max. 42Mbps (DL) / HSPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL) / Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL) / HSPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL) / Max. 384Kbps (UL)	WCDMA: Max. 42Mbps (DL) / Max. 5.76Mbps (UL)	
SMS	•	•	•	
Protocols	TCP/ UDP/ FTP/ HTTP/ HTTPS/ PING/ SMS	TCP/ UDP/ FTP/ HTTP/ HTTPS / PING/ SMS	TCP/ UDP/ FTP/ HTTP/ HTTPS/ PING/ SMS	
Interfaces				
USB	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode	
PCM	•	•	•	
I2C	× 1	× 1	× 1	
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	
eSIM	/	/	× 1 / built-in eSIM (optional)	
GPIO	× 2	× 2	•	
UART	× 3	× 3	*	
ADC	× 2	× 2	× 2	
SPI	× 1 (Optional)	× 1 (Optional)	•	
SD Card	•	•	*	
RESET_N	•	•	•	
PCIe	Optional	Optional	PCIe Gen2 × 1 Lane	
RGMI	/	/	•	
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS	
Enhanced Features				
MIMO	2 × 2, 4 × 2, 4 × 4, DL	2 × 2, 4 × 2, 4 × 4 DL	2 × 2, 4 × 2, 4 × 4 DL	
eCall	•	•	/	
BT4.0	/	/	/	
Digital Audio	•	•	•	
VoLTE	Optional	Optional	Optional	
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo	
(U)SIM Card Detection	•	•	•	
Electrical Features				
Supply Voltage Range	3.3~4.3 V, 3.8 V Typ.	3.3~4.3 V, 3.8 V Typ.	3.3V~4.3V, 3.8V Typ.	
Power Consumption	20µA @Power off 1.83mA @Sleep, Typ. 9.41mA @Idle	20µA @Power off 1.81mA @Sleep, Typ. 9.38mA @Idle	TBD @Power off TBD @Sleep, Typ. TBD @Idle	
Software Features				
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6-5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	
GNSS Driver	/	/	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x/10	
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10	
MBIM Driver	/	/	Windows 7/8/8.1/10, Linux 3.18-5.4	
Gobinet Driver	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x	Linux 2.6-5.4	
QMI_WWAN Driver	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.4-5.4	
PCIe Driver	/	/	Windows 10, Linux 2.6-5.4, Android 4.x/5.x/6.x/7.x/8.x/9.x/10	
Certifications	CE/ RoHS	CE/ RoHS/ FCC/ IC/ GCF/ PTCRB/ AT&T/ Verizon/ Telstra/ USCC*	CE/ RoHS	
Recommended Applications	Industrial Router, Industrial PDA, Rugged Tablet PC and Digital Signage			

Note 1: LTE-FDD B17 is supported through MFBI+B12.

* Under development

Quectel M.2 Module Family

Product	EM05	EM06	
			
Form Factor	M.2	M.2	
Dimensions (mm)	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	
4G	LTE Cat 4	LTE Cat 6	
Frequency Bands (MHz)	-A (NA)	/	
	-E (EMEA/ Australia/New Zealand)	LTE-FDD: B1/B3/B7/B8/B20/B28; LTE-TDD: B38/B41 WCDMA: B1/B8	LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29 ² /B30/B66 LTE-TDD: B41 Up to 2 × CA: B2+B2/B5/B12/B13/B29 ³ ; B4+B4/B5/B12/B13/B29 ³ ; B5+B5/B7/B25/B30/B66; B7+B7/B12/B26; B12+B12/B25/B30/B66; B13+B66; B25+B25/B26; B30+B29; B66+B29/B66; B41+B41 WCDMA: B2/B4/B5
	-J (Japan)	/	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 ¹ LTE-TDD: B38/B40/B41 Up to 2 × CA: B1+B1/B5/B8/B20/B28; B3+B3/B5/B7/B8/B20/B28; B7+B5/B7/B8/B20/B28; B20+B32 ² ; B38+B38; B40+B40; B41+B41 WCDMA: B1/B3/B5/B8
	-G (Global)	LTE: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B18/B19/B20/B25/B26/B28/B66/B71/B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B6/B8/B19	/
	-CE (China/Thailand/India)	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B38/B39/B40/B41; WCDMA: B1/B8; EVDO/CDMA: BC0	LTE-FDD: B1/B3/B8/B18/B19/B26/B28 LTE-TDD: B41 Up to 2 × CA: B1+B1/B8/B18/B19/B26/B28; B3+B3/B8/B18/B19/B26/B28; B41+B41 WCDMA: B1/B3/B6/B8/B19
Weight (approx.) g	6.0	6.5	
Operating Temperature	-30°C ~ +70°C	-30°C ~ +70°C	
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	
Control via AT Commands	3GPP TS 27.005, 3GPP TS 27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	
Data Transmission			
LTE	LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 226Mbps (DL)/ Max. 28Mbps (UL)	
UMTS	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	
SMS	•	•	
CDMA2000	EVDO: Max. 3.1Mbps (DL)/ Max. 1.8Mbps (UL) 1X Advanced: Max. 307.2Kbps (DL)/ Max. 307.2Kbps (UL)	/	
Protocols	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ NITZ/ SMTP/ MMS/FTPS/ SMTPS/ SSL/FILE	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	
Interfaces			
USB	2.0 Hi-Speed	2.0/3.0*, Slave Mode	
PCM	•	•	
I2C	× 1	× 1	
(U)SIM	1.8V/ 3.0V	× 2, 1.8V/ 3.0V	
GPIO	× 1	× 11	
RESET_N	•	•	
PCIe	/	Optional	
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS	
Enhanced Features			
MIMO	DL MIMO, support Rx-diversity Antenna	2 × 2, 4 × 2, DL	
eCall*	/	Emergency Service	
Digital Audio	•	•	
VoLTE	/	Optional	
DTMF	/	Dual-tone Multi-frequency	
DFOTA	•	Delta Firmware over the Air	
GNSS	Optional	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	
(U)SIM Card Detection	•	•	
Electrical Features			
Supply Voltage Range	3.135V~4.4V, 3.3V Typ.	3.135~4.4V, 3.7V Typ.	
Power Consumption	5µA @Power off/ 3.3mA(PF=128) @LTE Sleep/ 20mA @Idle	50µA @Power off 4.1mA @Sleep, Typ. 22.1mA @Idle	
Software Features			
USB Serial Driver	Windows 7/8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.1~4.15, Android 4.x/5.x/6.x/7.x/8.x/9.x	
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	/	
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	
MBIM Driver	Windows 8/8.1/10, Linux3.18~5.4	Windows 8/8.1/10	
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	
Gobinet Driver	Linux 2.6~5.4	Linux 2.6/3.x/4.x/5.x	
QMI_WWAN Driver	Linux 3.4~5.4	Linux 3.x (3.4 or later)/4.x/5.x	
Certifications	CCC/ SRRC/ NAL/ CE/ RCM/ FCC/ PTCRB/ GCF	GCF/ CE/ NCC/ RCM/ ICASA/ FCC/ PTCRB/ IC/ WHQL/ Verizon/ AT&T/ Telstra/ Deutsche Telekom/ KDDI/ JATE/ TELEC/ Sprint/ KC	
Recommended Applications	Consumer laptops, Industrial laptops, Industrial routers, Industrial PDAs, rugged tablet PCs and digital signage.		





Note 1: B32 is only for secondary component carrier.

Note 2: B29 is only for secondary component carrier.

Note 3: means LTE-FDD B29 and B32 support receiving only, and are only for secondary component carrier in 2×CA.

* Under development



Quectel M.2 Module Family

Product	EM12	EM120R-GL	EM121R-GL	EM160R-GL
				
Form Factor	M.2	M.2	M.2	M.2
Dimensions (mm)	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3
4G	LTE Cat 12	LTE Cat 12	LTE Cat 12	LTE Cat 16
Frequency Bands (MHz)	-G (Global) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B14/B17/B18/B19/B20/B21/B25/B26/B28/B29 ¹ /B30/B32/B66 LTE-TDD: B38/B39/B40/B41 Up to 3 × CA: Intra-band and Inter-band, B1+3+5/7/8/19/20/28, B2+4+5, B2+4+13, B2+5+30, B2+12+30, etc WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29 ¹ /B30/B32/B66 LTE-TDD: B38/B39/B40/B41/B42/B43/B46 ² /B48 (CBRS) Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29 ¹ /B30/B32/B66 LTE-TDD: B38/B39/B40/B41/B42/B43/B46 ² /B48 (CBRS) Up to 3 × CA: Intra-band and Inter-band WCDMA: B1/B2/B3/B4/B5/B6/B8/B19	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/B19/B20/B25/B26/B28/B29 ¹ /B30/B32/B66 LTE-TDD: B38/B39/B40/B41/B42/B43/B46 ² /B48 (CBRS) Up to 5 × CA: Intra-band and Inter-band WCDMA: B1/B2/B3/B4/B5/B6/B8/B19
Weight (approx.) g	6.0	6.8	6.8	6.8
Operating Temperature	-30°C ~ +70°C, -10°C ~ +65°C (Only for UL CA test)	-25°C ~ +75°C	-25°C ~ +75°C	-25°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Control via AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands	3GPP TS27.007 and Quectel Enhanced AT Commands
Data Transmission				
LTE	LTE-FDD: Max. 600Mbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 408Mbps (DL)/ Max. 90Mbps (UL)	LTE-FDD: Max. 600Mbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 408Mbps (DL), Max. 90Mbps (UL)	LTE-FDD: Max. 600Mbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 408Mbps (DL), Max. 90Mbps (UL)	LTE-FDD: Max. 1.0Gbps (DL)/ Max. 150Mbps (UL) LTE-TDD: Max. 880Mbps (DL)/ Max. 90Mbps (UL)
UMTS	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)	DC-HSDPA: Max. 42Mbps (DL)/ HSUPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL)/ Max. 384Kbps (UL)
SMS	•	•	•	•
Protocols	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS	TCP/UDP/FTP/HTTP/HTTPS /PING/SMS
Interfaces				
USB	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode	2.0/3.0, Slave Mode
PCM	•	•	•	•
I2C	× 1	/	/	/
(U)SIM	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V	× 2, 1.8V/ 3.0V
eSIM	/	× 1/ built-in eSIM (optional)	× 1/ built-in eSIM (optional)	× 1/ built-in eSIM (optional)
GPIO	× 11	MIPI interface	MIPI interface	MIPI interface
RESET_N	•	•	•	•
PCIe	Optional	PCIe Gen2 × 1 Lane	PCIe Gen2 × 1 Lane	PCIe Gen2 × 1 Lane
Antenna	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS	Main, Diversity and GNSS, MIMO × 2
Enhanced Features				
MIMO	4 × 2, 2 × 2, DL	2 × 2, 4 × 2 DL	2 × 2, 4 × 2 DL	2 × 2, 4 × 2, 4 × 4 DL
eCall*	Emergency Service	Emergency Service	Emergency Service	Emergency Service
Digital Audio	•	•	•	•
VoLTE	Optional	/	/	/
DTMF	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency	Dual-tone Multi-frequency
DFOTA	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air	Delta Firmware over the Air
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS
(U)SIM Card Detection	•	•	•	•
Electrical Features				
Supply Voltage Range	3.135~4.4V, 3.7V Typ.	3.135~4.4V 3.7V Typ.	3.135~4.4V 3.7V Typ.	3.135~4.4V, 3.7V Typ.
Power Consumption	56µA @Power off 3.7mA @Sleep, Typ. 10.3mA @Idle	USB Mode 66 µA @ Power down 1.84 mA @ Sleep (AT+CFUN=0, USB Suspend) 24.48 mA @ Idle (PF = 64, USB Active) PCIe Only Mode 66 µA @ Power down 2.35 mA @ Sleep (AT+CFUN=0, Modem standby) 15.05 mA @ Idle (PF = 64, PCIe Active)	USB Mode 66 µA @ Power down 1.84 mA @ Sleep (AT+CFUN=0, USB Suspend) 24.48 mA @ Idle (PF = 64, USB Active) PCIe Only Mode 66 µA @ Power down 2.35 mA @ Sleep (AT+CFUN=0, Modem standby) 15.05 mA @ Idle (PF = 64, PCIe Active)	USB Mode 66 µA @ Power down 1.78 mA @ Sleep (AT+CFUN=0, USB Suspend) 24.75 mA @ Idle (PF = 64, USB Active) PCIe Only Mode 66 µA @ Power down 2.38 mA @ Sleep (AT+CFUN=0, Modem standby) 15.38 mA @ Idle (PF = 64, PCIe Active)
Software Features				
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6/3.x/4.1~4.15, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10, Linux 2.6/3.x/4.x/5.x, Android 4.x/5.x/6.x/7.x/8.x/9.x
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10
Gobinet Driver	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x	Linux 2.6/3.x/4.x/5.x
QMI_WWAN Driver	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x	Linux 3.x (3.4 or later)/4.x/5.x
PCIe Driver	/	Linux 3.x/4.x/5.x	Linux 3.x/4.x/5.x	Linux 3.x/4.x/5.x
Certifications	CE/ FCC/ IC/ NCC/ RCM/ ICASA/JETE/ TELEC/ GCF/ PTCRB/ Telstra/ AT&T/ Verizon/ Telefonica/ Vodafone/ Deutsche Telekom/ British Telecom / Docomo/ WHQL	GCF/CE/PTCRB/FCC/IC/ANATEL/IFETEL/SRRC/NAL/CCC/NCC/KC/JATE/ TELEC/RCM/ICASA/Vodafone/ British Telecom/ Swisscom/ Verizon/ AT&T/ T-Mobile/ Sprint/China Mobile/ China Unicom/NTT DOCOMO/ SoftBank*/ KDDI/ Telstra*	GCF*/CE*/PTCRB*/FCC*/IC*/JATE/TELEC*/RCM*/Vodafone*/British Telecom*/ Verizon*/AT&T*/ T-Mobile*/SoftBank*/Telstra*	GCF/CE/PTCRB/FCC/IC/ANATEL/IFETEL/SRRC/NAL/CCC/NCC/KC/JATE/ TELEC/RCM/ICASA/Vodafone/ British Telecom/ Swisscom/ Verizon/ AT&T/ T-Mobile/ Sprint/China Mobile/ China Unicom/NTT DOCOMO/ SoftBank*/ KDDI/ Telstra*
Recommended Applications	Consumer laptops, Industrial laptops, Industrial routers, Industrial PDAs, rugged tablet PCs and digital signage.			

Note 1: B32 is only for secondary component carrier.
 Note 2: B29 is only for secondary component carrier.
 Note 3: B46 is only for secondary component carrier.

* Under development

Quectel LTE Module Family

Product		EC20 R2.1	EC20 R2.1 Mini PCIe
			
Form Factor		LCC	Mini PCIe
Dimensions (mm)		32.0 × 29.0 × 2.4	51.0 × 30.0 × 4.9
LTE Category		LTE Cat 4	LTE Cat 4
Frequency Bands (MHz)	-CE (China/India)	LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B8 TD-SCDMA: B34/B39 EVDO/CDMA: BCO GSM: B3/B8	LTE-FDD: B1/B3/B5/B8 LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B8 TD-SCDMA: B34/B39 EVDO/CDMA: BCO GSM: B3/B8
Weight (approx.) g		5.3	10.6
Operating Temperature		-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature		-40°C ~ +85°C	-40°C ~ +80°C
Data Transmission			
LTE data rate (Mbps)		LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30 (UL)	LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30 (UL)
DC-HSPA+ data rate (Mbps)		Max. 42 (DL)/ Max. 5.76 (UL)	Max. 42 (DL)/ Max. 5.76 (UL)
WCDMA data rate (Kbps)		Max. 384 (DL)/ Max. 384 (UL)	Max. 384 (DL)/ Max. 384 (UL)
TD-SCDMA data rate (Mbps)		Max. 4.2 (DL)/ Max. 2.2 (UL)	Max. 4.2 (DL)/ Max. 2.2 (UL)
EVDO data rate (Mbps)		Max. 3.1 (DL)/ Max. 1.8 (UL)	Max. 3.1 (DL)/ Max. 1.8 (UL)
CDMA2000 data rate (Kbps)		Max. 307.2 (DL)/ Max. 307.2(UL)	Max. 307.2 (DL)/ Max. 307.2(UL)
EDGE data rate (Kbps)		Max. 296 (DL)/ Max. 236.8 (UL)	Max. 296 (DL)/ Max. 236.8 (UL)
GPRS data rate (Kbps)		Max. 107 (DL)/ Max. 85.6 (UL)	Max. 107 (DL)/ Max. 85.6 (UL)
SMS		•	•
CSD		•	•
Protocols		TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ NITZ/ CMUX/ HTTPS/ SMTP/ MMS/ FTPS/ SMTSP/ SSL/ FILE	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ NITZ/ CMUX/ HTTPS/ SMTP/ MMS/ FTPS/ SMTSP/ SSL/ FILE
Interfaces			
(U)SIM		1.8V/ 3.0V	1.8V/ 3.0V
UART		2	1
USB		USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)
IIC		•	Optional
Audio Digital (PCM)		•	Optional
SD		•	/
SGMII		•	/
ADC		× 2, 15bits	/
Antenna		Pads for Primary, Rx-diversity and GNSS	Pads for Primary, Rx-diversity and GNSS
Enhanced Features			
DTMF		•	•
DFOTA		•	•
QMI/ RmNet		•	•
Audio Playback/Audio Recording		Optional	Optional
QuecFile		•	/
USB Serial Driver		Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x
GNSS Driver		Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
RIL Driver		Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
NDIS Driver		Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10
MBIM Driver		Windows 8/ 8.1/ 10, Linux 3.8~5.4	Windows 8/ 8.1/ 10, Linux 3.8~5.4
GobiNet Driver		Linux 2.6~5.4	Linux 2.6~5.4
QMI_ WWAN Driver		Linux 3.4~5.4	Linux 3.4~5.4
(U)SIM Card Detection		•	•
GNSS		Optional	Optional
Firmware Update		Via USB/DFOTA	Via USB/DFOTA
Electrical Features			
Supply Voltage Range		3.3V~4.3 V, 3.8V Typ.	3.0V~3.6 V, 3.3V Typ.
Power Consumption		11µA @Power off/ 1.5mA @Sleep (PF=256), Typ. / 20mA @Idle	4mA @Sleep (PF=128), 3.7mA@Sleep (PF=256), Typ. / 30mA @Idle
Certifications		Regulatory Certification: NAL/ SRRC/ CCC (China)	Regulatory Certification: NAL/ SRRC/ CCC (China)
Recommended Applications		Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.	

* Under development

Quectel LTE Module Family

Product	EC21/EC21 Mini PCIe	EC25/EC25 Mini PCIe	
			
Form Factor	LCC (EC21), Mini PCIe (EC21 Mini PCIe)	LCC (EC25), Mini PCIe (EC25 Mini PCIe)	
Dimensions (mm)	32.0 × 29.0 × 2.4 (EC21) 51.0 × 30.0 × 4.9 (EC21 Mini PCIe)	32.0 × 29.0 × 2.4 (EC25) 51.0 × 30.0 × 4.9 (EC25 Mini PCIe)	
LTE Category	LTE Cat 1	LTE Cat 4	
Frequency Bands (MHz)	-E (EMEA/Korea/Thailand/India)	-E (EMEA/Thailand/India) LTE-FDD: B1/B3/B5/B7/B8/B20 WCDMA: B1/B5/B8; GSM: B3/B8	-E (EMEA/Korea/Thailand/India) LTE-FDD: B1/B3/B5/B7/B8/B20; LTE-TDD: B38/B40/B41 WCDMA: B1/B5/B8; GSM: B3/B8
	-EU (EMEA/Thailand)	LTE-FDD: B1/B3/B7/B8/B20/B28A WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28A LTE-TDD: B38/B40/B41; WCDMA: B1/B8; GSM: B3/B8
	-EUX (EMEA/Thailand)	LTE-FDD: B1/B3/B7/B8/B20/B28A WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28A LTE-TDD: B38/B40/B41; WCDMA: B1/B8; GSM: B3/B8
	-V (Verizon)	LTE-FDD: B4/B13	LTE-FDD: B4/B13
	-A (AT&T/Mobile/Canada)	LTE-FDD: B2/B4/B12; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B12; WCDMA: B2/B4/B5
	-AF (AT&T/Verizon/T-mobile)	/	LTE-FDD: B2/B4/B5/B12/B13/B14/B66/B71; WCDMA: B2/B4/B5
	-AFX (AT&T/Verizon)	/	LTE-FDD: B2/B4/B5/B12/B13/B14/B66/B71; WCDMA: B2/B4/B5
	-AFXD (AT&T/Verizon/T-mobile)	/	LTE-FDD: B2/B4/B5/B12/B13/B14/B66/B71; WCDMA: B2/B4/B5
	-MX (Mexico)	/	LTE-FDD: B2/B4/B5/B7/B28/B66; WCDMA: B2/B4/B5
	-AU (Latin America/ANZ)	LTE-FDD: B1/B2 ¹ /B3/B4/B5/B7/B8/B28; LTE-FDD: B40 WCDMA: B1/B2/B5/B8; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2 ¹ /B3/B4/B5/B7/B8/B28; LTE-TDD: B40 WCDMA: B1/B2/B5/B8; GSM: B2/B3/B5/B8
	-AUX (Latin America/ANZ)	LTE-FDD: B1/B2 ¹ /B3/B4/B5/B7/B8/B28; LTE-TDD: B40 WCDMA: B1/B2/B4/B5/B8; GSM: B2/B3/B5/B8	LTE-FDD: B1/B2 ¹ /B3/B4/B5/B7/B8/B28; LTE-TDD: B40 WCDMA: B1/B2/B4/B5/B8; GSM: B2/B3/B5/B8
	-AUT (Australia) ¹	LTE-FDD: B1/B3/B5/B7/B28; WCDMA: B1/B5	/
-J (Japan)	LTE-FDD: B1/B3/B8/B18/B19/B26	LTE-FDD: B1/B3/B8/B18/B19/B26; LTE-TDD: B41; WCDMA: B1/B6/B8/B19	
-KL (Korea)	LTE-FDD: B1/B3/B5/B7/B8	/	
Weight (approx.) g	4.9 (EC21) 9.8 (EC21 Mini PCIe)	4.9 (EC25) 9.8 (EC25 Mini PCIe)	
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	
Extended Temperature	-40°C ~ +85°C (EC21) -40°C ~ +80°C (EC21 Mini PCIe)	-40°C ~ +85°C (EC25) -40°C ~ +80°C (EC25 Mini PCIe)	
Data Transmission			
LTE data rate (Mbps)	LTE-FDD: Max. 10 (DL) / Max. 5 (UL); LTE-TDD: Max. 8.96 (DL) / Max. 3.1 (UL)	LTE-FDD: Max. 150 (DL) / Max. 50 (UL); LTE-TDD: Max. 130 (DL) / Max. 30 (UL)	
DC-HSPA+ data rate (Mbps)	Max. 42 (DL) / Max. 5.76 (UL)	Max. 42 (DL) / Max. 5.76 (UL)	
WCDMA data rate (Kbps)	Max. 384 (DL) / Max. 384 (UL)	Max. 384 (DL) / Max. 384 (UL)	
EDGE data rate (Kbps)	Max. 296 (DL) / Max. 236.8 (UL)	Max. 296 (DL) / Max. 236.8 (UL)	
GPRS data rate (Kbps)	Max. 107 (DL) / Max. 85.6 (UL)	Max. 107 (DL) / Max. 85.6 (UL)	
SMS	•	•	
CSD	•	•	
Protocols	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ HTTPS/ SMTP/ MMS* / FTPS* / SMTPTS/ SSL	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ HTTPS/ SMTP/ MMS* / FTPS* / SMTPTS/ SSL	
Interfaces			
(U)SIM	1.8V/ 3.0V	1.8V/ 3.0V	
UART	2 (EC21)	2 (EC25)	
USB	1 (EC21 Mini PCIe) USB 2.0 (Hi-Speed)	1 (EC25 Mini PCIe) USB 2.0 (Hi-Speed)	
IIC	•	•	
Audio Digital (PCM)	Optional	Optional	
SD	• (EC21)	• (EC25)	
ADC	× 2, 15bits (EC21)	× 2, 15bits (EC25)	
SGMII	• (EC21)	• (EC25)	
GPIO	• (Only Supported on QuecOpen [®])	• (Only Supported on QuecOpen [®])	
Antenna	Pads for Primary, Rx-diversity and GNSS	Pads for Primary, Rx-diversity and GNSS	
Enhanced Features			
DTMF	•	•	
DFOTA	•	•	
QM/RmNet	•	•	
Audio Playback/Audio Recording	Optional	Optional	
QuecFile	•	•	
USB Serial Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6-5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6-5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
NDIS Driver	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	
MBIM Driver	Windows 8/ 8.1/ 10, Linux 3.8-5.4	Windows 8/ 8.1/ 10, Linux 3.8-5.4	
GobiNet Driver	Linux 2.6-5.4	Linux 2.6-5.4	
QMI_WWAN Driver	Linux 3.4-5.4	Linux 3.4-5.4	
(U)SIM Card Detection	•	•	
GNSS	Optional	Optional	
Firmware Update	Via USB/DFOTA	Via USB/DFOTA	
Electrical Features			
Supply Voltage Range	3.3V-4.3V, 3.8V Typ. (EC21); 3.0V-3.6V, 3.3V Typ. (EC21 Mini PCIe)	3.3V-4.3V, 3.8V Typ. (EC25); 3.0V-3.6V, 3.3V Typ. (EC25 Mini PCIe)	
Power Consumption	20µA @Power off/ 3mA @Sleep, Typ. / 22mA @idle (EC21) 3.5mA @Sleep, Typ. / 34mA @idle (EC21 Mini PCIe)	20µA @Power off/ 3mA @Sleep, Typ. / 22mA @idle (EC25) 3.6mA @Sleep, Typ. / 35mA @idle (EC25 Mini PCIe)	
Certifications	Carrier Certification: Vodafone/ Deutsche Telekom/ Telefónica/Verizon/ AT&T/ T-Mobile/ U.S. Cellular/ Rogers/ SKT/ KT/ NTT DOCOMO/ KDDI/ Telstra Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ ANATEL/ KC/ NCC/ JATE/ TELEC/ RCM/ FAC Others: WHQL	Carrier Certification: Vodafone/ Deutsche Telekom/ Telefónica/ Verizon/ AT&T/ T-Mobile/ U.S. Cellular/ Rogers/ Telus/ NTT DOCOMO/ SoftBank/ KDDI/ Bell* / SKT/ LGU-/ Telstra/ KT Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ ANATEL/ KC/ NCC/ JATE/ TELEC/ RCM/ FAC/ NBTC/ ICASA/ IFETEL Others: WHQL	
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.		

Note 1: Inapplicable to Mini PCIe.



Note 2: Rx-diversity not supported.

GNSS antenna not supported on EC25-MX/EC21-KL.

EC25-AFXD and EC25-AFXD Mini PCIe are requested for data only device.

* Under development




Quectel LTE Module Family

Product	EG91	EG95	
			
Form Factor	LGA	LGA	
Dimensions (mm)	25.0 × 29.0 × 2.25	25.0 × 29.0 × 2.25	
LTE Category	LTE Cat 1	LTE Cat 4	
Frequency Bands (MHz)	-E (Europe)	LTE-FDD: B1/B3/B7/B8/B20/B28A; WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28A; WCDMA: B1/B8; GSM: B3/B8
	-EX (Europe)	LTE-FDD: B1/B3/B7/B8/B20/B28 WCDMA: B1/B8; GSM: B3/B8	LTE-FDD: B1/B3/B7/B8/B20/B28; WCDMA: B1/B8; GSM: B3/B8
	-NAXD (North America)	LTE-FDD: B2/B4/B5/B12/B13/B25/B26; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13/B25/B26; WCDMA: B2/B4/B5
	-NAX (North America)	LTE-FDD: B2/B4/B5/B12/B13/B25/B26; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13/B25/B26; WCDMA: B2/B4/B5
	-NA (North America)	LTE-FDD: B2/B4/B5/B12/B13; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B12/B13; WCDMA: B2/B4/B5
	-VX (Verizon)	LTE-FDD: B4/B13	/
	-AUX (Latin America/ANZ)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66; WCDMA: B1/B2/B5/B8 GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66; WCDMA: B1/B2/B5/B8 GSM: B2/B3/B5/B8
Weight (approx.) g	3.8	3.8	
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	
Data Transmission			
LTE data rate (Mbps)	Max. 10 (DL) / Max. 5 (UL)	Max. 150 (DL) / Max. 50 (UL)	
DC-HSPA+ data rate (Mbps)	Max. 42 (DL) / Max. 5.76 (UL)	Max. 42 (DL) / Max. 5.76 (UL)	
WCDMA data rate (Kbps)	Max. 384 (DL) / Max. 384 (UL)	Max. 384 (DL) / Max. 384 (UL)	
EDGE data rate (Kbps)	Max. 296 (DL) / Max. 236.8 (UL)	Max. 296 (DL) / Max. 236.8 (UL)	
GPRS data rate (Kbps)	Max. 107 (DL) / Max. 85.6 (UL)	Max. 107 (DL) / Max. 85.6 (UL)	
SMS	•	•	
Protocols	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ CMUX/ HTTPS/ SMTP/ MMS*/ FTPS*/ SMTPS/ SSL/ FILE	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/ CMUX/ HTTPS/ SMTP/ MMS*/ FTPS*/ SMTPS/ SSL/ FILE	
Interfaces			
(U)SIM	1.8V/ 3.0V	1.8V/ 3.0V	
UART	2	2	
USB	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)	
IIC	•	•	
Audio Digital (PCM)	Optional	Optional	
SPI	•	•	
GPIO	• (Only Supported on QuecOpen ¹)	• (Only Supported on QuecOpen ¹)	
Antenna	Pads for Primary, Rx-diversity and GNSS ¹	Pads for Primary, Rx-diversity and GNSS ¹	
Enhanced Features			
EG91 (for North America)	•	•	
DTMF	•	•	
DFOTA	•	•	
QMI/ RmNet	•	•	
Audio Playback/Audio Recording	Optional	Optional	
QuecFile	•	•	
USB Serial Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6-5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6-5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 9.x	
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
NDIS Driver	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10	
MBIM Driver	Windows 8/ 8.1/ 10, Linux 3.8-5.4	Windows 8/ 8.1/ 10, Linux 3.8-5.4	
GobiNet Driver	Linux 2.6-5.4	Linux 2.6-5.4	
QMI_WWAN Driver	Linux 3.4-5.4	Linux 3.4-5.4	
(U)SIM Card Detection	•	•	
GNSS ¹	Optional	Optional	
Firmware Update	Via USB/DFOTA	Via USB/DFOTA	
Electrical Features			
Supply Voltage Range	3.3V-4.3 V, 3.8V Typ.	3.3V-4.3 V, 3.8V Typ.	
Power Consumption	15µA@Power off, 2.6mA@Sleep, Typ., 21mA@Idle	15µA@Power off, 2.6mA@Sleep, Typ., 21mA@Idle	
Certifications	Carrier Certification: Deutsche Telekom/ Verizon/ AT&T/ U.S. Cellular/ T-Mobile/ Sprint/ Rogers/ Telus Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ ANATEL/ FAC/ NCC/ RCM Others: WHQL	Carrier Certification: Deutsche Telekom/ Verizon/ AT&T/ U.S. Cellular/ T-Mobile/ Rogers/ Telus/ Sprint Regulatory Certification: GCF/ CE/ FCC/ PTCRB/ IC/ FAC Others: WHQL	
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.		

Note1: GNSS antenna not supported on EG91-E/EG95-E.
EG91-AUX does not support Rx-diversity.
EG91-NAXD and EG95-NAXD are requested for data only device.


* Under development

Quectel LTE Module Family

Product	EG21-G/EG21-G Mini PCIe	EG25-G/ EG25-G Mini PCIe
	 	 
Form Factor	LGA (EG21-G) Mini PCIe (EG21-G Mini PCIe)	LGA (EG25-G) Mini PCIe (EG25-G Mini PCIe)
Dimensions (mm)	32.0 × 29.0 × 2.4 (EG21-G) 51.0 × 30.0 × 4.9 (EG21-G Mini PCIe)	32.0 × 29.0 × 2.4 (EG25-G) 51.0 × 30.0 × 4.9 (EG25-G Mini PCIe)
LTE Category	LTE Cat 1	LTE Cat 4
Frequency Bands (MHz)	-G (Global) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28 LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B6/B8/B19 GSM: B2/B3/B5/B8	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/B28 LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B6/B8/B19 GSM: B2/B3/B5/B8
Weight (approx.) g	4.9 (EG21-G), 9.8 (EG21-G Mini PCIe)	4.9 (EG25-G), 9.8 (EG25-G Mini PCIe)
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature	-40°C ~ +85°C (EG21-G) -40°C ~ +80°C (EG21-G Mini PCIe)	-40°C ~ +85°C (EG25-G) -40°C ~ +80°C (EG25-G Mini PCIe)
Data Transmission		
LTE data rate (Mbps)	LTE-FDD: Max. 10Mbps (DL)/Max. 5Mbps (UL) LTE-TDD: Max. 8.96Mbps (DL)/Max. 3.1Mbps (UL)	LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30(UL)
DC-HSPA+ data rate (Mbps)	Max. 42 (DL)/ Max. 5.76 (UL)	Max. 42 (DL)/ Max. 5.76 (UL)
WCDMA data rate (Kbps)	Max. 384 (DL)/ Max. 384 (UL)	Max. 384 (DL)/ Max. 384 (UL)
EDGE data rate (Kbps)	Max. 296 (DL)/Max. 236.8 (UL)	Max. 296 (DL)/Max. 236.8 (UL)
GPRS data rate (Kbps)	Max. 107 (DL)/ Max. 85.6 (UL)	Max. 107 (DL)/ Max. 85.6 (UL)
SMS	•	•
Protocols	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/NITZ/CMUX/ HTTPS/ SMTP/ MMS*/ FTPS*/ SMTSP/ SSL/ FILE	TCP/ UDP/ PPP/ FTP/ HTTP/ NTP/ PING/ QMI/NITZ/CMUX/ HTTPS/ SMTP/ MMS*/ FTPS*/ SMTSP/ SSL/ FILE
Interfaces		
(U)SIM	1.8V/ 3.0V	1.8V/ 3.0V
UART	2 (EG21-G), 1 (EG21-G Mini PCIe)	2 (EG25-G), 1 (EG25-G Mini PCIe)
USB	USB 2.0 (Hi-Speed)	USB 2.0 (Hi-Speed)
IIC	•	•
Audio Digital (PCM)	Optional	Optional
SD	•(EG21-G)	•(EG25-G)
ADC	× 2, 15bits (EG21-G)	× 2, 15bits (EG25-G)
GPIO	• (Only Supported on QuecOpen™)	• (Only Supported on QuecOpen™)
Antenna	Pads for Primary, Rx-diversity and GNSS	Pads for Primary, Rx-diversity and GNSS
Enhanced Features		
DTMF	•	•
DFOTA	•	•
QMI/ RmNet	•	•
Audio Playback/Audio Recording	Optional	Optional
USB Serial Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x
NDIS Driver	Windows 7/ 8/ 8.1/ 10	Windows 7/ 8/ 8.1/ 10
MBIM Driver	Windows 8/ 8.1/ 10, Linux 3.8~5.4	Windows 8/ 8.1/ 10, Linux 3.8~5.4
GobiNet Driver	Linux 2.6~5.4	Linux 2.6~5.4
QMI_wwan Driver	Linux 3.4~5.4	Linux 3.4~5.4
(U)SIM Card Detection	•	•
(U)SIM Card Connector	Optional (EG21-G Mini PCIe)	Optional (EG25-G Mini PCIe)
GNSS	Optional	Optional
Firmware Update	Via USB/DFOTA	Via USB/DFOTA
Electrical Features		
Supply Voltage Range	3.3V~4.3 V, 3.8V Typ. (EG21-G) 3.0V~3.6 V, 3.3V Typ. (EG21-G Mini PCIe)	3.3V~4.3 V, 3.8V Typ. (EG25-G) 3.0V~3.6 V, 3.3V Typ. (EG25-G Mini PCIe)
Power Consumption	13µA@Power off, 1.7mA@Sleep, Typ., 22mA@Idle (EG21-G)	13µA@Power off, 1.7mA@Sleep, Typ., 22mA@Idle (EG25-G) 2.7mA@Sleep, Typ. / 25mA@Idle (EG25-G Mini PCIe)
Certifications	Carrier Certification: Verizon/ AT&T/ T-Mobile/ Deutsche Telekom/ Sprint/U.S.Cellular/ Telus Regulatory Certification: CE/ FCC/ IC/ RCM/ PTCRB/ GCF/ ANATEL/ JATE/ TELEC/ NCC/ ICASA/ IFETEL/ KC Others: WHQL	Carrier Certification: Deutsche Telekom/ Verizon/ AT&T/ Sprint/ U.S. Cellular/ Telus/ T-Mobile/ Rogers* Regulatory Certification: SRRC/ NAL/ CCC/ GCF/ CE/ FCC/ PTCRB/ IC/ ANATEL/ IFETEL/ KC/ NCC/ JATE/ TELEC/ RCM/ NBTC/ ICASA/ IMDA/ FAC* Others: WHQL
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.	




* Under development

Quectel LTE Module Family

Product	EC200S	EG912Y	EC200T	EC200U
				
Form Factor	LCC	LGA	LCC	LCC
Dimensions (mm)	32.0 × 29.0 × 2.4	29.0 × 25.0 × 2.4	32.0 × 29.0 × 2.4	31.0 × 28.0 × 2.4
LTE Category	LTE Cat 1	LTE Cat 1	LTE Cat 4	LTE Cat 1
Frequency Bands (MHz)	-CN (China/India)	/	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41; WCDMA: B1/B5/B8; GSM: B3/B8	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41; GSM: B3/B8
	-EU (EMEA/APAC/ANZ)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 GSM: B2/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 GSM: B2/B3/B5/B8	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 GSM: B2/B3/B5/B8
	-EN (EMEA/APAC)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B31/B72 GSM: B3/B8	/	/
	-AU (LATAM/ANZ)	/	/	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28/B66 LTE-TDD: B40 WCDMA: B1/B2/B4/B5/B8 GSM: B2/B3/B5/B8
Weight (approx.) g	4.3	3.5	4.4	4.1
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Data Transmission				
LTE data rate (Mbps)	LTE-FDD: Max. 10 (DL) / Max. 5 (UL) LTE-TDD: Max. 7.5 (DL) / Max. 1 (UL)	LTE-FDD: Max. 10 (DL) / Max. 5 (UL) LTE-TDD: Max. 7.5 (DL) / Max. 1 (UL)	LTE-FDD: Max. 150 (DL) / Max. 50 (UL) LTE-TDD: Max. 130 (DL) / Max. 30 (UL)	Max. 10 (DL) / Max. 5 (UL)
DC-HSPA+ data rate (Mbps)	/	/	Max. 21 (DL) / Max. 5.76 (UL)	/
WCDMA data rate (Kbps)	/	/	Max. 384 (DL) / Max. 384 (UL)	/
EDGE data rate (Kbps)	Max. 236.8 (DL) / Max. 236.8 (UL)	Max. 236.8 (DL) / Max. 236.8 (UL)	Max. 236.8 (DL) / Max. 236.8 (UL)	/
GPRS data rate (Kbps)	Max. 85.6 (DL) / Max. 85.6 (UL)	Max. 85.6 (DL) / Max. 85.6 (UL)	Max. 85.6 (DL) / Max. 85.6 (UL)	Max. 85.6 (DL) / Max. 85.6 (UL)
SMS	•	•	•	•
Protocols	TCP/ UDP/ PPP/ NTP/ NITZ/ FTP/ HTTP/ PING/ CMUX/ HTTPS/ FTSP/ SSL/ FILE/ MQTT/ MMS/ SMTP/ SMTPS	TCP/ UDP/ PPP/ NTP/ NITZ/ FTP/ HTTP/ PING/ CMUX/ HTTPS/ FTSP/ SSL/ FILE/ MQTT/ MMS/ SMTP/ SMTPS	TCP/ UDP/ PPP/ NTP/ NITZ/ FTP/ HTTP/ PING/ CMUX/ HTTPS/ FTSP/ SSL/ FILE/ MQTT/ MMS/ SMTP/ SMTPS	TCP/UDP/PPP/NITZ/PING/FILE/MQTT/NTP/HTTP/ HTTPS/SSL/FTP/FTPS/CMUX/MMS
Interfaces				
(U)SIM	1.8V/ 3.0V	1.8V/ 3.0V	1.8V/ 3.0V	1.8V/ 3.0V
USB	2.0 Hi-Speed	2.0 Hi-Speed	2.0 Hi-Speed	2.0 Hi-Speed
PCIe	•	NA	/	/
PCM	•	•	•	/
I2C	× 1	× 1	× 1	2
GPIO	NA	NA	NA	/
RESET_N	•	•	•	•
SD	/	/	/	*
Antenna	Main × 1	× 1	Main, 4G Diversity	Main Antenna, GNSS Antenna, Wi-Fi Scan/ Bluetooth Antenna
Enhanced Features				
MIMO	/	/	DL MIMO, support Rx-diversity Antenna	/
Digital Audio	•	•	•	•
VoLTE	•	*	•	Support
DTMF	•	•	•	*
DFOTA	•	•	•	•
GNSS	•(Optional)	NA	NA	•
(U)SIM Card Detection	•	NA	•	•
Electrical Features				
Supply Voltage Range	3.4V~4.5V, 3.8V Typ.	3.4V~4.5V, 3.8V Typ.	3.4V~4.5V, 3.8V Typ.	3.3V~4.3 V, 3.8V Typ.
Power Consumption	15 µA @Power off Mode 1.1 mA @LTE Sleep Mode (PF = 128) 0.9 mA @LTE Sleep Mode (PF = 256) 16.5 mA @Idle Mode	15 µA @Power off Mode 1.1 mA @LTE Sleep Mode (PF = 128) 0.9 mA @LTE Sleep Mode (PF = 256) 12.5 mA @Idle Mode	11 µA @ Power off 2.0mA @ LTE Sleep (PF=128) 1.5 mA @ LTE Sleep (PF=256) 36 mA @ Idle	12µA @Power off Mode/ 1.4mA @LTE Sleep Mode(PF=256), Typ/ 28mA @Idle Mode
Software Features				
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.10, Android 4.x~10.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/7.x/9.x	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4, Android 4.x/ 5.x/ 6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6~5.12, Android 4.x~11.x
GNSS Driver	Android 4.x~10.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x~11.x
RIL Driver	Android 4.x~10.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x~11.x
Certifications				
	CCC/ SRRC/ NAL/ CE/ RCM	CCC/ SRRC/ NAL/ CE/ RCM/ANATEL	CCC/ SRRC/ NAL/ CE/ RCM/FCC/PTCRB*	NAL/ SRRC/ CCC/CE* /RCM*
Recommended Applications				
	Consumer laptops, Industrial laptops, Industrial routers, Industrial PDAs, rugged tablet PC and digital signage.	M2M and IoT applications such as industrial router, industrial PDA, tablet PC and digital signage.	Consumer laptops, Industrial laptops, Industrial routers, Industrial PDAs, rugged tablet PC and digital signage.	POS/POC/ETC, shared equipment, data card, energy control and monitoring, Safety and protection, and industrial PDA

* Under development

Quectel Smart Module Family


Product	SC20	SC20 Linux	SC200R	
				
Form Factor	LCC+LGA	LCC+LGA	LCC+LGA	
Dimensions (mm)	40.5 × 40.5 × 2.8	40.5 × 40.5 × 2.8	40.5 × 40.5 × 2.8	
LTE Feature	LTE Cat 4 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	LTE Cat 4 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	LTE Cat 4 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	
Frequency Bands (MHz)	-CE (China)	-CEL (China) LTE-FDD: B1/B3/B5/B8; LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B8; TD-SCDMA: B34/B39; CDMA: BCO GSM: 900/1800MHz	-CEL (China) LTE-FDD: B1/B3/B5/B8; LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B8; TD-SCDMA: B34/B39; CDMA: BCO GSM: 900/1800MHz	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41 WCDMA: B1/B8; CDMA: BCO; GSM: 900/1800MHz
	-E/EM (EMEA/Africa/Southeast Asia/Australia/South America)	-E (EMEA/Korea/Thailand/India) LTE-FDD: B1/B3/B5/B7/B8/B20; LTE-TDD: B38/B40/B41 WCDMA: B1/B5/B8; GSM: 850/900/1800/1900MHz	-EL (EMEA/Korea/Thailand/India) LTE-FDD: B1/B3/B5/B7/B8/B20; LTE-TDD: B38/B40 WCDMA: B1/B5/B8; GSM: 850/900/1800/1900MHz	-EM (EMEA/Africa/Southeast Asia/Australia/South America) LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41; WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900MHz
	-A /NA (North America)	-A (North America) LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26 WCDMA: B1/B2/B4/B5/B8; GSM: 850/1900MHz	-AL (North America) LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26 WCDMA: B1/B2/B4/B5/B8; GSM: 850/1900MHz	-NA (North America) LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71 LTE-TDD: B41; WCDMA: B2/B4/B5
	-AU (ANZ/Brazil)	LTE-FDD: B1/B3/B5/B7/B8/B28; LTE-TDD: B40 WCDMA: B1/B2/B5/B8; GSM: 850/900/1800/1900MHz	-AUL (ANZ/Brazil) LTE-FDD: B1/B3/B5/B7/B8/B28; LTE-TDD: B40 WCDMA: B1/B2/B5/B8; GSM: 850/900/1800/1900MHz	/
	-J/JP ¹ (Japan)	-J (Japan) LTE-FDD: B1/B3/B8/B18/B19/B26; LTE-TDD: B41 WCDMA: B1/B6/B8/B19	-JL (Japan) LTE-FDD: B1/B3/B8/B18/B19/B26; LTE-TDD: B41 WCDMA: B1/B6/B8/B19	-JP ¹ (Japan) LTE-FDD: B1/B3/B5/B8/B11/B18/B19/B21/B26/B28 LTE-TDD: B41; WCDMA: B1/B6/B8/B19
	-W/WF* (Global)	-W (Wi-Fi) Only Wi-Fi & BT	-WL (Wi-Fi) Only Wi-Fi & BT	-WF* (Global) Only Wi-Fi & BT
CPU	MSM8909, ARM Cortex-A7 microprocessor cores (quad-core) up to 1.1GHz	MSM8909, ARM Cortex-A7 microprocessor cores (quad-core) up to 1.1GHz	QCM2150, Quad-core ARM Cortex-A53 64-bit CPU @ 1.3GHz	
GPU	Adreno™ 304	Adreno™ 304	Adreno™ 308	
Memory	8GB eMMC+1GB LPDDR3; 16GB eMMC+2GB LPDDR3	8GB eMMC+1GB LPDDR3	8GB eMMC+1GB LPDDR3; 16GB eMMC+2GB LPDDR3	
Operating System	Android 7.1/8.1	Yocto Linux OS(Kernel 3.18)	Android 10	
Supply Voltage Range	3.5V ~ 4.2V, 3.8V Typ.	3.5V ~ 4.2V, 3.8V Typ.	3.55V ~ 4.2V, 3.8V Typ.	
Weight (approx.) g	9.8	9.8	10.2	
Operating Temperature	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C	
Data Transmission				
LTE (Mbps)	LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	
UMTS	DC-HSDPA: Max. 42Mbps (DL) HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	DC-HSDPA: Max. 42Mbps (DL) HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	DC-HSDPA: Max. 42Mbps (DL) HSUPA: Max. 5.76Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	
TD-SCDMA	Max. 4.2Mbps (DL)/ Max. 2.2Mbps (UL)	Max. 4.2Mbps (DL)/ Max. 2.2Mbps (UL)	/	
CDMA2000	EVDO: Max. 3.1Mbps (DL)/ Max. 1.8Mbps (UL) , 1X Advanced: Max. 307.2Kbps (DL/UL)	EVDO: Max. 3.1Mbps (DL)/ Max. 1.8Mbps (UL) , 1X Advanced: Max. 307.2Kbps (DL/UL)	EVDO: Max. 3.1Mbps (DL)/ Max. 1.8Mbps (UL) , 1X Advanced: Max. 307.2Kbps (DL/UL)	
GSM	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) , GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) , GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) , GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	
Interfaces				
LCM	4-lane MIPI_DSI, up to 1.5Gbps/lane HD (720P) @60fps Use MIPI_CSI, up to 1.5Gbps/lane Support two Cameras: 2-lane MIPI_CSI for Rear Camera, up to 8MP 1-lane MIPI_CSI for Front Camera, up to 2MP	4-lane MIPI_DSI, up to 1.5Gbps/lane HD (720P) @60fps Use MIPI_CSI, up to 1.5Gbps/lane Support two Cameras: 2-lane MIPI_CSI for Rear Camera, up to 8MP 1-lane MIPI_CSI for Front Camera, up to 2MP	4-lane MIPI_DS, HD+ (1440*720) @60fps 2 groups of 4-lane MIPI_CSI, up to 2.1Gbps per lane; Up to 13MP with dual ISP	
Camera	Capacitive Touch Panel	Capacitive Touch Panel	Capacitive Touch Panel	
Audio	2 analog audio inputs and 3 analog audio outputs	2 analog audio inputs and 3 analog audio outputs	3 analog audio inputs and 3 analog audio outputs	
Video	Encode: 30fps 720P (H.264), 30fps WVGA (MPEG-4/VP8) Decode: 30fps 1080P (H.264/MPEG-4/VP8/H.265 Divx4/5/6), 30fps WVGA (H.263)	Encode: 30fps 720P (H.264), 30fps WVGA (MPEG-4/VP8) Decode: 30fps 1080P (H.264/MPEG-4/VP8/H.265 Divx4/5/6), 30fps WVGA (H.263)	Video encoding: 1080p @30fps(H.264) Video decoding: 1080p @30fps(H.264, HEVC, and VP8) Video concurrency: 1080p @30fps decode+720p@30fps encode	
USB	× 1 USB 2.0 Compliant, Support USB OTG	× 1 USB 2.0 Compliant, Support USB OTG	× 1 USB 2.0 Compliant, Support USB OTG	
I2C	× 3	× 3	× 4	
(U)SIM	× 2 (1.8V/2.95V)	× 2 (1.8V/2.95V)	× 2 (1.8V/2.95V)	
UART	× 2 Support 4Mbps with Hardware Flow Control	× 2 Support 4Mbps with Hardware Flow Control	× 3 Support 4Mbps, One of them supports Hardware Flow Control	
SD Card	× 1 (3.0, 4-bit SDIO)	× 1 (3.0, 4-bit SDIO)	× 1 (3.0, 4-bit SDIO)	
PWRKEY	1.8V, Pulled-up Internally	1.8V, Pulled-up Internally	1.8V, Pulled-up Internally	
SPI	× 1	× 1	× 3 Can be multiplexed into UART/I2S/GPIO respectively	
ADC	× 1 General purpose ADC interfaces	× 1 General purpose ADC interfaces	× 1 General purpose ADC interfaces	
GPIO	× 25	× 25	× 35	
PWM	× 1	× 1	× 1	
Motor Drive	× 1	× 1	× 1	
Flash Driver	/	/	/	
WLED Sink	/	/	/	
Antenna	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi/BT Antenna, Respectively	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi/BT Antenna, Respectively	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi/BT Antenna, Respectively	
Enhanced Features				
BT	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	
WLAN	2.4G/5G, 802.11 a/b/g/n	2.4G/5G, 802.11 a/b/g/n	2.4G/5G, 802.11 a/b/g/n	
GNSS	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	
Charge Function	Build-in Charge IC	Build-in Charge IC	Build-in Charge IC	
Dual LCD	Only support single LCD Display	Only support single LCD Display	Only support single LCD Display	
DSDS	Support Dual SIM Dual Standby	Support Dual SIM Dual Standby	Support Dual SIM Dual Standby	
Firmware Upgrade	Firmware Upgrade via USB	Firmware Upgrade via USB	Firmware Upgrade via USB	
Certifications	CE/ GCF/ RCM/ FCC/ IC/ PTCRB/ AT&T/ Verizon/ Telstra/ T-Mobile/Telus*/ JATE/ TELEC/ KDDI/ NTT-DOCOMO/ CCC/ SRRC/ NAL/ NCC/ KC/ Softbank	CE/ GCF/ RCM/ FCC/ IC/ PTCRB/ AT&T/ Verizon/ Telstra/ T-Mobile*/ Telus*/ JATE*/ TELEC*/ CCC*/ SRRC*/ NAL*/ NCC*/ KC*	GCF/ CE*/ RCM*/ FCC/ PTCRB/ AT&T/ Verizon/ Telstra*/ IC/ JATE*/ TELEC*/ CCC	
Recommended Applications	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.			

Note1: TBD.

SC20-E LTE-TDD B41 does not support full-frequency and the bandwidth of it is 2555-2655MHz.

* Under development

Quectel Smart Module Family

Product	SC600Y	SC600T	SC606T	
				
Form Factor	LCC+LGA	LCC+LGA	LCC+LGA	
Dimensions (mm)	43.0 × 44 × 2.85	43.0 × 44 × 2.85	43.0 × 44 × 2.85	
LTE Feature	LTE Cat 6 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	LTE Cat 6 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	LTE Cat 6 3GPP E-UTRA Release 10 Compliant, Support DL MIMO 2 × 2	
Frequency Bands (MHz)	-EM (EMEA/ India/ Korea/ South Asia/ Latin America/ Australia/ ANZ/ South Africa)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900MHz	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900MHz	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 WCDMA: B1/B2/B4/B5/B8 GSM: 850/900/1800/1900MHz
	-NA (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71 LTE-TDD: B41; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71 LTE-TDD: B41; WCDMA: B2/B4/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71 LTE-TDD: B41; WCDMA: B2/B4/B5
	-JP (Japan)	LTE-FDD: B1/B3/B5/B8/B11/B18/B19/B21/B26/B28 LTE-TDD: B41 WCDMA: B1/B6/B8/B19	LTE-FDD: B1/B3/B5/B8/B11/B18/B19/B21/B26/B28 LTE-TDD: B41 WCDMA: B1/B6/B8/B19	/
	-WF (Global)	Only Wi-Fi & BT	Only Wi-Fi & BT	Only Wi-Fi & BT
	CPU	SDM450, Octa-core ARM Cortex-A53 64-bit CPU @1.8GHz	MSM8953, Octa-core ARM Cortex-A53 64-bit CPU @2.0GHz	MSM8953, Octa-core ARM Cortex-A53 64-bit CPU @2.0GHz
GPU	Adreno™ 506 with 64-bit addressing	Adreno™ 506 with 64-bit addressing	Adreno™ 506 with 64-bit addressing	
Memory	16GB eMMC+2GB LPDDR3	16GB eMMC+2GB LPDDR3	16GB eMMC+2GB LPDDR3	
Operating System	Android 9/10	Android 9/10	Yocto Linux OS(Kernel 3.18)	
Supply Voltage Range	3.55V ~ 4.4V, 3.8V Typ.	3.55V ~ 4.4V, 3.8V Typ.	3.55V ~ 4.4V, 3.8V Typ.	
Weight (approx.) g	13.0	13.0	13	
Operating Temperature	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C	
Data Transmission				
LTE (Mbps)	Cat 6*: LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 265Mbps (DL)/ Max. 35Mbps (UL) Cat 4: LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	Cat 6*: LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 265Mbps (DL)/ Max. 35Mbps (UL) Cat 4: LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	Cat 6*: LTE-FDD: Max. 300Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 265Mbps (DL)/ Max. 35Mbps (UL) Cat 4: LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	
UMTS	DC-HSPA: Max. 42Mbps (DL) DC-HSPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	DC-HSPA: Max. 42Mbps (DL) DC-HSPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	DC-HSPA: Max. 42Mbps (DL) DC-HSPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	
GSM	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	
Interfaces				
LCM	4-lane MIPI_DSI0 + 4-lane MIPI_DSI1 WUXGA (1920×1200) @60fps	4-lane MIPI_DSI0 + 4-lane MIPI_DSI1 WUXGA (1920×1200) @60fps	4-lane MIPI_DSI0 + 4-lane MIPI_DSI1 WUXGA (1920×1200) @60fps	
Camera	3 Groups of 4-lane MIPI_CSI, up to 2.1Gbps/lane, Support 3 or 4 Cameras, Up to 21MP with Dual ISPs	3 Groups of 4-lane MIPI_CSI, up to 2.1Gbps/lane, Support 3 or 4 Cameras, Up to 24MP with Dual ISPs	3 Groups of 4-lane MIPI_CSI, up to 2.1Gbps/lane, Support 3 or 4 Cameras, Up to 24MP with Dual ISPs	
Touch Panel	Capacitive Touch Panel	Capacitive Touch Panel	Capacitive Touch Panel	
Audio	Speaker, Earpiece, Headphone, and 3 MICs for Analog Audio Support One Noise-canceling MIC	Speaker, Earpiece, Headphone, and 3 MICs for Analog Audio Support One Noise-canceling MIC	Speaker, Earpiece, Headphone, and 3 MICs for Analog Audio Support One Noise-canceling MIC	
Video	Video encoding and decoding: 1080P at 60fps Wi-Fi Video encoding and decoding: 1080P at 30fps	Video encoding and decoding: Support recording and playback of 4k videos at 30fps Wi-Fi Video encoding and decoding: 1080P at 30fps	Video encoding and decoding: Support recording and playback of 4k videos at 30fps Wi-Fi Video encoding and decoding: 1080P at 30fps	
USB	× 1 USB 3.0 and 2.0 Compliant, Support USB OTG	× 1 USB 3.0 and 2.0 Compliant, Support USB OTG	× 1 USB 3.0 and 2.0 Compliant, Support USB OTG	
I2C	× 5	× 5	× 5	
(U)SIM	× 2 (1.8V/2.95V)	× 2 (1.8V/2.95V)	× 2 (1.8V/2.95V)	
UART	× 4 Support 4Mbps with Hardware Flow Control	× 4 Support 4Mbps with Hardware Flow Control	× 4 Support 4Mbps with Hardware Flow Control	
SDIO	× 1 (3.0, 4-bit SDIO)	× 1 (3.0, 4-bit SDIO)	× 1 (3.0, 4-bit SDIO)	
PWRKEY	1.8V, Pulled-up Internally	1.8V, Pulled-up Internally	1.8V, Pulled-up Internally	
SPI	× 2 Can be Multiplexed into UART and I2S Respectively, and I2S Supports Both Tx and Rx	× 2 Can be Multiplexed into UART and I2S Respectively, and I2S Supports Both Tx and Rx	× 2 Can be Multiplexed into UART and I2S Respectively, and I2S Supports Both Tx and Rx	
ADC	× 2 General purpose ADC interfaces	× 2 General purpose ADC interfaces	× 2 General purpose ADC interfaces	
GPIO	× 19	× 19	× 19	
PWM	× 2	× 2	× 1	
Motor Drive	× 1	× 1	/	
Flashlight Driver	× 2	× 2	/	
WLED Sink	× 4	× 4	/	
Antenna	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi&BT Antenna, Respectively	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi&BT Antenna, Respectively	4 Solder Pads for Main/Rx-diversity/ GNSS/Wi-Fi&BT Antenna, Respectively	
Enhanced Features				
BT	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	BT 2.1 EDR/ 3.0 HS/ 4.2 LE	
WLAN	2.4G/5G, 802.11 a/b/g/n/ac	2.4G/5G, 802.11 a/b/g/n/ac	2.4G/5G, 802.11 a/b/g/n/ac	
GNSS	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	GPS/ GLONASS/ BeiDou or GPS/ Galileo/ BeiDou	
Charge Function	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge 3.0 technology	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge 3.0 technology	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge 3.0 technology	
Dual LCD	Support Dual LCDs for Independent Display	Support Dual LCDs for Independent Display	Support Dual LCDs for Independent Display	
DSDS	Support Dual SIM Dual Standby	Support Dual SIM Dual Standby	Support Dual SIM Dual Standby	
Firmware Upgrade	Firmware Upgrade via USB	Firmware Upgrade via USB	Firmware Upgrade via USB	
Certifications	CE/ RCM/ GCF/ NCC/ Telstra/ FCC/ IC/ PTCRB/ AT&T/ Verizon/ T-Mobile / JATE/ TELEC / KDDI / NTT DOCOMO/ IFETEL/ ANATEL/ KC	CE/ RCM/ GCF/ NCC/ Telstra/ FCC/ IC/ PTCRB/ AT&T/ Verizon/ T-Mobile / JATE/ TELEC/ KDDI / NTT DOCOMO/ IFETEL/ ANATEL/ KC	CE/ RCM/ GCF/ FCC/ IC/ PTCRB/ AT&T/ Verizon*	
Recommended Applications	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.			



* Under development

Quectel Smart Module Family

Product	SC66	SA800U	
			
Form Factor	LCC+LGA	B2B Connector	
Dimensions(mm)	43.0 × 44.0 × 2.85	60.0 × 37.0 × 6.55	
LTE Feature	LTE Cat 6	/	
Frequency Bands(MHz)	-CE (China)	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41; WCDMA: B1/B8 TD-SCDMA: B34/B39; CDMA: BC0; GSM: 900/1800MHz	/
	-E (EMEA/ Korea/ Thailand/ India)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 (A+B); LTE-TDD: B38/B39/B40/B41 (200M) WCDMA: B1/B2/B4/B5/B8; GSM: 850/900/1800/1900MHz	/
	-A (North America)	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71; LTE-TDD: B41 (200M) WCDMA: B2/B4/B5	/
	-J (Japan)	LTE-FDD: B1/B3/B5/B8/B11/B18/B19 B21/B26/ B28 (A+B); LTE-TDD: B41 (120M) WCDMA: B1/B6/B8/B19	/
	-MW/WF (Global)	-MW (Wi-Fi) 2 × 2 Wi-Fi MIMO & BT	- WF (Wi-Fi) 2 × 2 Wi-Fi MIMO & BT
CPU	SDM660, Customized 64-bit ARM v8.0-compliant AP (Kryo260 CPU) Kryo Gold Quad high-performance cores targeting 2.2GHz, L2 - 1MB Kryo Silver Quad low-power cores targeting 1.843GHz, L2 - 1MB	SDA845, Qualcomm® Kryo™ 385 64-bit Processor (Octa-core) CPU Quad high-performance Kryo cores at 2.649 GHz Quad low-power Kryo cores at 1.766 GHz	
GPU	Qualcomm® Adreno 512 at 650MHz	Qualcomm® Adreno™ 630	
Memory	32GB eMMC + 3GB LPDDR4X (Default) 64GB eMMC + 4GB LPDDR4X (Optional)	64GB UFS + 4GB LPDDR4X	
Operating System	Android 9/10	Android 9/10	
Supply Voltage Range	3.55V ~ 4.4V, 4V Typ.	3.55V ~ 4.4V, 3.8V Typ.	
Weight (approx.) g	12.0	15.0	
Operating Temperature	-35 °C ~ +75 °C	-35 °C ~ +75 °C	
Data Transmission			
LTE (Mbps)	Cat 6*: LTE-FDD: Max. 300 (DL)/ Max. 50 (UL) LTE-TDD: Max. 285 (DL)/ Max. 30 (UL) Cat 4: LTE-FDD: Max. 150 (DL)/ Max. 50 (UL) LTE-TDD: Max. 130 (DL)/ Max. 30 (UL)	/	
UMTS	DC-HSDPA: Max. 42Mbps (DL) DC-HSPA: Max. 11.2Mbps (UL) WCDMA: Max. 384Kbps (DL/UL)	/	
TD-SCDMA	Max. 4.2Mbps (DL)/2.2Mbps (UL)	/	
CDMA2000	EVDO: Max. 3.1Mbps (DL)/ 1.8Mbps (UL) 1X Advanced: Max. 307.2Kbps (DL/UL)	/	
GSM	EDGE: Max. 296Kbps (DL)/ 236.8Kbps (UL) GPRS: Max. 107Kbps (DL)/ 85.6Kbps (UL)	/	
Interfaces			
LCM	2560×1600 @60fps primary display + 4k@30fps over DP Dual MIPI DSI	Supports 2 groups of 4-lane MIPI_DSI Dual independent display 3840 × 2440 @ 60 fps for primary display + 4K @60 fps over DP 3 groups of 4-lane + 1 group of 2-lane MIPI_CSI, up to 2.5 Gbps/lane 2 Full ISPs + 1 Lite ISP Supports 3 cameras of 16 MP + 16 MP + 2 MP working simultaneously Supports single camera of up to 32 MP	
Camera	4-lane MIPI_CSIx3, up to 2.1Gbps/Lane, Support 3 or 4 Cameras, Up to 24MP with Dual ISPs		
Touch Panel	Capacitive Touch Panel	Capacitive Touch Panel	
Audio	Speaker, Earpiece, Headphone, and 3 MICs for Analog Audio Support One Noise-canceling MIC	QCELP, EVS, EVRC, EVRC-B, EVRC-WB, G.7Gen, G.729 A/AB, AMR-NB, AMR-WB, GSM-EFR, GSM-FR, GSM-HR	
Video	Encoding: 4K(HEVC/H264/VP8)@30FPS Decoding: 4K(HEVC/H264/VP8/VP9)@30FPS	4K @ 60 fps H.264/265 encoding + decoding Supports HDR	
USB	× 2, Compliant with USB3.1 and 2.0 specifications, with transmission rates up to 56bps on USB3.1 and 480Mbps on USB2.0	× 2, USB 3.1, one of which supports Type-C with DisplayPort	
I2C	× 5	× 15	
(U)SIM	× 2 (1.8V/2.95V)	/	
UART	× 4, (one group Support 4Mbps with Hardware Flow Control)	× 13, Supports up to 4 Mbps and hardware flow control	
SDIO	× 1 (3.0, 4-bit SDIO)	× 1(SD 3.0, 4-bit SDIO)	
PWRKEY	1.8V, Pulled-up Internally	PWRKEY, VOL_UP, VOL_DOWN, HOME_KEY	
SPI	× 1, only support master mode	× 15	
ADC	× 2 General purpose ADC interfaces	× 2	
GPIO	× 22	× 109	
PWM	× 1	× 2	
Motor Drive	/	× 1	
Flashlight Driver	/	× 3	
WLED Sink	/	not support	
Antenna	Main antenna, Rx-diversity antenna, GNSS antenna, Wi-Fi/BT antenna, FM* antenna and WIFI_MIMO antenna interfaces (SC66-CE and SC66-W do not support MIMO Wi-Fi)	Wi-Fi/BT, Wi-Fi MIMO, BT*, FM*	
Enhanced Features			
BT	BT 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.0 LE	BT 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.0 LE	
WLAN	2.4G/5G, 802.11a/b/g/n/ac	2.4G/5G, 802.11a/b/g/n/ac	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS/ SBAS	/	
Charge Function	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge technology	Build-in Charge IC & Fuel Gauge Qualcomm Quick Charge technology	
Dual LCD	Support Dual LCDs for Independent Display	Support Dual LCDs for Independent Display	
DSDS	Support Dual SIM Dual Standby	/	
Firmware Upgrade	A/B OTA Firmware Upgrade via USB	A/B OTA Firmware Upgrade via USB	
Certifications	CE/ GCF/ FCC/ PTCRB/ NCC/ AT&T/ Verizon/ RCM/ IC/ JATE/ TELEC/ CCG/ SRRC/ NAL/ KC	KC	
Recommended Applications	Telematics, Mobile POS Terminal, Gateway, Safety, Networking, Mobile Computing, etc.	Smart cash registers, smart home gateways, smart robots, smart wearables, Safety, PDA & tablets, vending machines, delivery lockers, police and law enforcement equipment, in-car video streaming and entertainment systems, etc.	

* Under development

Quectel LPWA Module Family

Product	BG96	BG95 Series ¹
		
Form Factor	LGA	LGA
Dimensions (mm)	26.5 × 22.5 × 2.3	23.6 × 19.9 × 2.2
RAT	LTE Cat M1/ NB1/ EGPRS	LTE Cat M1/Cat NB2/EGPRS
Frequency Bands (MHz)	LTE-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26*/B28 LTE-TDD: B39* (Cat M1 Only) EGPRS: 850/900/1800/1900MHz	LTE-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26(Cat M1 Only)/ B27 (Cat M1 Only)/B28/B31/B66/B71 (Cat NB2 Only)/B72/B73/B85 EGPRS: 850/900/1800/1900MHz
Weight (approx.) g	3.1	2.15
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C
Data Transmission		
LTE Cat M1 data rate (Kbps)	Max. 375 (DL), Max. 375 (UL)	Max. 588 (DL), Max. 1119 (UL)
LTE Cat NB1 data rate (Kbps)	Max. 32 (DL), Max. 70 (UL)	Max. 32 (DL), Max. 70 (UL)
LTE Cat NB2 data rate (Kbps)	/	Max. 127 (DL), Max. 158.5 (UL)
EDGE data rate (Kbps)	Max. 296 (DL), Max. 236.8 (UL)	Max. 296 (DL), Max. 236.8 (UL)
GPRS data rate (Kbps)	Max. 107 (DL), Max. 85.6 (UL)	Max. 107 (DL), Max. 85.6 (UL)
SMS	•	Point-to-point MO and MT; Text and PDU Mode; SMS Cell Broadcast
Protocols	PPP/ TCP/ UDP/ SSL/ TLS/ FTP(S)/ HTTP(S)/ NITZ/ PING/ MQTT/ LwM2M	PPP/ TCP/UDP/ SSL/ TLS/ FTP (S)/ HTTP (S)/ MQTT/ CoAP/ LwM2M
Interfaces		
(U)SIM	1.8V 3V	1.8V
UART	× 3 (MAIN, DEBUG, NMEA)	× 3 (MAIN, DEBUG, NMEA)
USB	USB 2.0 × 1	USB 2.0 × 1
I2C	I2C × 1	I2C* × 1
ADC	ADC × 2	ADC × 1
GPIO	GPIO × 2 (I2C and NMEA can be re-configured as GPIO)	GPIO ² × 9
RESET	RESET × 1	RESET × 1
PCM	•	PCM* × 1
Antenna	Primary, GNSS	Antenna ³ : 2 (for Main Antenna and GNSS Antenna, respectively)
Enhanced Features		
QuecOpen™	Simplifies the Development of Embedded Applications	Simplifies the Development of Embedded Applications
DFOTA	•	•
GNSS/RIL Driver	GNSS/RIL Driver*: Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x	GNSS/RIL Driver*: Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x
NDIS	Windows 7/8/8.1/10	/
USB Serial Driver	Windows 7/8/8.1/10 Linux 2.6 or later; Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x	Windows 7/8/8.1/10, Linux 2.6-5.4, Android 4.x/5.x/6.x/7.x/ 8.x/9.x/10.x/11.x
SIM Detection	•	•
GNSS	Optional	•
Firmware Update	via USB Interface	via USB Interface
Electrical Features		
Supply Voltage Range	3.3 ~ 4.3V, 3.8V Typ.	3.8V Typ. /3.3V Typ. ⁴
Power Consumption	10µA@ PSM	3.9µA@PSM
Max Output Power	Power Class 3 23dBm @ LTE Bands	Power Class5 21dBm @ LTE Bands / Power Class3 23dBm@ LTE Bands ⁵ / Power Class 2* 26dBm@ LTE B31/72/73 of BG95-M4
Certifications	Vodafone / Deutsche Telekom/ Telefónica/ Verizon/ AT&T/ T-Mobile/ Sprint/ Telus/ Rogers/ SKT/LGU+/ NTT DOCOMO/ SoftBank/KDDI/ Telstra/ GCF/ FCC/ PTCRB/ IC/ IFETEL/ CCC/ KC/ NCC/ JATE/ TELEC/ RCM/ NBTC/ IMDA/ ICASA/ U.S. Cellular	China Telecom*/ China Mobile*/ China Unicom*/ Vodafone/ Deutsche Telekom/ Verizon/ AT&T/ T-Mobile*/ Sprint/SKT/ NTT DOCOMO*/ SoftBank*/ KDDI/ Telstra*/ SRRC*/ NAL*/ CCC*/ GCF/ CE/ FCC/ PTCRB/ IC/ ANATEL/ KC/ NCC*/ JATE/ TELEC/ RCM/ NBTC*/IMDA/ RoHS/ ATEX*/ PEN
Recommended Applications	Gas Detector, Soil PH Tester, Optical Sensor, Machinery Alarm System, Irrigation Controller, Elevator, Asset Tracking Electronics, Person/ Pet Tracking, Water/ Gas Metering, Smart Parking System, Fire Hydrant, Smoke Alarm, Smart Bin, Street Lighting	

Note 1: For different variants, please refer to the BG95 specification.

Note 2: BG95-MF provides 7 GPIO Interfaces, please refer to HD for details.




Note 3: BG95-MF provides 3 antenna interfaces, please refer to HD for details.

Note 4: For the supply Voltage of different Variants, please refer to the BG95 Hardware Design document.

Note 5: Special variant, please refer to the BG95 Hardware Design document.

* Under development







Quectel LPWA Module Family

Product	BG600L-M3	BG77	BC660K-GL
			
Form Factor	LGA	LGA	LCC
Dimensions (mm)	18.7 × 16.0 × 2.1	14.9 × 12.9 × 1.7	15.8 × 17.7 × 2.0
RAT	LTE Cat M1/Cat NB2/EGPRS	LTE Cat M1/Cat NB2	LTE Cat NB2
Frequency Bands (MHz)	LTE-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26 (Cat M1 Only)/B27 (Cat M1 Only)/B28/B66/B71 (Cat NB2 Only)/B85 EGPRS: 850/900/1800/1900MHz	LTE-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26 (Cat M1 Only)/B27 (Cat M1 Only)/B28/B66/B71 (Cat NB2 Only)/B85*	LTE Cat NB2: B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B28/B66/B70/B85
Weight (approx.) g	1.25	0.73	1.0±0.2
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Data Transmission			
LTE Cat M1 data rate (Kbps)	Max. 588 (DL), Max. 1119 (UL)	Max. 588 (DL), Max. 1119 (UL)	/
LTE Cat NB1 data rate (Kbps)	Max. 32 (DL), Max. 70 (UL)	Max. 32 (DL), Max. 70 (UL)	Single-tone: 25.5 (DL) / 16.7 (UL) Multi-tone: 127 (DL) / 158.5 (UL)
LTE Cat NB2 data rate (Kbps)	Max. 127 (DL), Max. 158.5 (UL)	Max. 127 (DL), Max. 158.5 (UL)	Max. 127 (DL) / 158.5 (UL)
EDGE data rate (Kbps)	Max. 296 (DL), Max. 236.8 (UL)	/	/
GPRS data rate (Kbps)	Max. 107 (DL), Max. 85.6 (UL)	/	/
SMS	Point-to-point MO and MT; SMS Cell Broadcast; Text and PDU Mode	Point-to-point MO and MT; SMS Cell Broadcast; Text and PDU Mode	•
Protocols	PPP/ TCP/ UDP/ SSL/ TLS/ FTP (S)/ HTTP (S)/ MQTT/ CoAP/ LwM2M	PPP/ TCP/UDP/ SSL/ TLS/ FTP (S)/ HTTP (S)/ MQTT/ CoAP/LwM2M	UDP/TCP/PING/LwM2M*/SNTP/MQTT*/MQTTS*/SSL*/TLS*
Interfaces			
(U)SIM	1.8V	1.8V	1.8/3.0V
UART	× 3 (MAIN, DEBUG, NMEA)	× 3 (MAIN, DEBUG, NMEA)	UART × 2 (for QuecOpen [®] version, × 3)
USB	USB 2.0 × 1	USB 2.0 × 1	/
I2C	I2C* × 1	I2C* × 1	× 1* (QuecOpen Version only)
ADC	ADC × 1	ADC × 2	ADC × 1 (for QuecOpen [®] version, × 2)
GPIO	GPIO × 6	GPIO × 7	GPIO × 4 (for QuecOpen [®] version, × 13)
RESET	RESET × 1	RESET × 1	× 1
SPI	/	/	SPI* × 1 (for QuecOpen [®] version only)
PSM_EINT	/	/	PSM_ENIT × 1 (for QuecOpen [®] version, × 2)
NETLIGHT	/	/	× 1*
PCM	PCM* × 1	PCM* × 1	/
Antenna	2 (for Main Antenna and GNSS Antenna, respectively)	2 (for Main Antenna and GNSS Antenna, respectively)	Primary
Enhanced Features			
QuecOpen [®]	Simplifies the Development of Embedded Applications	Simplifies the Development of Embedded Applications	•
DFOTA	•	•	•
GNSS/RIL Driver*	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x	Android 4.x/5.x/6.x/7.x/8.x/9.x/10.x/11.x	/
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6-5.4, Android 4.x/5.x/6.x/7.x/ 8.x/9.x/10.x/11.x	Windows 7/8/8.1/10, Linux 2.6-5.4, Android 4.x/5.x/6.x/7.x/ 8.x/9.x/10.x/11.x	/
SIM Detection	•	•	/
GNSS	•	•	/
RAI	/	/	•
eSIM*	/	/	o
Firmware Update	via USB Interface	via USB Interface	via UART/ DFOTA
Electrical Features			
Supply Voltage Range	3.3V-4.3V, 3.8V Typ.	2.6V-4.8V, 3.3V Typ. ¹	2.2-4.3 V, 3.3 V Typ.
Power Consumption	3.9µA@PSM	3.2µA@PSM	800 nA @ PSM
Max Output Power	Power Class 5 21dBm @ LTE Bands	Power Class 5 21dBm @ LTE Bands	/
Certifications	Vodafone/ Deutsche Telekom/ Telefónica*/ Verizon*/ AT&T/ T-Mobile*/ Sprint*/ CCC*/GCF/ CE/ FCC/ RCM/ PTCRB/ IC/ RoHS / ANATEL	China Telecom*/ China Mobile*/ China Unicom*/ Vodafone/ Deutsche Telekom/ Verizon/ AT&T/ T-Mobile*/ Sprint/ SRRC*/ NAL*/ CCC*/ GCF/ CE/ FCC/ PTCRB/ IC/ KC*/ NCC/ JATE/ TELECOM/ RCM/ NBTC*/ Telus/ USCC RoHS	CE/RCM/FCC/IC/PTCRB*/GCF*/AT&T*/Verizon
Recommended Applications	Gas Detector, Soil PH Tester, Optical Sensor, Machinery Alarm System, Fire Hydrant, Smoke Alarm, Smart Bin, Street Lighting	System, Irrigation Controller, Elevator, Asset Tracking Electronics, Person/ Pet Tracking, Water/ Gas Metering, Smart Parking	

Note 1: please refer to the hardware design manual for more specific requirements on the minimum power supply voltage.

o & * Under development

Quectel LPWA Module Family

Product	BC95-G	BC68	BC66	BC66-NA	BC65	BC92
						
Form Factor	LCC	LCC	LCC	LCC	LCC	LCC
Dimensions (mm)	19.9 × 23.6 × 2.2	15.8 × 17.7 × 2.0	15.8 × 17.7 × 2.0	15.8 × 17.7 × 2.0	17.7 × 15.8 × 2.2	23.6 × 19.9 × 2.2
RAT	LTE Cat NB2	LTE Cat NB2	LTE Cat NB1	LTE Cat NB2	LTE Cat NB2	LTE Cat NB2/GSM
Frequency Bands (MHz)	B1 @H-FDD: 2100MHz; B3 @H-FDD: 1800MHz; B5 @H-FDD: 850MHz; B8 @H-FDD: 900MHz; B20 @H-FDD: 800MHz; B28 @H-FDD: 700MHz;	B1 @H-FDD: 2100MHz; B3 @H-FDD: 1800MHz; B5 @H-FDD: 850MHz; B8 @H-FDD: 900MHz; B20 @H-FDD: 800MHz; B28 @H-FDD: 700MHz;	LTE Cat NB1: B1/B2/B3/B4/B5/B8/B12/B13/ B17/B18/B19/B20/B25/B28/ B66/B26*	LTE Cat NB2: B1/B2/B3/B4/B5/B8/B12/B13/ B17/B18/B19/B20/B25/B28/ B66/B17/B85/B26*	LTE Cat NB2: B1*/B3/B5/B8/B20/B28	LTE Cat NB2: B3/B5/B8/B20/B28 GSM: 850/900/1800/1900MHz
Weight (approx.) g	1.8±0.2	1.1±0.2	1.2±0.2	1.2±0.2	1.2±0.2	1.8±0.1
Operating Temperature	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-35°C ~ +75°C	-25°C ~ +75°C	-25°C ~ +75°C
Extended Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Data Transmission						
LTE Cat NB1 data rate (Kbps)	Single Tone: 25.2 (DL) / 15.625 (UL) Multi Tone: 25.2 (DL) / 54 (UL)	Single Tone: 25.2 (DL) / 15.625 (UL) Multi Tone: 25.2 (DL) / 54 (UL)	Single Tone: 25.2 (DL) / 16.7 (UL) Multi Tone: 25.5 (DL) / 62.5 (UL)	Single Tone: 25.5 (DL) / 16.7 (UL) Multi Tone: 25.5 (DL) / 62.5 (UL)	Single-Tone: Max. 25.5 (DL)/16.7 (UL) Multi-Tone: Max. 25.5 (DL)/62.5 (UL)	Single-Tone: Max. 25.5 (DL)/16.7 (UL) Multi-Tone: Max. 25.5 (DL)/62.5 (UL)
LTE Cat NB2 data rate (Kbps)	Extended TBS/2 HARQ: 125 (DL)/150 (UL)	Extended TBS/2 HARQ: 125 (DL)/150 (UL)	/	Max. 127 (DL)/158.5 (UL)	Max. 127 (DL) / 158.5 (UL)	Max. 127 (DL)/158.5 (UL)
GPRS data rate (Kbps)	/	/	/	/	/	GPRS Class 12: Max. 85.6 (DL)/85.6 (UL)
SMS	•	•	•	•	•	•
Protocols	IPv4/ IPv6/ UDP/ CoAP/ LwM2M/ Non-IP/ DTLS / TCP/ MQTT	IPv4/ IPv6/ UDP/ CoAP/LwM2M/ Non-IP/ DTLS / TCP/ MQTT	UDP/ TCP/ LwM2M/ MQTT/ SNTP/ PPP*/ CoAP*/ TLS/ DTLS/ HTTP*/ HTTPS*	UDP/ TCP/ LwM2M/ MQTT/ SNTP/ PPP*/ CoAP*/ TLS/ DTLS/ HTTP*/ HTTPS*	UDP/TCP/SNTP/MQTT/CoAP*/ PPP/TLS*/DTLS*	UDP/TCP/SNTP/PPP/MQTT/ CoAP*/HTTP*/HTTPS*/FTP
Interfaces						
(U)SIM	× 1 Supports 1.8V/ 3.0V USIM Card	× 1 Supports 1.8V/ 3.0V USIM Card	1.8V	1.8V	1.8V/3V	1.8V/3V
UART	× 2	× 2	× 3 (MAIN, DEBUG, AUX)	× 3 (MAIN, DEBUG, AUX)	× 3 (MAIN, DEBUG, AUX)	× 2 (MAIN, DEBUG)
I2C	× 2 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	/	/
ADC	× 1, 10bits (QuecOpen Version Only)	× 1, 10bits (QuecOpen Version Only)	× 1	× 1	× 1	× 1
GPIO	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	/	/
RESET	× 1	× 1	× 1	× 1	× 1	× 1
SPI	× 2 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	/	/
PSM_EINT	Config (QuecOpen Version Only)	Config (QuecOpen Version Only)	× 1	× 1	× 1	× 1
I2S	/	/	× 1 (QuecOpen Version Only)	× 1 (QuecOpen Version Only)	/	/
Antenna	Pads for Primary	Pads for Primary	Primary	Primary	Primary	Primary
Enhanced Features						
QuecOpen®	•	•	•	•	/	/
DFOTA	•	•	•	•	•	•
Firmware Update	via UART/ DFOTA	via UART/ DFOTA	via UART/ DFOTA	via UART/ DFOTA	via UART/ DFOTA	via UART/ DFOTA
RAI	•	•	•	•	•	•
Location Based Service	ECID, OTDOA	ECID, OTDOA		ECID*, OTDOA*	ECID, OTDOA	ECID, OTDOA
eSIM*	o	/	o	o	o	/
Electrical Features						
Supply Voltage Range	3.1~4.2V, 3.6V Typ.	3.1~4.2V, 3.6V Typ.	2.1V~3.63V, 3.3V Typ.	2.1V~3.63V, 3.3V Typ.	3.2V~4.2V, 3.8V Typ.	3.4V~4.2V, 3.8V Typ.
Power Consumption	3µA @PSM 0.5mA @Idle Mode, DRX=2.56s, ECLO 250mA @Tx, 23dBm (B1/B3) 220mA @Tx, 23dBm (B8/B5/B20) 280mA @Tx, 23dBm (B28) 60mA @Rx	3µA @PSM 0.5mA @Idle Mode, DRX=2.56s, ECLO 250mA @Tx, 23dBm (B1/B3) 220mA @Tx, 23dBm (B8/B5/B20) 280mA @Tx, 23dBm (B28) 60mA @Rx	3.5µA @ PSM	3.6µA @ PSM	4µA @PSM	4µA @PSM
Certifications	CE/ GCF/ RCM/ NCC/ JATE/ TELEC/ KC/ NBTC/ Vodafone Global / Deutsche Telekom / Telstra / Softbank/ KT/ Telefónica/ LGU+/ ATEX/ IMDA/ ANATEL/FAC	CE/ GCF/ RCM/ NCC/ JATE/ TELEC/ IMDA / Deutsche Telekom/ Vodafone/ Telstra / ATEX/ Softbank/ KC/ Telefónica/ TIM/ Altice-MEO/ FAC	NCC/ IC/ CE/ RCM/ GCF/ FCC/ PTCRB/ JATE/ TELEC/ KC/ NBTC/ T-Mobile/ Altice/ TIM(Telecom Italia)/ Vodafone/ ATEX/ IMDA/ AT&T/ LGU+*/ Softbank/ Telstra/ Telefonica/ Deutsche Telekom/ Altice-MEO/ Verizon*	NCC* / IC/ CE/ RCM/ GCF/ FCC/ PTCRB/ JATE/ TELEC/ KC/ NBTC* / T-Mobile/ Vodafone/ ATEX*/ IMDA*/ AT&T*/ LGU+*/ Softbank*/ Telstra*/ Telefonica*/ Deutsche Telekom/ Verizon*	CE/ RCM	CE/ RCM/ GCF/ Vodafone/MTN/ ICASA/ Vodacom
Recommended Applications	Gas Detector, Soil PH Tester, Optical Sensor, Machinery Alarm System, Irrigation Controller, Elevator, Asset Tracking, Electronics, Person/Pet Tracking, Water/Gas Metering, Smart Parking System, Fire Hydrant, Smoke Alarm, Smart Bin, Street Lighting					

o & * Under development


Quectel Automotive Module Family

Product	AG35	AG52xR (x=1, 2)	
			
Form Factor	LGA	LGA	
Dimensions (mm)	33.0 × 37.5 × 3.0	38.0 × 42.0 × 2.65	
4G	LTE Cat 4	/	
4.5G	/	-CN Cat 6; -EU/NA/JP Cat 12, Cat 16, Cat 9, Cat 6 as option	
Frequency/Bands (MHz)	-E (EMEA/Korea/Australia/India/Southeast Asia)	LTE-FDD: B1/B3/B5/B7/B8/B20/B28; LTE-TDD: B38/B40; WCDMA: B1/B5/B8; GSM: B3/B8	/
	-CN (China)	/	LTE: B1/B3/B5/B7/B8/B34/B38/B39/B40/B41; UMTS: B1/B8; CDMA(Optional): BC0 GSM: 1800MHz/900MHz
	-EU (EMEA/Australia/Korea/India/Southeast Asia)	/	LTE: B1/B3/B5/B7/B8/B20/B28/B32(DL)/B38/B40/B41; UMTS: B1/B3/B5/B8 GSM: 1800MHz/900MHz
	-CE (China/India)	LTE-FDD: B1/B3/B5/B8; LTE-TDD: B34/B38/B39/B40/B41; WCDMA: B1/B8 TD-SCDMA: B34/B39; CDMA2000 1X/EVDO(Optional): BC0; GSM: B3/B8	/
	-NA (North America)	LTE-FDD: B2/B4/B5/B7/B12(B17)/B13; WCDMA: B2/B4/B5; GSM: B2/B5	LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B25/B26/B29/B30*/B66/B71
	-J (Japan)	LTE-FDD: B1/B3/B5/B8/B9/B19/B21/B28; LTE-TDD: B41; WCDMA: B1/B3/B5/B6/B8/B19	/
	-JP	/	LTE-FDD: B1/B3/B5/B8/B9/B19/B18/B19/B21/B28 LTE-TDD: B41; WCDMA: B1/B3/B5/B8/B9/B19
	-LA (Latin America)	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B28; WCDMA: B1/B2/B3/B4/B5/B8; GSM: B2/B3/B5/B8	/
Weight (approx.) g	8.1	9.23	
Operating Temperature	-40°C ~ +85°C	-40°C ~ +85°C (eCall: +95°C)	
Data Transmission			
LTE data rate	LTE-FDD: Max. 150Mbps (DL)/ Max. 50Mbps (UL) LTE-TDD: Max. 130Mbps (DL)/ Max. 30Mbps (UL)	LTE Cat 12: LTE-FDD: Max. 600Mbps (DL)/150Mbps (UL), LTE-TDD: Max. 410Mbps (DL)/90Mbps (UL) LTE Cat 6: LTE-FDD: Max. 300Mbps (DL)/50Mbps (UL), LTE-TDD: Max. 226Mbps (DL)/28Mbps (UL)	
DC-HSPA+ data rate (Mbps)	Max. 42 (DL)/ Max. 5.76 (UL)	Max. 42 (DL)/ Max. 5.76 (UL)	
WCDMA data rate (Kbps)	Max. 384 (DL)/ Max. 384 (UL)	Max. 384 (DL)/ Max. 384 (UL)	
TD-SCDMA data rate (Mbps)	Max. 4.2 (DL)/ Max. 2.2 (UL)	/	
EDGE data rate (Kbps)	Max. 296 (DL)/ Max. 236.8 (UL)	Max. 296 (DL)/ Max. 236.8 (UL)	
GPRS data rate (Kbps)	Max. 107 (DL)/ Max. 85.6 (UL)	Max. 107 (DL)/ Max. 85.6 (UL)	
C-V2X data rate (Mbps)	/	Max. 30 (Tx)/ Max. 30(Rx)	
SMS	Point-to-point MO/MT, SMS Cell Broadcast, Text and PDU Mode	Point-to-point MO and MT, SMS Cell Broadcast, Text and PDU Mode	
Protocols	TCP/UDP/PPP/PING/FTP(S)/ HTTP(S)/SMTP/SSL/TLS/ MMS/NTP/FILE/QMI	TCP/ UDP/ PPP/ PING/ FTP(S)/ HTTP(S)/SMTP/ SSL/ TLS/ MMS/ NTP/ DTMF*/ FILE/ QMI	
Interfaces			
(U)SIM	× 1 (Support 1.8V/ 3V USIM/ SIM Cards)	/	
USIM	/	× 1	
UART	× 3 (for Main UART/ BT/ Debug Functions)	3 × UARTs	
HSIC	× 1	/	
USB	USB 2.0 × 1 (with High Speed up to 480Mbps)	× 1	
IIC	× 2 (1 for PCM)	/	
SGMII	× 1	/	
SDIO	× 2 for Wi-Fi and eMMC	× 1 (eMMC)	
SPI	SPI > 1 (for QuecOpen Version Only)	× 1	
I2S/PCM	/	× 1 I2S, × 1 PCM	
I2C	/	× 1	
RGMIII	/	× 1	
Audio Digital (PCM)	× 1	/	
ADC	× 3, 15bits	× 2	
PCIe	/	× 1	
GPIO	GPIO > 15 (for QuecOpen Version Only)	× 8 (Only Open)	
JTAG/QDSS	/	Yes	
RESET	/	Yes	
Antenna	Main, Rx-diversity and GNSS	5 (2 × 2 MIMO), Reserve for 7 antennas(4 × 4 MIMO) as option	
Enhanced Features			
QuecOpen™ (Open Linux)	•	•	
eCall	•	•	
Era Glonass	•	/	
Multi-APN	•	•	
Temperature Management	•	•	
DFOTA	•	•	
eSIM (eUICC)	/	•	
(U)SIM Detection	/	•	
Voice over USB (USB Audio)	•	/	
QDR	Optional	Optional	
PPE (RTK)	Optional (Support only in China)	Optional	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	GPS/ GLONASS/ BeiDou/ Galileo/ QZSS	
ESD/EMI Protection	/	Realized through Internal Specific Circuits and Components (Electrostatic Discharge Conforms to ±10KV air discharge and ±6KV of contact discharge)	
C-V2X	/	Optional	
QDR 3.0 (External IMU Required)	/	Optional	
Multi-Frequency GNSS (L1/L5)	/	Optional	
Advanced Security Feature			
TrustZone	•	TrustZone*/ TPM*: •	
Secure Boot	•	Secure Boot*: •	
SE-Linux	/	•	
Code/User Data Backup	•	•	
Software Features			
RIL Driver	Android 4.x~9.x	Android 4.x~11.x	
RNDIS Driver	Windows 7/ 8/ 8.1/ 10, Linux 2.6~5.4	Windows 7/8/8.1/10, Linux 2.6~5.12	
ECM Driver	Linux 2.6~5.4	Linux 2.6~5.12	
Gobinet Driver	Linux 2.6~5.4	Linux 2.6~5.12	
QMI_WWAN Driver	Linux 3.4~5.4	Linux 3.4~5.12	
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6~5.4, Android 4.x~9.x	Windows 7/8/8.1/10, Linux 2.6~5.12, Android 4.x~11.x	
GNSS Driver	Android 4.x~9.x	Android 4.x~11.x	
Electrical Features			
Supply Voltage Range	3.3V~4.3V, 3.8V Typ.	VBAT_BB/VBAT_RF: 3.3V~4.3V (3.8V Typ.) , VBAT_C-V2X: 4.75V~5.25V (5.0V Typ.)	
Power Consumption	20µA @Power off/ 1.9mA @LTE Sleep, PF=128/1.6mA @LTE Sleep, PF=256/ 22mA @Idle, Typ.	0.021mA@Power off/ 2.03mA@LTE Sleep, PF=128/1.61mA @LTE Sleep, PF=256; 15.9mA@Idle, PF=64/27.2mA@Idle, PF=64, USB Active	
Certifications			
	CCC/ SRRC/ NAL/ GCF/ CE/ FCC/ KC/ RCM/ ANATEL/ KT*/ STK*/ LGU+*/ PTCRB/ IC/ AT&T/ Rogers/ T-Mobile*/ Verizon*/ JATE/ TELECOM/NTT DOCOMO*	CCC/ SRRC/ NAL/ FCC/ IC/ PTCRB/ GCF/ CE*/ Verizon*/AT&T*/T-Mobile*	
Recommended Applications			
	Automotive		

Note 1: LTE-FDD B29, B30 and B32 support Rx only.


* Under development

Quectel Automotive Module


Product		AG55xQ
		
Form Factor	LGA	
Dimensions (mm)	54.5 × 53.0 × 3.45	
5G	Sub-6G	
4G	LTE Cat 19	
Frequency Bands (MHz)	-CN (China)	5G: N1*/N3*/N28*/N41/N78/N79; LTE: B1/B3/B5/B7/B8/B34/B38/B39/B40/B41; WCDMA: B1/B8; GSM: B3/B8
	-EU (EMEA/Australia, Korea/India/Southeast Asia/Latam America exl. Mexico)	5G: N1/N3/N8/N20/N28/N41/N78 LTE: B1/B2/B3/B4/B5/B6/B7/B8/B20/B28/B32rx/B38/B40/B41/B42 WCDMA: B1/B3/B5/B8; GSM: B2/B3/B5/B8
	-NA (North America/Mexico)	5G: N2/N5/N41/N66/N71/N78 LTE: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B28/B29rx/B30rx/B41/B66/B71; WCDMA: B2/B4/B5
	-JP* (Japan)	5G: N1*/N3*/N77/N78/N79; LTE: B1/B3/B5/B8/B9/B11/B19/B21/B28/B41; WCDMA: B1/B3/B5/B8/B9/B19
Weight (approx.) g	18	
Operating Temperature	-40°C ~ +85°C (eCall: +95°C)	
Data Transmission		
5G SA	Max. 2.0Gbps (DL)/450Mbps (UL)	
5G NSA	Max. 2.4Gbps (DL)/550Mbps (UL)	
LTE FDD Data Rate	Max. 1.6Gbps (DL)/ Max. 200Mbps (UL)	
LTE TDD Data Rate	Max. 1.4Gbps (DL)/ Max. 120Mbps (UL)	
DC-HSDPA/HSUPA Data Rate (Mbps)	Max. 42 (DL)/ Max. 5.76 (UL)	
WCDMA Data Rate (Kbps)	Max. 384 (DL)/ Max. 384 (UL)	
EDGE Data Rate (Kbps)	Max. 296 (DL)/ Max. 236.8 (UL)	
GPRS Data Rate (Kbps)	Max. 107 (DL)/ Max. 85.6 (UL)	
C-V2X Data Rate (Mbps)	Max. 48 (Tx)/ Max. 48(Rx)	
SMS	Point-to-point MO and MT; SMS Cell Broadcast; Text and PDU Mode	
Protocols	TCP/ UDP/ PPP/ PING/ FTP(S)/ HTTP(S)/SMTP/ SSL/ TLS/ MMS/ NTP/ DTMF*/ FILE/ QMI	
Interfaces		
(U)SIM	× 1 (Support 1.8V/ 3V USIM/ SIM Cards)	
eSIM/eUICC	× 1	
UART	× 3 (Main/Debug/BT UART)	
USB 2.0/3.1	× 1	
PCIe 3.0	× 1	
IIC	× 1	
IIS	× 1	
RGMII	× 1	
SDIO	× 1 (for eMMC)	
SPI	× 1	
Audio Digital (PCM)	× 1	
ADC	× 2 (15-bit)	
GPIO	× 15 (For QuecOpen® version only)	
RESET_N	× 1 (Reset the module)	
Antenna	Main × 1 Diversity × 1 MIMO 3 × 1 MIMO 4 × 1 C-V2X × 2 GNSS × 1 DSDA × 2	
Enhanced Features		
QuecOpen® (Open Linux)	•	
eCall	•	
DFOTA	•	
eSIM (eUICC)	•	
(U)SIM Detection	•	
Temperature Management	•	
GNSS	GPS/ GLONASS/ BeiDou/ Galileo /QZSS	
ESD/EMI Protection	Realized through Internal Specific Circuits and Components (Electrostatic Discharge Conforms to ±12KV air discharge and ±8KV of contact discharge)	
Gigabit Ethernet	Optional	
C-V2X TDD B47	Optional	
DSDA (Dual SIM Dual Activation)	Optional	
QDR 3.0 (External IMU Required)	Optional	
RTK/PPE	Optional	
Multi-Frequency GNSS (L1/L2/L5)	Optional	
UART Interface for BT Function	Optional	
Advanced Security Feature		
TrustZone/ TPM*	•	
Secure Boot	•	
SE-Linux	•	
Software Features		
RIL Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
GNSS Driver	Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
RNDIS	Windows 7/8/8.1/10, Linux 2.6-5.0	
ECM	Linux 2.6-5.0	
Gobinet	Linux 2.6-5.0, Android 4.x/ 5.x/ 6.x/ 7.x/ 8.x/ 9.x	
QMI_WWAN Driver	Linux 3.4-5.0, Android 4.x/5.x/6.x/7.x/8.x/9.x	
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6-5.0, Android 4.x/5.x/6.x/7.x/8.x/9.x	
Electrical Features		
Supply Voltage Range	VBAT_BB/VBAT_RF: 3.3V~4.3V (3.8V Typ.) VBAT_C-V2X: 4.75V~5.25V (5.0V Typ.)	
Power Consumption	TBD @Power off TBD @Sleep, Typ. TBD @Idle	
Certifications	CCC/ SRRC/ NAL/ FCC*/ IC*/ PTCRB*/ GCF*/ AT&T*/ CE*/ KC*/ JATE*/ TELEC*/ RCM*	
Recommended Applications	Automotive	

* Under development

Quectel C-V2X Module






Product	AG15
	
Form Factor	LGA
Dimensions (mm)	32.0 × 28.0 × 2.85
C-V2X TDD	B47 for Global B46D for Japan (optional)
Weight (approx.) g	5.735
Operating Temperature	-40 °C ~ +85 °C
Data Transmission	
LTE data rate (Mbps)	C-V2X TDD: Max. 26 (TX)/Max. 26 (RX)
Protocols	QMI (Qualcomm MSM Interface)
Interfaces	
UART	× 2
USB	USB2.0/3.0×1
PCIe	× 2 (1 for PCM)
SPI	× 1
I2C	× 2 for Wi-Fi and eMMC
1PPS	× 1
ADC	× 2
GPIO	× 4
Antenna	Main, Rx-diversity and GNSS
Enhanced Features	
High Security	•
Secure Boot*	•
SELinux*	•
ESD/EMI Protection	•
Realized through Internal Specific Circuits and Components	•
Software Features	
USB Serial Driver	•
Windows 7/8/8.1/10, Windows CE 5.0/6.0/7.0*	•
Linux 2.6/3.x/4.1-4.14	•
Android 4.x/5.x/6.x/7.x/8.x	•
PCIe Driver	•
Protocol	QMI (Qualcomm MSM Interface)
Electrical Features	
Output Power	Class 3 (23dBm±2dB) for C-V2X
Supply Voltage	VBAT_BB: 3.3V~4.3V, 3.8V Typ. VBAT_RF: 4.75V~5.25V, 5.0V Typ.
Power Consumption	80µA@PowerOff
Sensitivity	C-V2X TDD B47: -96dBm C-V2X TDD B46D: -96dBm
Certifications	TBD
Recommended Applications	Automotive

Quectel Application Processor Module

Product	AG215S
	
Form Factor	LGA
Dimensions (mm)	33.0 × 33.5 × 3.3
Weight (approx.) g	7.07
Operating Temperature	-40 °C ~ +85 °C
Application Processor Module	Automotive Grade Application Processor for C-V2X and Telematics
Interfaces	
SDIO	•
PCIe	PCIe Gen2
USB	USB 3.0*1 and USB2.0*1
RGMI	RGMI up to 1 Gbps
UART	•
SPI	•
I2C	•
1PPS (Input),	•
ADC	•
Enhanced Features	
Powerful Cores	64-bit ARM Cortex-A53 Microprocessor Cores, 1.4 GHz Dual-Core Processor (Quad-Core Processor Optional), Optimized communication performance with Quectel AG520R/ AG550Q/AG553Q, Dedicated AP for ITS stack and applications
Embedded ECDSA Hardware Engine	Support NIST p-384, NIST p-256, Brainpool p-384, Brainpool p-256, SM2 256 bit Curves
Scalable ECDSA Capability	Up to 2500TPS through embedded engine and CPU (based on NIST p-256 and SM2)
Hardware Crypto Engine Embedded(Optional)	Secret key generation and storage, digital signature and verification, Up to 2000TPS ECDSA capability (based on NIST p-256 and SM2)

* Under development







Quectel Wi-Fi & BT Module Family

Product	AF20	AF50T*	AF51Y	FC20	FC21*
					
Dimensions (mm)	17.2 × 15.2 × 2.26	19.5 × 21.5 × 2.3	19.5 × 21.5 × 2.5	16.6 × 13.0 × 2.1	16.6 × 13.0 × 2.1
Operating Temperature	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Weight (approx.) g	1.26	2.1	2.32	0.81	TBD
General Features					
Function	Wi-Fi 2.4GHz + 5GHz & BT 5.0	Wi-Fi 2.4GHz + 5GHz & BT 5.1	Wi-Fi 2.4GHz + 5GHz & BT 5.1*	Wi-Fi 2.4GHz+5GHz & BT 5.0	Wi-Fi 2.4GHz + 5GHz & BT 5.0
WLAN Standard	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac	802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac
BT Standard	BT 5.0	BT 5.1*	BT 5.1*	BT 5.0	BT 5.0
Modulation Mode	CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM	CCK/BPSK/QPSK/16-QAM/ 64-QAM/ 256-QAM	CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM
Encryption Mode	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK	WPA3	WPA3	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK	WEP/ TKIP/ AES/ WPA-PSK/ WPA2-PSK
AP (Max Access Point)	16	32	32	16	16
Operator Mode	AP/ STA	AP/ STA	AP/ STA	AP/ STA	AP/ STA
I/O Interfaces					
PCIe 3.0	/	1	1	/	/
SDIO	1(SDIO 3.0)	/	/	1(SDIO 3.0)	1(SDIO 3.0)
UART	1	1	1	1	1
PCM	1	1	1	1	1
Antenna	1 (Wi-Fi & BT Antenna)	2 × Wi-Fi Ant with shared BT Ant, independant BT Ant is optional	2X Wi-Fi Ant, 1X BT Ant	1 (Wi-Fi & BT Antenna)	1 (Wi-Fi & BT Antenna)
Electrical Characteristics					
Supply Voltage Range	3.14 ~3.46V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.	Core Supply Voltage : 0.95V, 1.35V, 1.95V; I/O Supply Voltage : 1.8V; RF Supply Voltage : 3.85V	Core Supply Voltage: 2.2V 1.8V I/O Supply Voltage: 1.8V RF Supply Voltage: 3.3V	3.14 ~3.46V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.	3.14 ~3.46V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.
Power Consumption	TBD	TBD	TBD	0µA @OFF State, 3.3V WLAN Supply Voltage 554µA @OFF State, 1.8V I/O Pins Supply Voltage 66mA @Idle, 3.3V WLAN Supply Voltage 6.5mA @Idle, 1.8V I/O Pins Supply Voltage	TBD
Data Transmission					
802.11a	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps
802.11b	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps
802.11g	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps
802.11n	Max. 150Mbps	Max. 600Mbps	Max. 300Mbps	Max. 150Mbps	Max. 150Mbps
802.11ac	Max. 433Mbps	Max. 866Mbps	Max. 866Mbps	Max. 433Mbps	Max. 433Mbps
802.11ax	/	Max. 1774.5Mbps	/	/	/
BLE	Max. 1Mbps	Max. 2Mbps	Max. 2Mbps	Max. 1Mbps	Max. 1Mbps
Recommended Applications	Automotive	Automotive	Automotive	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.	

AF20 can work with Quectel AG35 module to provide Wi-Fi/BT function.
 FC20 can work with Quectel EC20 R2.0/EC20 R2.1/EC21/EC25 modules to provide Wi-Fi/BT function.
 FC21* can work with Quectel EC20 R2.0/EC20 R2.1/EC21/EC25 modules to provide Wi-Fi/BT function.
 AF50T* can work with Quectel AG520R and AG550Q module to provide Wi-Fi/BT function.

* Under development




Quectel Wi-Fi & BT Module Family

Product	FC30R/FC31R*	FG50V*	FC62E*/FC64E*	FC65E*/FC66E*	HC06U	FC41D
						
Dimensions (mm)	12.0 × 12.0 × 2.1	19.5 × 21.5 × 2.1	18 × 19.9 × 2.1	18 × 19.9 × 2.1	16.5 × 13.3 × 2.3	20 × 18 × 2.6
Operating Temperature	-30°C ~ +85°C (FC30R) 0°C ~ +70°C (FC31R)	-30°C ~ +85°C	-30°C ~ +85°C	-30°C ~ +85°C	-40°C ~ +85°C	-40°C ~ +85°C
Weight (approx.) g	0.57	TBD	TBD	TBD	1	0.9
General Features						
Function	Wi-Fi 2.4GHz	Wi-Fi 2.4GHz + 5GHz & BT 5.1	Wi-Fi 2.4GHz + 5GHz & BT 5.1	Wi-Fi 2.4GHz + 5GHz + 6GHz & BT 5.1	BT 5.0	WiFi 2.4G+BT 5.1
WLAN Standard	802.11b/g/n	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	IEEE 802.11a/b/g/n/ac/ax	/	802.11b/g/n
BT Standard	/	BT 5.1	BT 5.1	BT 5.1	BT 5.0	BT 5.1
Modulation Mode	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM	DBPSK/ DQPSK/ CCK/ BPSK/ QPSK/ QAM	DBPSK/ DQPSK/ CCK/ BPSK/ QPSK/ QAM	/	BPSK/ QPSK/ CCK/ 16QAM/ 64QAM
Encryption Mode	TKIP/ AES/ WPA-PSK/ WPA2-PSK	WPA3	WPA3	WPA3	SMP	WPA3
AP (Max Access Point)	16	32	32	32	/	TBD
Operator Mode	AP/ STA	AP/ STA	AP/ STA	AP/ STA	/	AP/ STA
I/O Interfaces						
PCIe 3.0	/	1	1	1	/	/
SDIO	1(SDIO 3.0)	/	/	/	/	/
UART	/	1	1	1	1	1
PCM	/	1	1	1	/	/
Antenna	1 (Wi-Fi Antenna)	2 × Wi-Fi Ant with shared BT Ant, independant BT ant is optional	2 × Wi-Fi Ant with shared BT Ant, independant BT ant is optional	2 × Wi-Fi Ant with shared BT Ant, independant BT ant is optional	× 1 (Built-in ceramic antenna, Built-out Pin antenna)	× 1 (Built-out Pin antenna, IPEX antenna, PCB antenna)
Electrical Characteristics						
Supply Voltage Range	3.0 ~ 3.6V, 3.3V Typ. 1.71 ~ 1.89V, 1.8V Typ.	Core Supply Voltage : 0.95V, 1.35V, 1.95V; I/O Supply Voltage : 1.8V; RF Supply Voltage : 3.85V	Core Supply Voltage : 0.95, 1.35, 1.95, 1.8, 2.2, 3.3(Optional) I/O Supply Voltage : 1.8V;	Core Supply Voltage : 0.95, 1.35, 1.95, 1.8, 2.2, 3.3(Optional) I/O Supply Voltage : 1.8V;	I/O Supply Voltage: 3.3V Power Supply Voltage: 3.3V	Power Supply Voltage: 3.3V
Power Consumption	0µA @OFF State, 3.3V WLAN Supply Voltage 554µA @OFF State, 1.8V I/O Pins Supply Voltage 68mA @On State(no connection), 3.3V WLAN Supply Voltage 6.5mA @On State(no connection), 1.8V I/O Pins Supply Voltage	TBD	TBD	TBD	TBD	TBD
Data Transmission						
802.11a	/	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	/	Max. 54Mbps
802.11b	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	Max. 11Mbps	/	Max. 11Mbps
802.11g	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	Max. 54Mbps	/	Max. 54Mbps
802.11n	Max. 150Mbps	Max. 600Mbps	Max. 600 Mbps	Max. 600 Mbps	/	Max. 72Mbps
802.11ac	/	Max. 866Mbps	Max. 866 Mbps	Max. 1732 Mbps	/	/
802.11ax	/	Max. 1774.5Mbps	Max. 1174.5 Mbps	Max. 2400 Mbps	/	/
BLE	/	Max. 2Mbps	Max. 2Mbps	Max. 2Mbps	Max. 2Mbps	Max. 2Mbps
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.	CPE, MIFI, OTT, Smart TV	CPE, MIFI, OTT, Smart TV	CPE, MIFI, OTT, Smart TV	low-power data transmission, keyboard, mouse, remote control, sports and leisure equipment, mobile phone accessories and consumer electronics products	Smart home, industrial control

FC30R/FC31R* can work with Quectel EC20 R2.1/EC21/EC25/EC200T module to provide Wi-Fi/BT function.
FG50V* can work with Quectel RG5000 module to provide Wi-Fi/BT function.

* Under development






Quectel UMTS/HSPA(+) Module Family

Product	UG96	UG89	UC200T/ UC200T Mini PCIe
			
Form Factor	LGA	LGA	LCC
Dimensions (mm)	22.5 × 26.5 × 2.2	27.6 × 25.4 × 2.35	32.0 × 29.0 × 2.4 (UC200T) 30.0 × 51.0 × 4.9 (UC200T Mini PCIe)
3G	UMTS/HSPA	UMTS/HSPA+	UMTS/HSPA+
Frequency Bands (MHz)	-EM (Europe & Middle East)	/	UMTS: B1/B8; GSM: 900/1800MHz
	-G (Global)	UMTS: 800/850/900/1900/2100; GSM: 850/900/1800/1900	/
	-GL (Global)	/	UMTS: B1/B2/B5/B8; GSM: 850/900/1800/1900MHz
Weight (approx.) g	3.1	3.77	4.3 (UC200T)
Operating Temperature	-35 °C ~ +75 °C	Operating Temperature*: -35°C ~ +75°C	Operating Temperature*: -35°C ~ +75°C
Extended Temperature	-40 °C ~ +85 °C	Extended Temperature*: -40°C ~ +85°C	Extended Temperature*: -40°C ~ +85°C
Data Transmission			
HSPA data rate (Mbps)	7.2 (DL)/ 5.76 (UL)	Max. 21 (DL)/ Max. 5.76 (UL)	Max. 21 (DL)/ Max. 5.76 (UL)
UMTS data rate (Kbps)	384 (DL)/ 384 (UL)	Max. 384 (DL/UL)	Max. 384 (DL/UL)
GPRS data rate (Kbps)	85.6 (DL)/ 85.6 (UL)	Max. 85.6 (DL/UL)	Max. 85.6 (DL/UL)
EDGE data rate (Kbps)	296 (DL)/ 236.8 (UL)	Max. 236.8 (DL/UL)	Max. 236.8 (DL/UL)
SMS	•	•	•
CSD	•	•	•
Protocols	TCP/UDP/PPP/MMS/HTTP/HTTPS/SMTP/SMTPTS/FTP/ NTP/NITZ/PING/SSL	TCP/UDP/PPP/NTP/NITZ/FTP/HTTP/PING/CMUX/HTTPS/FTPS/SSL/ FILE/MQTT/SMTP/MMS/SMTPTS	TCP/UDP/PPP/NTP/NITZ/FTP/HTTP/PING/CMUX/HTTPS/FTPS/SSL/ FILE/MQTT/SMTP/MMS/SMTPTS
Interfaces			
SIM	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V
UART	1	2	2
USB	2.0 Hi-Speed	2.0 Hi-Speed	2.0 Hi-Speed
Audio Digital (PCM)	Optional ¹	Optional ¹	•
RTC Backup	•	•	•
ADC	/	× 2, 12bits	× 2, 12bits
Antenna	Pads for Primary	Pads for Primary	Pads for Primary
SIM Card Holder	/	/	Optional
Enhanced Features			
eCall	o	/	/
DTMF	•	o	o
QuecFOTA ²	/	•	•
DFOTA	•	/	/
Audio Playback/ Audio Recording	o	/	/
QuecFile	/	/	/
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x-11.x	Android 4.x-11.x
NDIS	/	Windows 7/8/8.1/10	Windows 7/8/8.1/10
USB Serial Driver	Windows 7/8/8.1/10 Windows CE5.0/6.0/7.0* Linux 2.6/3.x/4.1~4.15 Android 4.x/5.x/6.x/7.x/8.x/9.x	Windows 7/8/8.1/10 Linux 2.6~5.12 Android 4.x-11.x	Windows 7/8/8.1/10 Linux 2.6~5.12 Android 4.x-11.x
SIM Detection	•	•	•
Firmware Update	via USB/ UART Interface	via USB/ UART Interface	via USB/ UART Interface
Electrical Features			
Supply Voltage Range	3.3~4.3V, 3.8V Typ.	3.3~4.5V, 3.8V Typ.	3.4V~4.5V, 3.8V Typ. (UC200T) 3.0~3.6V, 3.3V Typ. (UC200T Mini PCIe)
Power Consumption	1.1mA@GSM sleep, DRX=9 1.7mA@UMTS sleep, DRX=9	17µA @Power Off 1.8mA @GSM Sleep, DRX=5 3.0mA @WCDMA Sleep, PF=128 35mA @Idle	17µA @Power Off 1.8mA @GSM Sleep, DRX=5 3.0mA @WCDMA Sleep, PF=128 35mA @Idle
Certifications	CE/ FCC/ GCF/ PTCRB/ ANATEL/ RCM/ IFETEL/ Movistar/ ICASA/ JATE/ TELEC/ DoC ² / Telefonica / Deutsche Telekom/IC/RCM	CE/ FCC/ GCF/ PTCRB/ ANATEL/ RCM/ IFETEL	CE/ ANATEL/ RCM
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Networking, Mobile Computing, Healthcare, etc.		

Note 1: Only Supported in Telematics Version.
Note 2: Only Support Russia.





o & * Under development

Quectel GSM/GPRS Module Family

Product	M66	M66-DS	M65	M08-R	M89
					
Form Factor	LCC	LCC	LCC	LCC	LGA
Dimensions (mm)	15.8 × 17.7 × 2.3	15.8 × 17.7 × 2.3	15.8 × 17.7 × 2.3	15.7 × 17.6 × 2.4	18.8 × 27.6 × 2.3
Frequency Range (MHz)	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900
Weight (approx.) g	1.3	1.3	1.1	1.18	2.15
Operating Temperature	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C
Extended Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C
Data Transmission					
GPRS Multi-slot Class	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable
Data Rate (kbps)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)
SMS	•	•	•	/	•
Protocols	TCP/ UDP/ PPP/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL	TCP/ UDP/ PPP/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL	TCP/ UDP/ PPP/ HTTP/ FTP/ PING/ NTP/ NITZ/ SSL/ IPV6*	TCP/ UDP/ PPP/ HTTP/ NTP/ PING/ TTS/ FTP/ SSL/ MQTT/ HTTPS/ IPV6*	TCP/ UDP/ PPP/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL
Specifications for Voice					
Speech Codec Modes	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR
Echo Arithmetic	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction
Interfaces					
SIM	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V
Audio Analog	1 input/ 2 outputs	1 input/ 2 outputs	1 input/ 2 outputs	1 input/ 1 output	1 input/ 2 outputs
Audio Digital (PCM)	•	•	/	/	/
RTC Backup	•	•	•	•	•
UART	3	3	3	3	2
ADC	× 1, 10bit	× 1, 10bit	× 1, 10bit	× 1, 10bit	× 1, 10bit
SD Card Interface	•	•	/	/	/
GPIO	/	/	/	/	•
Temperature Detection	/	•	/	/	/
Enhanced Features					
eCall	•	•	/	/	•
Jamming Detection	•	•	/	•	•
DTMF	•	•	o	/	•
Audio Playback/ Audio Recording	•	•	•	•	•
Dual-SIM	/	•	/	/	/
QuecFOTA [®]	•	•	DFOTA	DFOTA	•
QuecCell	•	•	•	•	•
QuecFile	•	•	•	•	•
QuecOpen [®]	•	•	o	•	/
RIL for Android	•	•	•	•	•
MUX	•	•	•	•	• (Scan Only)
Bluetooth	•	•	/	/	/
Electrical Features					
Power Supply	3.3 ~ 4.6V	3.3 ~ 4.6V	3.45 ~ 4.25V	3.45 ~ 4.25V	3.3 ~ 4.6V
Low Power Consumption	1.3mA @DRX=5 1.2mA @DRX=9	1.3mA @DRX=5 1.2mA @DRX=9	1.2mA @DRX=5 1.1mA @DRX=9	1.3mA @DRX=5 1.2mA @DRX=9	2.8mA @DRX=5 2.7mA @DRX=9
Certifications	CE/ ANATEL/ ICASA	CE	CE	CE	CE/ ANATEL
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Mobile Computing, Healthcare, etc.				






o & * Under development

Quectel GSM/GPRS Module Family

Product	M95	M95-R	MC60/ MC60E	MC90
				
Form Factor	LCC	LCC	LCC	LCC
Dimensions (mm)	19.9 × 23.6 × 2.65	19.9 × 23.6 × 2.65	16.0 × 18.7 × 2.1	15.0 × 25.6 × 2.3
Frequency Range (MHz)	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900	850/ 900/ 1800/ 1900
Weight (approx.) g	3.0	3.0	1.3	1.4
Operating Temperature	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C
Extended Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C
Data Transmission				
GPRS Multi-slot Class	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable	12, 1-12 configurable
Data Rate (kbps)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)	85.6 (DL & UL)
SMS	•	•	•	•
Protocols	TCP/ UDP/ PPP/ MQTT/ HTTP/ FTP/ SMTP/ PING/ NTP/ NITZ/ MMS Sending/ SSL	TCP/ UDP/ PPP/ MQTT/ HTTP/ FTP/ PING/ NTP/ NITZ/ SSL	TCP/ UDP/ PPP/HTTP/ FTP/ SSL/ PING/ NTP/ NITZ/ SMS/MQTT	TCP/ UDP/ PPP/HTTP/ FTP/ SSL/ PING/ NTP/ NITZ/ SMS/MQTT
Specifications for Voice				
Speech Codec Modes	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR	HR/ FR/ EFR/ AMR
Echo Arithmetic	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction	Echo cancellation Echo suppression Noise reduction
Interfaces				
SIM	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V	1.8V/ 3V
Audio Analog	2 inputs/ 2 outputs	2 inputs/ 2 outputs	1 input/ 2 outputs	1 input/ 2 outputs
Audio Digital (PCM)	•	•	•	•
RTC Backup	•	•	•	•
UART	2	2	4	4
ADC	/	/	× 1, 10bit	× 1, 10bit
SD Card Interface	/	/	•	/
GPIO	/	/	•	•
Temperature Detection	•	/	•	•
Enhanced Features				
eCall	•	/	•	•
Jamming Detection	•	/	•	•
DTMF	•	•	•	•
Audio Playback/ Audio Recording	•	•	•	•
Dual-SIM	•	/	•	•
QuecFOTA [†]	•	•	•	•
QuecCell	•	•	•	•
QuecFile	/	/	•/o	•
QuecOpen [†]	/	/	•	•
RIL for Android	•	•	•	•
MUX	•	•	•	•
Bluetooth	/	/	BT 3.0 (MC60) BT 3.0/ BT4.0 (MC60E)	/
Wi-Fi	/	/	/	• (only Scan)
GNSS	/	/	BEIDOU/ GPS/ GLONASS/Galileo/ QZSS	BEIDOU/ GPS/ GLONASS/Galileo/ QZSS
Electrical Features				
Power Supply	3.3 ~ 4.6V	3.45 ~ 4.25V	3.3 ~ 4.6V	3.3 ~ 4.3V
Low Power Consumption	1.3mA @DRX=5 1.2mA @DRX=9	1.4mA @DRX=5 1.3mA @DRX=9	1.2mA @DRX=5 0.8mA @DRX=9	1.2mA @DRX=5 0.8mA @DRX=9
Certifications	CE/ GCF/ Vodafone/ PTCRB/ FCC/ IC/ ANATEL/ Rogers/ RCM/ NCC/ TELCEL/UCRF/ ICASA	CE*	CE/ FCC/ ANATEL/ ICASA/ GCF	CE
Recommended Applications	Telematics, Smart Metering, Mobile POS Terminal, Gateway, Safety, Tracking and Tracing, Remote Maintenance and Control, Mobile Computing, Healthcare, etc.			

o & * Under development







Quectel GNSS Module Family

		Standalone Positioning/ Timing Modules				
Product	L26	L26-LB	L26-DR	L26-T	LC98S	
Compatible						
						
GNSS	GPS/ GLONASS/ Galileo/ BeiDou/QZSS	GPS/ GLONASS/BeiDou/ QZSS	GPS/ Galileo/ GLONASS/ BeiDou/ QZSS	GPS/ Galileo/ GLONASS/ BeiDou/ QZSS	GPS/ BeiDou/ GLONASS/Galileo/ QZSS	
Form Factor	LCC	LCC	LCC	LCC	LCC	
Dimensions (mm)	16.0 × 12.2 × 2.4	16.0 × 12.2 × 2.3	16.0 × 12.2 × 2.3	16.0 × 12.2 × 2.3	22.4 × 17.0 × 3.1	
Weight (approx.) g	1.0	1.0	0.9	0.9	1.68	
Operating Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	
Storage Temperature	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	
General Features						
Chip Solution	MT3333	AG3331	Teseo III	Teseo III	Teseo III	
L1 Band Receiver (C/A Code) Channel Number	33 Track/ 99 Acq	33 Track/ 99 Acq	48 Track/2 Fast Acq	48 Track/2 Fast Acq	48 Track/2 Fast Acq	
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	
A-GNSS	Supported	Supported	Supported	Supported	Supported	
Sensitivity	Autonomous Acquisition	-148dBm	-149dBm	-145dBm	-147dBm	-145 dBm
	Reacquisition	-160dBm	-161dBm	-152dBm	-154dBm	-152 dBm
	Tracking	-167dBm	-167dBm	-162dBm	-162dBm	-162 dBm
TTFF (Time To First Fix)	Cold Start	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<32s, Autonomous	<32s, Autonomous	< 32s, Autonomous
	Warm Start	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<25s, Autonomous	<25s, Autonomous	< 25s, Autonomous
	Hot Start	<1s	<1s	<2s	<2s	< 2s
Position Accuracy(autonomous)	<2.5m CEP	<2.5m CEP	<1.5m CEP	<1.5m CEP	< 1.5m CEP	
Velocity Accuracy(without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	
Maximum Acceleration Accuracy (without aid)	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	
Timing Accuracy (1σ)	<100ns	<100ns	<100ns	≤6.8ns	≤6.8ns	
Max Update Rate	10Hz	10Hz	10Hz	10Hz	10Hz	
Baud Rate (default)	9600bps	Baud Rate (default) ¹ : 9600bps/115200bps	115200bps	9600bps	115200bps	
Geo-fence	•	•	/	•	/	
Jamming Detection	•	•	•	•	•	
Anti-jamming	•	•	/	/	•	
Built-in LNA	•	•	•	•	•	
Electrical Data						
Power Supply	2.8V to 4.3V	2.8V to 4.3V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	
I/O Voltage	2.7V to 2.9V	2.7V to 2.9V	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	
Power Consumption (Acquisition)	29mA (GPS+GLONASS) 26mA (GPS)	29.4mA (GPS+GLONASS)	72mA (GPS) 79mA (GPS+GLONASS+Galileo)	64mA (GPS) 71mA (GPS+GLONASS+Galileo)	77mA (GPS+GLONASS)	
Power Consumption (Tracking)	21mA (GPS+GLONASS) 18mA (GPS)	26.6mA (GPS+GLONASS)	58mA (GPS) 74mA (GPS+GLONASS+Galileo)	51mA (GPS) 67mA (GPS+GLONASS+Galileo)	80mA (GPS+GLONASS)	
Power Consumption (Backup/Low Power mode)	7μA	7.8μA	17μA	9μA	TBD	
Interfaces						
UART	•	•	•	•	•	
IIC (NMEA)	/	•	/	/	*	
Reset	•	•	•	•	•	
Time Pulse	•	•	•	•	•	
Antenna						
Short-Circuit Protection & Open-Circuit Detection	•	•	•	•	•	
Antenna Type	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	
Antenna Power	External or internal	External or internal	External or internal	External or internal	External or internal	
Certifications	CE	CE	CE	CE	/	
Recommended Applications	Vehicle Tracker, Asset Tracker, Industrial PDA		Automotive tracking , OBD	High-precision timing	High-precision timing for base stations	

Note 1: The default baud rate is different for different firmware versions.

* Under development








Quectel GNSS Module Family

		Standalone Modules					
Product	LG77L(A)	LG77L(B)	LG77L(C)	L70-R/L70-RL	L76/L76B/L76-L	L76-LB	
		Compatible			Compatible		
							
GNSS	GPS/ BeiDou/QZSS/GLONASS	GPS/ BeiDou/QZSS/GLONASS	GPS/ BeiDou/QZSS/GLONASS	GPS/ QZSS	GPS/GLONASS/Galileo/BeiDou/QZSS	GPS/BeiDou/QZSS/GLONASS	
Form Factor	LCC	LCC	LCC	LCC	LCC	LCC	
Dimensions (mm)	7.0 × 7.0 × 2.0	7.0 × 7.0 × 2.0	7.0 × 7.0 × 2.0	9.7 × 10.1 × 2.5	9.7 × 10.1 × 2.5	9.7 × 10.1 × 2.5	
Weight (approx.) g	0.2	0.2	0.2	0.6	0.6	0.6	
Operating Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	
Storage Temperature	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	
General Features							
Chip Solution	AG3331	AG3331	MT3333	MT3337	MT3333	AG3331	
L1 Band Receiver (C/A Code) Channel Number	33 Track/ 99 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq	22 Track/ 66 Acq.	33 Track/ 99 Acq.	33 Track/ 99 Acq.	
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	Supported	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	
A-GNSS	Supported	Supported	Supported	Supported	Supported	Supported	
Sensitivity	Autonomous Acquisition	-146dBm	-146dBm	-146dBm	-148dBm (L70-R) -149dBm (L70-RL)	-148dBm (L76/ L76B) -149dBm (L76-L)	-149dBm
	Reacquisition	-158dBm	-158dBm	-158dBm	-160dBm (L70-R) -161dBm (L70-RL)	-160dBm (L76/ L76B) -161dBm (L76-L)	-161dBm
	Tracking	-161dBm	-161dBm	-158dBm	-165dBm (L70-R) -167dBm (L70-RL)	-165dBm (L76/ L76B) -167dBm (L76-L)	-167dBm
TTFF (Time To First Fix)	Cold Start	<26s, Autonomous <14s, With EASY™	<26s, Autonomous <14s, With EASY™	<25s, Autonomous <16s, With EASY™	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™
	Warm Start	<24s, Autonomous <4s, With EASY™	<24s, Autonomous <4s, With EASY™	<23s, Autonomous <4.3s, With EASY™	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™
	Hot Start	<2s	<2s	<2s	<1s	<1s	<1s
Position Accuracy (autonomous)	<2.5m CEP	<2.5m CEP	<2.5m CEP	<2.5m CEP	<2.5m CEP	<2.5m CEP	
Velocity Accuracy (without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	
Maximum Acceleration Accuracy (without aid)	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	
Timing Accuracy (1σ)	<100ns	<100ns	<100ns	<100ns	<100ns	<100ns	
Max Update Rate	10Hz	10Hz	10Hz	5Hz (L70-R/ L70-RL)	10Hz	10Hz	
Baud Rate(default)	9600bps	9600bps	9600bps	9600bps	9600bps	Baud Rate (default) ¹ : 9600bps/115200bps	
Geo-fence	•	•	•	/	•	•	
Jamming Detection	•	•	•	•	•	•	
Anti-jamming	•	•	•	•	•	•	
Built-in LNA	/	/	/	Supported by L70-RL	Supported by L76-L	/	
Electrical Data							
Power Supply	2.8V to 4.3V	2.8V to 4.3V	2.8V to 4.3V	2.8V to 4.3V	2.8V to 4.3V	2.8V to 4.3V	
I/O Voltage	1.7V to 1.9V/ 2.7V to 2.9V	1.7V to 1.9V/ 2.7V to 2.9V	1.7V to 1.9V/ 2.7V to 2.9V	2.7V to 2.9V	2.7V to 2.9V	2.7V to 2.9V	
Power Consumption (Acquisition)	27mA (GPS+GLONASS)	27mA (GPS+GLONASS)	25mA (GPS+GLONASS)	16mA (L70-R) 21mA (L70-RL)	25mA (GPS+GLONASS)/ 21mA (GPS) (L76) 23mA (GPS+BeiDou) (L76B) 29mA (GPS+GLONASS) (L76-L)	25.5mA (GPS+GLONASS)	
Power Consumption (Tracking)	26mA(GPS+GLONASS)	26mA(GPS+GLONASS)	23.0mA (GPS+GLONASS)	13mA (L70-R) 18mA (L70-RL)	18mA (GPS+GLONASS)/ 15mA (GPS) (L76) 18mA (GPS+BeiDou) (L76B) 22mA (GPS+GLONASS) (L76-L)	23.1mA (GPS+GLONASS)	
Power Consumption (Backup/Low power mode)	8μA	8μA	6μA	8μA (L70-R/ L70-RL)	7μA	7.7μA	
Interfaces							
UART	•	•	•	•	•	•	
IIC (NMEA)	•	•	•		Supported by L76-L	•	
CAN	/	/	/	/	/	/	
Reset	•	•	•	•	•	•	
Time Pulse	•	•	•	•	•	•	
Antenna							
Short-Circuit Protection & Open-Circuit Detection	•	•	•	/	/	/	
Antenna Type	Active or passive	Active or passive	/	Active or passive	Active or passive	Active or passive	
Antenna Power	External	External	External	External or internal	External or internal	External or internal	
Certifications	CE	CE	CE	CE	CE	CE	
Recommended Applications	Vehicle Tracker, Asset Tracker, Safety, Industrial PDA or PND, Digital Camera, etc.						

Note 1: The default baud rate is different for different firmware versions.




* Under development

Quectel GNSS Module Family

		Dual Band Precision Modules					
Product	LC79D(A)	LC79D(C) *	LC79H*	LC29D(A)	LC29D(B) *	LC29D(C)	LC29H*
Compatible							
							
GNSS	GPS L1 L5 Galileo E1 E5 QZSS L1 L5 IRNSS L5 GLONASS L1 BeiDou B1	GPS L1 L5 Galileo E1 E5 QZSS L1 L5 IRNSS L5 GLONASS L1 BeiDou B1	GPS L1 Galileo E1 QZSS L1 GPS L5 Galileo E5 QZSS L5 IRNSS L5 BeiDou B1 BeiDou B2 GLONASS: L1 C/A	GPS L1 L5 Galileo E1 E5 QZSS L1 L5 IRNSS L5 GLONASS L1 BeiDou B1	GPS L1 L5 Galileo E1 E5 QZSS L1 L5 IRNSS L5 GLONASS L1 BeiDou B1 B2a	GPS L1 L5 Galileo E1 E5 QZSS L1 L5 IRNSS L5 GLONASS L1 BeiDou B1	GPS L1 Galileo E1 QZSS L1 GPS L5 Galileo E5 QZSS L5 BeiDou B1 BeiDou B2 GLONASS: L1 C/A
Form Factor	LCC+LGA	LCC+LGA	LCC	LCC	LCC	LCC	LCC
Dimensions (mm)	9.7 × 10.1 × 2.4	9.7 × 10.1 × 2.4	10.1 × 9.7 × 2.4	16.0 × 12.2 × 2.4	16.0 × 12.2 × 2.4	16.0 × 12.2 × 2.4	16.0 × 12.2 × 2.4
Weight (approx.) g	0.42	0.42	0.42	0.9	0.9	0.9	0.9
Operating Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C
Storage Temperature	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C
General Features							
working mode	standard mode	2wheels-ADR/ 4wheels-ADR/ 4wheels-UDR mode	standard mode	2wheels-ADR mode	DR+RTK mode	2wheels-ADR mode	standard mode
Chip Solution	BCM47755B1	BCM47755B1	AG3335M	BCM47758	BCM47765	BCM47755	AG3335M
L1 Band Receiver (C/A Code) Channel Number	32 channels	32 channels	135 channels	32 channels	48 channels	32 channels	135 channels
L1 Band Receiver (C/A Code) SBAS	Support (Only support GAGAN)*	Support (Only support GAGAN)*	WAAS, EGNOS, MSAS	*	*	*	WAAS, EGNOS, MSAS
A-GNSS	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Sensitivity	Autonomous Acquisition	-147dBm	-146 dBm	-148dBm	-148dBm	-148dBm	-146 dBm
	Reacquisition	-158dBm	-158dBm	-161 dBm	-158dBm	-157dBm	-161 dBm
	Tracking	-163dBm	-163dBm	-164 dBm	-163dBm	-162dBm	-164 dBm
TTFF (Time To First Fix)	Cold Start	<34s, Autonomous	<34s, Autonomous	<34s, Autonomous	<34s, Autonomous	<34s, Autonomous	<25s, Autonomous <14s, With EASY™
	Warm Start	<30s, Autonomous	<30s, Autonomous	<20s, Autonomous <2.5s, With EASY™	<30s, Autonomous	<30s, Autonomous	<20s, Autonomous <2.5s, With EASY™
	Hot Start	<2s	<2s	<1 s	<2s	<2s	<1 s
Position Accuracy (autonomous)	<1.2m CEP	<1.2m CEP	<1.8m CEP	<1.2m CEP	Autonomous: < 1.0 m CEP	<1.2m CEP	<1.8m CEP
Position Accuracy (RTK)	/	/	0.1m/s	TBD	<0.5m	/	0.1m/s
Velocity Accuracy (without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s
Velocity Accuracy (RTK)	/	/	/	TBD	TBD	/	/
Convergence Time (RTK)	/	/	/	TBD	TBD	/	/
Maximum Acceleration Accuracy (without aid)	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²
Timing Accuracy (1σ)	<34.9ns	<34.9ns	<20ns	TBD	TBD	TBD	<20ns
Max Update Rate	1Hz	1Hz	1Hz	1Hz	1Hz	1Hz	1Hz
Baud Rate(default)	115200bps	115200bps	115200bps	115200bps	115200bps	115200bps	115200bps
Geo-fence	•	•	•	*	*	*	•
Jamming Detection	/	/	/	/	/	/	•
Anti-jamming	/	/	/	/	/	/	/
Built-in LNA	•	•	•	•	•	•	•
Electrical Data							
Power Supply	1.7V to 1.9V	1.7V to 1.9V	3.1-4.3V	2.7V to 3.6V	2.7V to 3.6V	2.7V to 3.6V	3.1-4.3V
I/O Voltage	1.7V to 1.9V	1.7V to 1.9V	2.8V	2.7V to 3.6V	2.7V to 3.6V	2.7V to 3.6V	2.8V
Power Consumption (Acquisition)	47mA (GPS+BeiDou+GLONASS+Galileo+QZSS+IRNSS)	47mA (GPS+BeiDou+GLONASS+Galileo+QZSS+IRNSS)	62mA	53mA	50mA*	53mA	62mA
Power Consumption (Tracking)	43mA (GPS+BeiDou+GLONASS+Galileo+QZSS+IRNSS)	43mA (GPS+BeiDou+GLONASS+Galileo+QZSS+IRNSS)	62mA	39mA	37mA*	39mA	62mA
Power Consumption (Backup/Low power mode)	200µA@Sleep Mode 17µA@Standby Mode	200µA@Sleep Mode 17µA@Standby Mode	14µA	1.2mA@Sleep Mode	1.3 mA*	1.2mA@Sleep Mode	14µA
Interfaces							
UART	•	•	•	•	•	•	•
IIC (NMEA)	/	• (work in master mode)	•	/	/	/	•
CAN	/	/	/	/	/	/	/
Reset	•	•	•	•	•	*	•
Time Pulse	•	•	•	•	•	•	•
Antenna							
Short-Circuit Protection & Open-Circuit Detection	/	/	/	/	/	/	/
Antenna Type	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive	Active or passive
Antenna Power	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal	External or internal
Certifications							
Recommended Applications	Shared mobility , delivery robots , GIS						

* Under development







Quectel GNSS Module Family

		Dual Band Precision Modules		
Product	LG69T(AP)*	LG69T(AA)*	LG69T(AD)*	
		Compatible		
				
GNSS	GPS L1 C/A Galileo E1 B/C QZSS L1 C/A GPS L5 Galileo E5a QZSS L5 BeiDou B11/B2a	GPS L1/L2C/L5 QZSS L1/L2C/L5 GLONASS G1/G2 Galileo E1/E5a/E5b BeiDou B11/B2I/B2a	GPS L1 C/A Galileo E1 B/C QZSS L1 C/A GPS L5 Galileo E5a QZSS L5 BeiDou B11/B2a IRNSS	
Form Factor	LGA	LGA	LGA	
Dimensions (mm)	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15	22.0 × 17.0 × 3.15	
Weight (approx.) g	1.9	1.9	1.9	
Operating Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	
Storage Temperature	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	
General Features				
Chip Solution	TESEO V	TESEO V	TESEO V	
L1 Band Receiver (C/A Code) Channel Number	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	80 Tracking Channels 4 Fast Acquisition Channels	
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN*	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	
A-GNSS	Supported*	/	Supported*	
Sensitivity	Autonomous Acquisition	-147dBm	/	-147dBm
	Reacquisition	-153dBm	/	-153dBm
	Tracking	-160dBm	/	-160dBm
TTFF (Time To First Fix)	Cold Start	<35s	/	<35s
	Warm Start	<30s	/	<30s
	Hot Start	<3s	/	<3s
Position Accuracy (autonomous)	<1.2m CEP	/	<1.2m CEP	
Position Accuracy (RTK)	<0.05mCEP	/	/	
Velocity Accuracy (without aid)	<0.1m/s	/	<0.1m/s	
Velocity Accuracy (RTK)	/	/	/	
Convergence Time (RTK)	<10s	/	/	
Maximum Acceleration Accuracy (without aid)	<0.1m/s²	/	<0.1m/s²	
Timing Accuracy (1σ)	<20ns	/	<20ns	
Max Update Rate	RAW: 10Hz; PVT: 10Hz RTK: 10Hz; IMU: 100Hz	RAW: 10Hz; IMU: 100Hz	PVT:10Hz; Raw data:10Hz	
Baud Rate(default)	460800bps	460800bps	115200bps	
Geo-fence	*	/	*	
Jamming Detection	*	/	*	
Anti-jamming	*	/	*	
Built-in LNA	•	•	•	
Electrical Data				
Power Supply	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	
I/O Voltage	3.0V to 3.6V	3.0V to 3.6V	3.0V to 3.6V	
Power Consumption (Acquisition)	360mA*	TBD	TBD	
Power Consumption (Tracking)	366mA*	TBD	TBD	
Power Consumption (Backup/Low power mode)	TBD	TBD	TBD	
Interfaces				
UART	•	•	•	
IIC (NMEA)	*	•	*	
CAN	•	/	/	
Reset	•	•	•	
Time Pulse	•	•	•	
Antenna				
Short-Circuit Protection & Open-Circuit Detection	*	*	*	
Antenna Type	Active	Active	Active	
Antenna Power	External or internal	External or internal	External or internal	
Certifications				
	CE	CE*	CE*	
Recommended Applications Automotive , High precision navigation , Delivery robots				

LG69T(AA)* only supports output RAW DATA.

* Under development

Quectel GNSS Module Family

Product	Antenna Modules					
	L80/ L80-R	LC86L (A)	LC86L (C)	L86	L89 R2.0*	L96
	Compatible					
						
GNSS	GPS/QZSS	GLONASS/GPS/ BeiDou/QZSS	GLONASS/GPS/ BeiDou/QZSS	GPS/ GLONASS/BeiDou/Galileo/QZSS	GPS/ GLONASS/ BeiDou/ Galileo/IRNSS/QZSS	GPS/ GLONASS/BeiDou/Galileo/QZSS
Form Factor	LCC	LCC	LCC	LCC	LCC	LCC
Dimensions (mm)	16.0 × 16.0 × 6.45	16.0 × 16.0 × 6.95	16.0 × 16.0 × 6.95	18.4 × 18.4 × 6.45	18.4 × 26.4 × 6.8	9.6 × 14.0 × 2.0
Weight (approx.) g	6.0	6.0	6	7.6	8.2	0.6
Operating Temperature	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C	-40 °C ~ +85 °C
Storage Temperature	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C	-40 °C ~ +90 °C
General Features						
Chip Solution	MT3339 (L80) MT3337 (L80-R)	AG3331	MT3333	MT3333	AG3335	MT3333
L1 Band Receiver (C/A Code) Channel Number	22 Track/ 66 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq	33 Track/ 99 Acq
L1 Band Receiver (C/A Code) SBAS	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN	WAAS/ EGNOS/ MSAS/ GAGAN
A-GNSS	Supported	Supported	Supported	Supported	Supported	Supported
Sensitivity	Autonomous Acquisition	-148dBm	-148dBm	-148dBm	-149dBm	-148dBm
	Reacquisition	-160dBm	-161dBm	-162dBm	-161dBm	-160dBm
	Tracking	-165dBm	-166dBm	-165dBm	-167dBm	-165dBm
TTFF (Time To First Fix)	Cold Start	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™	<28s, Autonomous <17s, With EASY™	<35s, Autonomous <15s, With EASY™	<35s, Autonomous <15s, With EASY™
	Warm Start	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<24s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™	<30s, Autonomous <5s, With EASY™
	Hot Start	<1s	<2s	<2s	<1s	<1s
Position Accuracy(autonomous)	<2.5m CEP	<2.5m CEP	<2.5m CEP	<2.5m CEP	<1.8m CEP	<2.5m CEP
Velocity Accuracy(without aid)	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s	<0.1m/s
Maximum Acceleration Accuracy (without aid)	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²	<0.1m/s²
Timing Accuracy (1σ)	<100ns	<100ns	<100ns	<100ns	TBD	<100ns
Max Update Rate	10Hz (L80) 5Hz (L80-R)	10Hz	10Hz	10Hz	1Hz	10Hz
Baud Rate(default)	9600bps	9600bps	9600bps	9600bps	9600bps	9600bps
Geo-fence	•(Supported by L80)	•	•	•	•	•
Jamming Detection	•	•	•	•	•	•
Anti-jamming	•	•	•	•	•	•
Built-in LNA	•	•	•	•	•	•
Electrical Data						
Power Supply	3.0V to 4.3V	2.8V to 4.3V	2.8V to 4.3V	3.0V to 4.3V	3.1V to 4.3V	2.8V to 4.3V
I/O Voltage	2.7V to 2.9V	2.7V to 2.9V	2.7V to 2.9V	2.7V to 2.9V	3.0 V	2.7V to 2.9V
Power Consumption (Acquisition)	25mA	32mA (GPS+GLONASS)	32mA (GPS+GLONASS)	30mA (GPS+GLONASS)	31mA	25mA (GPS+GLONASS) 22mA (GPS)
Power Consumption (Tracking)	20mA	31mA (GPS+GLONASS)	31mA (GPS+GLONASS)	26mA (GPS+GLONASS)	31mA	20mA (GPS+GLONASS)/ 20mA (GPS)
Power Consumption (Backup)	7μA	6μA	8μA	7μA	60μA	7μA
Interfaces						
UART	•	•	•	•	•	•
IIC (NMEA)	/	/	/	/	•	•
Reset	•	•	•	•	•	•
Time Pulse	•	•	•	•	•	•
Antenna						
Short-Circuit Protection & Open-Circuit Detection	Supported by L80	•	•	•	•	/
Antenna Automatic Switch	Supported by L80	•	•	•	•	/
Antenna Type	Embedded patch antenna or external active antenna	Embedded patch antenna or external active antenna	Embedded patch antenna or external active antenna	Embedded patch antenna or external active antenna	Embedded patch antenna and chip antenna, external active antenna	Embedded chip antenna or external active antenna
Antenna Power	Internal	Internal	Internal	Internal	Internal	External
Certifications	CE	CE	CE	CE	/	CE
Recommended Applications	Vehicle or Asset Tracker, DVR, Connected PND & PDA, Safety, Digital Camera, etc.				(Dedicated for India market) standard tracking	Asset tracking, digital cameras

* Under development

Europe

Czech Republic: Prague
Denmark: Copenhagen
France: Sophia Antipolis/Paris/Nice/Toulouse
Germany: Berlin/Munich/Stuttgart/Tripstadt
Italy: Milan/Turriaco
Poland: Gdynia/Wroclaw/Nedza/Warsaw
Romania: Timisoara

Russia: Moscow/St. Petersburg
Slovenia: Ljubljana/Sencur
Spain: Barcelona/Granada
Sweden: Stockholm/Sollentuna
The Netherlands: Eindhoven
Turkey: Istanbul
UK: London/Birmingham/Oxford
Ukraine: Kiev

North America

Canada:
 Toronto/Mississauga, ON
 Vancouver, B.C

United States:
 Alpharetta, GA
 Chicago, IL
 Houston/San Marcos/Round Rock, TX
 Orange County/San Diego/Silicon Valley/Scotts Valley/Irvine, CA
 Point Roberts, WA



Greater China

Shanghai Headquarters

Beijing	Hefei	Shenzhen
Changsha	Huizhou	Suzhou
Chengdu	Ji'nan	Taipei
Chongqing	Kunming	Urumqi
Foshan	Nanjing	Wuhan
Fuzhou	Ningbo	Xi'an
Guangzhou	Qingdao	Zhengzhou
Hangzhou	Shenyang	Zhongshan

Israel / Africa

Israel: Tel Aviv
South Africa: Johannesburg/Gauteng

Asia Pacific

Australia: Sydney/Melbourne
India: Mumbai/Bangalore/Delhi/Hyderabad
Indonesia: Jakarta/Bandung
Japan: Tokyo/Yokohama
Korea: Seoul

Philippines: Manila/Pasay City
Singapore
Thailand: Bangkok/Samutprakarn
Vietnam: HoChiMinh City/Hanoi

Latin America

Argentina: Buenos Aires
Brazil: Sao Paulo
Mexico: Mexico City/San Nicolas De Los Garza

50+ sales offices, 5 R&D centers globally
 90+ distributors
 Serving 6000+ customers
 Modules are sold to 150+ countries and regions

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