



Quectel 5G & LTE-Advanced Module

Product Overview

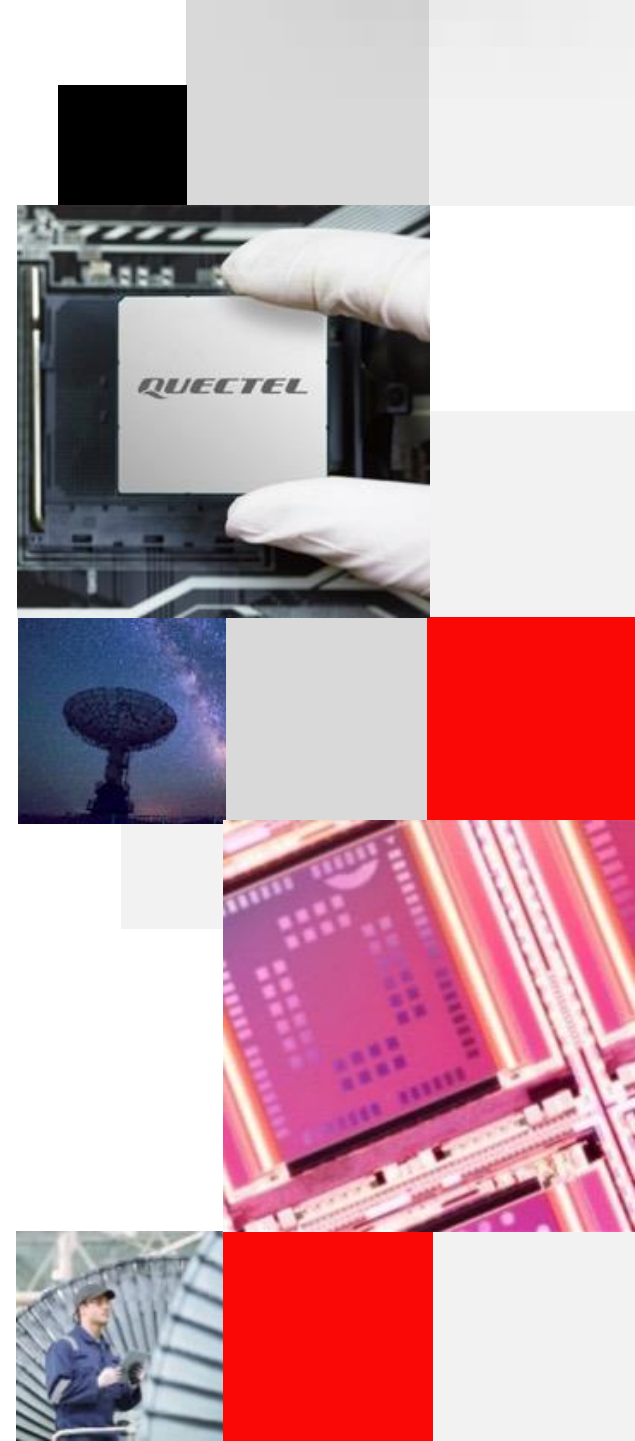
Build a Smarter World



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5G Module Specifications & Timelines

LTE-A Module Specifications & Timelines

Software & Support

Typical Applications

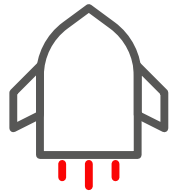
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5G New Capability

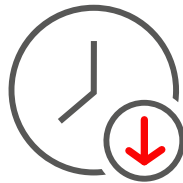


Ultra-High Speed



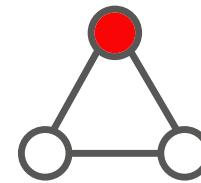
Up to 10 times the maximum throughput of LTE

Low Latency



End-to-end latency as low as 1–5 ms in 5G network part

High Reliability



Error code rate as low as 0.001% brought by 5G URLLC features

Flexible Deployment



Network Slicing
Private Network

5G Key Technology



Ultra-high Band Width

6-100 GHz

FR2: mmWave

Bandwidth: 100–1000 MHz

< 6 GHz

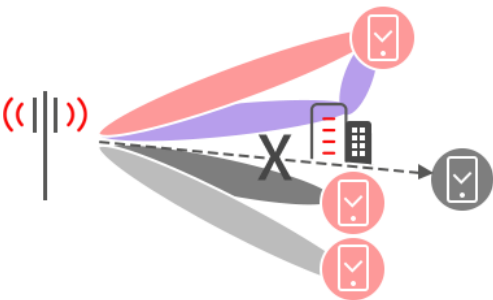
FR1: Sub-6 GHz

Bandwidth: 5–300 MHz

Frequency from 600 MHz to 40 GHz can be supported by 5G Network.

Higher Spectrum Efficiency

Multi User Massive MIMO

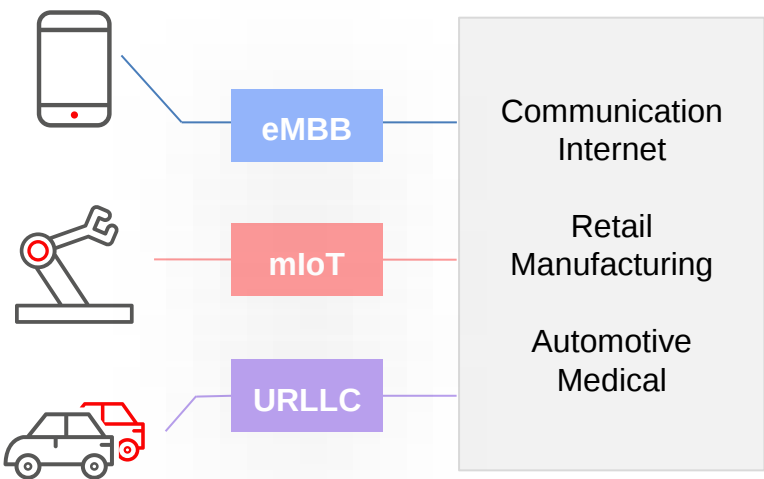


Single User DL 4 × 4 MIMO / UL 2 × 2 MIMO



MIMO (Multi-In Multi-Out) technology applied to both base station and end device guarantees both enhanced throughput rate and network performance

Network Slicing



5G network slicing enables the building of end-to-end virtual networks tailored to various application requirements

3GPP Release 16 & 17 Features



	Rel-15	Rel-16	Rel-17
Downlink Capability	• NR CA (Carrier Aggregation) • Massive MIMO	• Massive MIMO enhancement • FR1 + FR2 NR-DC (NR-Dual Connectivity)	• mmWave spectrum expansion to 71 GHz • Further MIMO Enhancement
Uplink Capability	• UL MIMO (Multiple-Input Multiple Output) • UL 100 MHz bandwidth / carrier	• UL Switch CA • Power Class 1.5	• UL HARQ (Hybrid Automatic Repeat Request)
IIOT Feature	• Network slicing	• 5G LAN (Local Area Network) • NPN (Non-Public Network)	• RedCap UE (Reduced Capability User Equipment) • URLLC in the unlicensed spectrum
Positioning & Power Saving	• OTDOA (Observed Time Difference of Arrival) • C-DRX (Connected-mode Discontinuous Reception)	• Power saving based on WUS (Wake-Up Signal) • UAI (UE Assistance Information)	• Improved positioning for industrial automation

IIOT: Industrial Internet of Things

5G Module Overview



mmWave	RM510Q  - SDX55 - Rel-15 - Up to 800M NR BW	RG530F RM530N   - SDX62/SDX65 - Rel-16 - Up to 1000M NR BW	RG651E RM551E Q1/24   - SDX75 - Rel-17 - Up to 1000M NR BW 4 × Cortex-A55
	RG50xQ RM50xQ   - SDX55/QCX315 - Rel-15 - Up to 200M NR BW	Q1/24 RG520N RG520F RG525N RG525F RM520N RM521F       - SDX62/SDX65 - Rel-16 - Up to 300M NR BW	RG650V RG650E RM550V    - SDX72/SDX75 - Rel-17 - Up to 300M NR BW 4 × Cortex-A55
Sub-6	RG500L  - T750 - Rel-15 - Up to 200M NR BW 4 x Cortex-A55	RG620T  - T830 - Rel-16 - Up to 300M NR BW 4 × Cortex-A55	
	RG500U RG500U-EA M.2 RG200U (Mini PCIe) RM500U      - UDX710 - Rel-15/16 - Up to 100M NR BW		
RedCap	RG255C (Mini PCIe) RM255C    - SDX35 - Rel-17 20M NR BW		

5G Module Portfolio – Part 1



	LGA 46 × 53 mm		M.2 30 × 52 mm
SDX75	 RG650E • NA^{ES} (North America)	 RG651E mmWave • EU** (EMEA/ APAC^①/ Brazil) • NA** (North America)	 RM551E mmWave • GL* (Global)
SDX72	 RG650V • EU (EMEA/ APAC^①/ Brazil) • NA (North America)		 RM550V • GL^{ES} (Global)
SDX65	 RG520F • EU (EMEA/ APAC^①/ Brazil) • NA (North America) • EB (EMEA/ APAC^①/ Brazil)	 RG525F • NA (North America)	 RG530F mmWave • EU (EMEA/ APAC^①/ Brazil) • NA (North America)
			 RM521F • GL* (Global)
SDX62	 RG520N • EU (EMEA/ APAC^①/ Brazil) • NA (North America)	• EB (EMEA/ APAC^①/ Brazil) • GT (Global TDD 3.5 GHz) • LA (LATAM excl. Brazil)	 RG525N • EB* (EMEA/ APAC^①/ Brazil)
			 RM520N • GL (Global) • EU (EMEA/ APAC^①/ Brazil)
SDX55	 RG50xQ • EA (EMEA/ APAC) • EU (EMEA/ APAC^①/ Brazil) • GT (Global TDD 3.5 GHz)		 RM50xQ • GL (Global excl. US) • AE (Global excl. China)
			 RM510Q mmWave • GL (Global)
SDX35	 RG255C • GL^{ES} (Global) • NA* (North America) • EU** (EMEA/ APAC^①/ Brazil)	 RG255C Mini PCIe • GL^{ES} (Global) • NA* (North America)	 RM255C • GL^{ES} (Global)

RG650V & RG65xE Series Highlights

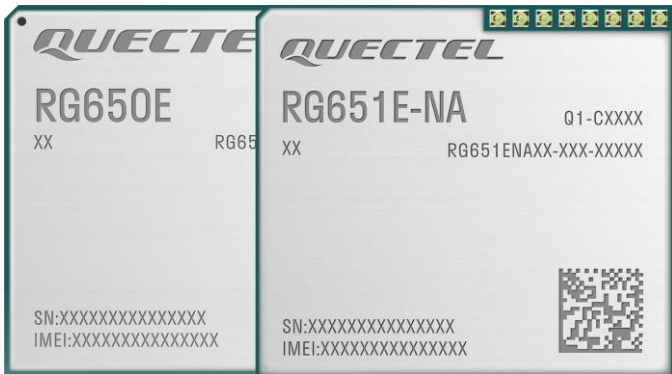


3GPP Rel-17 Compliant

- Enhanced Massive MIMO
- Spectrum Expansion



RG650V Series



RG65xE Series



Wi-Fi Peripheral Enhancement

- Wi-Fi 7 Supported
- 2.4/5/6 GHz Selectable
- Max. 4K QAM



SoC Architecture

- SoC Architecture Based on Module
- OpenWrt Supported
- RDK-B Supported
- 8RX Supported
- Dual SIM Dual Stand-by



Abundant Hardware Interfaces

- 3 × PCIe
- 2 × USXGMII
- USB 3.1

RG650V/RG65xE Series Specifications

53.0 × 46.0 × 3.05 mm
5G Sub-6 GHz & mmWave LGA Module



Variant		RG650V-EU	RG650V-NA		RG650E-NA	RG651E-NA
Region		EMEA/ APAC ^① / Brazil		North America		North America
Platform		SDX72		SDX72		SDX75
5G NR	5G NR	3GPP Release 17 NSA/SA operation, Sub-6 GHz				3GPP Release 17 NSA/SA operation, Sub-6 GHz & mmWave
	NSA Band	n1/ 3/ 5/ 7/ 8/ 20/ 26/ 28/ 38/ 40/ 41/ 71 ^② / 75/ 76/ 77/ 78	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70*/ 71/ 77/ 78			n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78/ 27/ 258/ 260/ 261
	SA Band	n1/ 3/ 5/ 7/ 8/ 20/ 26/ 28/ 38/ 40/ 41/ 71 ^② / 75/ 76/ 77/ 78	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70*/ 71/ 77/ 78			n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78/ 257/ 258/ 260/ 261
	Sub-6 CA	Up to 3 DL CA, 200 MHz NR BW	Up to 3 DL CA, 200 MHz NR BW	Up to 5 DL CA, 300 MHz NR BW		Up to 5 DL CA, 300 MHz NR BW
	DL 4 × 4 MIMO	n1/ 3/ 5/ 7/ 8/ 20/ 26/ 28/ 38/ 40/ 41/ 71 ^② / 75/ 76/ 77/ 78	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70*/ 71/ 77/ 78			n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78/ 257/ 258/ 260/ 261
	UL 2 × 2 MIMO	n1/ 3/ 5*/ 7/ 28*/ 38/ 40/ 41/ 77/ 78	n2/ 5/ 7/ 25/ 38/ 41/ 48/ 66/ 70*/ 71/ 77/ 78			n2/ 5/ 7/ 25/ 38/ 41/ 48/ 66/ 71*/ 77/ 78
LTE	LTE Band	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43/ 71 ^②	B2/ 4/ 5/ 7/ 12(17)/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 48/ 66/ 71			B2/ 4/ 5/ 7/ 12(17)/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 48/ 66/ 71
	DL 4 × 4 MIMO	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43/ 71 ^②	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 48/ 66/ 71			B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 48/ 66/ 71
UMTS	WCDMA Band	B1/ 5/ 8	-		-	-
PCIe Interface		× 3	× 3		× 3	× 3
USB 3.1 Interface		× 1	× 1		× 1	× 1
USXGMII Interface		× 2	× 2		× 2	× 2
Certification	Carrier	TBD	Verizon*		TBD	TBD
	Regulatory	CE*/ RCM*	GCF*/ PTCRB*/ FCC*/ IC*		TBD	TBD
Project Stage		CS	CS		ES	Pre-ES

Back

RG650V/RG65xE Series Timeline (Preliminary)



2023										2024											
Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

RG650V-EU

Project Schedule



Certification

Regulatory CE/ RCM



RG650V-NA

Project Schedule



Certification

Carrier Verizon



Regulatory FCC/ IC



GCF/ PTCRB



RG650E-NA

Project Schedule



RG651E-NA

Project Schedule



It's recommended to use ES2 as working samples for customer tests.

RM550V-GL/RM551E-GL Specifications (Preliminary)



30.0 × 52.0 × 2.3 mm
5G Sub-6 GHz & mmWave M.2 Module

Variant		RM550V-GL	RM551E-GL
Region		Global	
Platform		SDX72	SDX75
5G NR	5G NR	3GPP Release 17 NSA/SA operation, Sub-6 GHz	
	Sub-6 NSA Band	n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29(Rx)/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 75/ 76/ 77/ 78/ 79/ 92/ 94	
	Sub-6 SA Band	n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29(Rx)/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 75/ 76/ 77/ 78/ 79/ 91/ 92/ 93/ 94	
	5G CA/BW	Up to 3 DL CA, 200 MHz NR BW	Up to 5 DL CA, 300 MHz NR BW mmWave: ≥ 8CC
	DL 4 × 4 MIMO	n1/ 2/ 3/ 7/ 25/ 30/ 38/ 40/ 41/ 48/ 66/ 77/ 78/ 79	
	UL 2 × 2 MIMO	n38/ 41/ 48/ 77/ 78/ 79	
LTE	LTE Category	DL Cat 20/ UL Cat 18	
	LTE Band	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 29/ 30/ 32/ 34/ 38/ 39/ 40/ 41/ 42/ 43/ 46(LAA)/ 48/ 66/ 71	
	DL 4 × 4 MIMO	B1/ 2/ 3/ 4/ 7/ 25/ 30/ 38/ 40/ 41/ 42/ 43/ 48/ 66	
UMTS	WCDMA Band	B1/ 2/ 4/ 5/ 8/ 19	
Embedded GNSS		Optional	
PCIe 3.0 Interface		Supported	
USB 3.1 Interface		Supported	
eSIM		Supported / Built-in eSIM (optional)	
Certification	Carrier	TBD	
	Regulatory	TBD	
Project Stage		ES	Developing

RM550V-GL/RM551E-GL Timelines (Preliminary)



2023						2024						
Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.

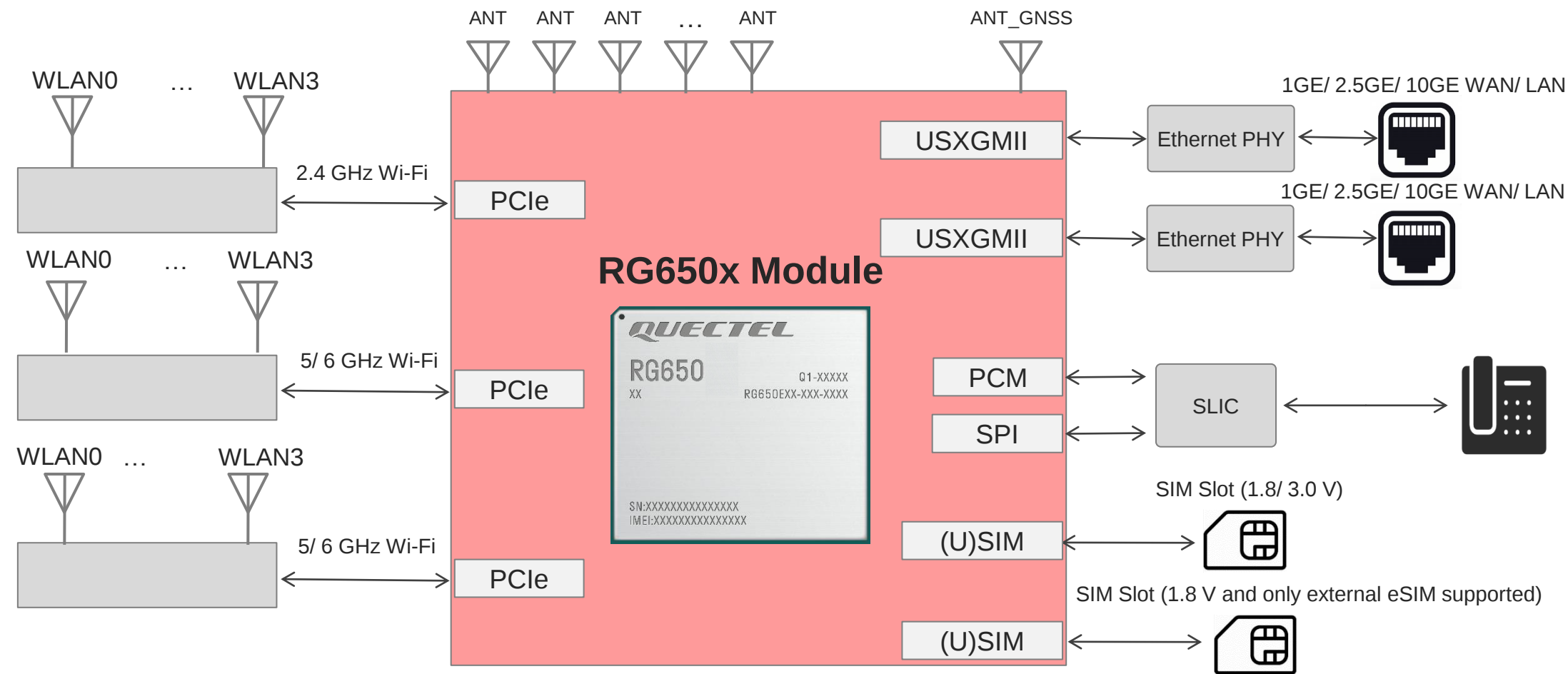
RM550V-GL Project Schedule



RM551E-GL Project Schedule



Typical SoC Router Architecture (RG650x Series)



Typical indoor 5G CPE (Customer Premise Equipment) solution based on SDX72/SDX75 platform.

Wi-Fi 7	2.4/ 5/ 6 GHz + Bluetooth	QFW71x4/ WCN785x
Ethernet	Up to 10 Gbps	QEP8111/ QEP8121/ AQR113C etc.

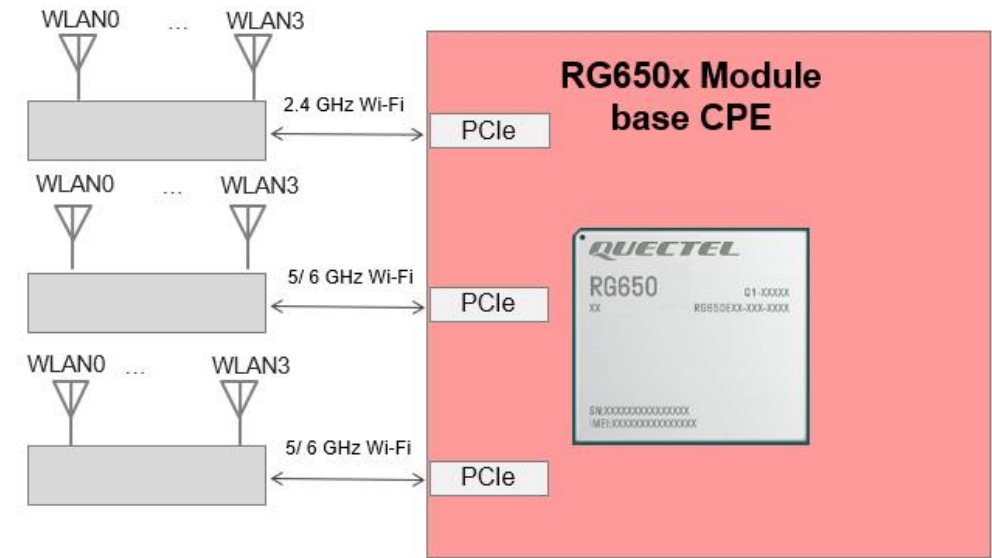
Flexible Wi-Fi Architecture (RG650x Series)

QUECTEL

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Low-End → High-End

Quectel 5G Combinations	Architecture
RG650x Modules + 3 × QFW71x4	4 × 4 MIMO 2.4 GHz + 4 × 4MIMO 5 GHz + 4 × 4 MIMO 6 GHz
RG650x Modules + 2 × QFW71x4	4 × 4 MIMO 2.4 GHz + 2 × 2MIMO 5 GHz + 2 × 2 MIMO 6 GHz
	4 × 4 MIMO 2.4 GHz + 4 × 4 MIMO 5 GHz
RG650x Modules + 1 × QFW71x4	2 × 2 MIMO 2.4 GHz + 2 × 2 MIMO 5 GHz
	4 × 4 MIMO 2.4 GHz or 4 × 4 MIMO 5 GHz



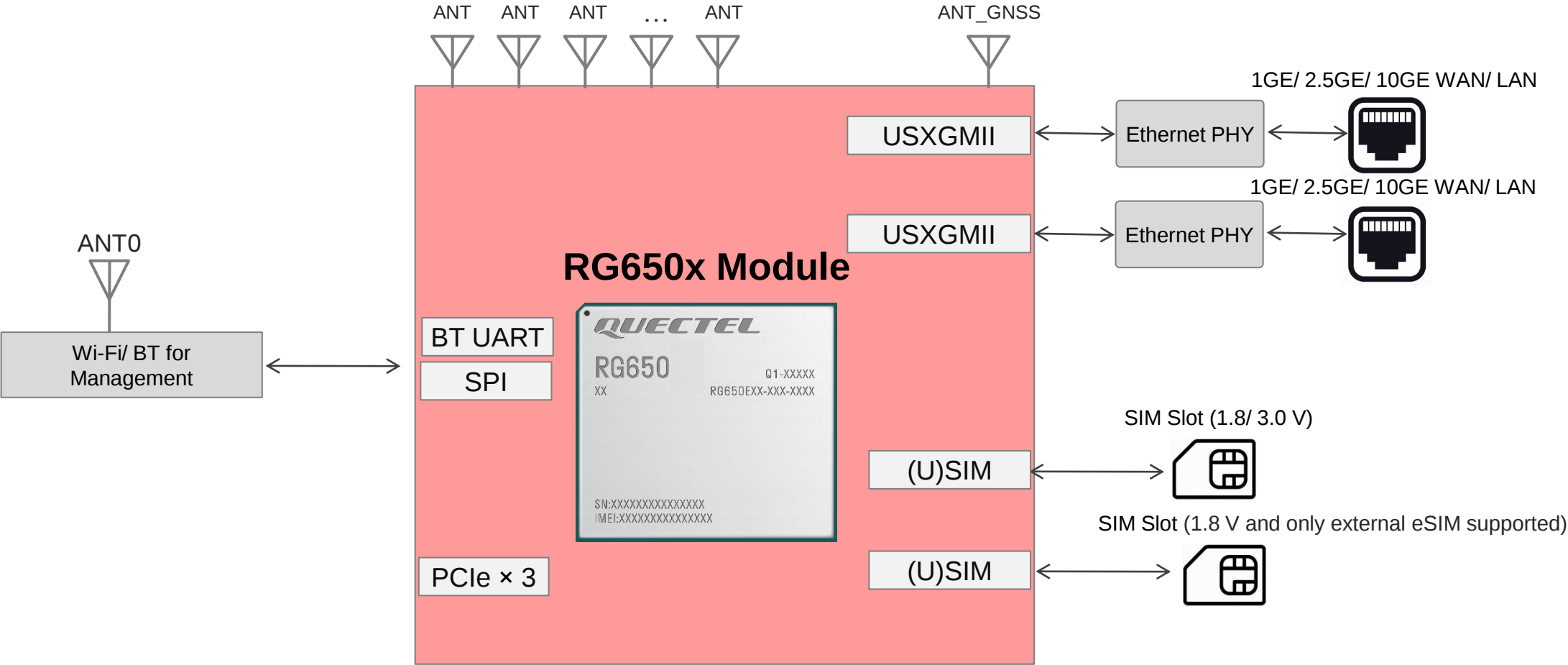
QFW71x4 Key Feature

- 4 × 4 Wi-Fi 7 Radio
- 4x4/320 or Dual 2x2/320
- 2 /5 /6 GHz Selectable
- MLO, 320, Puncture, 4K-QAM
- OFDMA, MU-MIMO



MLO: Multi-Link Operation
QAM: Quadrature Amplitude Modulation
OFDMA: Orthogonal Frequency-Division Multiple Access
MU-MIMO: Multi-User Multiple-Input Multiple-Output

Typical SoC ODU Architecture (RG650x Series)



Typical 5G ODU (Outdoor Unit) solution based on SDX72/ SDX75 platform.

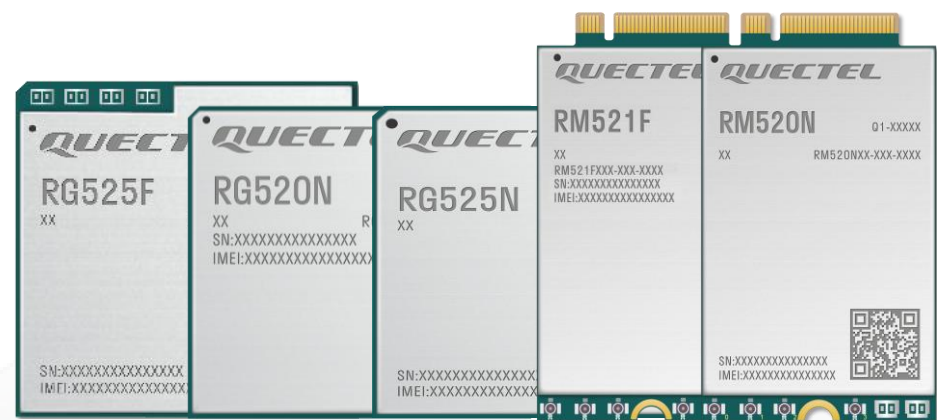
Wi-Fi/ BT	Wi-Fi/ BT for Management	Based on SPI or UART extension
Ethernet	Up to 10 Gbps	QEP8111/ QEP8121/ AQR113C, etc.

RG52xN/F & RM52xN/F Series Highlights



3GPP Rel-16 Compliant

- 5G NSA/SA, FDD/TDD Supported
- Up to 300M NR BW
- Sub-6 CA up to DL 3CA / UL 2CA
- LTE Cat up to DL Cat 20/ UL Cat 18
- DL 8Rx Supported^①
- Embedded GNSS Supported by All Variants
- 5G LAN Supported



RG52xN/F Series

RM52xN/F Series



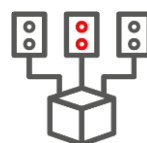
Global Variants of M.2 Module

- Global Markets and Bands Covered
- Standard 30 × 52 M.2 Form Factor and Pinout
- Completely Compatible with Rel-15 5G M.2 Module and LTE-Advanced M.2 Modules



Regional Variants of LGA Module

- Abundant Regional Variants of LGA Modules
- Cost Effective
- Open Solution Supported for FWA Applications



Abundant Hardware Interface & Supported Peripherals

- Dual SIM Single Stand-by
- PCIe Gen3
- USB 3.x/2.0



Convenient and Guaranteed Commercialization

- Global Regulatory and Carrier Certified
- Total Shipment Volume Reaches Millions of Pieces

RG520N/RG520F Series Specifications

44.0 × 41.0 × 2.75 mm
5G Sub-6 GHz LGA Module

Variant		RG520N-EU	RG520N-EB	RG520F-EU	RG520F-EB	RG520N-NA	RG520F-NA	RG520N-LA	RG520N-GT
Region		EMEA/ APAC ^① / Brazil				North America		LATAM (excl. Brazil)	Global TDD 3.5 GHz
Platform		SDX62		SDX65		SDX62	SDX65	SDX62	
5G NR	5G NR	3GPP Release 16 NSA/SA operation, Sub-6 GHz							
	NSA Band	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 75/ 76/ 77/ 78	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 75/ 76/ 77/ 78	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78		n2/ 5/ 7/ 8/ 28/ 40/ 66/ 78	-
	SA Band	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 75/ 76/ 77/ 78	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 75/ 76/ 77/ 78	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78		n2/ 5/ 7/ 8/ 28/ 40/ 66/ 78	n48/ 77/ 78
	Max. Sub-6 BW	120 MHz		200 MHz		120 MHz	200 MHz	120 MHz	
	Sub-6 CA	FDD + FDD, TDD + TDD, FDD + TDD DL 2CA/ UL 2CA		FDD + FDD, TDD + TDD, FDD + TDD DL 3CA/ UL 2CA		FDD + FDD, TDD + TDD, FDD + TDD DL 2CA/ UL 2CA	FDD + FDD, TDD + TDD, FDD + TDD DL 3CA/ UL 2CA	FDD + FDD, TDD + TDD, FDD + TDD DL 2CA/ UL 2CA	
	DL 4 × 4 MIMO	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n1/ 3/ 7/ 38/ 40/ 41/ 71 ^③ / 77/ 78	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n1/ 3/ 7/ 38/ 40/ 41/ 71 ^③ / 77/ 78	n2/ 5/ 7/ 12/ 13 ^② / 14/ 25/ 26 ^② / 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78		n2/ 5/ 7/ 8/ 28/ 40/ 66/ 78	n48/ 77/ 78
	UL 2 × 2 MIMO	n38/ 40/ 41/ 77/ 78					n38/ 41/ 48/ 77/ 78		n78
LTE	LTE Category	DL Cat 19/ UL Cat 18		DL Cat 20/ UL Cat 18		DL Cat 19/ UL Cat 18	DL Cat 20/ UL Cat 18	DL Cat 19/ UL Cat 18	
	LTE Band	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43/ 71	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43/ 71	B2/ 4/ 5/ 7/ 12(17)/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 46/ 48/ 66/ 71		B2/ 4/ 5/ 7/ 8/ 26/ 28/ 40/ 42/ 66	B42/ 43/ 48
	DL 4 × 4 MIMO	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43	B1/ 3/ 7/ 38/ 40/ 41/ 42/ 43/ 71 ^③	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43	B1/ 3/ 7/ 8/ 38/ 40/ 41/ 42/ 43/ 71 ^③	B2/ 4/ 5/ 7/ 12(17)/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 48/ 66/ 71		B2/ 4/ 5/ 7/ 8/ 26/ 28/ 40/ 42/ 66	B42/ 43/ 48
UMTS	WCDMA Band	B1/ 5/ 8				-		B2 /4/ 5	-
Embedded GNSS		Optional							
PCIe 3.0 Interface		Supported							
USB 3.1 Interface		Supported							
RGMII Interface		Not Supported							
Certification	Carrier	Telstra	TBD	TBD	TBD	Verizon*/ T-Mobile/ AT&T		TBD	TBD
	Regulatory	GCF/ CE/ RCM/ Anatel	CE/ RCM	CE/ RCM/ UKCA	CE/ RCM/ GCF*	GCF/ PTCRB/ FCC/ IC		FCC/ PTCRB	FCC**
Project Stage		CS	CS	CS	CS	CS		CS	CS

RG520N-NA Timelines



2023										2024			
Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.

RG520N-NA

Certification



RG525x/RG530F Series Specifications

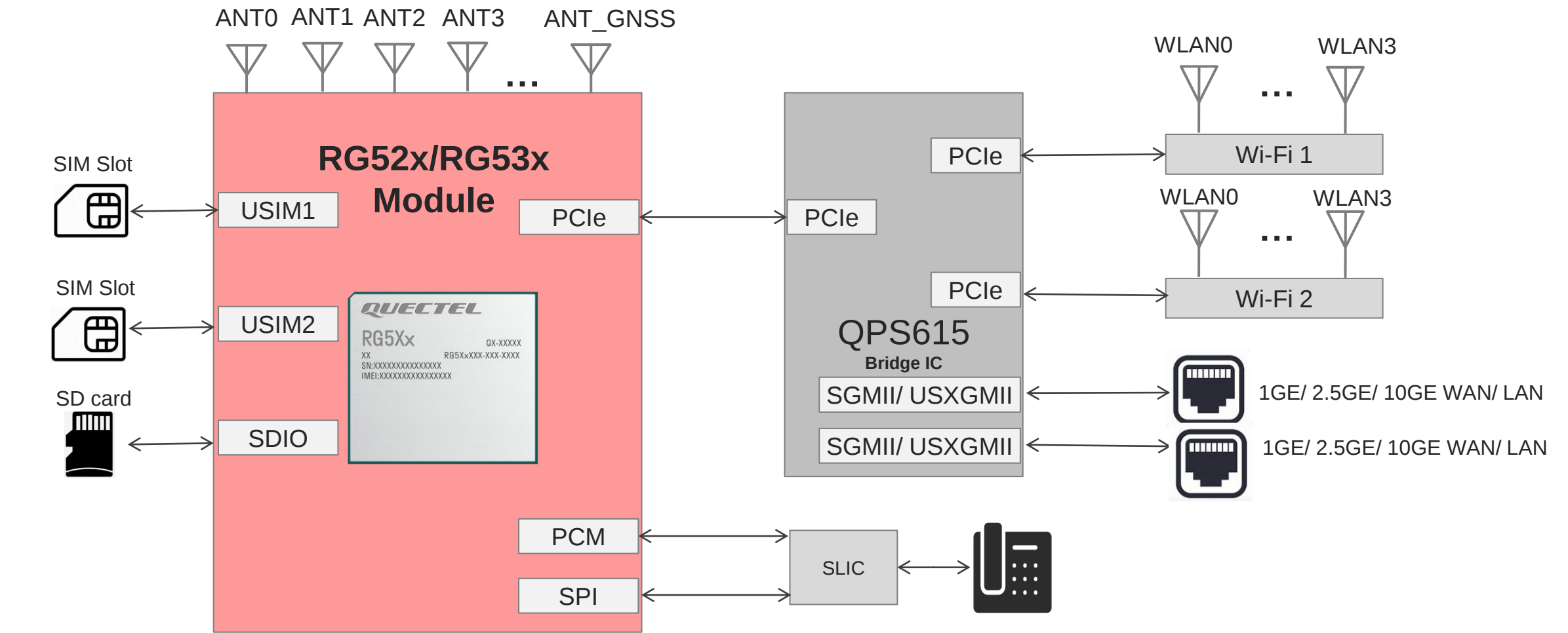
45.0 × 48.0 × 2.85 mm
5G Sub-6 GHz & mmWave LGA Module



Variant		RG525N-EB (Preliminary)	RG530F-EU	RG530F-NA	RG525F-NA
Region		EMEA/ APAC ^① / Brazil		North America	
Platform		SDX62	SDX65		
5G NR	5G NR	3GPP Release 16 NSA/SA operation, Sub-6 GHz	3GPP Release 16 NSA/SA operation, Sub-6 GHz, mmWave		3GPP Release 16 NSA/SA operation, Sub-6 GHz
	Sub-6 NSA Band	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	
	Sub-6 SA Band	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	
	Max. Sub-6 BW	120 MHz	200 MHz		
	Sub-6 CA	FDD + FDD, TDD + TDD, FDD + TDD DL 2CA/ UL 2CA	FDD + FDD, TDD + TDD, FDD + TDD DL 3CA/ UL 2CA		
	mmWave Band	-	n257/ 258/ 260/ 261		-
	Max. mmWave BW	-	800 MHz		-
	DL 8Rx	-	-	-	n48/ 77/ 78
	DL 4 × 4 MIMO	n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78	n2/ 5/ 7/ 12/ 13 ^② / 14/ 25/ 26 ^② / 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	
	UL 2 × 2 MIMO	n38/ 40/ 41/ 77/ 78	n38/ 40/ 41/ 77/ 78	n38/ 41/ 48/ 77/ 78	
LTE	LTE Category	DL Cat 19/ UL Cat 18	DL Cat 20/ UL Cat18		
	LTE Band	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43	B2/ 4/ 5/ 7/ 12(17)/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 46/ 48/ 66/ 71	
	DL 4 × 4 MIMO	B1/ 3/ 7/ 38/ 40/ 41/ 42/ 43	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43	B2/ 4/ 5/ 7/12/ 13/ 14/ 17/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 48/ 66/ 71	
UMTS	WCDMA Band	B1/ 5/ 8	B1/ 5/ 8	-	
Embedded GNSS		-	Optional		
PCIe 3.0 Interface		Supported	Supported		
USB 3.1 Interface		Supported	Supported		
RGMII Interface		-	-		
Certification	Carrier	TBD	Quectel will provide technical support for customer to certify RG530F based device directly.		Rogers
	Regulatory	CE*/ RCM*			IC/ PTCRB/ FCC
Project Stage		Developing	CS	CS	CS

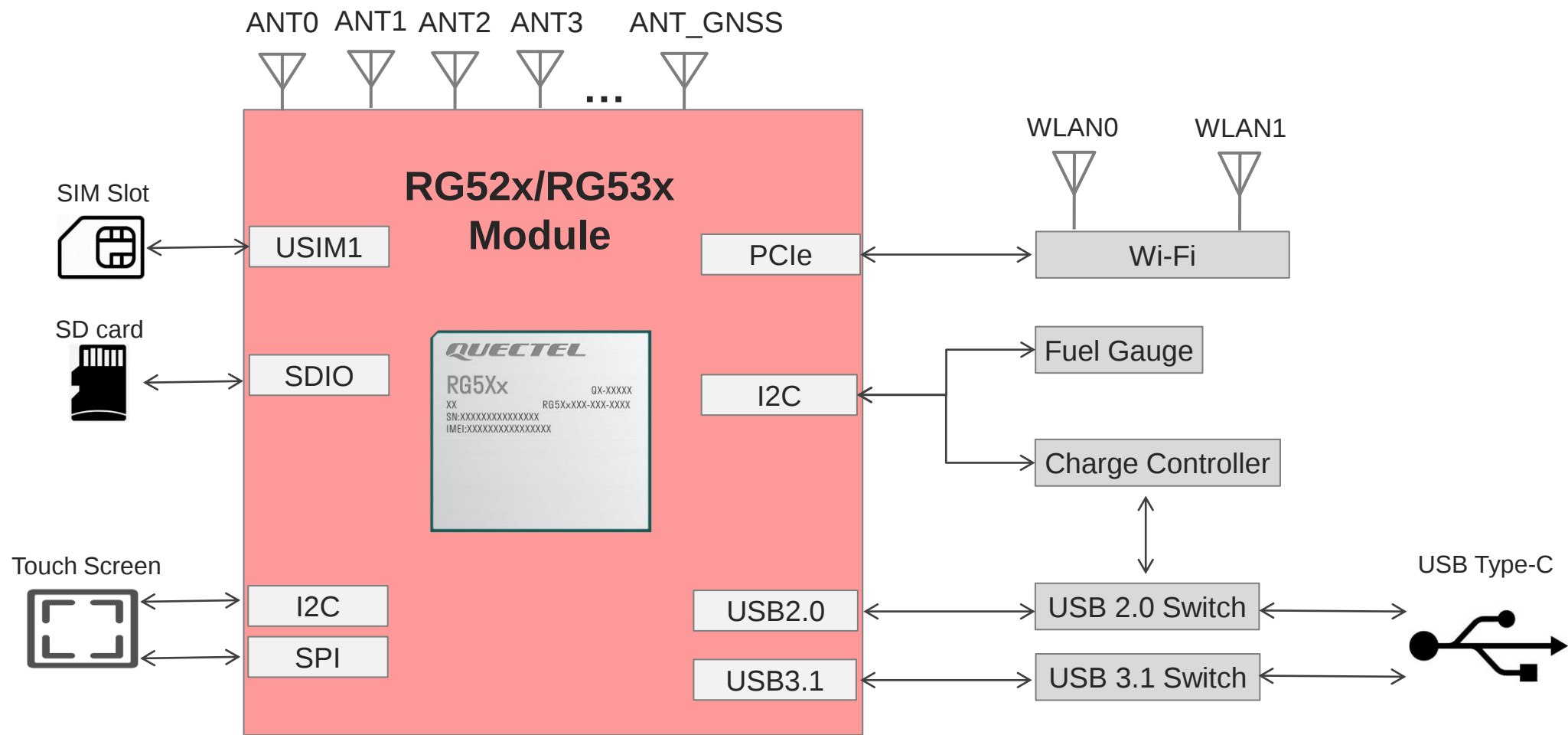
Back

Typical SoC Router Architecture (RG52x/RG53x Series)



Wi-Fi	QFW6114/QFW6124/WCN6856
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Typical SoC MiFi Architecture (RG52x/RG53x Series)



Wi-Fi	FC64E/FC66E/WCN6856
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RM520N/RM521F/RM530N Series Specifications

30.0 × 52.0 × 2.3 mm
5G Sub-6 GHz & mmWave M.2 Module

Variant		RM520N-GL	RM530N-GL	RM521F-GL	RM520N-EU
Region		Global			EMEA/ APAC ^① / Brazil
Platform		SDX62		SDX65	SDX62
5G NR	5G NR	3GPP Release 16 NSA/SA operation, Sub-6 GHz	3GPP Release 16 NSA/SA operation, Sub-6 GHz, mmWave	3GPP Release 16 NSA/SA operation, Sub-6 GHz	3GPP Release 16 NSA/SA operation, Sub-6 GHz
	Sub-6 NSA Band	n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 75/ 76/ 77/ 78/ 79			n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 77/ 78/ 75/ 76
	Sub-6 SA Band	n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 29/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 75/ 76/ 77/ 78/ 79			n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71/ 77/ 78/ 75/ 76
	Max. Sub-6 BW	120 MHz		200 MHz	120 MHz
	Sub-6 CA	FDD + FDD, TDD + TDD, FDD + TDD DL 2CA/ UL 2CA		FDD + FDD, TDD + TDD, FDD + TDD DL 3CA/ UL 2CA	FDD + FDD, TDD + TDD, FDD + TDD DL 2CA/ UL 2CA
	mmWave Band	-	n257/ 258/ 260/ 261	-	-
	Max. mmWave BW	-	400 MHz	-	-
	DL 4 × 4 MIMO	n1/ 2/ 3/ 7/ 25/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 77/ 78/ 79			n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78
	UL 2 × 2 MIMO	n38/ 41/ 48/ 77/ 78/ 79	n38/ 41/ 48/ 77/ 78/ 79/ 257/ 258/ 260/ 261	n38/ 41/ 48/ 77/ 78/ 79	n38/ 40/ 41/ 77/ 78
LTE	LTE Category	DL Cat 19/ UL Cat 18		DL Cat 20/ UL Cat 18	DL Cat 19/ UL Cat 18
	LTE Band	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 29/ 30/ 32/ 34/ 38/ 39/ 40/ 41/ 42/ 43/ 46(LAA)/ 48/ 66/ 71			B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43/ 71
	DL 4 × 4 MIMO	B1/ 2/ 3/ 4/ 7/ 25/ 30/ 38/ 40/ 41/ 42/ 43/ 48/ 66			B1/ 3/ 7/ 38/ 40/ 41/ 42/ 43
UMTS	WCDMA Band	B1/ 2/ 4/ 5/ 8/ 19			B1/ 5/ 8
Embedded GNSS		Optional			
PCIe 3.0 Interface		Supported			
USB 3.1 Interface		Supported			
eSIM		Supported / Built-in eSIM (optional)			
Certification	Carrier	T-Mobile/ Verizon/ AT&T/ NTT DOCOMO/ Deutsche Telekom/ Telefónica/ Telstra/ SoftBank*/ KDDI/ KT/ LG U+	Quectel will provide technical support for customer to certify RM530N-GL based device directly.	TBD	TBD
	Regulatory	GCF/ PTCRB/ CE/ Anatel/ CCC/ RCM/ IC/ FCC/ JATE/ TELEC/ KC/ NCC		FCC*/ IC*/ GCF*/ PTCRB*	CE/ RCM/ UKCA
Project Stage		CS	CS	Developing	CS

RM520N-GL Timeline

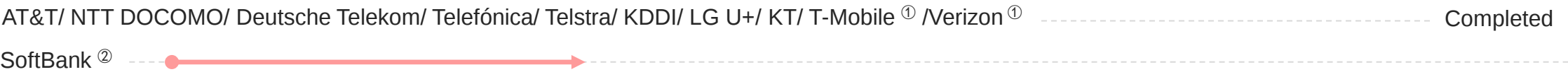


2023			2024											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

RM520N-GL

Certification

Carrier



Regulatory



①: LE1.3 MR is ongoing. ②: PC only.

RM521F-GL Timeline



2023										2024								
Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.

RM521F-GL

Project Schedule



RG50xQ Series Specifications

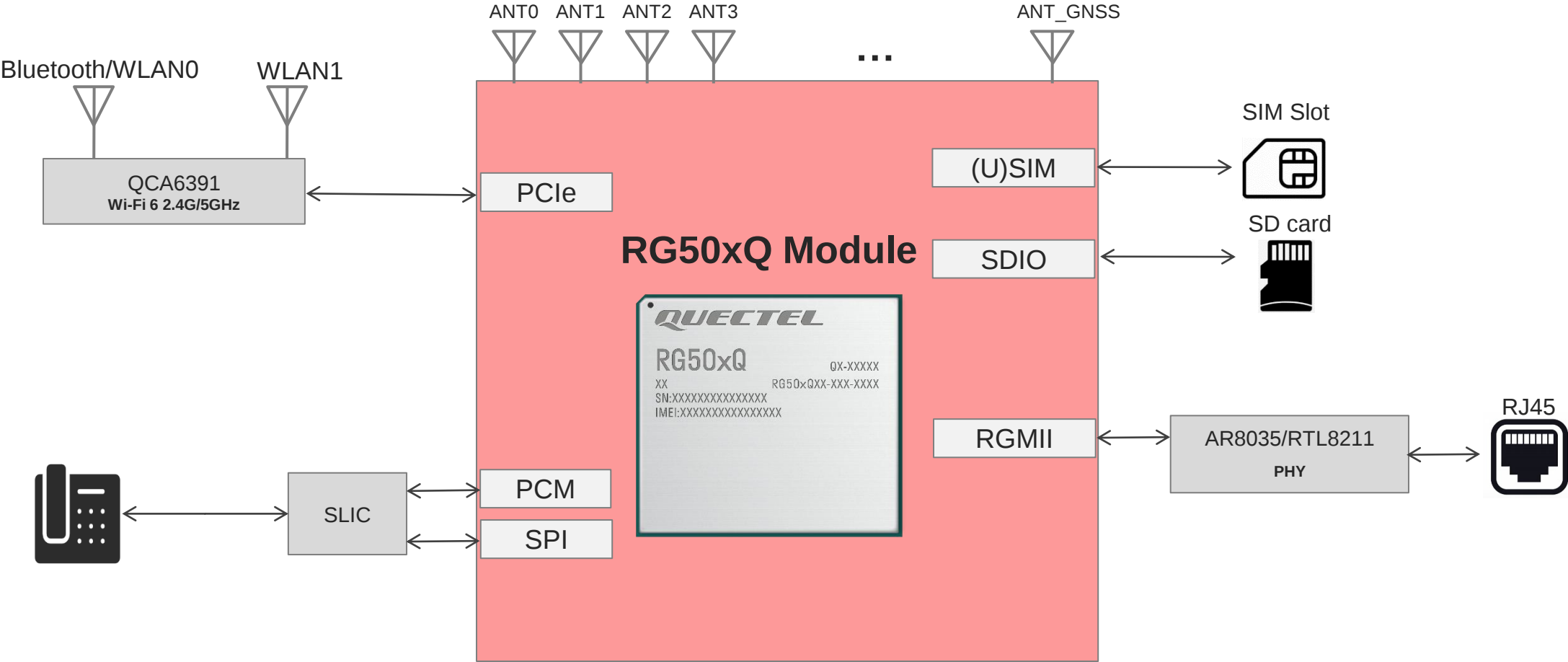
44.0 × 41.0 × 2.75 mm
5G Sub-6 GHz LGA Module



Variant		RG500Q-EA	RG502Q-EA	RG500Q-EU	RG501Q-EU	RG502Q-EU	RG500Q-GT	RG502Q-GT
Region		EMEA/ APAC		EMEA/ APAC (excl. China/ Japan)/ Brazil			Global TDD 3.5 GHz	
Platform		SDX55						
5G NR	5G NR	3GPP Release 15 NSA/SA operation, Sub-6 GHz						
	NSA Band	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78/ 79		n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78			-	
	SA Band	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78/ 79		n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78			n78	
	Max. Sub-6 BW	100 MHz	200 MHz	100 MHz	100 MHz	200 MHz	100 MHz	200 MHz
	Sub-6 CA	-	TDD + TDD DL CA*	-	-	TDD + TDD DL CA*	-	TDD + TDD DL CA*
	DL 4 × 4 MIMO	n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78/ 79		n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78			n78	
	UL 2 × 2 MIMO	n41/ 77/ 78/ 79		n41/ 77/ 78			n78	
LTE	LTE Category	DL Cat 16/ UL Cat 18	DL Cat 20/ UL Cat 18	DL Cat 16/ UL Cat 18	DL Cat 20/ UL Cat 18	DL Cat 20/ UL Cat 18	DL Cat 16/ UL Cat 18	DL Cat 20/ UL Cat 18
	LTE Band	B1/ 3/ 5/ 7/ 8/ 18/ 19/ 20/ 26/ 28/ 32/ 34/ 38/ 39/ 40/ 41/ 42/ 43		B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43			B42/ 43	
	DL 4 × 4 MIMO	B1/ 3/ 7/ 32/ 34/ 38/ 39/ 40/ 41/ 42/ 43		B1/ 3/ 5 ^① / 7/ 20 ^① / 28 ^① / 32/ 38/ 40/ B41/ 42			B42/ 43	
UMTS	WCDMA Band	B1/ 3/ 5/ 6/ 8/ 19		B1/ 5/ 8			-	
Embedded GNSS		Optional					-	
PCIe 3.0 Interface		Supported					Supported	
USB 3.1 Interface		Supported					Supported	
RGMII Interface		Supported					Supported	
eSIM		Supported		Supported / Built-in eSIM (optional)			Supported / Built-in eSIM (optional)	
Certification	Carrier	China Telecom/ China Mobile/ China Unicom/ KT/ SKT/ LG U+	-	-			-	
	Regulatory	CE/ SRRC/ NAL/ CCC/ KC/ JATE/ TELEC/ RCM	CE/ RCM	CE/ RCM	GCF/ CE/ RCM	CE/ RCM	CE	CE
Project Stage		CS	CS	CS	CS	CS	CS	CS

Back

Typical SoC Router Architecture (RG50xQ Series)

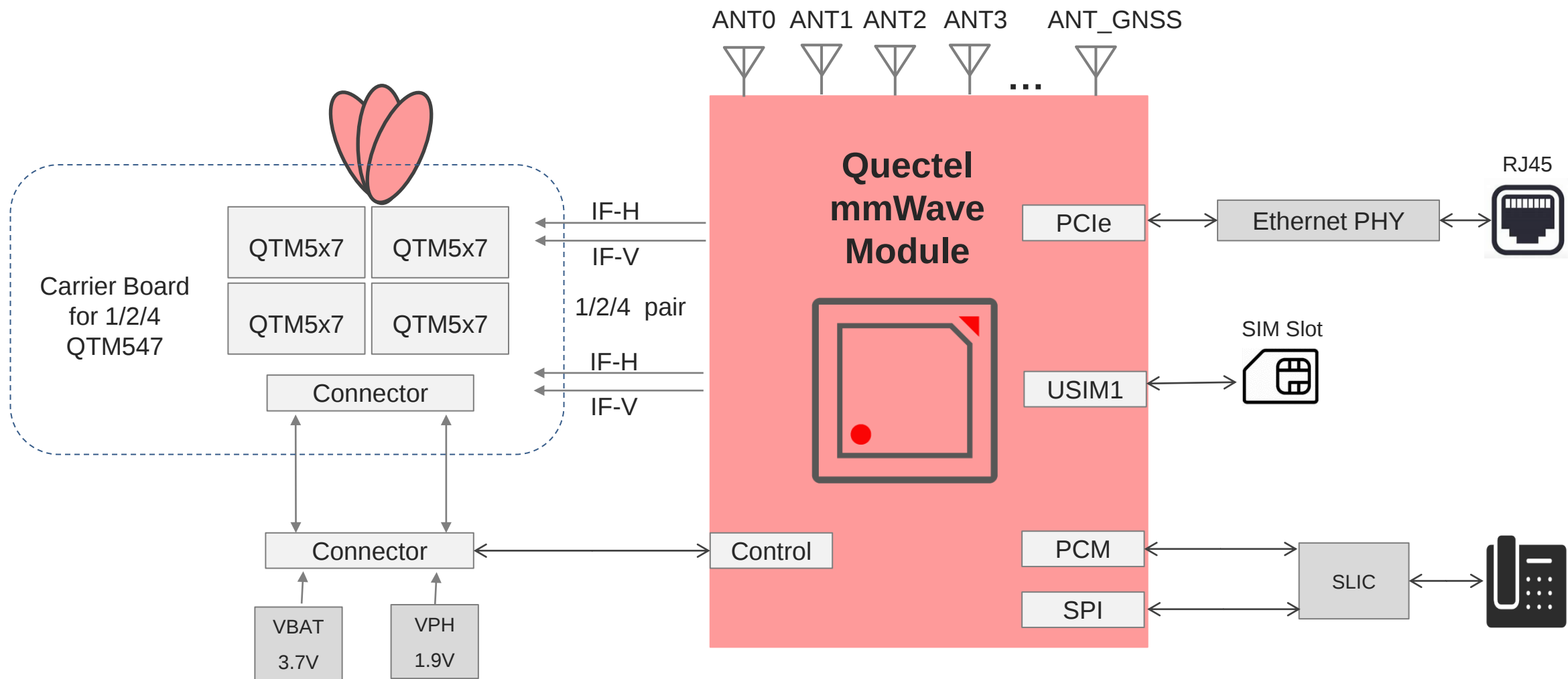


RM50xQ/RM510Q Series Specifications

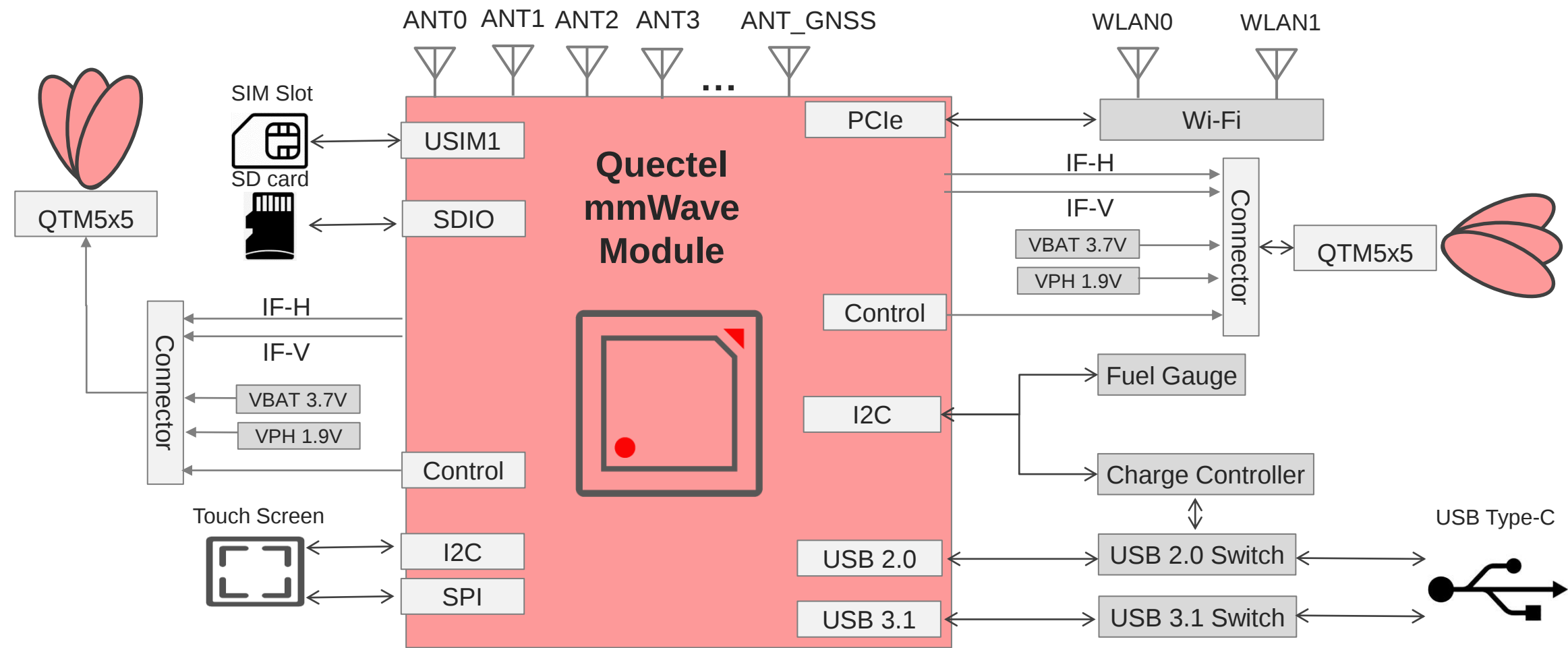
30.0 × 52.0 × 2.3 mm
5G Sub-6 GHz M.2 Module

Variant		RM500Q-AE	RM502Q-AE	RM505Q-AE	RM510Q-GL	RM500Q-GL
Region		Global (excl. China)			Global	Global (excl. US)
Platform		SDX55				
5G NR	5G NR	3GPP Release 15 NSA/SA operation, Sub-6 GHz				
	Sub-6 NSA Band	n1/ 2/ 3/ 5/ 7/ 8/ 12/ 20/ 25/ 28/ 38/ 40/ 41/ 48/ 66/ 71/ 77/ 78/ 79				n41/ 77/ 78/ 79
	Sub-6 SA Band	n1/ 2/ 3/ 5/ 7/ 8/ 12/ 20/ 25/ 28/ 38/ 40/ 41/ 48/ 66/ 71/ 77/ 78/ 79				
	Max. Sub-6 BW	100 MHz	200 MHz	100 MHz	200 MHz	100 MHz
	Sub-6 CA	-	TDD + TDD DL CA*	-	TDD + TDD DL CA*	-
	mmWave Band	-			n257/ 258/ 260/ 261	-
	Max. mmW BW	-			800 MHz	-
	DL 4 × 4 MIMO	n1/ 2/ 3/ 7/ 25/ 38/ 40/ 41/ 48/ 66/ 77/ 78/ 79				
	UL 2 × 2 MIMO	n41			n41/ 257/ 258/ 260/ 261	n41/ 77/ 78/ 79
LTE	LTE Category	DL Cat 16/ UL Cat 18	DL Cat 20/ UL Cat 18	DL Cat 16/ UL Cat 18	DL Cat 20/ UL Cat 18	DL Cat 16/ UL Cat 18
	LTE Band	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12(17)/ 13/ 14/ 18/ 19/ 20/ 25/ 26/ 28/ 29/ 30/ 32/ 34/ 38/ 39/ 40/ 41/ 42/ 43/ 46(LAA)/ 48/ 66/ 71				
	DL 4 × 4 MIMO	B1/ 2/ 3/ 4/ 7/ 25/ 30/ 32/ 34/ 38/ 39/ 40/ 41/ 42/ 43/ 48/ 66				
UMTS	WCDMA Band	B1/ 2/ 3/ 4/ 5/ 6/ 8/ 19				
Embedded GNSS		Optional	Optional	Optional (Independent GNSS Antenna Port, Active)	Optional	Optional
PCIe 3.0 Interface		Supported				
USB 3.1 Interface		Supported				
eSIM		Supported / Built-in eSIM (optional)				
Certification	Carrier	Deutsche Telecom/ AT&T/ T-Mobile/ Telstra	Deutsche Telecom/ AT&T/ T-Mobile/ Verizon/ Telus/ Telstra	Deutsche Telecom/ AT&T/ T-Mobile/ Verizon/ Telstra	-	Deutsche Telecom/ China Telecom/ China Mobile/ China Unicom/ KT/ SKT/ LG U+
	Regulatory	GCF/ CE/ PTCRB/ FCC/ IC/ NCC/ JATE/ TELEC/ RCM	GCF/ CE/ PTCRB/ FCC/ IC/ JATE/ TELEC/ RCM	GCF/ CE/ PTCRB/ FCC/ IC/ JATE/ TELEC/ RCM	GCF/ CE/ PTCRB/ FCC/ IC/ RCM	GCF/ CE/ SRRC/ NAL/ CCC/ KC/ RCM
Project Stage		CS	CS	CS	CS	CS

Typical High Power mmWave Application



Typical Low Power mmWave Application



Wi-Fi	FC64E/FC66E/WCN6856
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RG255C (Mini PCIe) & RM255C Series (RedCap) Highlights

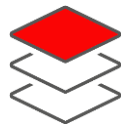


3GPP Rel-17 5G RedCap

- 5G LAN
- Smaller Size
- Cost Effective
- Lower Power Consumption
- 5G URLLC Supported
- Supplementary Functions:
GNSS, VoLTE, etc.



RG255C Series RG255C Series Mini PCIe RM255C-GL



Convenient Migration

- Compatible Design with LTE Cat 4 Modules
- Backwards Compatible with Global LTE Bands
- 1TX/2RX or 1TX/1RX



SoC Architecture

- SoC Architecture Based on Module
- OpenWrt Supported
- Arm Cortex-A7 1.7 GHz



Abundant Hardware Interface

- PCIe 2.0 × 1
- SGMII × 1
- USB 2.0 × 1

RG255C/RM255C Series Specification (Preliminary)



Rel-17 5G RedCap Module

Variant		RG255C-GL	RG255C-NA	RG255C-EU	RG255C-GL Mini PCIe	RG255C-NA Mini PCIe	RM255C-GL
Region		Global	North America	EMEA/APAC①/Brazil	Global	North America	Global
Platform		SDX35	SDX35	SDX35	SDX35	SDX35	SDX35
Size (mm)		32.0 × 29.0 × 2.4	32.0 × 29.0 × 2.4	32.0 × 29.0 × 2.4	30.0 × 50.95 × 4.95	30.0 × 50.95 × 4.95	30.0 × 42.0 × 2.3
5G NR	5G NR	3GPP Release 17 RedCap SA operation, Sub-6 GHz					
	SA Band	n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 77/ 78/ 79	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78	n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 77/ 78/ 79	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	n1/ 2/ 3/ 5/ 7/ 8/ 12/ 13/ 14/ 18/ 20/ 25/ 26/ 28/ 30/ 38/ 40/ 41/ 48/ 66/ 70/ 71/ 77/ 78/ 79
	Max. Sub-6 BW	20 MHz	20 MHz	20 MHz	20 MHz	20 MHz	20 MHz
LTE	LTE Category	Cat 4	Cat 4	Cat 4	Cat 4	Cat 4	Cat 4
	LTE Band	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 30/ 34/ 38/ 39/ 40/ 41/ 42/ 43/ 48/ 66/ 70/ 71	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 30/ 38/ 41/ 42/ 43/ 48/ 66/ 71	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 42/ 43/ 71	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 30/ 34/ 38/ 39/ 40/ 41/ 42/ 43/ 48/ 66/ 70/ 71	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 30/ 38/ 41/ 42/ 43/ 48/ 66/ 71	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 30/ 34/ 38/ 39/ 40/ 41/ 42/ 43/ 48/ 66/ 71
Embedded GNSS		Optional	Optional	Optional	Optional	Optional	Optional
PCIe 2.0 Interface		Supported	Supported	Supported	-	-	Supported
USB 2.0 Interface		Supported	Supported	Supported	Supported	Supported	Supported
SGMII Interface		Supported	Supported	Supported	-	-	-
eSIM		Supported / Built-in eSIM (optional)					
Certification	Carrier	TBD	TBD	TBD	TBD	TBD	ATT &T*/Verizon*/T-Mobile*
	Regulatory	CE*/ RCM* /FCC*/ IC*/ GCF*/ PTCRB*	FCC*/ IC*/ PTCRB*	TBD	TBD	FCC*/ IC*/ PTCRB*	CE*/ RCM* /FCC*/ IC*/ GCF*/ PTCRB*
Project Stage		ES	Developing	Planning	ES	Developing	ES

Back

RG255C Series (Mini PCIe) Timeline (Preliminary)



2023										2024							
Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.

RG255C-GL Mini PCIe

Project Schedule



RG255C-GL

Project Schedule



Certification

Regulatory

CE/ RCM / FCC/ IC/ GCF/ PTCRB



RG255C-NA (Mini PCIe)

Project Schedule



Certification

Regulatory

FCC/ IC/ PTCRB



RM255C-GL Timeline (Preliminary)



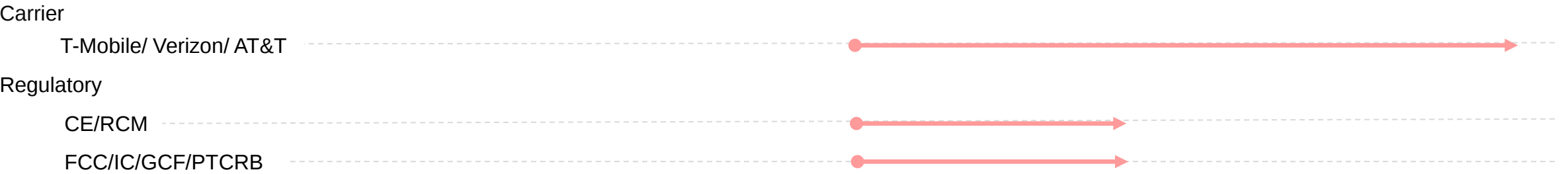
2023							2024											
Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

RM255C-GL

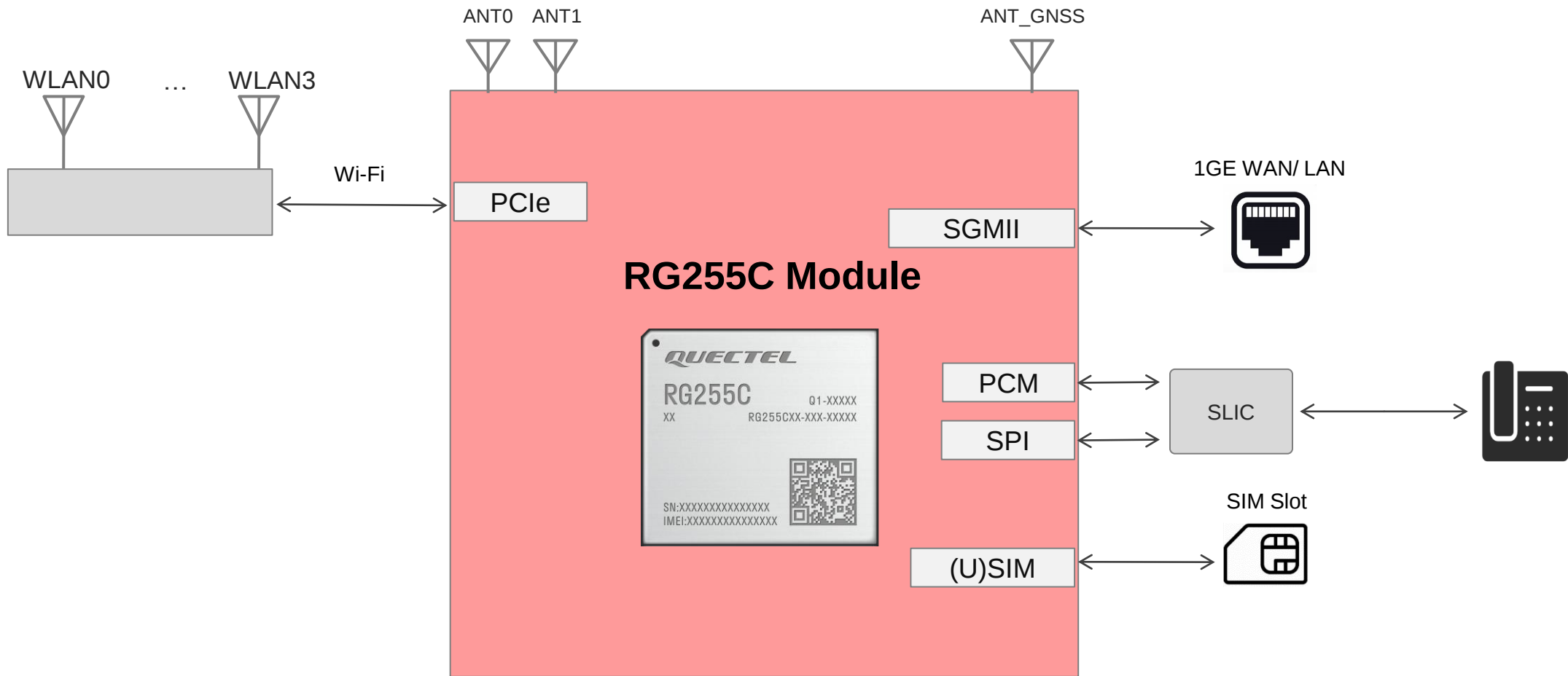
Project Schedule



Certification



Typical SoC Router Architecture (RG255C Series)



Typical indoor 5G CPE (Customer Premise Equipment) solution based on SDX35 platform.

Wi-Fi 5	2.4/ 5/ GHz + Bluetooth	QCA6174
Wi-Fi 6	2.4/ 5/ 6 GHz + Bluetooth	WCN6856
Ethernet	Up to 1 Gbps	QEP8111/ RTL8211 etc.

5G Module Portfolio – Part 2



Sub-6 GHz		
T830	LGA, 53 × 44 mm	
	 RG620T • EU (EMEA/ APAC^①/ Brazil) • NA (North America)	 RG620T (Carrier Customized) • EP (EMEA) • VZ* (Verizon Customized) • AT* (AT&T Customized) • TM* (T-Mobile Customized)
T750	LGA, 44 × 41 mm	
	 RG500L • EU (EMEA/ APAC^①/ Brazil) • NA (North America) • LA (LATAM^②)	 RG500L (Carrier Customized) • AR (India) • JO (India)

* : Under development ①: Excl. China/Japan ②: Excl. Brazil

RG620T & RG500L Series Highlights



5G Features

- 3GPP Release16
- 5G Sub-6GHz
- 5G SA/NSA, FDD/TDD
- FR1 4CC 300 MHz
- DL/ UL: 7.01 Gbps/ 2.5 Gbps



RG500L Series



RG620T Series



System Architecture

- SoC 5G Chipset
- 4-nm Process
- Quad-Core Cortex-A55 (2.2 GHz)



Network Interfaces

- USXGMII × 2 (10 Gbps Network Interface)
- PCIe 4.0 × 1 + PCIe 3.0 × 2
- GNSS (BDS/ Galileo/ GLONASS/ GPS/ QZSS)
- USB 3.2



Module Features

- 8RX
- 3TX
- HPUE, PC1.5
- 5G UltraSave/ Network Acceleration Engine
- 5G Modem Integrated Built-in CPUs/ CPE Needless Controller
- Applicable to CPE/ MiFi/ Home Gateway/ Industrial Gateway



Wi-Fi Features

- Wi-Fi 6/ Wi-Fi 6E/ Wi-Fi 7 Supported
- AX6000 – BE19000
- EasyMesh 4.0, WPA3 R3
- Wi-Fi Offload



Easy CPE Development

- Customized DDR/Flash & Bands
- OpenWrt Based on Linux
- Reference Design for Peripherals
- Schematics Inspection
- Debugging for Common Drivers
- Wi-Fi or Ethernet Component Supply

RG620T Series Specifications

53.0 × 44.0 × 2.95 mm
5G Sub-6 GHz LGA Module



Variant		RG620T-NA	RG620T-EU
Region		North America	EMEA/ APAC ^① / Brazil
Platform		T830	
5G NR	5G NR	3GPP Release 16 NSA/SA operation, Sub-6 GHz	
	Sub-6 NSA Band	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	n1/ 3/ 5 (71 ^②)/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78
	Sub-6 SA Band	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	n1/ 3/ 5 (71 ^②)/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78
	Max. Sub-6 BW	300 MHz	
	Sub-6 CA	FDD + FDD, TDD + TDD, FDD + TDD DL 4CA/ UL 2CA	FDD + FDD, TDD + TDD, FDD + TDD DL 4CA/ UL 2CA
	DL 4 × 4 MIMO	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	n1/ 3/ 5 (71 ^②)/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78
	UL 2 × 2 MIMO	n38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	n38/ 40/ 41/ 77/ 78
	DL/UL Peak Rate	5G NR 7.01 Gbps/ 2.5 Gbps (@ DL 300 MHz, SA TDD 8:2)	5G NR 7.01 Gbps/ 2.5 Gbps (@ DL 300MHz, SA TDD 8:2)
	Power Class 1.5	n41/ 77/ 78	n41/ 77/ 78
LTE	LTE Category	DL Cat 19/ UL Cat 18	
	LTE Band	B2/ 4/ 5/ 7/ 12 (17)/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 46/ 48/ 66/ 70/ 71	B1/ 3/ 5 (71 ^②)/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43 /46
	DL 4 × 4 MIMO	B2/ 4/ 5/ 7/ 12 (17)/ 13/ 14/ 25/ 26/ 30/ 38/ 41/ 42/ 43/ 48/ 66/ 70/ 71	B1/ 3/ 5 (71 ^②)/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 42/ 43
UMTS	WCDMA Band	-	B1/ 5/ 8
Embedded GNSS		Supported (L1 + L5)	Supported (L1 + L5) ^②
PCIe 4.0 Interface		Supported	
USB 3.2 Interface		Supported	
USXGMII Interface		Supported	
Certification	Carrier	T-Mobile*/ Verizon*/ AT&T*/ DISH*	Deutsche Telekom ^③ / British Telecom ^③ / Orange ^③ / Telstra*
	Regulatory	FCC/ IC/ GCF*/ PTCRB*	CE/ RCM/ GCF*
Project Stage		CS	CS

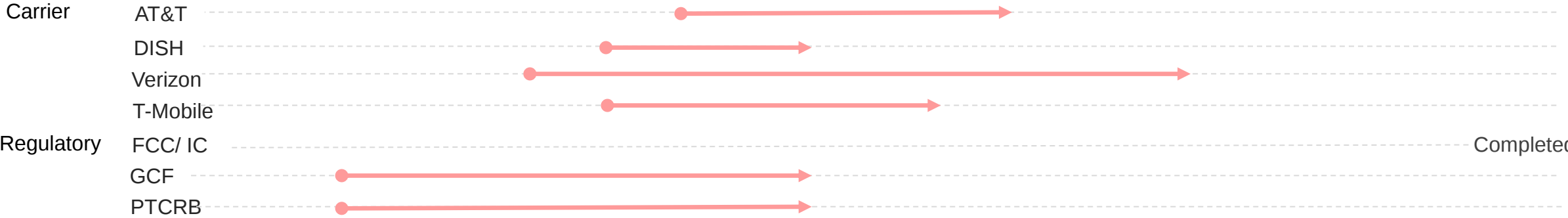
RG620T Series Timeline



2023								2024											
May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

RG620T-NA

Certification

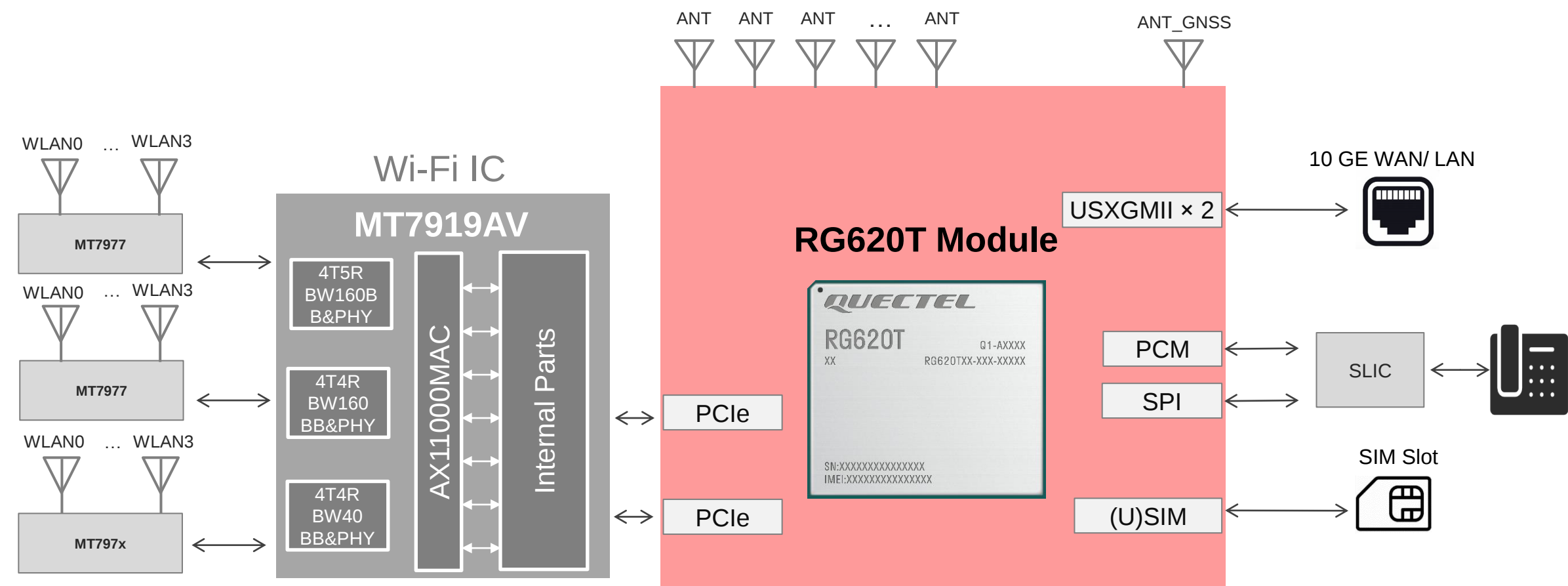


RG620T-EU

Certification



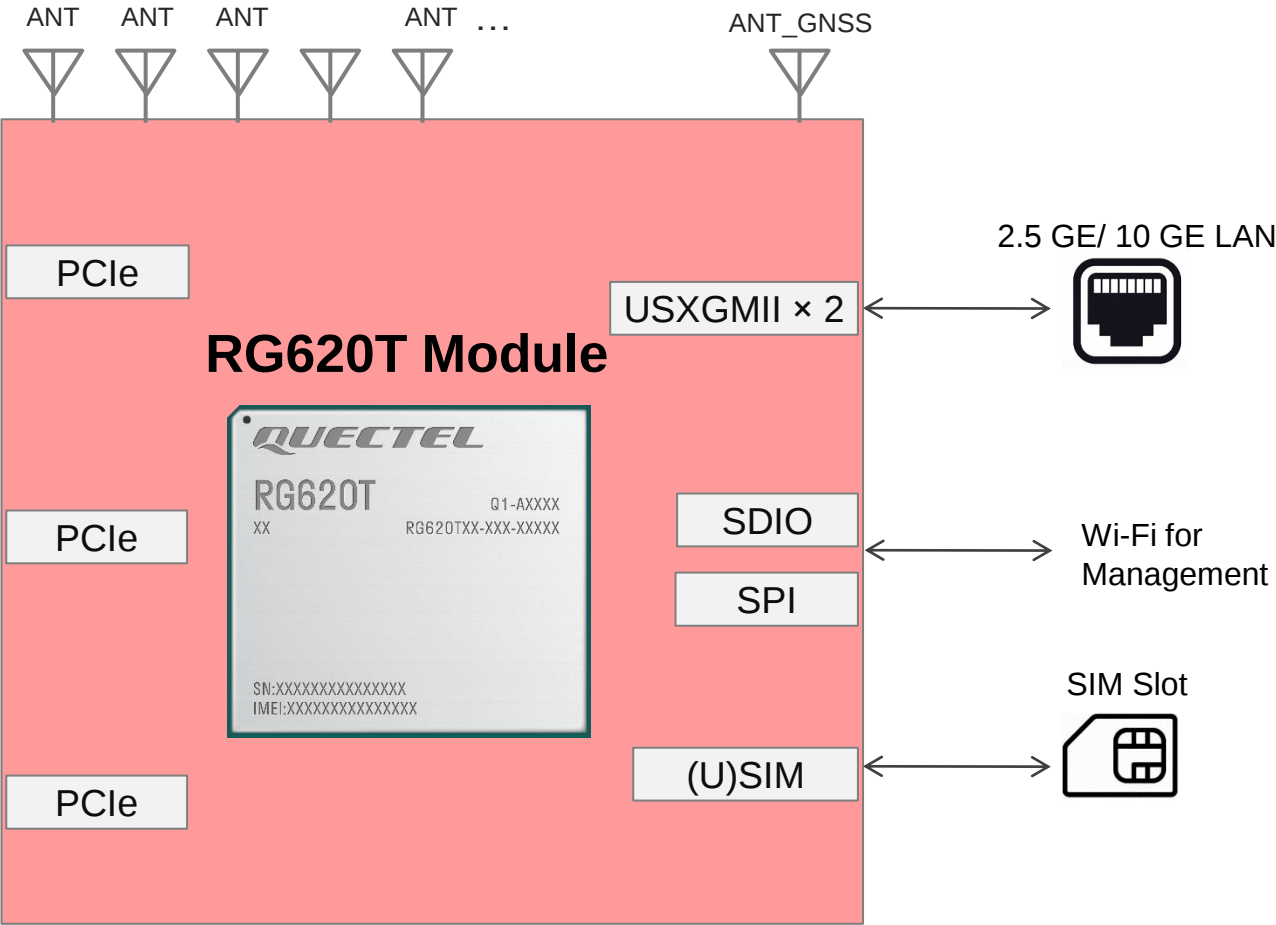
Typical SoC Router Architecture (RG620T Series)



Typical SoC (System-on-Chip) 5G router solution based on T830 platform, supporting 2.4 GHz 4 × 4 and 5 GHz/ 6 GHz, 160 MHz 4 × 4 Wi-Fi.

Wi-Fi	Wi-Fi 6E	Filologic 650 (MT7919AV)	2.4 GHz, 40 MHz 4 × 4 5 GHz or 6 GHz, 160 MHz 4 × 4	AX6000 or Higher, Dualband/Triband Easy Mesh
	Wi-Fi 7	Filologic 680 (MT7996AV)	2.4 GHz, 40 MHz 4 × 4 5 GHz or 6 GHz, 320 MHz 4 × 4	
Ethernet	Up to 10GE	Based on RFQ	WAN/LAN	1 Gbps/ 2.5 Gbps/ 10 Gbps

Typical SoC ODU Architecture (RG620T Series)



Typical SoC (System-on-Chip) 5G ODU solution based on T830 platform.

Ethernet	Up to 10GE	Based on RFQ	WAN/ LAN	1 Gbps/ 2.5 Gbps/ 10 Gbps
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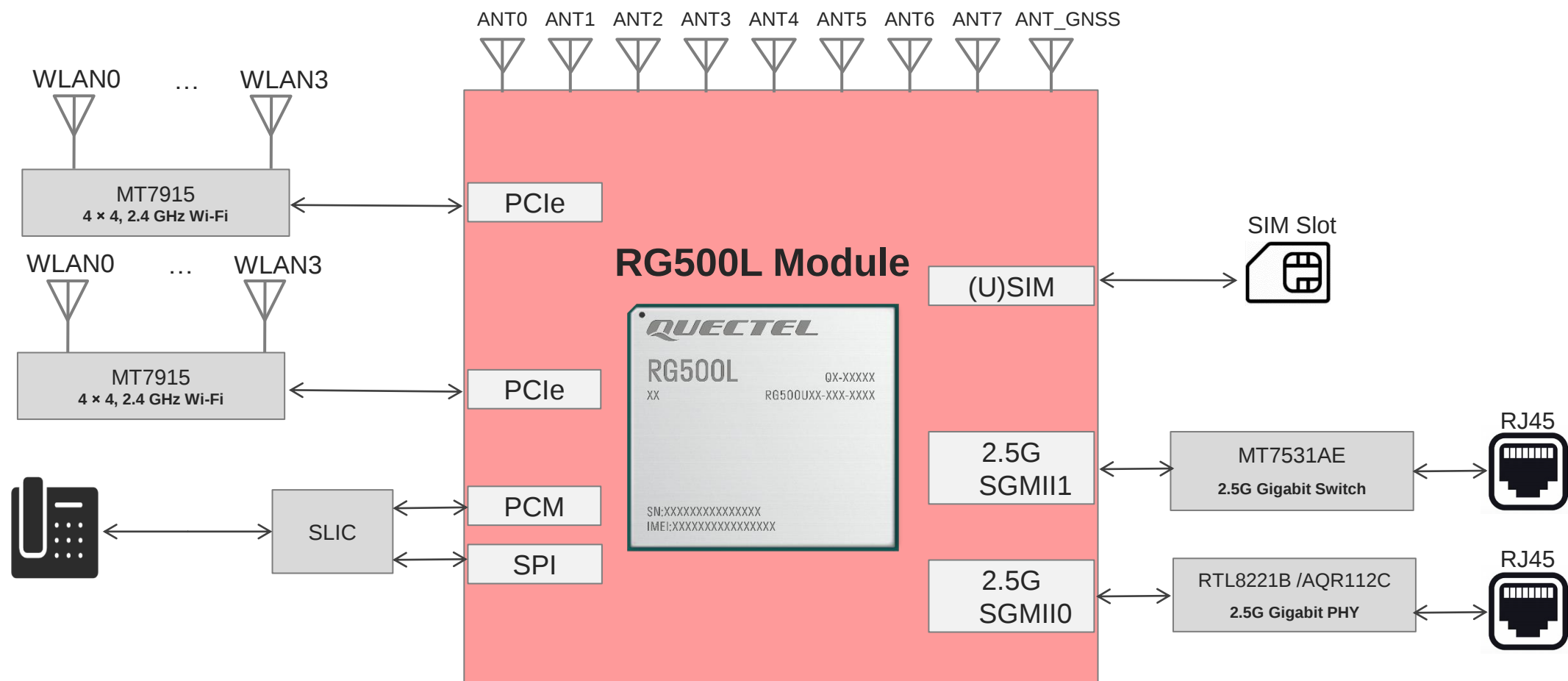
RG500L Series Specifications

44.0 × 41.0 × 2.75 mm
5G Sub-6 GHz LGA Module



Variant		RG500L-EU	RG500L-NA	RG500L-LA	RG500L-JO	RG500L-AR
Region		EMEA/ APAC ^① / Brazil	North America	LATAM (excl. Brazil)	India	India
Platform		T750				
5G NR	5G NR	3GPP Release 15 NSA/SA operation, Sub-6 GHz				
	NSA Band	n1/ 3/ 5 ^② (71 ^②)/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78	n2/ 5/ 7/ 12/ 25/ 38/ 41/ 48/ 66/ 71/ 77/ 78	n2/ 5/ 7/ 28/ 66/ 78	-	n1/ 3/ 5/ 8/ 40/ 78
	SA Band	n1/ 3/ 5 ^② (71 ^②)/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78	n2/ 5/ 7/ 12/ 25/ 38/ 41/ 48/ 66/ 71/ 77/ 78	n2/ 5/ 7/ 28/ 66/ 78	n28/ 78	n1/ 3/ 5/ 8/ 40/ 78
	Max. Sub-6 BW	200 MHz				
	DL 4 × 4 MIMO	n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78	n2/ 7/ 25/ 38/ 41/ 48/ 66/ 77/ 78	n2/ 7/ 66/ 78	n78	n1/ 3/ 5/ 8/ 40/ 78
	UL 2 × 2 MIMO	n40/ 41/ 77/ 78	n41/ 48/ 77/ 78	n78	n78	n40/ 78
LTE	LTE Category	DL Cat 19/ UL Cat 18				
	LTE Band	B1/ 3/ 5 ^② (71 ^②)/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 46/ 48/ 66/ 71	B2/ 4/ 5/ 7/ 8/ 28/ 42/ 43/ 66	-	B1/ 3/ 5/ 8/ 40
	DL 4 × 4 MIMO	B1/ 3/ 7/ 32 ^② / 38/ 40/ 41/ 42/ 43	B2/ 4/ 7/ 25/ 30/ 38/ 41/ 42/ 43/ 48/ 66	B2/ 4/ 7/ 42/ 43/ 66	-	B1/ 3/ 5/ 8/ 40
UMTS	WCDMA Band	B1/ 5 ^② / 8	-	B2/ 4/ 5	-	-
Embedded GNSS		Supported (L1 + L5) ^②	Supported (L1 only)	-	-	-
PCIe 3.0 Interface		Supported				
USB 3.0 Interface		Supported				
SGMII Interface		Supported				
Certification	Carrier	TBD	TBD	TBD	-	-
	Regulatory	GCF/ CE/ RCM	FCC/ IC	FCC	CE	CE/ RCM
Project Stage		MP	CS	CS	CS	CS

Typical SoC Router Architecture (RG500L Series)



Typical SoC (System-on-Chip) 5G router solution based on T750 platform, supporting 4 x 4, 2.4 GHz and 5 GHz Wi-Fi and dual Ethernet port.

Note:
1. 2.5G PHY is optional.
2. The devices included above are recommendation only and can be substituted as needed.

5G Module Portfolio – Part 3



	LGA	M.2	Mini PCIe
	44 × 41 mm	30 × 52 mm	30.7 × 50.95 mm
	 RG500U 3GPP Rel 15/16^① • CN (EMEA/ APAC) • EA (EMEA/ APAC/ LATAM) • EB (EMEA/ APAC/ LATAM) • LA ^{ES}(LATAM)	 RM500U 3GPP Rel 15/16^① • CN (EMEA/ APAC) • EA (EMEA/ APAC/ LATAM) • CNV (EMEA/ APAC)	 RG200U-CN Mini PCIe 3GPP Rel 15/16^① • CN (EMEA/ APAC)
UDX710	30 × 41 mm	52 × 52 mm	
	 RG200U 3GPP Rel 15/16^① • CN (EMEA/ APAC) • JO (INDIA)	 RG500U-EA M.2 3GPP Rel 15 • EA (EMEA/ APAC/ LATAM)	

①: Supported by partial ordering codes only ES: Engineering Sample

RG200U & RG500U & RM500U Series Highlights



Unisoc UDX710 M1

- 3GPP Rel-15 Compliant
- 5G NSA/SA, FDD/TDD Supported
- Up to 100M NR BW



RG200U/RG500U Series

RM500U Series



Advanced IoT-Dedicated 3GPP Rel-16^①

- 5G LAN for Wireless Virtual Network Grouping
- URLLC for Latency Sensitive Applications
- IRIG-B for High-Accuracy Time Service
- More Than 1000 Vertical Applications and Customers



Unisoc UDX710 M6

- 3GPP Rel-16^① Compliant
- 5G LAN/ IRIG-B/ URLLC



Affordable 5G CPE Solution

- 3GPP Rel-15 for Cost Effective eMBB Applications
- SA/NSA Supported, up to 1 NR + 3 CC
- Open Solution Supported for FWA Applications
- Quectel-Only Unisoc 5G + Wi-Fi 6 (e.g., FC64E Module) Combo



Multiple Variants Available

- Cost Effective and Abundant Variants
- RM500U-CN/ RM500U-EA/ RG500U-EA M.2 / RM500U-CNV
- RG500U-EA/ -CN/ -EB/ -LA
- RG200U-CN/ RG200U-CN Mini PCIe
- RG200U-JO

①: Supported by partial ordering codes only. *: Under Development.

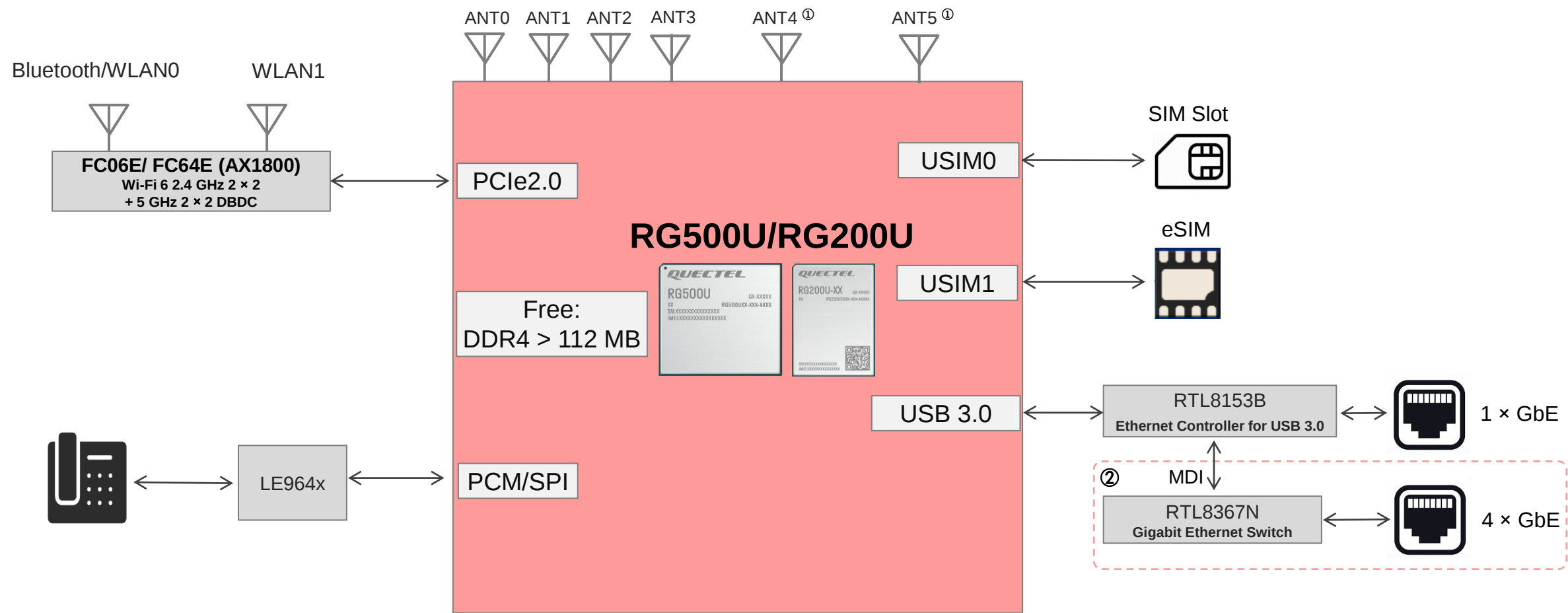
RG500U /RG200U Series (Mini PCIe) Specifications

5G Sub-6 GHz LGA Module

Variant		RG500U-CN	RG500U-EA	RG500U-EA M.2	RG500U-EB	RG500U-LA	RG200U-JO	RG200U-CN	RG200U-CN Mini PCIe	
Region		EMEA/ APAC	EMEA/ APAC/ LATAM			LATAM	India	EMEA/ APAC		
Platform		UDX710								
Dimensions (mm)		44.0 × 41.0 × 2.85		52.0 × 52.0 × 3.6	41.0 × 44.0 × 2.85	41.0 × 44.0 × 2.85	30.0 × 41.0 × 2.85	30.0 × 41.0 × 2.85	30.7 × 50.95 × 5.3	
5G NR	5G NR	3GPP Release 15/16 NSA/SA operation, Sub-6 GHz								
	NSA Band	n41/ 78/ 79	n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78/ 79			n1/ 3/ 7/ 20/ 28/ 38/ 40/ 41/ 77/ 78	n2/ 5/ 7/ 28/ 40/ 66/ 78	-	n78/ 79 ^①	
	SA Band	n1/ 28/ 41/ 77/ 78/ 79	n1/ 3/ 5 ^① / 7/ 8/ 20/ 28/ 38/ 40/ 41/ 66 ^① / 71*/ 77/ 78/ 79 ^①			n1/ 3/ 5 / 7/ 8/ 20/ 28/ 38/ 40/ 41/ 66/ 77/ 78	n2/ 5/ 7/ 8/ 28/ 38/ 40/ 66/ 71/ 78	n78	n1/ 3 ^① / 5/ 8/ 28/ 41/ 77/ 78/ 79 ^①	
	Max. Sub-6 BW	100 MHz								
	DL 4 × 4 MIMO	n1/ 41/ 77/ 78/ 79	n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78/ 79			n1/ 3/ 7/ 28/ 38/ 40/ 41/ 66/ 77/ 78	n2/ 7/ 28/ 38/ 40/ 66/ 78	n78	n1/ 41/ 77/ 78/ 79 ^①	
	UL 2 × 2 MIMO	n41/ 77/ 78/ 79	n38/ 40/ 41/ 77/ 78/ 79			n38/ 40/ 41/ 77/ 78	n2/ 7/ 28/ 38/ 40/ 66/ 78	n78	n77/ 78/ 79 ^①	
LTE	LTE Category	DL Cat 12, UL Cat 13	DL Cat 12, UL Cat 13			DL Cat 12, UL Cat 13	DL Cat 12, UL Cat 13	-	DL Cat 12, UL Cat 13	
	LTE Band	B1/ 2/ 3/ 5/ 7/ 8/ 20/ 28/ 34/ 38/ 39/ 40/ 41	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28A/ 28B/ 66/ 38/ 40/ 41/ 71*			B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 66	B2 / 4/ 5/ 7/ 8/ 26/ 28/38/ 40/ 66/ 71	-	B1/ 3/ 5/ 8/ 34/ 38/ 39/ 40/ 41	
	DL 2 × 2 MIMO	B1/ 2/ 3/ 5/ 7/ 8/ 20/ 28/ 34/ 38/ 39/ 40/ 41	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28A/ 28B/ 38/ 40/ 41/ 66			B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 66	B2/ 4/ 5/ 7/ 8/ 26/ 28/ 38/ 40/ 66/ 71	-	B1/ 3/ 5/ 8/ 34/ 38/ 39/ 40/ 41	
UMTS	WCDMA Band	B1/ 2/ 5/ 8	B1/ 2/ 5/ 8			B1/ 2/ 5/ 8	B2/ 4/ 5	-	B1/ 8	
PCIe 2.0 Interface		Supported	Supported			Supported	Supported	Supported	Supported	-
USB 2.0/3.0 Interface		Supported	Supported			Supported	Supported	Supported	Supported	
RGMII Interface ^②		-								
eSIM		Built-in eSIM (optional)	Built-in eSIM (optional)			Built-in eSIM (optional)	Built-in eSIM (optional)	Built-in eSIM (optional)	-	Built-in eSIM (optional)
Certification	Carrier	China Telecom/ China Mobile ^③ / China Unicom ^③	TBD			TBD	TBD	TBD	China Telecom/ China Mobile ^③ / China Unicom ^③	China Telecom/ China Mobile ^③ / China Unicom ^③
	Regulatory	SRRC/ NAL/ CCC	GCF/ CE/ RCM			CE/ RCM	FCC	GCF	NAL/ CCC/ SRRC	NAL/ CCC/ SRRC
Project Stage		CS	CS	ES	CS	ES	CS	CS	CS	CS

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Typical SoC Router Architecture (RG500U/RG200U Series)



Typical SoC (System-on-Chip) 5G router solution based on UDX710 platform.

NOTE:

- ①: RG500U-CN, RG500U-EB, RG200U-CN and RG200U-JO support 4-antenna solution (ANT0–ANT3); RG500U-EA and RG500U-LA support 6-antenna solution (ANT0–ANT5).
- ②: Optional 4 GE
- The devices included above are recommendation only and can be substituted as needed.

RM500U Series Specifications



Variant		RM500U-CN	RM500U-EA	RM500U-CNV
Region		EMEA/ APAC	EMEA/ APAC/ Latin America	EMEA/ APAC
Platform		UDX710	UDX710	UDX710
Dimensions (mm)		30.0 × 52.0 × 2.3	30.0 × 52.0 × 3.75	30.0 × 52.0 × 2.3
5G NR	5G NR	3GPP Release15/ Release 16 ^① NSA/ SA operation, Sub-6 GHz	3GPP Release 15 NSA/ SA operation, Sub-6 GHz	3GPP Release15/ Release 16 ^① NSA/ SA operation, Sub-6 GHz
	Sub-6 NSA Band	n41/ 78/ 79	n1/ 3/ 7/ 28/ 38/ 40/ 41/ 77/ 78	n41/ 78/ 79
	Sub-6 SA Band	n1/ 28/ 41/ 77/ 78/ 79	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 66/ 77/ 78	n1/ 3/ 5/ 8/ 28A/ 41 / 77/ 78/ 79
	Max. Sub-6 BW	100 MHz	100 MHz	100 MHz
	DL 4 × 4 MIMO	n1/ 41/ 77/ 78/ 79	n1/ 3/ 7/ 28 / 38/ 40/ 41/ 66/ 77/ 78	n1/ 28A/ 41/ 77/ 78/ 79
	UL 2 × 2 MIMO	n41/ 77/ 78/ 79	n38/ 40/ 41/ 77/ 78	n41/ 77/ 78/ 79
	DL 2 × 2 MIMO	n28	n5/ 8/ 20	n3/ 5/ 8
LTE	LTE Category	DL Cat 12/ UL Cat 13	DL Cat 12/ UL Cat 13	DL Cat 12/ UL Cat 13
	LTE Band	B1/ 2/ 3/ 5/ 7/ 8/ 20/ 28/ 34/ 38/ 39/ 40/ 41	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 66	B1/ 3/ 5/ 8 /34/ 38/ 39/ 40/ 41
	DL 2 × 2 MIMO	B1/ 2/ 3/ 5/ 7/ 8/ 20/ 28/ 34/ 38/ 39/ 40/ 41	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 66	B1/ 3/ 5/ 8/ 34/ 38/ 39/ 40/ 41
UMTS	WCDMA Band	B1/ 2/ 5/ 8	B1/ 2/ 5/ 8	B1/ 5/ 8
PCIe 2.0 Interface		Supported	Supported	Supported
USB 3.0 Interface		Supported	Supported	Supported
USB 2.0 Interface		Supported	Supported	Supported
eSIM		Supported/ Built-in eSIM (optional)	Supported/ Built-in eSIM (optional)	-
Certification	Carrier	China Telecom/ China Mobile ^② / China Unicom ^②	TBD	China Telecom ^② / China Mobile ^② / China Unicom ^②
	Regulatory	SRRC/ NAL/ CCC/ CE/ RCM	CE/ RCM	SRRC/ NAL/ CCC
Project Stage		CS	CS	CS



5G Module Specifications & Timelines

LTE-A Module Specifications & Timelines

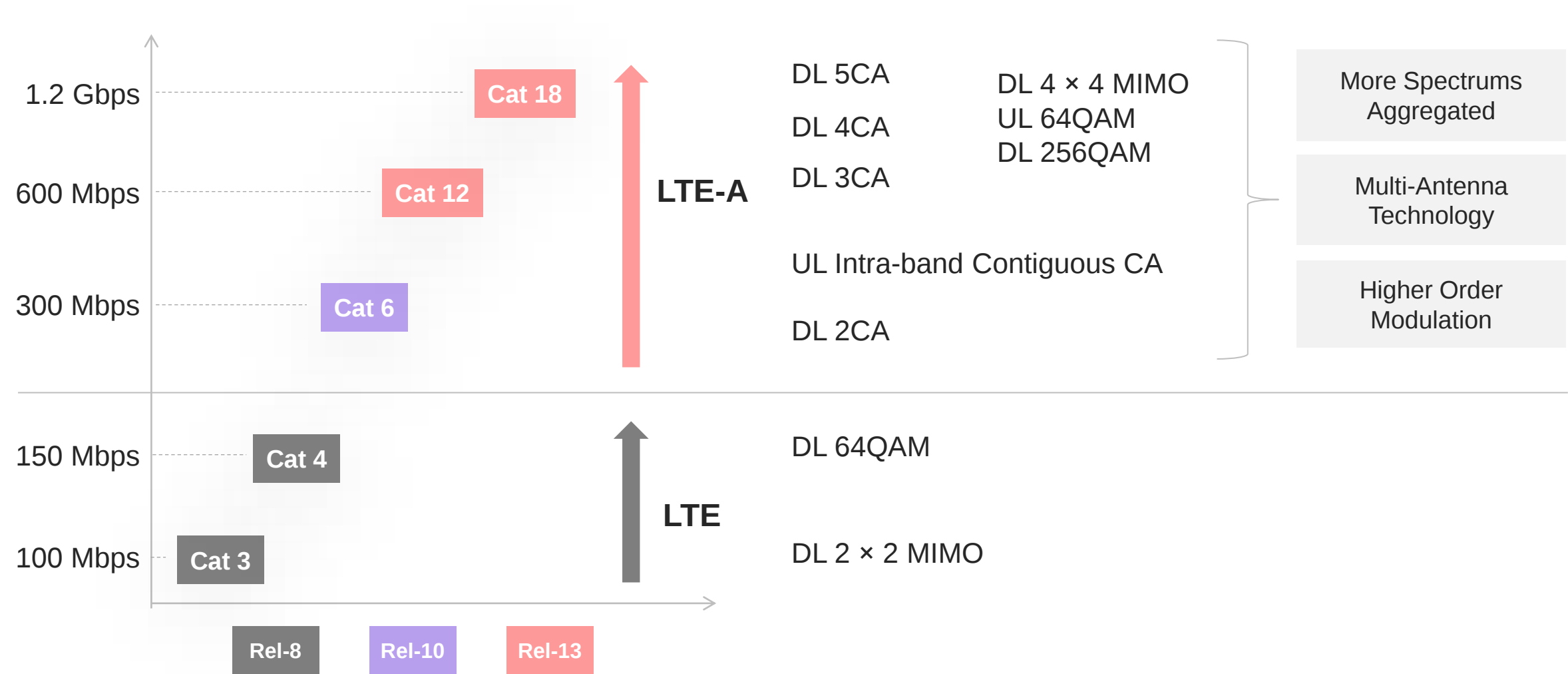
Software & Support

Typical Applications

Build a Smarter World



LTE-A Key Technology



LTE-A Module Overview



Cat 16/ 18	EG18  • SDX20 • Rel-12	EM160R  • SDX24 • Rel-14	
Cat 12	EG12  EM12  • SDX20 • Rel-12	EG512R  EM12xR  • SDX24 • Rel-14	EG120K  EM120K  • SDX12 • Rel-12 NEW
Cat 6	EG060W  • ASR1828 • Rel-10 • RGMII		EG060K  EG065K  EM060K  • SDX12 • Rel-12 NEW

LTE-A Module Portfolio



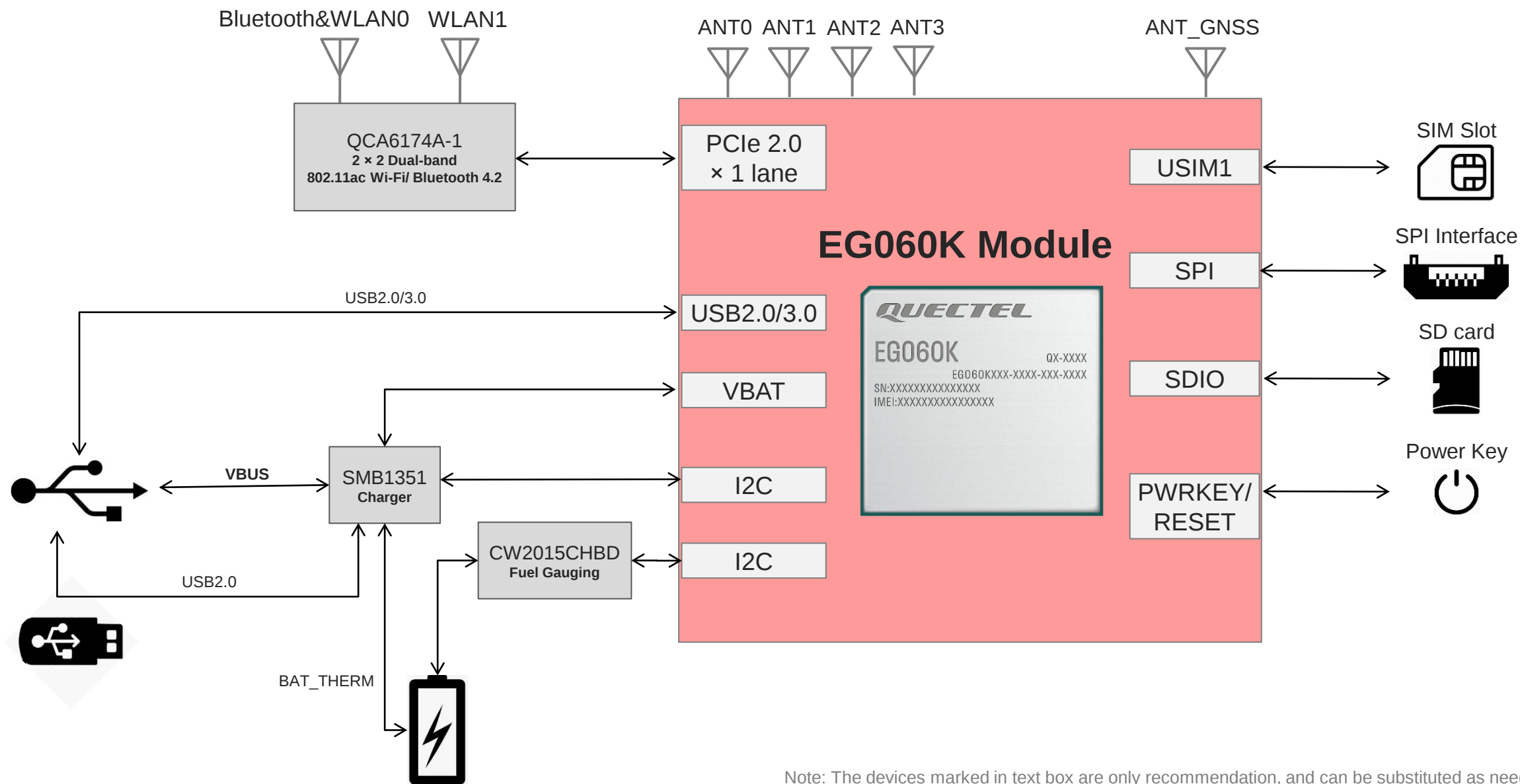
		LTE-Advanced		
		LGA, 42 × 38 mm	LGA, 39.5 × 37 mm	M.2, 30 × 42 mm
Cat 12/ 16/ 18			 EG18 (SDX20) • EA (EMEA/ APAC^① / Brazil) • NA (North America)	 EM120R/EM121R/EM160R (SDX24) • GL (Global)
	 EG512R (SDX24) • EA (EMEA/ APAC^① / Brazil)		 EG12 (SDX20) • GT (Global TDD 3.5 GHz) • EA (EMEA/ APAC^① / Brazil)	 EM12 (SDX20) • G (Global)
			 EG120K (SDX12) • EA (EMEA/ APAC^① / Brazil) • NA (North America) • LA (LATAM excl. Brazil) • JP (Japan)	 EM120K (SDX12) • GL (Global)
Cat 6	LGA, 31 × 28 mm			
	 EG065K (SDX12) • EA (EMEA/ APAC^① / LATAM) • NA (North America)		 EG060K (SDX12) • EA (EMEA/ APAC^① / Brazil) • GT (Global TDD 3.5 GHz) • NA (North America) • LA (LATAM excl. Brazil) • JP (Japan)	 EM060K (SDX12) • GL (Global) • NA (North America) • EA (EMEA/ APAC^① / Brazil)
			 EG060W (ASR1828) • EA (EMEA/ APAC^① / Brazil)	

①: Excl. China/Japan

EG06xK/ EG060x Series Specifications

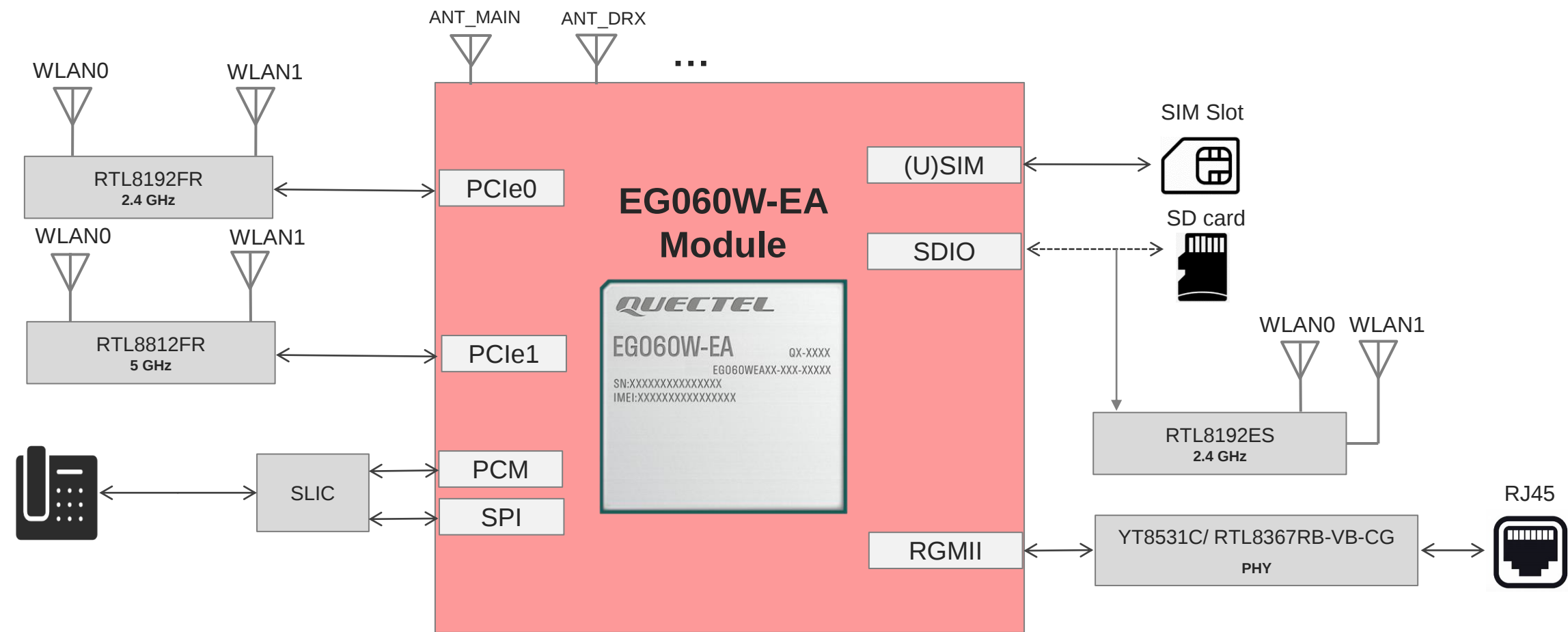
Variant		EG060K-EA	EG060K-NA	EG060K-LA	EG060K-JP	EG060K-GT	EG065K-NA	EG065K-EA	EG060W-EA
Region		EMEA/ APAC ^① / Brazil	North America	LATAM (excl. Brazil)	Japan	Global TDD 3.5 GHz	North America	EMEA/ APAC ^① / LATAM	EMEA/ APAC ^① / Brazil
LTE Category		6							6
Platform		SDX12							ASR1828
3GPP Release		Release 12							Release 10
Dimensions (mm)		39.5 × 37.0 × 2.8					31.0 × 28.0 × 2.4		39.5 × 37.0 × 3.05
LTE	LTE-FDD Band	B1/ 3/ 5/ 7 /8 / 20/ 28/ 32	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 66/ 71	B2/ 4/ 5/ 7/ 8/ 25/ 28/ 66	B1/ 3/ 5/ 8/ 18/ 19/ 26/ 28 ^③	-	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 30/ 66	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32 ^②
	LTE-TDD Band	B38/ 40/ 41/ 42 ^② / 43 ^②	B41/ 48	B42/ 43	B41	B40 ^② / 41 ^② / 42*/ 43*/ 48	-	B40	B38/ 40/ 41/ 42 ^② / 43 ^②
	2CA	Intra-band and Inter-band					Intra-band and Inter-band		Intra-band and Inter-band
UMTS	WCDMA Band	B1/ 3/ 5/ 8	-	B2/ 4/ 5/ 8	B1/ 3/ 5/ 6/ 8/ 9/ 19	-	-	B1*/ 2*/ 3*/ 4*/ 5*/ 8*	B1/ 5/ 8
Embedded GNSS		Optional					-		-
VoLTE (Voice over LTE)		Supported					-		Supported
USB 3.0/2.0 Interface		Supported					Supported		Supported
Certification	Carrier	TBD	Verizon/ AT&T/ T-Mobile	TBD	TBD	TBD	AT&T/ Verizon/ Telus	British Telecom/ Telefónica/ Telstra	TBD
	Regulatory	CE/ RCM	GCF/ PTCRB/ FCC/ IC	TBD	TBD	FCC/ IC	GCF/ PTCRB/ FCC/ IC	GCF/ CE/ RCM/ Anatel/ JATE/ TELEC	CE/ RCM
Project Stage		CS	CS	CS	CS	CS	CS	CS	CS

Typical SoC MiFi Architecture (EG060K/EG120K Series)



Note: The devices marked in text box are only recommendation, and can be substituted as needed.

Typical SoC MiFi Architecture (EG060W-EA)



Note:
1. *: Under developing.
2. The devices marked in text box are only recommendation, and can be substituted as needed.

EM060K Series Specifications

30.0 × 42.0 × 2.3 mm
LTE Cat 6 M.2 Module, 300M DL/ 50M UL



Variant		EM060K-GL	EM060K-NA	EM060K-EA
Region		Global	North America	EMEA/ APAC ^① / Brazil
LTE Category		6		
Platform		SDX12		
3GPP Release		Release 12		
LTE	LTE-FDD Band	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17 ^② / 18/ 19/ 20/ 25/ 26/ 28/ 29 ^③ / 30/ 32 ^③ / 66/ 71	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 29/ 30/ 66/ 71	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32 ^③ / 71 ^④
	LTE-TDD Band	B34/ 38/ 39/ 40/ 41/ 42/ 43/ 46 ^③ (LAA)/ 48 (CBRS)	B41/ 42/ 43/ 48	B38/ 40/ 41
	DL 64QAM/ UL 16QAM	Supported		
	2CA	Intra-band and Inter-band		
UMTS	WCDMA Band	B1/ 2/ 3/ 4/ 5/ 6/ 8/ 19	-	B1/ 3/ 5/ 8
Embedded GNSS		Optional		
eSIM		Optional		
USB 2.0/ 3.0 Interface		Supported		
PCIe Interface		Supported (RC Mode)*		
Certification	Carrier	Verizon/ AT&T/ T-Mobile/ NTT DOCOMO/ KDDI/ Vodafone/ British Telecom/ Orange/ Deutsche Telekom/ Swisscom/ Telstra/ Telefonica/ Softbank* ^⑤	Verizon/ AT&T/ T-Mobile	TBD
	Regulatory	GCF/ PTCRB/ NCC/ CE/ RCM/ FCC/ IC/ JATE/ TELEC	GCF/ PTCRB/ FCC/ IC	GCF/ PTCRB/ RCM
	Others	WHQL	TBD	TBD
Project Stage		CS	CS	CS

①: Excl. China/Japan. ②: B17 is supported through MFBI + B12. ③: LTE-FDD B29/ B32 and LTE-TDD B46 support Rx only and are only for secondary component carrier.

④: Optional. ⑤: Currently, SoftBank certification is only supported for PC applications.

*: Under development/ in progress. TBD: To Be Determined.

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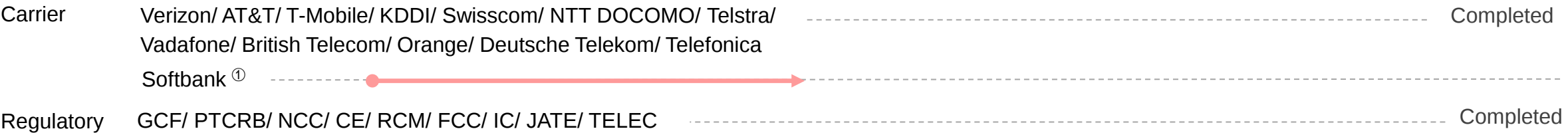
Version: 6.9 | Status: Released

EM060K-GL Timeline



2023			2024											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

EM060K-GL Certification



①: Currently, SoftBank certification is only supported for PC applications.

EG120K/EG12/EG512R/EG18 Series Specifications

LTE LGA Module
Cat 12: 600M DL/150M UL
Cat 18: 1.2G DL/ 150M UL



Variant		EG120K-EA	EG120K-NA	EG120K-LA	EG120K-JP	EG12-GT	EG12-EA	EG512R-EA	EG18-EA	EG18-NA
Region		EMEA/ APAC ^① / Brazil	North America	LATAM (excl. Brazil)	Japan	Global TDD 3.5 GHz	EMEA/ APAC ^① / Brazil	EMEA/ APAC ^① / Brazil	EMEA/ APAC ^① / Brazil	North America
LTE Category		12							DL Cat 18/ UL Cat 13	
Platform		SDX12				SDX20		SDX24	SDX20	
3GPP Release		Release 12				Release 12		Release 14	Release 12	
Dimensions (mm)		39.5 × 37.0 × 2.8						42.0 × 38.0 × 2.65	39.5 × 37.0 × 2.8	
LTE	LTE-FDD Band	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 66/ 71	B2/ 4/ 5/ 7/ 8/ 25/ 28/ 66	B1/ 3/ 5/ 8/ 18/ 19/ 26/ 28 ^③	-	B1/ 3/ 5/ 7/ 8/ 20/ 28	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32	B1/ 3/ 5/ 7/ 8/ 20/ 28	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 66/ 71
	LTE-TDD Band	B38/ 40/ 41/ 42 ^② / 43 ^②	B41/ 48	B42/ 43	B41	B42/ 43/ 48	B38/ 40/ 41	B38/ 41/ 42/ 43	B38/ 40/ 41	B41
	CA	DL 3CA; UL 2CA						DL 3CA; UL 2CA	DL 5CA; UL 2CA	
	DL 256QAM	Supported								
	DL 4 × 4 MIMO	B1/ 3/ 7/ 38/ 40/ 41/ 42	B2/ 4/ 7/ 25/ 30/ 66/ 41/ 48	B2/ 4/ 7/ 66/ 42/ 43	B1/ 3/ 41	B42/ 48	B1/ 3/ 7	B1/ 3/ 7/ 32/ 38/ 41/ 42/ 43	B1/ 3/ 7	B2/ 4/ 7/ 25/ 66
UMTS	WCDMA Band	B1/ 3/ 5/ 8	-	-	B1/ 3 /5 /6 /8 / 9/ 19	-	B1/ 3/ 5/ 8	B1/ 3/ 5/ 8	B1/ 3/ 5/ 8	B2/ 4/ 5
Embedded GNSS		Optional								
PCIe Interface		Optional (RC Mode)				Optional (RC Mode)		Supported	Optional (RC Mode)	
RGMII Interface		-				-		Supported	-	
USB 3.0 Interface		Supported				Supported		Supported	Supported	
eSIM		Supported / Built-in eSIM (optional)				-		Supported / Built-in eSIM (optional)	-	
Certification	Carrier	TBD	Verizon/ AT&T/ T-Mobile	TBD	TBD	-		TBD	Telstra	Verizon/ AT&T/ T-Mobile/ U.S. Cellular
	Regulatory	CE/ RCM	GCF/ PTCRB/ FCC/ IC	TBD	TBD	FCC	GCF/ CE/ RCM	GCF/ CE/ RCM	GCF/ CE/ RCM	GCF/ PTCRB/ FCC/ IC
Project Stage		CS	CS	CS	CS	CS	CS	CS	CS	CS

EM120K/EM12/EM12xR/EM160R Series Specifications

30.0 × 42.0 × 2.3 mm M.2 Module
LTE Cat 12 : 600M DL/150M UL
LTE Cat 16: 1.0G DL/150M UL



Variant		EM120K-GL	EM12-G	EM120R-GL	EM121R-GL	EM160R-GL
Region		Global				
LTE Category		12				DL Cat 16/ UL Cat 13
Platform		SDX12	SDX20	SDX24		SDX24
3GPP Release		Release 12	Release 12	Release 14		Release 14
LTE	LTE-FDD Band	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 29/ 30/ 32/ 66/ 71	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 9/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 21/ 25/ 26/ 28/ 29/ 30/ 32/ 66	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 29/ 30/ 32/ 66		B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 29/ 30/ 32/ 66
	LTE-TDD Band	B34/ 38/ 39/ 40/ 41/ 42/ 43/ 46(LAA)/ 48(CBRS)	B38/ 39/ 40/ 41	B38/ 39/ 40/ 41/ 42/ 43/ 46(LAA)/ 48(CBRS)		B38/ 39/ 40/ 41/ 42/ 43/ 46(LAA)/ 48(CBRS)
	DL 4 × 4 MIMO	-	-	-		B1/ 2/ 3/ 4/ 7/ 25/ 30/ 32/ 66/ 38/ 39/ 40/ 41
	DL 2CA	Intra-band and Inter-band				
	DL 3CA	Intra-band and Inter-band	Intra-band and Inter-band, Intra-band plus inter-band	Intra-band and Inter-band		Intra-band and Inter-band
	DL 256QAM /UL 64QAM	Supported				
	UL 2CA	Intra-band				
UMTS	WCDMA Band	B1/ 2/ 3/ 4/ 5/ 6/ 8/ 19	B1/ 2/ 3/ 4/ 5/ 8/ 9/ 19	B1/ 2/ 3/ 4/ 5/ 6/ 8/ 19		B1/ 2/ 3/ 4/ 5/ 6/ 8/ 19
Embedded GNSS		Optional	Optional	Optional/ L1 (Passive Ant.)	Optional/ L1 + L5 (Active Ant.)	Optional
PCIe Interface		Optional (RC Mode)*	Optional (RC Mode)	Supported		Supported
USB 2.0/3.0 Interface		Supported	Supported	Supported		Supported
eSIM		Supported / Built-in eSIM (optional)	-	Supported / Built-in eSIM (optional)		Supported / Built-in eSIM (optional)
Certification	Carrier	Verizon/ AT&T/ T-Mobile/ NTT DOCOMO/ KDDI/ Telstra/ Softbank* ^①	Vodafone/ TIM/ Deutsche Telekom/ British Telecom/ Telefónica/ Verizon/ AT&T/ T-Mobile/ Sprint/ Rogers/ Telus/ NTT DOCOMO/ SoftBank ^① / KDDI/ Telstra	Vodafone/ British Telecom/ Verizon/ AT&T/ T-Mobile/ Sprint/ China Mobile/ China Unicom/ NTT DOCOMO/ SoftBank ^① / KDDI/ Rakuten/ Swisscom/ Telstra	AT&T/ Verizon	Vodafone/ British Telecom/ Verizon/ AT&T/ T-Mobile/ Sprint/ China Mobile/ China Unicom/ NTT DOCOMO/ SoftBank ^① / KDDI/ Rakuten/ Telstra*/ Swisscom
	Regulatory	GCF/ PTCRB/ CE/ RCM/ FCC/ IC/ NCC/ JATE/ TELEC	GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ CCC/ KC/ NCC/ JATE/ TELEC/ RCM/ ICASA/ UKCA	GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ IFETEL/ SRRC/ NAL/ CCC/ KC/ NCC/ JATE/ TELEC/ RCM/ ICASA	GCF/ CE/ FCC/ PTCRB/ IC/ RCM	GCF/ CE/ FCC/ PTCRB/ IC/ Anatel/ IFETEL/ SRRC/ NAL/ CCC/ KC/ NCC/ JATE/ TELEC/ RCM/ ICASA
	Others	WHQL	WHQL	-	-	-
Project Stage		CS	CS	CS	CS	CS

[Back](#)

EM120K-GL Timeline



2023			2024											
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

Certification

Carrier



Regulatory



①: Currently, SoftBank certification is only supported for PC applications.



5G Module Specifications & Timelines

LTE-A Module Specifications & Timelines

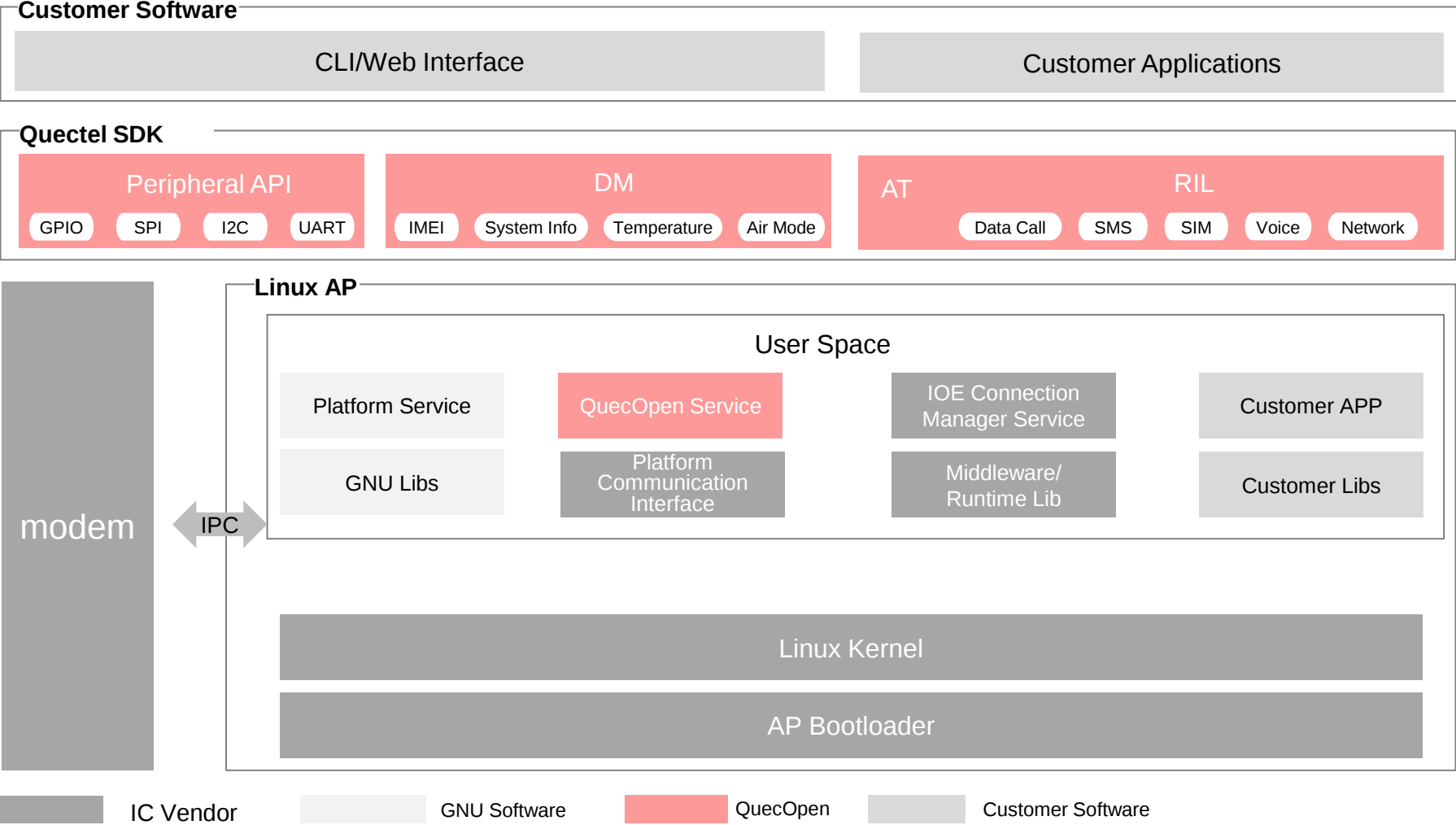
Software & Support

Typical Applications

Build a Smarter World

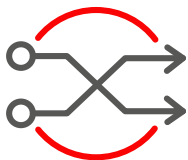


QuecOpen[®] Software Framework



QuecOpen[®] is an open source embedded development platform based on Linux system, which is intended to simplify the design and development process for MBB/IoT applications.

Software Advantages

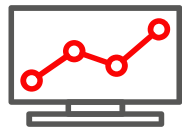


USB Serial Drivers

Windows 7/8/8.1/10/11
Linux 2.6–5.18
Android 4.x–13.x

Robust Security Capabilities

Secure boot
Secure file system
Secure execution environment



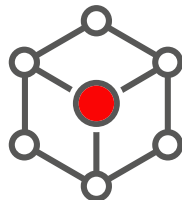
GNSS/ RIL/ NDIS/ MBIM/ GobiNet/ QMI_WWAN Drivers

GNSS/ RIL Driver: Android 4.x–13.x
NDIS Driver: Windows 7/8/8.1/10/11
MBIM Driver: Windows 8/8.1/10/11
Linux 3.18–5.18
GobiNet Driver: Linux 2.6–5.18
QMI_WWAN Driver: Linux 3.4–5.18



Special Features

Over Temperature &
Voltage Protection



Flexible Applications

eCall
(U)SIM card detection
Voice
DFOTA

Abundant Protocols

QMI/ TCP/ UDP/ FTP/ HTTP/
NTP/ PING/...



Support Package

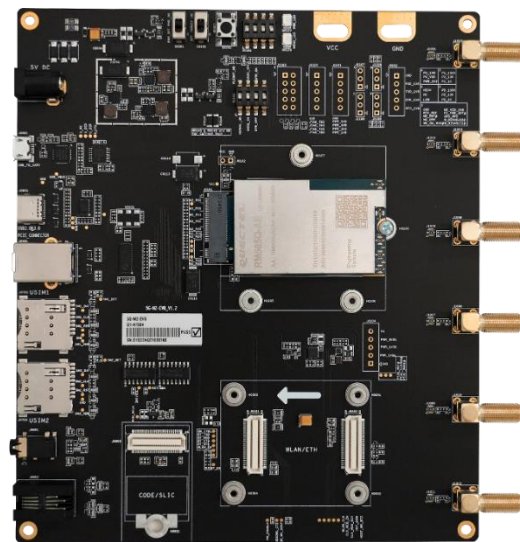


EVB Kits



5G EVB Kit (for LGA)

Evaluation board with various peripherals adapt board



M.2 Module EVB Kit

Evaluation board for M.2 series module debugging and testing



5G M.2 Dongle EVB Kit

Small-sized evaluation board with on-board antenna, for dongle application demo and test



mmWave EVB Kit

Tuned mmWave evaluation board for mmWave performance testing



5G Module Specifications & Timelines

LTE-A Module Specifications & Timelines

Software & Support

Typical Applications

Build a Smarter World



Typical Applications – Fixed Wireless Access



Fixed Wireless Access

- Home Gateway
- Industrial Router
- CPE
- DTU
- Enterprise Gateway
- Mobile Hotspot

Typical Applications – Mobile Broadband Devices



Mobile Broadband Devices

- Consumer Laptop
- Industrial Tablet
- High-Definition Live Broadcast
- AR/VR
- Drone

Typical Applications – Industrial Automation



Industrial Automation

- Automated Guided Vehicle
- Remote Control
- Smart Grid
- Smart Mine
- Robot



**We are a global IoT solutions provider,
backed by outstanding support and
services, to deliver a smarter world.**

- Unbeatable choice from the broadest module portfolio in the world
- High quality range of off-the-shelf and customized antennas
- Superb support with the largest R&D team in the industry
- Continuous innovation – in 5G, LPWA, Automotive, Smart module technology
- A passionate, dedicated team of "Quectelers" ensures our customers always come first

Thank You

Build a Smarter World

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