



Quectel Smart Module

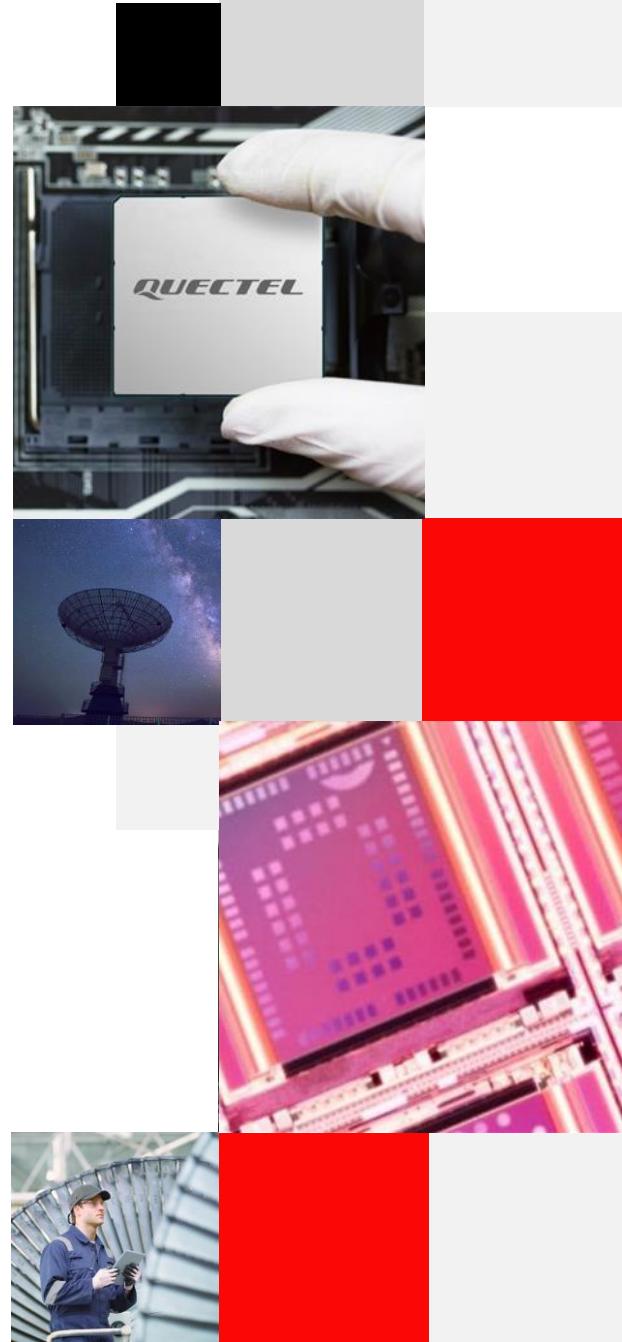
Product Overview

Build a Smarter World



Duty of Confidentiality

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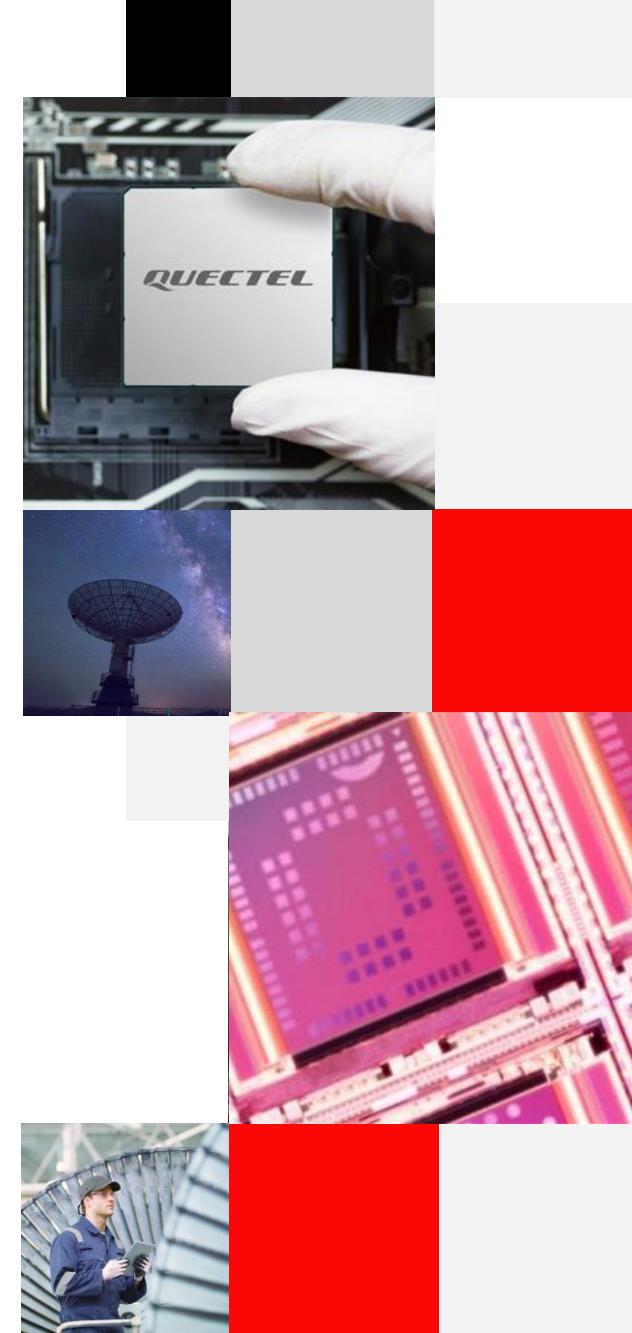




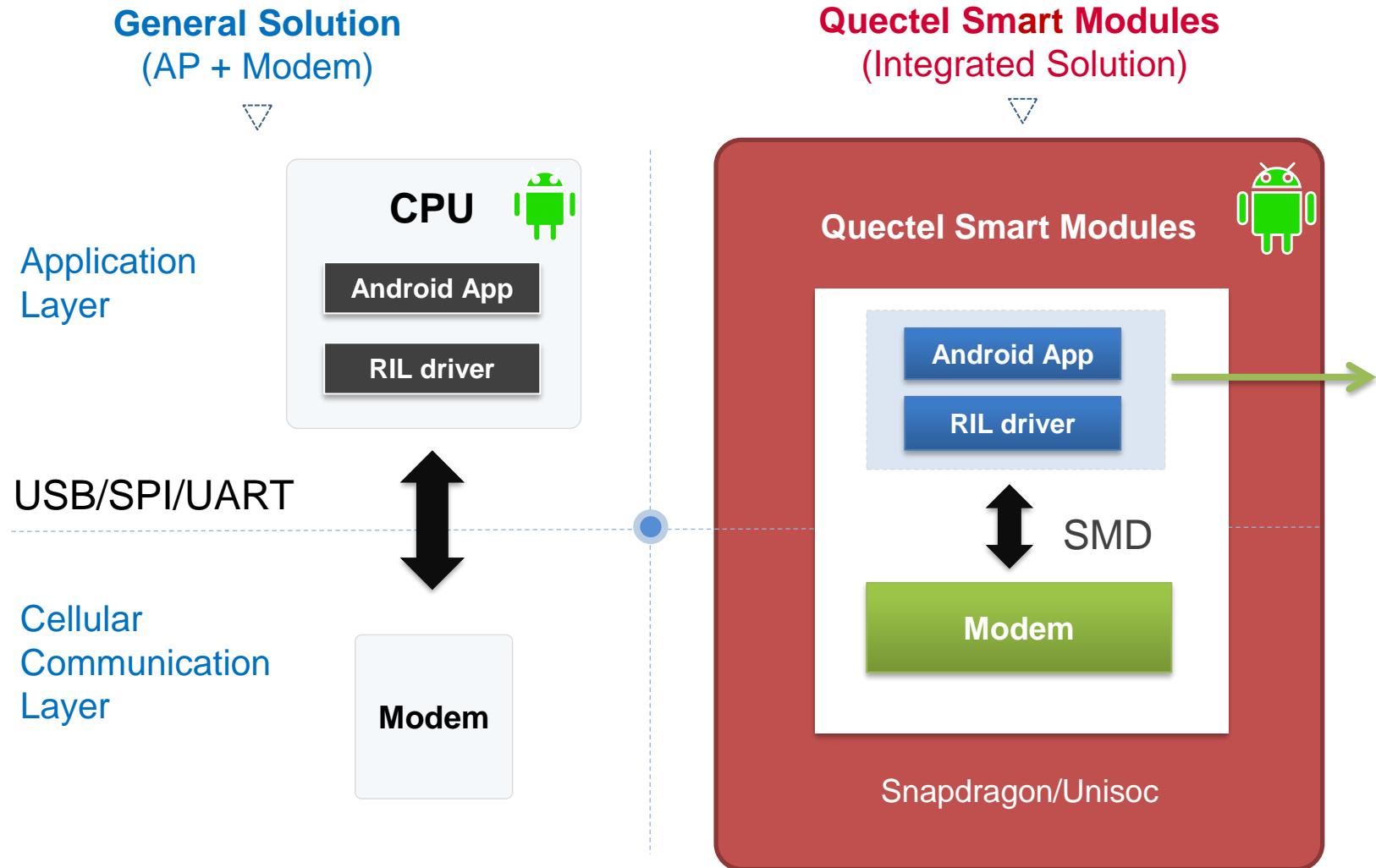
Smart Solution Overview

Roadmap
Specifications
Applications
Customer Support

Build a Smarter World



Smart Solution Overview



- Android open source (from driver, kernel layer, Android framework, to application layer, including bootloader)
- Developers could customize Android system, develop Android Apps, etc.
- Quectel technical supports are readily available during evaluation and development

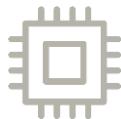
Quectel Smart Solution Advantages



Strong Customer Support



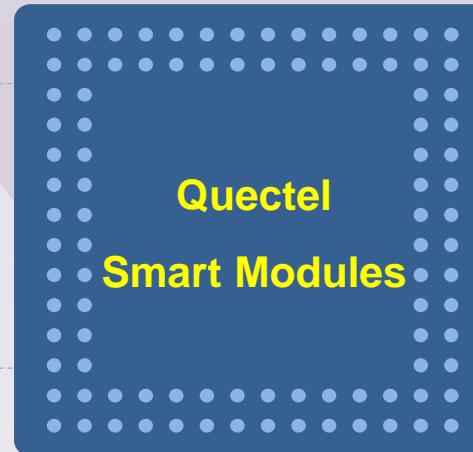
Qualcomm/Unisoc SoC
Android Platform



No Need for External CPU



Open Android



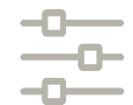
Various Multimedia Functions:
LCD/Audio/Camera/Video



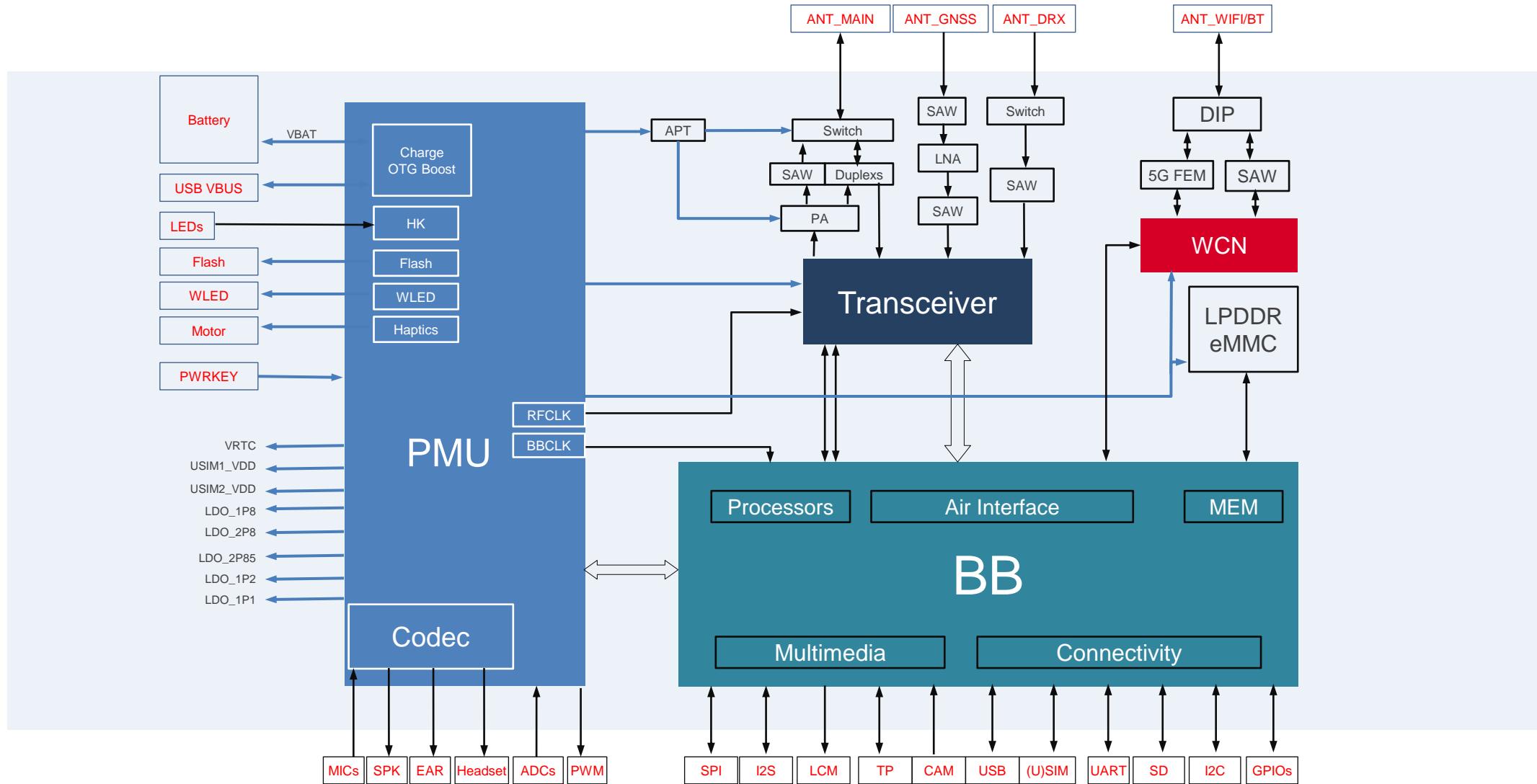
Built-in Wi-Fi/
Bluetooth/GNSS



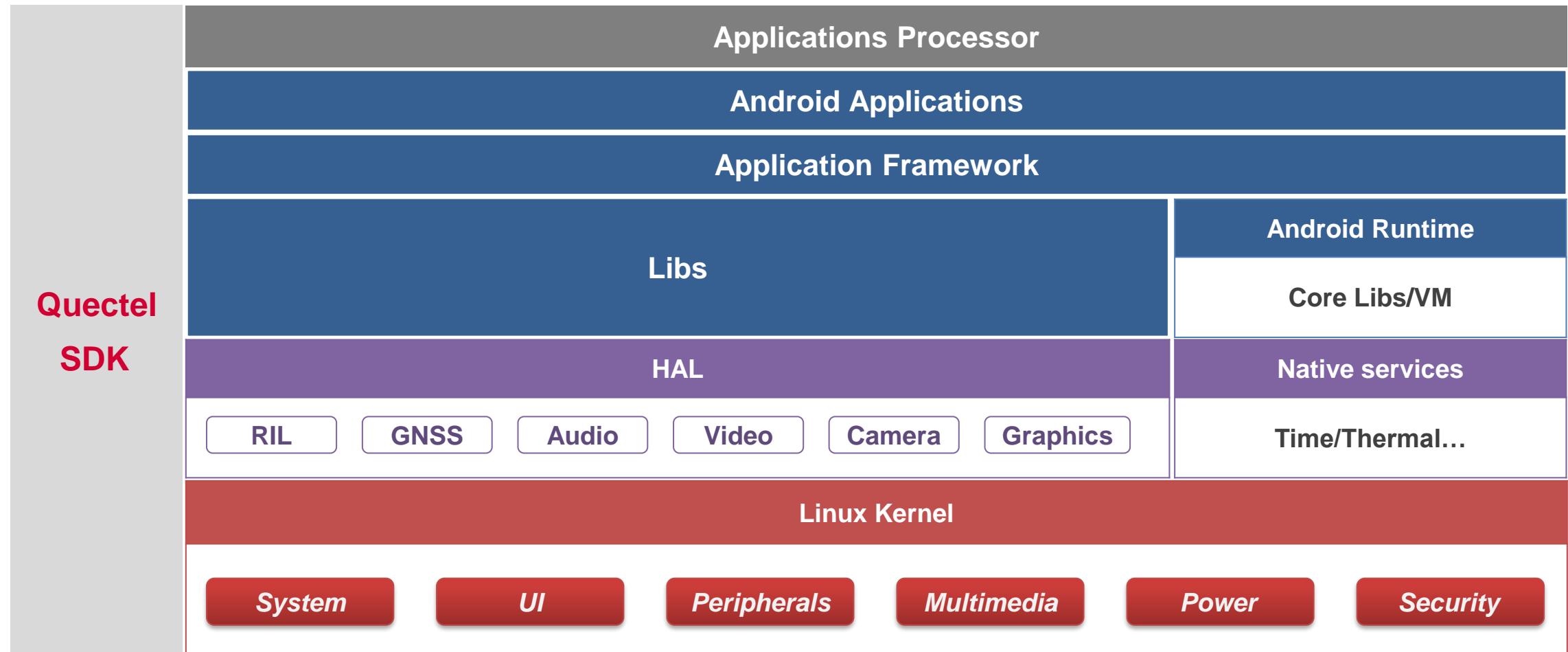
Abundant Interfaces



Smart Module Hardware Structure



Smart Module SDK Software Structure



Android Security Solution



SELinux Authority Control



Android Against Root



Boot Image Verification



Kernel Module Signature



eMMC File System Encryption



Android APK Signature



Copyright Protection





Smart Solution Overview

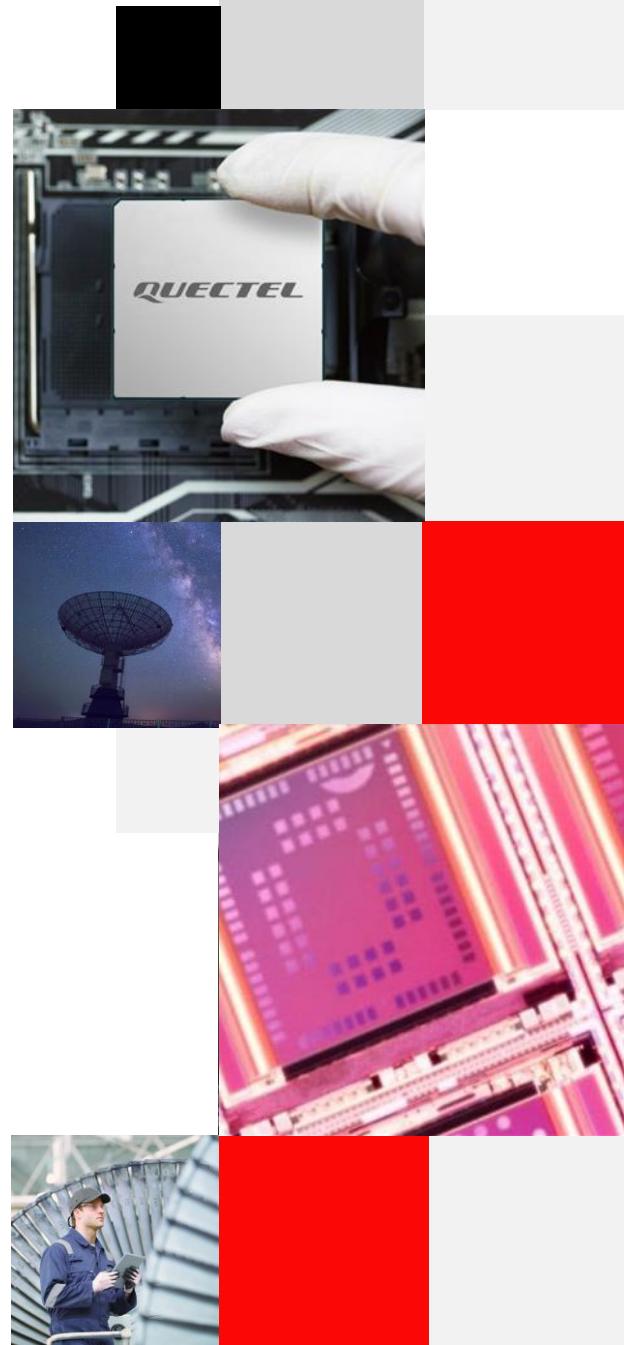
Roadmap

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Build a Smarter World

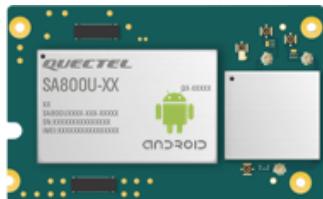


Smart Modules Roadmap Planning



Premium

Octa-Core



SA800U-WF

SDA845

Qualcomm



SG865W-WF

QCS8250

Qualcomm

- A/ -AL/ -NA (North America)
- AU/ -AUL (ANZ/ Latin America)
- CE (China)
- E/ -EL (EMEA/ APAC)
- EM (EMEA/ APAC/ ANZ/ Latin America)
- J/ -JP (Japan)
- W/ -WL/ -MW/ -WF (Global)

High

Octa-Core



SC600T Series

-EM/ -NA/ -JP/ -WF

Cat 6

MSM8953

Qualcomm



SC606T Series

-EM/ -NA/ -WF

Cat 6

MSM8953

Qualcomm



SC66 Series

-CE/ -E/ -A/ -J/ -MW

Cat 6

SDM660

Qualcomm

Medium

Octa-Core



SC600Y Series

-EM/ -NA/ -JP/ -WF

Cat 6

SDM450

Qualcomm

Entry

Quad-Core



SC20 Series

-CE/ -E/ -A/ -AU/ -J/ -W/
-EL/ -AL/ -AUL/ -WL

Cat 4

MSM8909

Qualcomm



SC200R Series

-CE/ -EM/ -NA/ -WF

Cat 4

QCM2150

Qualcomm



SC200E Series

-CE/ EM/ -NA/ -WF

Cat 4

QCM2290

Qualcomm



SC200L Series

-CE/ -EU/ -AU

Cat 4

SL8541E

紫光展锐™

Smart Module Performance Comparison



Item	SC20 Series	SC200R Series	SC200L Series	SC200E Series	SC600Y Series	SC600T/SC606T Series	SC66 Series	SA800U-WF	SG865W-WF
SKUs	-CE/-E/-A/-AU/-J/-W/-EL/-AL/-AUL/-WL	-CE/-EM/-NA/-WF	-CE/-EU/-AU	-CE/-EM/-NA/-WF	-EM/-NA/-JP/-WF	-EM/-NA/-JP/-WF	-CE/-E/-A/-J/-MW	-WF	-WF
Platform	MSM8909	QCM2150	SL8541E	QCM2290	SDM450	MSM8953	SDM660	SDA845	QCS8250
Process	28 nm	28 nm	28 nm	11 nm	14 nm	14 nm	14 nm	10 nm	7 nm
Modem	LTE Cat 4	LTE Cat 4	LTE Cat 4	LTE Cat 4	LTE Cat 6	LTE Cat 6	LTE Cat 6	Wi-Fi/Bluetooth only	Wi-Fi/Bluetooth only
OS	Android 7.1/8.1/Linux ^①	Android 10	Android 10	Android 11/12/13	Android 9/10	Android 9/10/Linux ^①	Android 9/10	Android 9/10	Android 10
CPU	4 × A7 @ 1.1 GHz	4 × A53 @ 1.3 GHz	4 × A53 @ 1.4 GHz	4 × A53 @ 2.0 GHz	8 × A53 @ 1.8 GHz	8 × A53 @ 2.0 GHz	4 × Kryo Gold 260 @ 2.2 GHz 4 × Kryo Silver 260 @ 1.8 GHz	4 × Kryo 385 @ 2.649 GHz 4 × Kryo 385 @ 1.766 GHz	1 × Kryo 585 Gold prime @ 2.842 GHz 3 × Kryo 585 Gold @ 2.419 GHz 4 × Kryo 585 Silver @ 1.805 GHz
GPU	Adreno 304 @ 409.6 MHz	Adreno 308 @ 485 MHz	Mali-T820 MP1 @ 680 MHz	Adreno 702 @ 845 MHz	Adreno 506 @ 600 MHz	Adreno 506 @ 650 MHz	Adreno 512 @ 650 MHz	Adreno 630 @ 710 MHz	Adreno 650 @ 587 MHz
NPU	-	-	-	-	-	-	-	-	NPU230
Display	1 × MIPI_DSI HD (720P)	1 × MIPI_DSI HD+ (1440 × 720)	1 × MIPI_DSI HD+ (1440 × 720)	1 × MIPI_DSI HD+ (1680 × 720)	2 × MIPI_DSI WUXGA (1920 × 1200) FHD (1920 × 1080)	2 × MIPI_DSI WUXGA (1920 × 1200) FHD (1920 × 1080)	2 × MIPI_DSI WQXGA (2560 × 1600) WQXGA (2560 × 1600)	Adreno DPU 795 2 × MIPI_DSI + 1 × DP (SST Mode) 4K (3840 × 2400)	Adreno DPU 995 2 × MIPI_DSI + 1 × DP (MST Mode) 4K (5040 × 2160)
Camera	1 × ISP Max. 8 MP @ 1 × ISP	2 × ISP 8 MP @ 1 × ISP + 8 MP @ 1 × ISP Max. 13 MP @ 2 × ISP	1 × ISP Max. 8 MP + 2 MP	2 × ISP 13 MP @ 1 × ISP + 13 MP @ 1 × ISP Max. 25 MP @ 2 × ISP	2 × ISP 13 MP @ 1 × ISP + 13 MP @ 1 × ISP Max. 21 MP @ 2 × ISP	2 × ISP 13 MP @ 1 × ISP + 13 MP @ 1 × ISP Max. 24 MP @ 2 × ISP	2 × ISP + 1 × Lite ISP 16 MP @ 1 × ISP + 16 MP @ 1 × ISP Max. 24 MP @ 2 × ISP	2 × ISP + 2 × Lite ISP 16 MP @ 1 × ISP + 25 MP @ 1 × ISP Max. 32 MP @ 2 × ISP	2 × ISP + 2 × Lite ISP 25 MP @ 1 × ISP + 25 MP @ 1 × ISP Max. 64 MP @ 2 × ISP
Video	Encode: 720p30, H.264 Decode: 1080p30, H.264, H.265	Encode: 1080p30, H.264 Decode: 1080p30, H.264, H.265	Encode: 1080p30, H.264 Decode: 1080p30, H.264, H.265	Encode/Decode: 1080p30, H.264, H.265	Encode/Decode: 1080p60, H.264, H.265	Encode/Decode: 4K30, 1080p60, H.264, H.265	Encode/Decode: 4K30, 1080p60, H.264, H.265	Encode/Decode: 4K60, H.264, H.265	Encode: 4K120/8K30, H.264, H.265, VP8, VP9 Decode: 4K240/8K60, H.264, H.265, VP8
Bluetooth	Bluetooth 4.2/BLE	Bluetooth 4.2/BLE	Bluetooth 5.0/BLE	Bluetooth 5.0/BLE	Bluetooth 4.2/BLE	Bluetooth 4.2/BLE	Bluetooth 5.0/BLE	Bluetooth 5.0/BLE	Bluetooth 5.1 /BLE
Wi-Fi	2.4&5 GHz, 802.11a/b/g/n	2.4&5 GHz, 802.11a/b/g/n	2.4&5 GHz, 802.11a/b/g/n/ac	2.4&5 GHz, 802.11a/b/g/n/ac	2.4&5 GHz, 802.11a/b/g/n/ac	2.4&5 GHz, 802.11a/b/g/n/ac	2.4&5 GHz, 2 × 2 MIMO 802.11a/b/g/n/ac	2.4&5 GHz, 2 × 2 MIMO 802.11a/b/g/n/ac	2.4&5 GHz, 2 × 2 MIMO 802.11a/b/g/ac (Wi-Fi 6)
GNSS	GPS, GLONASS, BeiDou, Galileo	GPS, GLONASS, BeiDou, Galileo	GPS, GLONASS, BeiDou	GPS, GLONASS, BeiDou, Galileo, QZSS, SBAS	GPS, GLONASS, BeiDou, Galileo	GPS, GLONASS, BeiDou, Galileo	GPS, GLONASS, BeiDou, Galileo, QZSS, SBAS	-	-
USB	1 × USB 2.0	1 × USB 2.0	2 × USB 2.0	1 × USB 2.0/3.1	1 × USB 2.0/3.0	1 × USB 2.0/3.0	1 × USB 3.1 + 1 × USB 2.0	2 × USB 3.1, one with DP	2 × USB 3.1, one with DP
PCIe	-	-	-	-	-	-	-	1 × 1-lane PCIe Gen 2 + 1 × 1-lane PCIe Gen 3	2 × 2-lane PCIe Gen 3
Life Time	2025	2025	2025	2028	2025	2025	2025	2025	2025

^① means only SC20-EL/-AL/-AUL/-WL and SC606T series are with Linux OS.

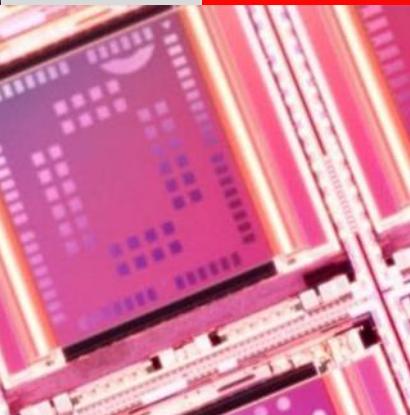
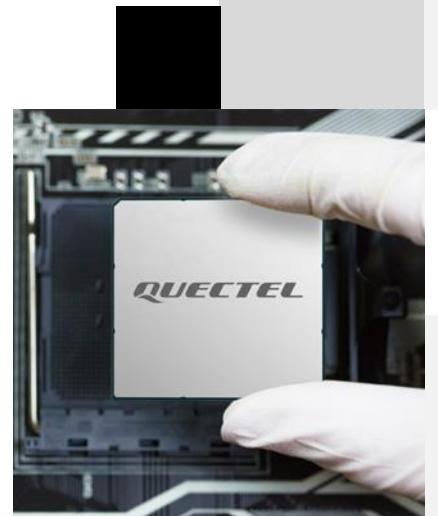


Smart Solution Overview
Roadmap

Specifications

Applications
Customer Support

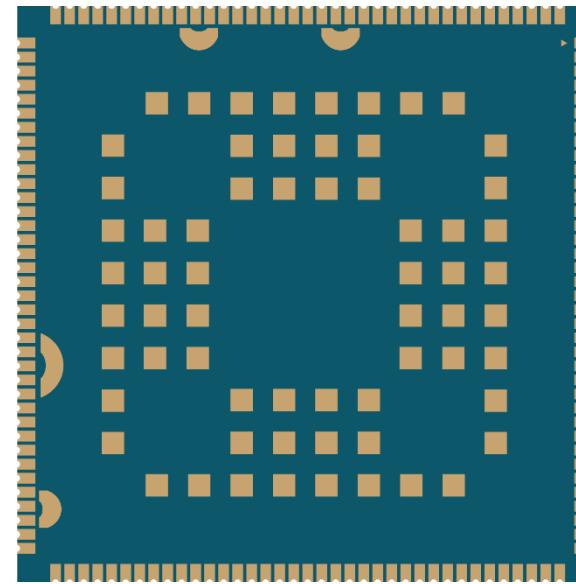
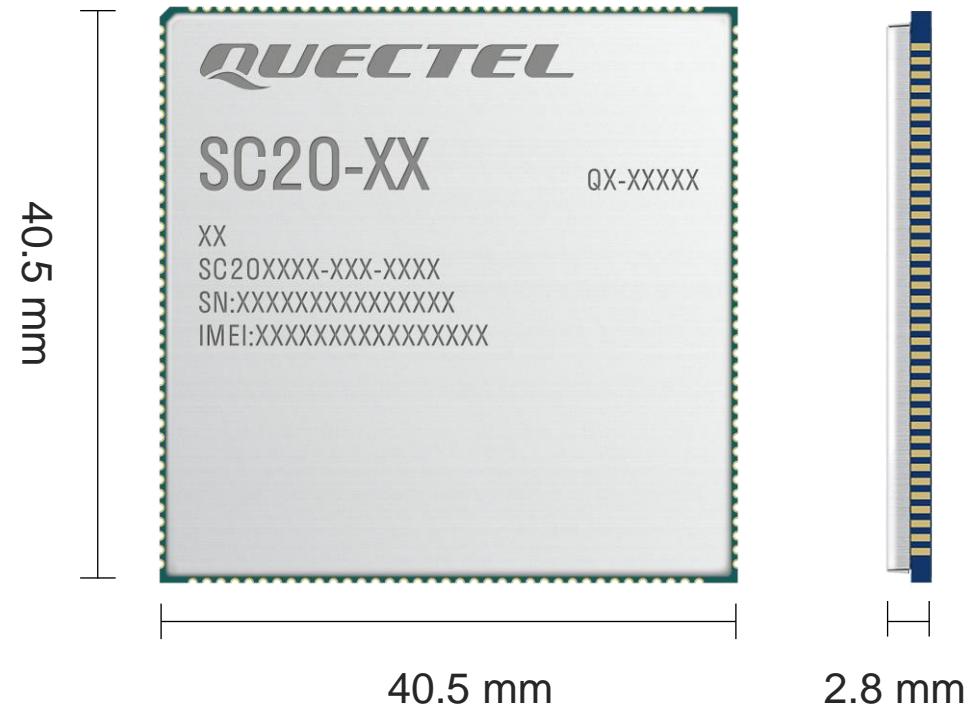
Build a Smarter World



SC20 Series Mechanical Dimensions



Multi-Mode LTE Cat 4 Module (MSM8909)



Length: 40.5 mm (± 0.15 mm)
Width: 40.5 mm (± 0.15 mm)
Height: 2.8 mm (± 0.2 mm)
Weight: Approx. 9.8 g



Evaluation Board

Interfaces

- Serial port
- Antenna interface
- Micro-USB interface

Accessories

- Micro-USB cable
- USB to RS-232 converter cable
- RF cables
- Power adapter
- Earphone
- Antennas
- USB flash drive

SC20 Series Specifications



Variant		SC20-E/-EL ^③	SC20-A/-AL ^③	SC20-J/-JL ^③	SC20-AU/-AUL ^③	SC20-CE	SC20-W/-WL ^③
LTE	LTE-FDD	B1/B3/B5/B7/B8/B20	B2/B4/B5/B7/B12/B13/B25/B26	B1/B3/B8/B18/B19/B26	B1/B3/B5/B7/B8/B28	B1/B3/B5/B8	-
	LTE-TDD	B38/B40/B41	-	B41	B40	B38/B39/B40/B41	-
UMTS	WCDMA	B1/B5/B8	B1/B2/B4/B5/B8	B1/B6/B8/B19	B1/B2/B5/B8	B1/B8	-
	TD-SCDMA	-	-	-	-	B34/B39	-
EVDO/CDMA		-	-	-	-	BC0	-
GSM/EDGE		Quad-band	850/1900 MHz	-	Quad-band	900/1800 MHz	-
Embedded GNSS		Y	Y	Y	Y	Y	-
Wi-Fi/Bluetooth		Y	Y	Y	Y	Y	Y
Region		EMEA/Korea/Thailand/India/Vietnam	North America	Japan	Australia/Brazil/Taiwan	China (CMCC, CUCC)	Global
Certification		Regulatory: GCF/CE/UKCA/KC/NBTC	Carrier: Verizon/AT&T/T-Mobile ^① /Rogers/Telus ^① Regulatory: GCF/PTCRB/FCC/IC	Carrier: NTT DOCOMO/SoftBank/KDDI Regulatory: JATE/TELEC	Carrier: Telstra Regulatory: GCF/CE/Anatel/NCC/RCM	Regulatory: SRRC/NAL/CCC	Regulatory: CE/FCC/UKCA/IC/Anatel/JATE/TELEC/RCM

"Y" means supported.

^① T-Mobile/Telus for Data Only version has been done and that for Voice version is TBD.

^③ SC20-EL/-AL/-JL/-AUL/-WL are modules with Yocto Linux OS inside.

And the certification status listed above are for Android-version SC20 series and can not be shared by the Linux-Version SC20 series.

SC20 Series Features



Item	Description
CPU	MSM8909, Quad-core A7, up to 1.1 GHz
Memory	<ul style="list-style-type: none">• 1 GB LPDDR3 + 8 GB eMMC• 2 GB LPDDR3 + 16 GB eMMC
OS	<ul style="list-style-type: none">• Android 7.1/8.1 supported by SC20-E/-A/-J/-AU/-CE/-W• Yocto Linux (Kernel 3.18) supported only by SC20-EL/-AL/-JL/-AUL/-WL
WLAN	<ul style="list-style-type: none">• 2.4&5 GHz, 802.11a/b/g/n• 150 Mbps, STA/AP/P2P
Bluetooth	<ul style="list-style-type: none">• Bluetooth 2.1 EDR/3.0 HS/4.2 LE• Support a maximum of 10 ACL/BEL/SCO links
GNSS	GPS/BeiDou/GLONASS or GPS/BeiDou/Galileo (not supported on SC20-W/-WL)
Modem	3GPP Release 10 compliant

SC20 Series Interfaces



Item	Description
LCM	<ul style="list-style-type: none">• 4-lane MIPI_DSI, 1.5 Gbps/lane, HD (720P) @ 60 fps• Support MIPI to RGB, MIPI to LVDS and MIPI to HDMI
Camera	2-lane + 1-lane MIPI_CSI, 1.5 Gbps/lane, 1×ISP, Bayer/YUV format
Touch Panel	Capacitive-screen, I2C controls
Audio	Analog channels: <ul style="list-style-type: none">• Two inputs: MIC1, MIC2• Three outputs: speaker, earpiece, headphone
Video	<ul style="list-style-type: none">• Encode: 720P (H.264) @ 30 fps; WVGA (MPEG-4/VP8) @ 30 fps• Decode: 1080P (H.264/MPEG-4/VP8/H.265/DivX4/5/6) @ 30 fps; WVGA (H.263) @ 30 fps
USB 2.0	<ul style="list-style-type: none">• High Speed, 480 Mbps• Support USB 2.0 OTG, USB OTG + charge and USB to Ethernet functions
(U)SIM	× 2, support 1.8/3 V (U)SIM cards, with (U)SIM card detection function; DSDS supported
UART	× 2, support up to 4 Mbps with hardware flow control
SD Card	SD 3.0, 4-bit SDIO
I2C/SPI/ADC/GPIO	Supported
PWRKEY	Supported
Antenna	× 4, main antenna, Rx-diversity antenna, GNSS antenna and Wi-Fi/Bluetooth antenna respectively

2020

Project Stage

SC20-E

MP

Regulatory Certification

GCF/CE/UKCA/KC/NBTC



2020

Project Stage



Carrier Certification

Verizon/AT&T/T-Mobile^{Data Version} /Rogers/Telus^{Data Version}



Regulatory Certification

GCF/PTCRB/FCC/IC



2020

Project Stage

SC20-J MP

Carrier Certification

NTT DOCOMO/SoftBank/KDDI



Regulatory Certification

JATE/TELEC



2020

Project Stage

SC20-AU MP

Carrier Certification

Telstra



Regulatory Certification

GCF/CE/Anatel/NCC/RCM



2020

Project Stage



Regulatory Certification

SRRC/NAL/CCC



2020

Project Stage

SC20-W  MP

Regulatory Certification

CE/FCC/UKCA/IC/Anatel/JATE/TELEC/RCM



SC20-EL Timeline



2019				2020							
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.

Project Stage

SC20-EL 

Regulatory Certification

GCF/CE/UKCA/RCM

Completed

KC

TBD

2020											
Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

Project Stage

SC20-AL MP

Carrier Certification

Verizon/AT&T Completed

T-Mobile ^{Voice Version} /Rogers/Telus ^{Data Version} TBD

Regulatory Certification

GCF/PTCRB/FCC/IC Completed



SC20-JL Timeline



2020									
Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.

Project Schedule

TBD

Carrier Certification

NTT DOCOMO

TBD

Regulatory Certification

JATE/TELEC

TBD

SC20-AUL Timeline



2020									
Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.

Project Stage

SC20-AUL MP

Carrier Certification

Telstra TBD

Regulatory Certification

Anatel Completed

GCF/CE/RCM TBD

2020

Project Stage

SC20-WL MP

Regulatory Certification

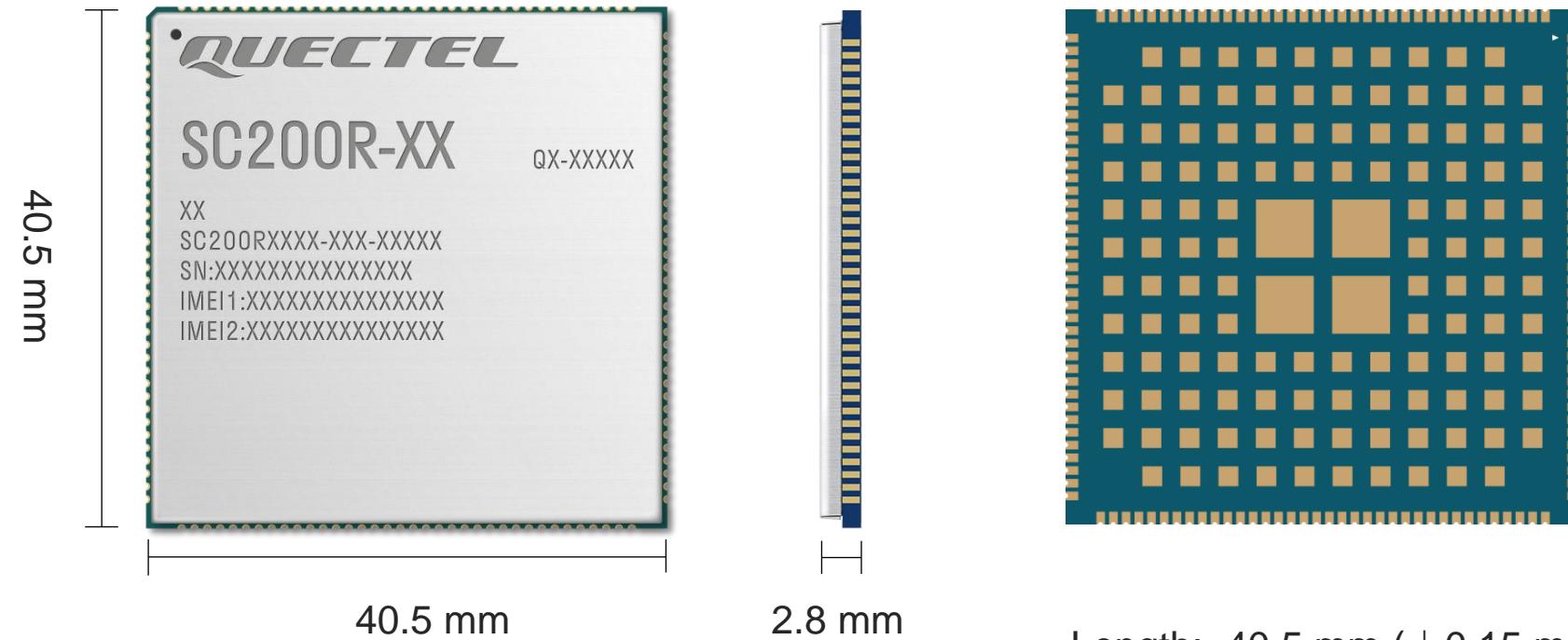
CE/FCC/UKCA/IC/Anatel/JATE/TELEC/RCM



SC200R Series Mechanical Dimensions



Multi-Mode LTE Cat 4 Module (QCM2150)



Length: 40.5 mm (± 0.15 mm)
Width: 40.5 mm (± 0.15 mm)
Height: 2.8 mm (± 0.2 mm)
Weight: Approx. 10.2 g



Evaluation Board

Interfaces

- Serial port
- Antenna interface
- USB Type-C interface

Accessories

- USB Type-C cable
- USB to RS-232 converter cable
- RF cables
- Power adapter
- Earphone
- Antennas
- USB flash drive

SC200R Series Specifications



Variant		SC200R-EM	SC200R-NA	SC200R-JP ^①	SC200R-CE	SC200R-WF
LTE	LTE-FDD	B1/B2/B3/B4/B5/B7/B8/ B20/B28	B2/B4/B5/B7/B12/B13/B14/ B17/B25/B26/B66/B71	B1/B3/B5/B8/B11/B18/B19/ B21/B26/B28	B1/B3/B5/B8	-
	LTE-TDD	B38/B40/B41	B41	B41	B34/B38/B39/B40/B41	-
UMTS	WCDMA	B1/B2/B4/B5/B8	B2/B4/B5	B1/B6/B8/B19	B1/B8	-
EVDO/CDMA		-	-	-	BC0	-
GSM/EDGE		850/900/1800/1900 MHz	-	-	900/1800 MHz	-
Embedded GNSS		Y	Y	Y	Y	-
Wi-Fi/Bluetooth		Y	Y	Y	Y	Y
Region		EMEA/India/Korea/ South Asia/Latin America/ Australia/New Zealand/ South Africa	North America	Japan	China	Global
Certification		Carrier: Telstra* Regulatory: GCF/CE/RCM	Carrier: Verizon/AT&T/T-Mobile* Regulatory: GCF/PTCRB/FCC/IC	Carrier: NTT DOMOCO ^① Regulatory: JATE ^① /TELEC ^①	Regulatory: CCC/SRRC*/NAL*	Regulatory: CE/FCC/IC/RCM

"Y" means supported.

"*" means planning.

① means TBD.

SC200R Series Features



Item	Description
CPU	QCM2150 , Quad-core ARM Cortex-A53 64-bit CPU @ 1.3 GHz
GPU	Qualcomm® Adreno™ 308 Graphics Processing Unit (GPU) with 64-bit addressing
Memory	<ul style="list-style-type: none">• 1 GB LPDDR3 + 8 GB eMMC• 2 GB LPDDR3 + 16 GB eMMC
OS	Android 10
Battery Charge	Supported
WLAN	2.4&5 GHz, 802.11a/b/g/n, 150 Mbps, STA/AP/P2P
Bluetooth	<ul style="list-style-type: none">• Bluetooth 2.1 EDR/3.0 HS/4.2 LE• Support a maximum of 10 ACL/BEL/SCO links
GNSS	GPS/BeiDou/GLONASS or GPS/BeiDou/Galileo (not supported on SC200R-WF)
Modem	3GPP Release 10

SC200R Series Interfaces



Item	Description
LCM	<ul style="list-style-type: none">• 4-lane MIPI_DSI, HD+ (1440 × 720) @ 60 fps• Wi-Fi display: 1080P @ 30 fps (UBWC)
Camera	<ul style="list-style-type: none">• 2 groups of 4-lane MIPI_CSI, up to 2.1 Gbps/lane, 2×ISP• Support 2 or 3 cameras, up to 13 MP with dual ISP
Touch Panel	Capacitive touch panel, I2C controls
Audio	Analog channels: <ul style="list-style-type: none">• 3 inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC)• 3 outputs: speaker, earpiece, headphone
Video	<ul style="list-style-type: none">• Encoder: 1080P (H.264) @ 30 fps; WVGA (MPEG-4/VP8) @ 30 fps• Decoder: 1080P (H.264/MPEG-4/VP8/H.265/DivX4/5/6) @ 30 fps; WVGA (H.263) @ 30 fps
USB 2.0	× 1, compliant with USB 2.0, support USB OTG, USB OTG + charge, etc.
(U)SIM	× 2, support 1.8/2.95 V (U)SIM cards, with (U)SIM card detection function, DSDS supported
UART	× 3, up to 4 Mbps, one of them supports hardware flow control
SD Card	× 1, SD 3.0, 4-bit SDIO
I2C/I2S/PWM/SPI/ADC/GPIO/PWRKEY	Supported
Antenna	× 4, Main/Rx-diversity/GNSS/Wi-Fi & Bluetooth antenna respectively

SC200R-EM Timeline



2020							2021				
Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May

Project Stage

SC200R-EM MP

Carrier Certification

Telstra

TBD

Regulatory Certification

GCF/CE/RCM

Completed



SC200R-NA Timeline



2020							2021				
May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.

Project Stage

SC200R-NA

MP

Carrier Certification

Verizon/AT&T

Completed

T-Mobile

TBD

Regulatory Certification

GCF/PTCRB/FCC/IC

Completed



SC200R-JP Timeline



2020						2021					
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.

Project Schedule

TBD

Carrier Certification

NTT DOCOMO

TBD

Regulatory Certification

JATE/TELEC

TBD

SC200R-CE Timeline



2020							2021				
May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.

Project Stage

SC200R-CE MP

Regulatory Certification

CCC

Completed

SRRC/NAL

TBD

2021

Project Stage



Regulatory Certification

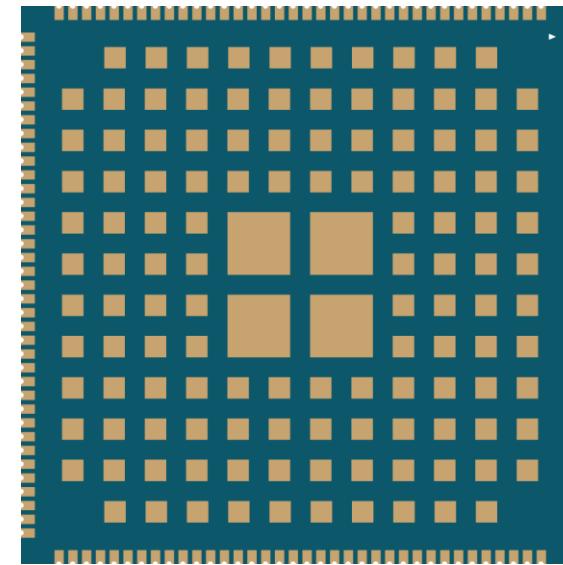
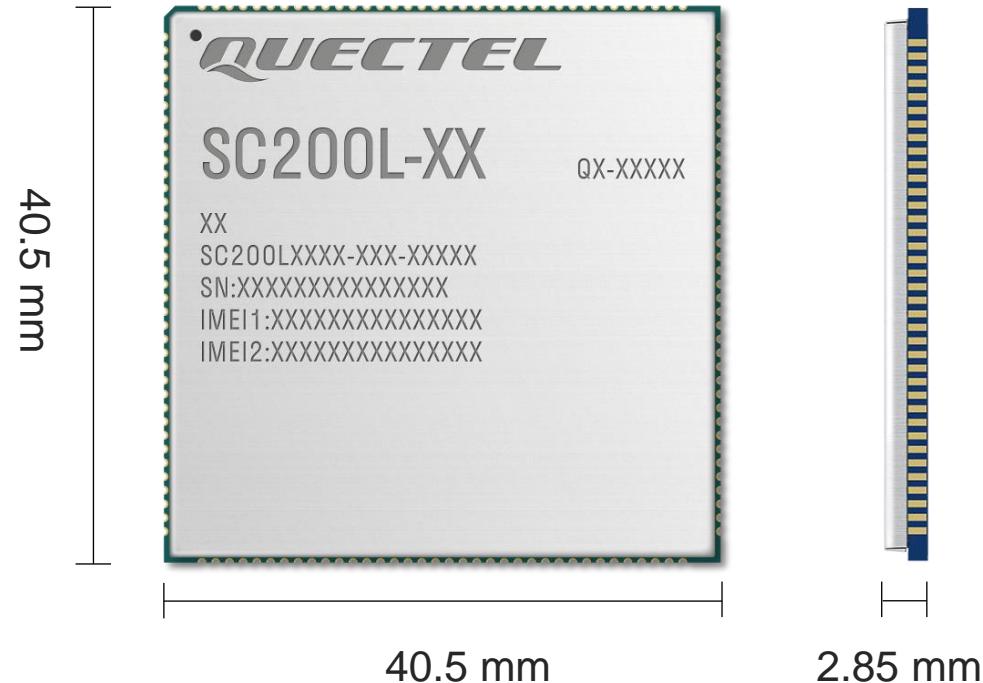
CE/FCC/IC/RCM



SC200L Series Mechanical Dimensions



Multi-Mode LTE Cat 4 Module (Unisoc SL8541E)



Length: 40.5 mm (± 0.15 mm)
Width: 40.5 mm (± 0.15 mm)
Height: 2.85 mm (± 0.2 mm)
Weight: Approx. 10.0 g



Evaluation Board

Interfaces

- Serial port
- Antenna interface
- USB Type-C interface

Accessories

- USB Type-C cable
- USB to RS-232 converter cable
- RF cables
- Power adapter
- Earphone
- Antennas
- USB flash drive

SC200L Series Specifications



Variant		SC200L-EU	SC200L-AU	SC200L-CE
LTE	LTE-FDD	B1/B3/B5/B7/B8/B20/B28	B1/B2/B3/B4/B5/B7/B8/B28	B1/B3/B5/B8
	LTE-TDD	B38/B40/B41	B38	B34/B38/B39/B40/B41
UMTS	WCDMA	B1/B5/B8	B1/B2/B4/B5/B8	B1/B8
EVDO/CDMA		-	-	-
GSM/EDGE		900/1800MHz	850/900/1800/1900 MHz	900/1800 MHz
Embedded GNSS		Y	Y	Y
Wi-Fi/Bluetooth		Y	Y	Y
Region		EMEA/APAC	Latin America	China
Certification		Regulatory: GCF*/CE*	Regulatory: Anatel*	Regulatory: CCC/SRRC*/NAL*

“*” means ongoing/planning.

SC200L series are not promoted or sold in US, Canada, Australia, New Zealand, Japan, South Korea or Taiwan region.

SC200L Series Features



Item	Description
CPU	SL8541E , Quad-core ARM Cortex-A53 64-bit CPU @ 1.4 GHz
Memory	<ul style="list-style-type: none">• 1 GB LPDDR3 + 8 GB eMMC• 2 GB LPDDR3 + 16 GB eMMC
OS	Android 10
Battery Charge	Supported
WLAN	2.4&5 GHz, 802.11a/b/g/n/ac
Bluetooth	<ul style="list-style-type: none">• Bluetooth 2.1 EDR/3.0 HS/4.2 LE/5.0 LE• Support a maximum of 10 ACL/BEL/SCO links
GNSS	GPS/GLONASS or GPS/BeiDou
Modem	3GPP Release 10

SC200L Series Interfaces



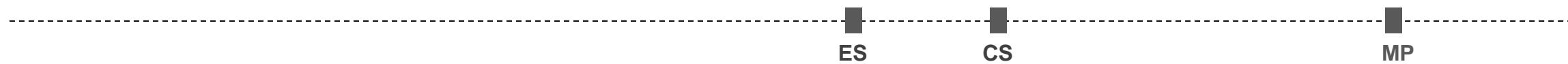
Item	Description
LCM	4-lane MIPI_DSI, HD+ (1440 × 720) @ 60 fps
Camera	<ul style="list-style-type: none">• 2 groups of MIPI_CSI (2-lane + 1-lane), up to 1.5 Gbps/lane• 1 × ISP, 8 MP for rear camera (2-lane) and 2 MP for front camera (1-lane)
Touch Panel	Capacitive touch panel, I2C controls
Audio	Analog channels: <ul style="list-style-type: none">• 3 inputs: MIC1, MIC2, MIC3 (MIC1 & MIC3 can support dual-microphone noise-canceling)• 3 outputs: speaker, earpiece, headphone
Video	<ul style="list-style-type: none">• Encoder: 1080P (H.264) @ 30 fps; WVGA (MPEG-4/VP8) @ 30 fps• Decoder: 1080P (H.264/MPEG-4/VP8/H.265/DivX4/5/6) @ 30 fps; WVGA (H.263) @ 30 fps
USB 2.0	× 2 <ul style="list-style-type: none">• USB1 supports USB OTG, does not support USB hub, up to 480 Mbps• USB2 only supports USB Host mode, supports USB hub, up to 100 Mbps
(U)SIM	× 2, support 1.8/2.95 V (U)SIM cards, with (U)SIM card detection function, DSDS supported
UART	× 2, up to 3.25 Mbps, UART0 supports hardware flow control
SD Card	× 1, SD 3.0, 4-bit SDIO
I2C/PWM/SPI/ADC/GPIO/ PWRKEY	Supported
Antenna	× 4, Main/Rx-diversity/GNSS/Wi-Fi & Bluetooth antenna respectively

SC200L-EU Timeline



2021											
Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

Project Schedule



ES: Engineering samples ready. Basic functions are available for customers' simple demo purpose.

CS: Commercial samples ready. Stable hardware design and quite stable software design. New software features can be added upon request.

MP: Hardware and software ready for mass production. For certification status, please refer to the "certification schedule".

Regulatory Certification

CE



GCF

TBD

SC200L-AU Timeline



2021						2022					
Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.

Project Schedule



ES: Engineering samples ready. Basic functions are available for customers' simple demo purpose.

CS: Commercial samples ready. Stable hardware design and quite stable software design. New software features can be added upon request.

MP: Hardware and software ready for mass production. For certification status, please refer to the "certification schedule".

Regulatory Certification

Anatel

Start (Planned)

Complete (Planned)

SC200L-CE Timeline



2021						2022					
Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.

Project Schedule



ES: Engineering samples ready. Basic functions are available for customers' simple demo purpose.

CS: Commercial samples ready. Stable hardware design and quite stable software design. New software features can be added upon request.

MP: Hardware and software ready for mass production. For certification status, please refer to the "certification schedule".

Regulatory Certification

CCC

Completed

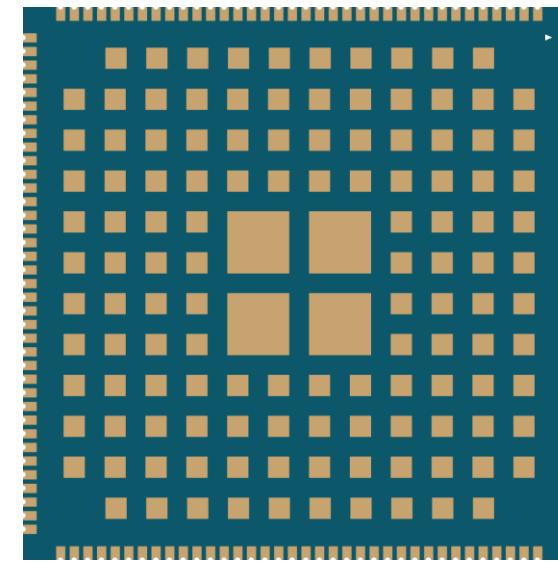
SRRC/NAL

TBD

SC200E Series Mechanical Dimensions



Multi-Mode LTE Cat 4 Module (QCM2290)



Length: 40.5 mm (± 0.15 mm)
Width: 40.5 mm (± 0.15 mm)
Height: 2.8 mm (± 0.2 mm)
Weight: TBD



Evaluation Board

Interfaces

- Serial port
- Antenna interface
- Micro-USB interface

Accessories

- USB type-C cable
- USB to RS-232 converter cable
- RF cables
- Earphone
- Antennas
- Power adapter
- USB flash drive

SC200E Series Specifications



Variant		SC200E-EM*	SC200E-NA*	SC200E-JP ^①	SC200E-CE*	SC200E-WF*
LTE	LTE-FDD	B1/B2/B3/B4/B5/B7/B8/B20/B28	B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71	B1/B3/B5/B8/B11/B18/B19/B21/B26/B28	B1/B3/B5/B8	-
	LTE-TDD	B38/B40/B41	B41	B41	B34/B38/B39/B40/B41	-
UMTS	WCDMA	B1/B2/B4/B5/B8	-	B1/B6/B8/B19	B1/B8	-
EVDO/CDMA		-	-	-	BC0	-
GSM/EDGE		850/900/1800/1900 MHz	-	-	900/1800 MHz	-
GNSS		Y	Y	Y	Y	-
Wi-Fi/Bluetooth		Y	Y	Y	Y	Y
Region		EMEA/Korea/South Asia/Latin America/India/Australia/New Zealand/South Africa	North America	Japan	China	Global
Certification		Carrier: Telstra*	Carrier: Verizon*/AT&T*/T-Mobile*	TBD	Regulatory: SRRC*/NAL*/CCC*	Regulatory: CCC*/CE*/UKCA*/KC*/NCC*/JATE*/TELEC*/RCM*/NBTC*

“*” means under development/planning.

^① means TBD.

SC200E Series Features



Item	Description
CPU	QCM2290 , Quad-core ARM Cortex-A53 64-bit CPU @ 2.0 GHz
GPU	Qualcomm® Adreno™ 702 Graphics Processing Unit (GPU) with 64-bit addressing
Memory	<ul style="list-style-type: none">• 2 GB LPDDR4X + 32 GB eMMC• 3 GB LPDDR4X + 32 GB eMMC
OS	Android 11/12/13
Battery Charge	Supported
WLAN	2.4&5 GHz, 802.11a/b/g/n/ac, 433 Mbps, STA/AP/P2P
Bluetooth	Bluetooth 2.1 EDR/3.0 HS/4.2 LE/5.0 LE
GNSS	GPS/BeiDou/GLONASS/Galileo/QZSS/SBAS (not supported on SC200E-WF)
Modem	3GPP Release 10

SC200E Series Interfaces



Item	Description
LCM	4-lane MIPI_DSI, HD+ (1680 × 720) @ 60 fps
Camera	<ul style="list-style-type: none">• 2 groups of 4-lane MIPI_CSI, up to 2.5 Gbps/lane• Support 2 or 3 cameras, up to 25 MP or 13 MP + 13 MP with dual ISP
Touch Panel	Capacitive touch panel, I2C controls
Audio	Analog channels: <ul style="list-style-type: none">• 3 inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC)• 3 outputs: earpiece, headphone, lineout
Video	<ul style="list-style-type: none">• Encoder: 1080P 8-bit H.264/H.265(HEVC) @ 30 fps• Decoder: 1080P 8-bit H.264/H.265(HEVC)/VP9 @ 30 fps
USB 3.1	× 1, Type-C, compliant with USB 3.1/2.0
(U)SIM	× 2, support 1.8/2.95 V (U)SIM cards, with (U)SIM card detection function, DSDS supported
UART	× 3, up to 4 Mbps, one of them supports hardware flow control
SD Card	× 1, SD 3.0, 4-bit SDIO
I2C/I2S/PWM/SPI/ADC/GPIO/PWRKEY	Supported
Antenna	× 4, Main/Rx-diversity/GNSS/Wi-Fi & Bluetooth antenna respectively

SC200E-EM Timeline



2021						2022					
Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.

Project Schedule



ES: Engineering samples ready. Basic functions are available for customers' simple demo purpose.

CS: Commercial samples ready. Stable hardware design and quite stable software design. New software features can be added upon request.

MP: Hardware and software ready for mass production. For certification status, please refer to the "certification schedule".

Carrier Certification

Telstra

TBD

Regulatory Certification

GCF/CE/UKCA/Anatel/KC/RCM

TBD

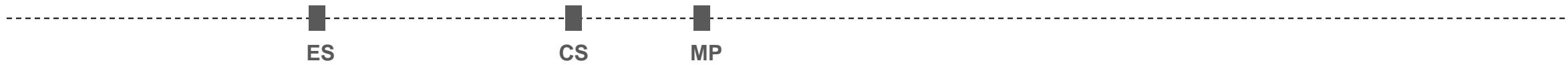
SC200E-NA Timeline



2022

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
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Project Schedule



ES: Engineering samples ready. Basic functions are available for customers' simple demo purpose.

CS: Commercial samples ready. Stable hardware design and quite stable software design. New software features can be added upon request.

MP: Hardware and software ready for mass production. For certification status, please refer to the "certification schedule".

Carrier Certification

Verizon/AT&T/T-Mobile

TBD

Regulatory Certification

GCF/PTCRB/FCC/IC

TBD

SC200E-CE Timeline



2021						2022					
Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.

Project Schedule



ES: Engineering samples ready. Basic functions are available for customers' simple demo purpose.

CS: Commercial samples ready. Stable hardware design and quite stable software design. New software features can be added upon request.

MP: Hardware and software ready for mass production. For certification status, please refer to the "certification schedule".

Regulatory Certification

SRRC/NAL



CCC



SC200E-WF Timeline



2021						2022					
Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.

Project Schedule



Kickoff

Regulatory Certification

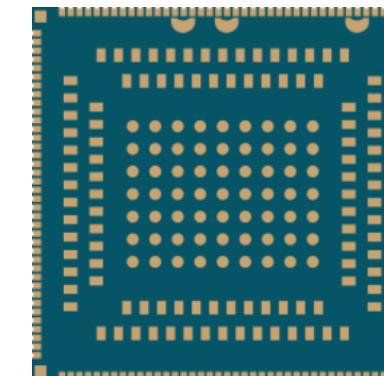
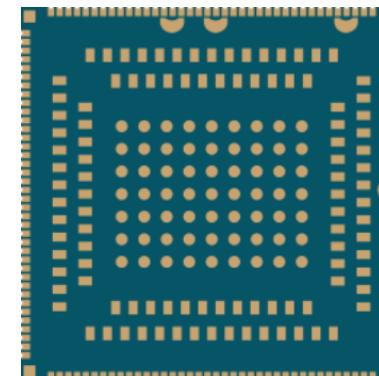
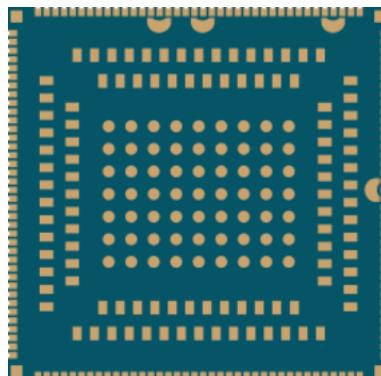
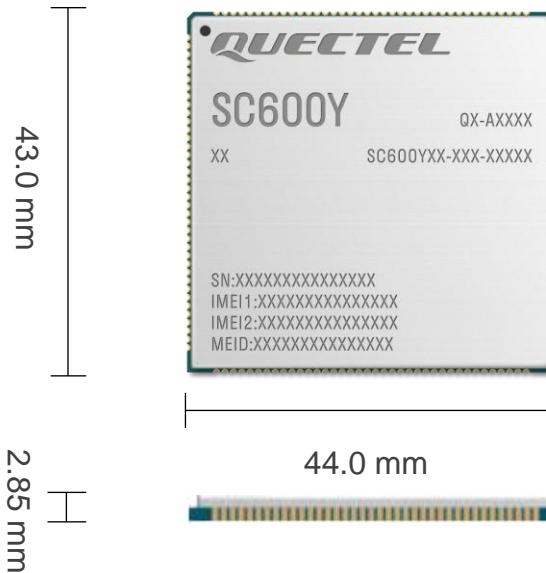
CCC/CE/UKCA/KC/NCC/JATE/TELEC/RCM/NBTC

TBD

SC600Y/SC600T/SC606T Series Mechanical Dimensions



Multi-Mode LTE Cat 6 Module (SDM450/MSM8953/MSM8953)



Length: 43.0 mm (± 0.15 mm)
Width: 44.0 mm (± 0.15 mm)
Height: 2.85 mm (± 0.2 mm)
Form Factor: LCC + LGA





Evaluation Board

Interfaces

- Serial port
- Antenna interface
- USB Type-C Interface

Accessories

- USB Type-C cable
- USB to RS-232 converter cable
- Antennas
- Power adapter

SC600Y/SC600T/SC606T Series Specifications



Variant		SC600Y-EM/SC600T-EM/ SC606T-EM	SC600Y-NA/SC600T-NA/ SC606T-NA	SC600Y-JP/SC600T-JP/ SC606T-JP ^①	SC600Y-WF/SC600T-WF/ SC606T-WF
LTE	LTE-FDD	B1/B2/B3/B4/B5/B7/B8/B20/B28	B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71	B1/B3/B5/B8/B11/B18/B19/B21/B26/B28	-
	LTE-TDD	B38/B39 ^② /B40/B41	B41	B41	-
UMTS	WCDMA	B1/B2/B4/B5/B8	B2/B4/B5	B1/B6/B8/B19	-
	TD-SCDMA	-	-	-	-
CDMA		-	-	-	-
GSM/EDGE		850/900/1800/1900 MHz	-	-	-
Embedded GNSS		Y	Y	Y	-
Wi-Fi/Bluetooth		Y	Y	Y	Y
Region		EMEA/India/Korea/South Asia/ Latin America/Australia/ New Zealand/South Africa	North America	Japan	Global
Certification ^③		Carrier: Telstra Regulatory: GCF/CE/UKCA/Anatel/KC/ NCC/RCM	Carrier: Verizon/AT&T/T-Mobile/Sprint Regulatory: GCF/PTCRB/FCC/IC/IFETEL	Carrier: NTT DOCOMO/KDDI Regulatory: JATE/TELEC	Regulatory: CE/FCC/IC/KC/JATE/TELEC/ RCM

"Y" means supported.

^① means TBD.

^② means SC606T-EM does not support B39.

^③ means the certification status listed above are for SC600Y/SC600T series and cannot be shared by SC606T series.

SC600Y/SC600T/SC606T Series Features



Item	Description
CPU	<ul style="list-style-type: none">• SC600Y: SDM450, Octa-core ARM Cortex-A53 64-bit CPU @ 1.8 GHz• SC600T/SC606T: MSM8953, Octa-core ARM Cortex-A53 64-bit CPU @ 2.0 GHz
GPU	Qualcomm® Adreno™ 506 graphics processing unit (GPU) with 64-bit addressing
Memory	2 GB LPDDR3 + 16 GB eMMC
OS	<ul style="list-style-type: none">• Android 9/10 @ SC600Y/SC600T• Yocto Linux (kernel 4.9) @ SC606T
WLAN	2.4&5 GHz, 802.11a/b/g/n/ac, 433 Mbps, STA/AP/P2P
Bluetooth	<ul style="list-style-type: none">• Bluetooth 2.1 EDR/3.0 HS/4.2 LE• Support a maximum of 10 ACL/BEL/SCO links
GNSS	GPS/BeiDou/GLONASS or GPS/BeiDou/Galileo (not supported on SC600Y-WF/SC600T-WF/SC606T-WF)
Modem	Partially 3GPP Release 10 compliant

SC600Y/SC600T/SC606T Series Interfaces



Item	Description
LCM	<ul style="list-style-type: none">Support dual LCDs for independent display: dual 4-lane MIPI_DSI; WUXGA (1920 × 1200) @ 60 fpsWi-Fi display: 1080P @ 30 fps (UBWC)
Camera	<ul style="list-style-type: none">3 groups of 4-lane MIPI_CSI, up to 2.1 Gbps per lane. 2×ISPSupport three cameras (4-lane + 4-lane + 4-lane) or four cameras (4-lane + 4-lane + 2-lane + 1-lane)Up to 21 MP with dual ISP @ SC600YUp to 24 MP with dual ISP @ SC600T/SC606T
Touch Panel	× 2, Capacitive-screen, I2C controls
Audio	Analog channels: <ul style="list-style-type: none">Two inputs: MIC1, MIC2Three outputs: speaker, earpiece, headphone
Video	<ul style="list-style-type: none">Video encoding and decoding: up to 1080P @ 60 fps @ SC600YVideo encoding and decoding: up to 4K @ 30 fps @ SC600T/SC606TEncoder HFR: 720P @ 120 fps; 60 Mbps; Maximum 972000 macro block/s; 1080P @ 60 fps decode + 1080P @ 30 fps encode
USB	USB 3.0 and 2.0 Compliant, Type-C, USB OTG + Charge
(U)SIM	× 2, support 1.8/3 V (U)SIM cards, with (U)SIM card detection function; DSDS supported
UART	× 3, support 4 Mbps with hardware flow control
SD Card	SD 3.0, 4-bit SDIO
I2C/SPI/PWM/ADC/GPIO/ PWRKEY	Supported
Antenna	4 pads (for Main Antenna, Rx-diversity Antenna, GNSS Antenna and Wi-Fi/Bluetooth Antenna respectively)

2021

Project Stage

SC600Y-EM/SC600T-EM

MP

Carrier Certification

Telstra



Regulatory Certification

GCF/CE/UKCA/Anatel/KC/NCC/RCM



2021

Project Stage



Regulatory Certification

GCF/CE/RCM



SC600Y-NA/SC600T-NA Timeline



2020

Project Stage

SC600Y-NA/SC600T-NA

MP

Carrier Certification

Verizon/AT&T/T-Mobile/Sprint



Regulatory Certification

GCF/PTCRB/FCC/IC/IFETEL



SC606T-NA Timeline



2020						2021					
Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.

Project Stage

SC606T-NA 

Carrier Certification

Verizon/AT&T



Regulatory Certification

GCF/PTCRB/FCC/IC



2020

Project Stage

SC600Y-JP/SC600T-JP 

Carrier Certification

NTT DOCOMO/KDDI



Regulatory Certification

JATE/TELEC



2020

Project Stage

SC600Y-WF/SC600T-WF

MP

Regulatory Certification

CE/FCC/IC/KC/JATE/TELEC/RCM



SC606T-WF Timeline



2020						2021					
Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.

Project Stage

SC606T-WF MP

Regulatory Certification

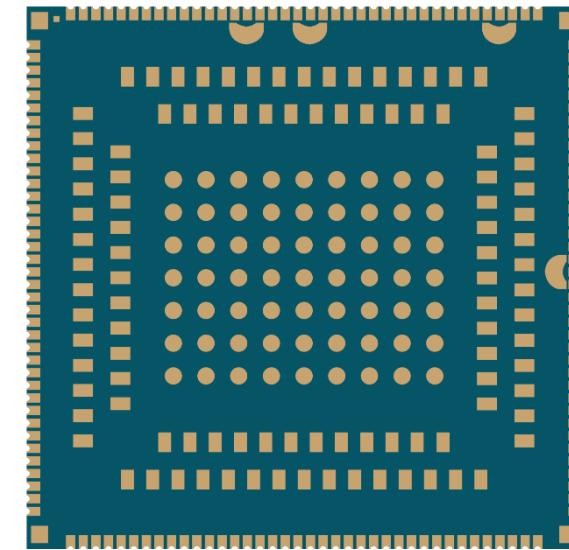
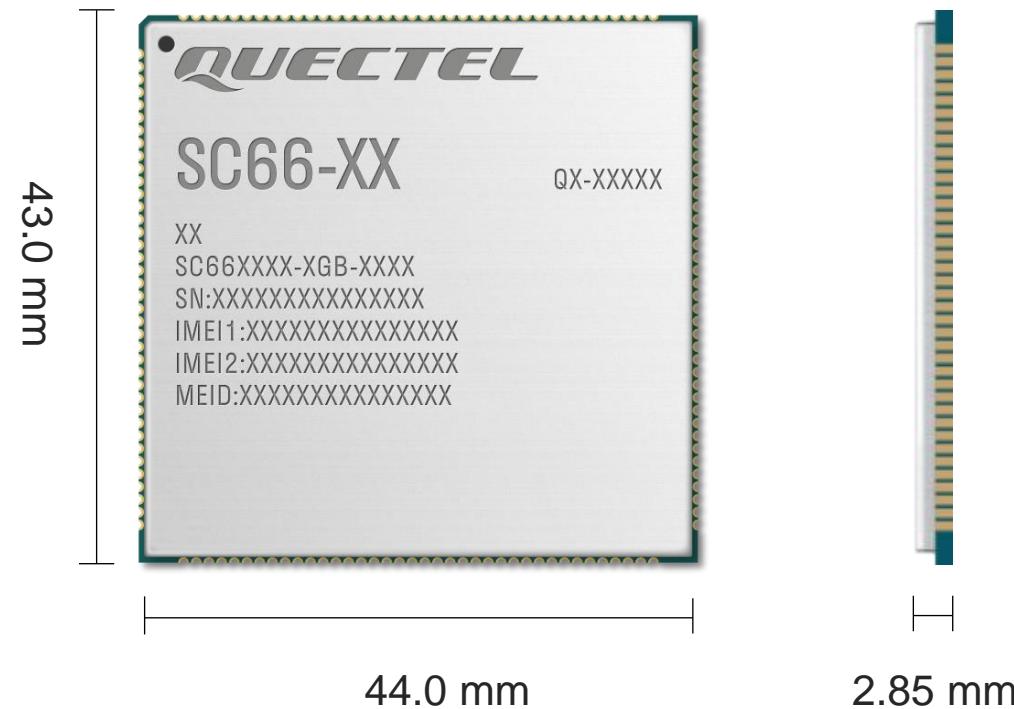
CE/FCC/IC/RCM

TBD

SC66 Series Mechanical Dimensions



Multi-Mode LTE Cat 6 Module (SDM660)



Length: 43.0 mm (± 0.15 mm)
Width: 44.0 mm (± 0.15 mm)
Height: 2.85 mm (± 0.2 mm)
Form Factor: LCC + LGA

SC66 Series Evaluation Kit



Evaluation Board

Interfaces

- Serial port
- Antenna interface
- USB Type-C interface

Accessories

- USB Type-C cable
- USB to RS-232 converter cable
- RF cables
- Power adapter
- Earphone
- Antennas
- USB flash drive

SC66 Series Specifications



Variant		SC66-E	SC66-A	SC66-J	SC66-CE	SC66-MW
LTE	LTE-FDD	B1/B2/B3/B4/B5/B7/B8/B20/B28(A+B)	B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B66/B71	B1/B3/B5/B8/B11/B18/B19/B21/B26/B28(A+B)	B1/B3/B5/B8	-
	LTE-TDD	B38/B39/B40/B41 ^①	B41 ^①	B41 ^②	B34/B38/B39/B40/B41 ^②	-
UMTS	WCDMA	B1/B2/B4/B5/B8	B2/B4/B5	B1/B6/B8/B19	B1/B8	-
	TD-SCDMA	-	-	-	B34/B39	-
EVDO/CDMA		-	-	-	BC0	-
GSM/EDGE		850/900/1800/1900 MHz	-	-	900/1800 MHz	-
Embedded GNSS		Y	Y	Y	Y	-
Wi-Fi/Bluetooth		Y (MIMO supported)	Y (MIMO supported)	Y (MIMO supported)	Y (MIMO is not supported)	Y (MIMO supported)
Region		Europe/India/Korea/ South Asia/Latin America/ Australia/South Africa	North America	Japan	China	Global
Certification		Carrier: Telstra ^③ Regulatory: GCF/CE/UKCA/KC/NCC/ RCM/Anatel ^③	Carrier: Verizon/AT&T Regulatory: GCF/PTCRB/FCC/IC	Carrier: NTT DOCOMO ^③ Regulatory: JATE/TELEC	Regulatory: SRRC/NAL/CCC	Regulatory: CE/FCC/IC/KC/RCM

"Y" means supported.

^① B41 of SC66-E/SC66-A only support 200 MHz bandwidth.

^② B41 of SC66-J/SC66-CE only support 120 MHz bandwidth.

^③ means TBD.

SC66 Series Features



Item	Description
CPU	SDM660, Customized 64-bit ARM v8.0-compliant AP (Kryo 260 CPU): <ul style="list-style-type: none">• Kryo Gold Quad high-performance cores targeting 2.2 GHz, L2 – 1 MB• Kryo Silver Quad low-power cores targeting 1.843 GHz, L2 – 1 MB
GPU	Qualcomm® Adreno 512 @ 650 MHz, OpenGL ES3.1 + AEP, DX12_FL12, Vulkan, OpenCL2.0 FP, RenderScript
Memory	<ul style="list-style-type: none">• 3 GB LPDDR4X + 32 GB eMMC• 4 GB LPDDR4X + 64 GB eMMC
WLAN/Bluetooth	<ul style="list-style-type: none">• 2.4&5 GHz, 802.11a/b/g/n/ac• Bluetooth 2.1 EDR/3.0 HS/4.2 LE/5.0 LE• 2 × 2 MIMO Wi-Fi (except SC66-CE)
Video	<ul style="list-style-type: none">• Decoder: 4K @ 30 fps; H.264, VP8, VP9 and HEVC• Encoder: 4K @ 30 fps; HEVC, H264, VP8 and MPEG-4
GNSS	GPS/GLONASS/BeiDou/Galileo/QZSS/SBAS (not supported on SC66-MW)
Modem	3GPP Release 12 compliant (Part of Release 13 features are supported)
OS	Android 9/10
AI Engine	Vector DSP, CPU and GPU work together, providing neural network SDK, supporting Caffe/Caffe2/Tensorflow
USB	Support two groups of USB interfaces: <ul style="list-style-type: none">• One supports USB 3.1 Type-C interface, which is compatible with USB 2.0.• The other supports USB 2.0, which can only work in host mode.
Camera	<ul style="list-style-type: none">• 3 × 4-lane CSIs (4/4/4 or 4/4/2/1) D-PHY 1.2 @ 2.1 Gbps/lane, or 3 × 3-lane C-PHY 1.0 at 17 Gbps (2.5 G symbols per trio per second)• 2 × ISP: 16 MP (30 fps ZSL) @ 1 × ISP + 16 MP (30 fps ZSL) @ 1 × ISP; Max. 24 MP (30 fps ZSL) @ 2 × ISP
LCM	<ul style="list-style-type: none">• 2560 × 1600 @ 60 fps primary display• 4K @ 30 fps over DP• Dual MIPI DSI• Wi-Fi display: 1080P @ 30 fps

SC66-E Timeline



2020			2021									
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	

Project Stage

SC66-E MP

Carrier Certification

Telstra TBD

Regulatory Certification

GCF/CE/UKCA/KC/NCC/RCM Completed

Anatel TBD

2020

Project Stage



Carrier Certification

Verizon/AT&T



Regulatory Certification

GCF/PTCRB/FCC/IC



SC66-J Timeline



2019				2020							
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.

Project Stage

SC66-J MP

Carrier Certification

NTT DOCOMO

TBD

Regulatory Certification

JATE/TELEC



2020

Project Stage

SC66-CE MP

Regulatory Certification

SRRCC/NAL/CCC



2020

Project Stage

SC66-MW MP

Regulatory Certification

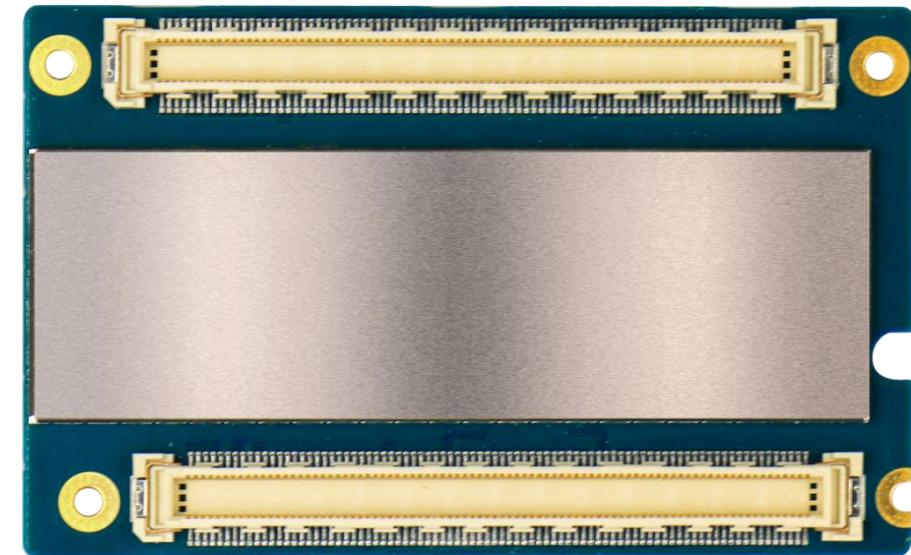
CE/FCC/IC/KC/RCM



SA800U-WF Mechanical Dimensions



Wi-Fi/Bluetooth Module (SDA845)



Length: 60.0 mm (± 0.15 mm)
Width: 37.0 mm (± 0.15 mm)
Height: 6.55 mm (± 0.2 mm)
Form Factor: B2B Connector

Evaluation Board



Interfaces

- Serial port
- Antenna interface
- USB Type-C interface
- HDMI IN 4K connector
- HDMI OUT 4K connector
- One Gigabit Ethernet RJ45 interface
- M.2 interface for external 4G/5G module
- USB 3.0 interface
- CAN bus interface

Accessories

- USB Type-C cable
- USB to RS-232 converter cable
- RF cables
- Power adapter
- Earphone
- Antennas
- USB flash drive
- HDMI to HDMI cable
- USB Type-C to DP cable
- One Gigabit Ethernet cable

SA800U-WF Features



Item	Description
CPU	SDA845, 64-bit application processors (Kryo 385) with 2 MB L3 cache: <ul style="list-style-type: none">Quad high-performance Kryo cores at 2.649 GHz – Kryo Gold cluster with 256 KB L2Quad low-power Kryo cores at 1.766 GHz – Kryo Silver cluster with 128 KB L2
GPU	Adreno 630 – 4K 60 fps UI or 2 × 2K 90 fps UI
Memory	<ul style="list-style-type: none">4 GB LPDDR4X + 64 GB UFS 2.18 GB LPDDR4X + 256 GB UFS 2.1
WLAN/Bluetooth	<ul style="list-style-type: none">2.4&5 GHz, 802.11a/b/g/n/acBluetooth 2.1 EDR/3.0 HS/4.2 LE/5.0 LE2 × 2 MIMO Wi-Fi
Video	<ul style="list-style-type: none">Decoder: 4K @ 60 fps; H.264 High Profile, H.265 Main 10 Profile and VP9 Profile 2Encoder: 4K @ 60 fps; H.264 High Profile, H.265 Main 10 ProfileEncoder: 4K @ 30 fps; VP8Supports HDR 10-bit video playback (HLG, HDR10)Supports HDR 10-bit capture (HLG)
Modem & GNSS	Supported by using Quectel 4G/5G/GNSS modules
OS	Android 10
AI Engine	Vector DSP, CPU and GPU work together, providing neural network SDK, supporting Caffe/Caffe2/Tensorflow
USB	Supports two groups of USB interfaces: <ul style="list-style-type: none">1 × 3.1 with DP1 × 3.1 host only
Camera	<ul style="list-style-type: none">3 × 4-lane CSI with C-PHY/D-PHY + 1 × 2-lane CSI with D-PHY2 × ISP + 1×Lite ISP: 16 MP (30 fps ZSL) @ 1 × ISP + 16 MP (30 fps ZSL) @ 1 × ISP; Max. 32 MP (30 fps ZSL) @ 2 × ISP
LCM	<ul style="list-style-type: none">3840 × 2400 @ 60 fps primary display4K @ 60 fps over DPWi-Fi display: 4K @ 30 fps
PCIe	Supports two groups of PCIe interfaces: <ul style="list-style-type: none">1 × 1-lane PCIe Gen 21 × 1-lane PCIe Gen 3

2021

Project Stage



Regulatory Certification

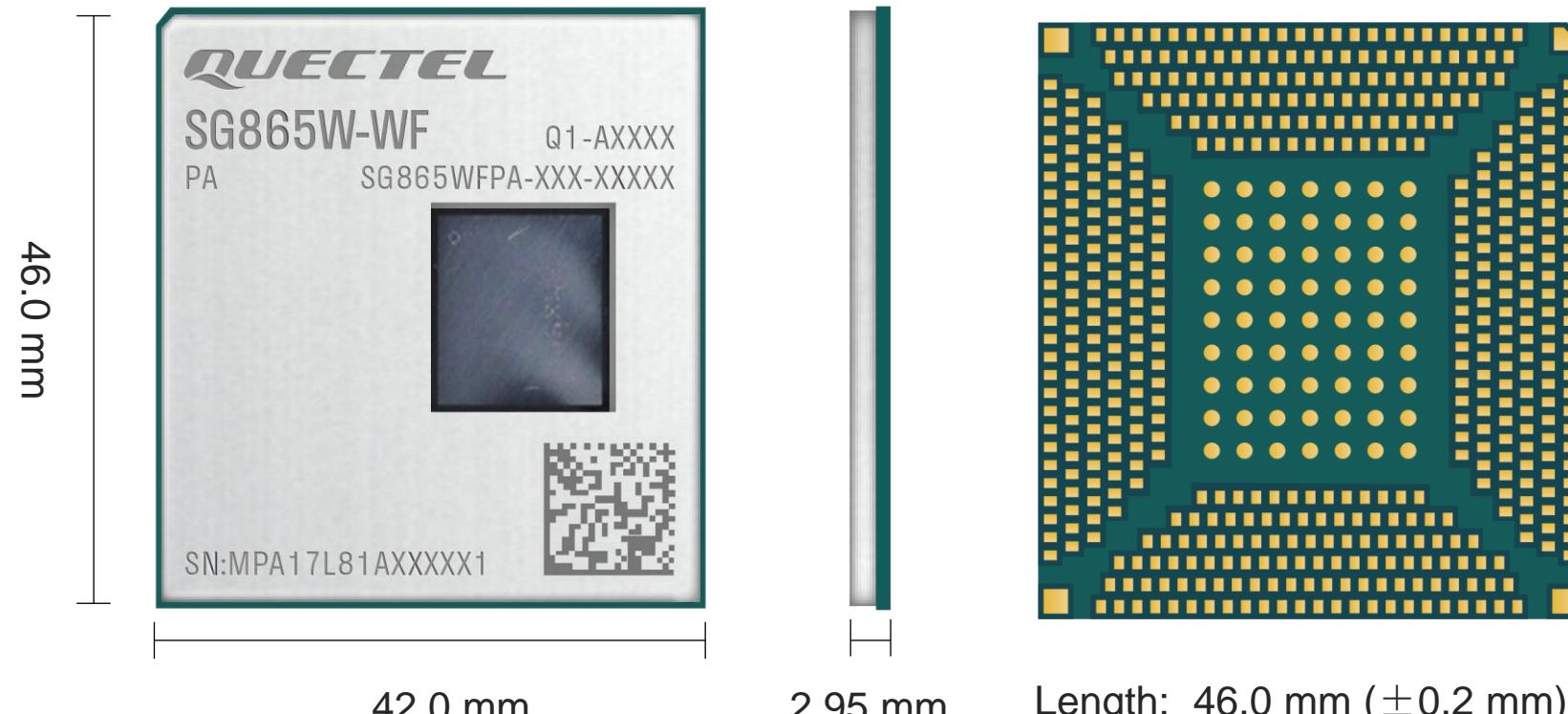
KC



SG865W-WF Mechanical Dimensions



Wi-Fi/Bluetooth Module (QCS8250)



Length: 46.0 mm (± 0.2 mm)
Width: 42.0 mm (± 0.2 mm)
Height: 2.95 mm (± 0.2 mm)
Weight: TBD

Evaluation Board



Interfaces

- Serial port
- Antenna interface
- USB Type-C interface
- HDMI IN 4K connector
- HDMI OUT 4K connector
- One Gigabit Ethernet RJ45 interface
- M.2 interface for external 4G/5G module
- USB 3.0 interface
- CAN bus interface

Accessories

- USB Type-C cable
- USB to RS-232 converter cable
- RF cables
- Power adapter
- Earphone
- Antennas
- USB flash drive
- HDMI to HDMI cable
- USB Type-C to DP cable
- One Gigabit Ethernet cable

SG865W-WF Features



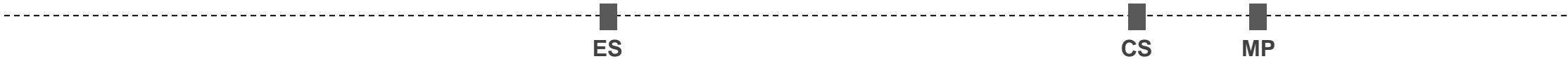
Item	Description
CPU	QCS8250, 64-bit application processors (Kryo 585) with 4 MB L3 cache: <ul style="list-style-type: none">• 1 × Kryo 585 Gold prime core Fmax at 2.842 GHz – with 512 KB L2 cache• 3 × Kryo 585 Gold cores Fmax at 2.419 GHz – with 256 KB L2 cache per core• 4 × Kryo 585 Silver cores Fmax at 1.805 GHz – with 128 KB L2 cache per core
GPU	Adreno 650 at 587 MHz – 4K 60 fps UI or 2 × 2K 60 fps UI
NPU	Qualcomm NPU230
Memory	8 GB LPDDR5 + 64 GB UFS 2.1
Total TOPS	15 TOPS including CPU, GPU, NPU,...
WLAN/Bluetooth	<ul style="list-style-type: none">• 2.4&5 GHz, 802.11a/b/g/n/ac/ax• Bluetooth 5.1• 2 × 2 MIMO Wi-Fi
Video	<ul style="list-style-type: none">• Encoder: 4K @ 120 fps; 8K @ 30 fps• Decoder: 4K @ 240 fps; 8K @ 60 fps• H.264 High Profile, H.265 Main 10 Profile, VP8, HDR 10-bit video playback (HLG, HDR10), HDR 10-bit capture (HLG)
Camera	<ul style="list-style-type: none">• 6 × 4-lane CSI• 64 MP @ 30 fps ZSL with dual ISP
Modem & GNSS	Supported by using Quectel 4G/5G/GNSS modules
OS	Android 10
AI Engine	Vector DSP, CPU and GPU work together, providing neural network SDK, supporting Caffe/Caffe2/Tensorflow
USB	2 × USB 3.1, one supports DP
LCM	<ul style="list-style-type: none">• 2 × 4-lane MIPI DSI• 5040 × 2160 @ 60 fps with 8-lane MIPI• 2 × (2560 × 2560 @ 60 fps with 4-lane MIPI)• 2 × 4K @ 60 fps over DP (MST Mode)• Wi-Fi display: 4K @ 60 fps
PCIe	2 × 2-lane PCIe Gen 3

SG865W-WF Timeline



2021						2022					
Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.

Project Schedule



ES: Engineering samples ready. Basic functions are available for customers' simple demo purpose.

CS: Commercial samples ready. Stable hardware design and quite stable software design. New software features can be added upon request.

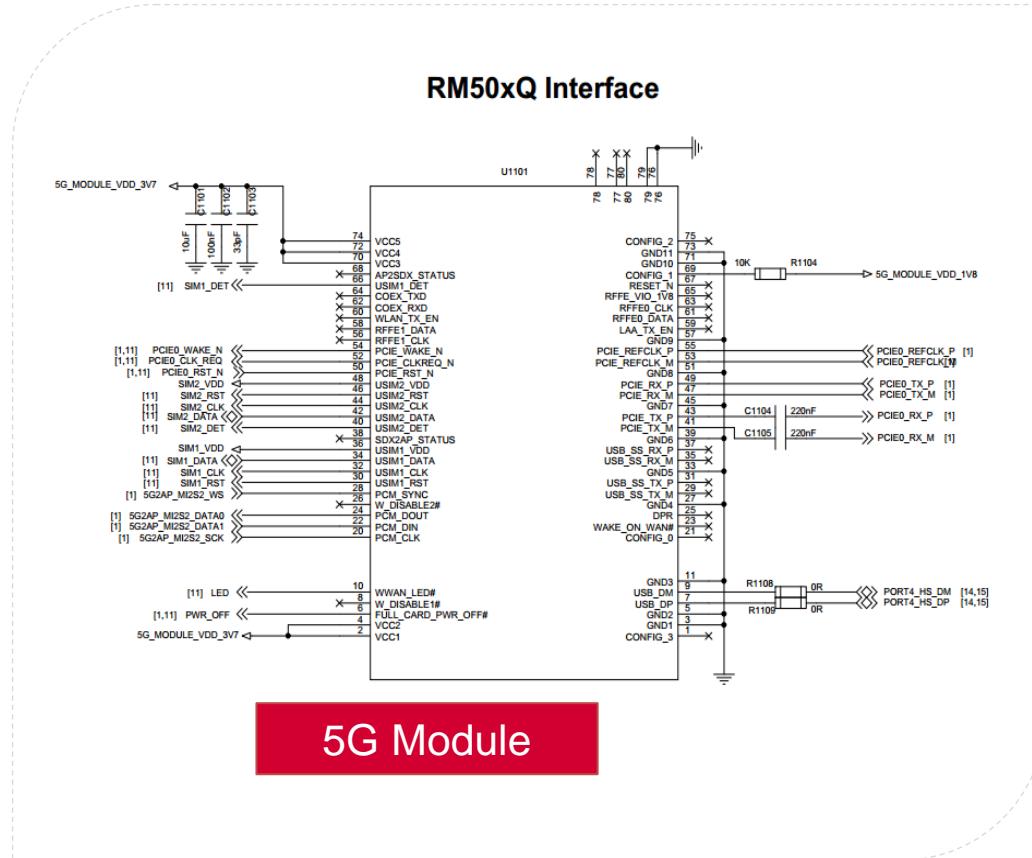
MP: Hardware and software ready for mass production. For certification status, please refer to the "certification schedule".

Extensive Functions

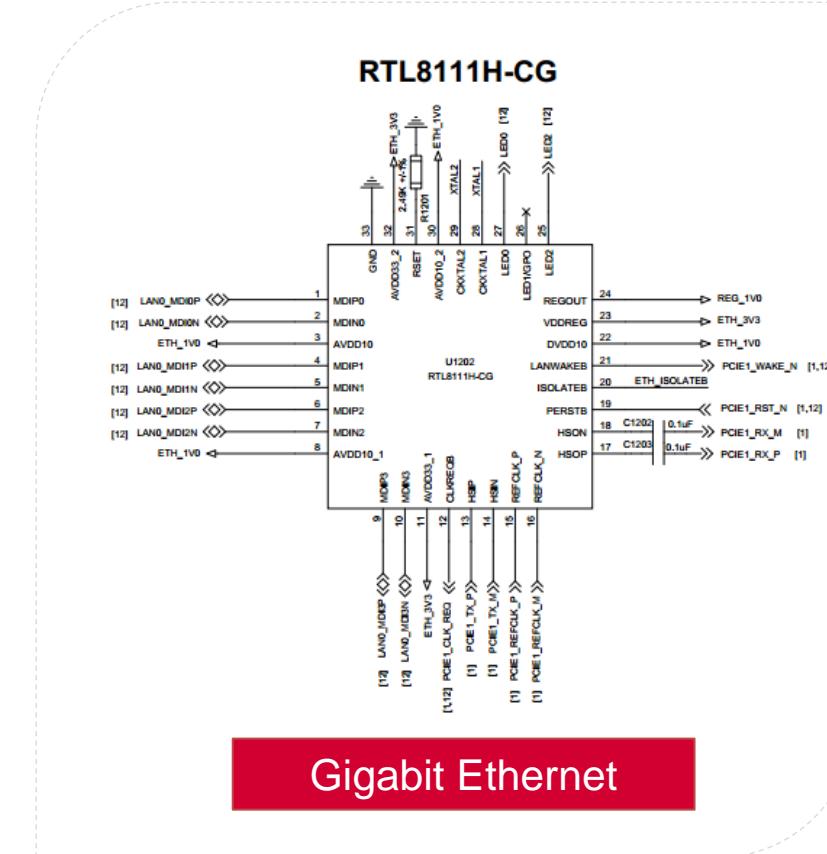
QUECTEL

Quectel Smart modules provide abundant interfaces to support extensive peripherals.

Quectel provides hardware reference designs for various peripherals.



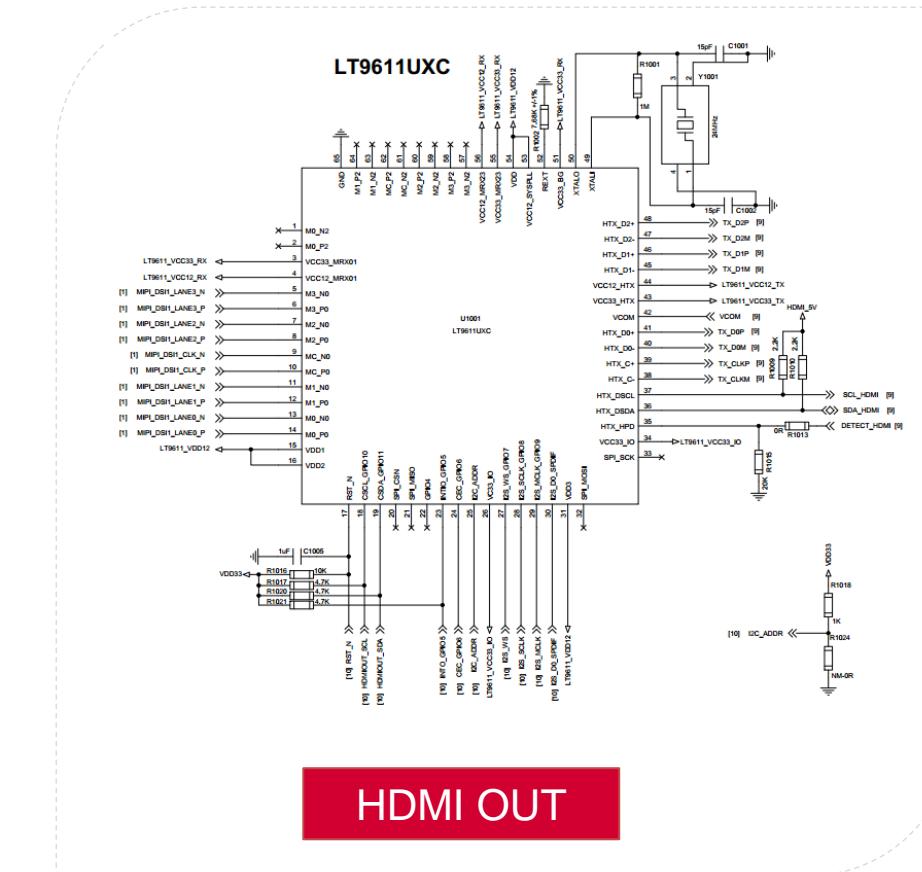
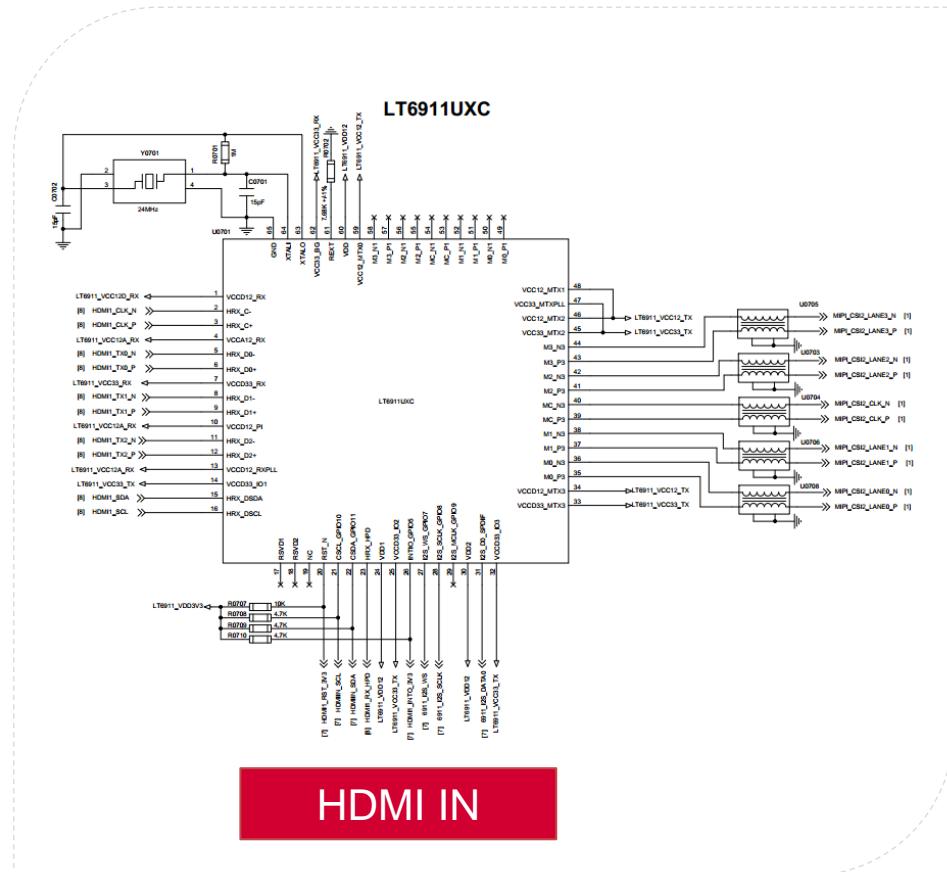
5G Module



Gigabit Ethernet

Extensive Functions

QUECTEL





Smart Solution Overview

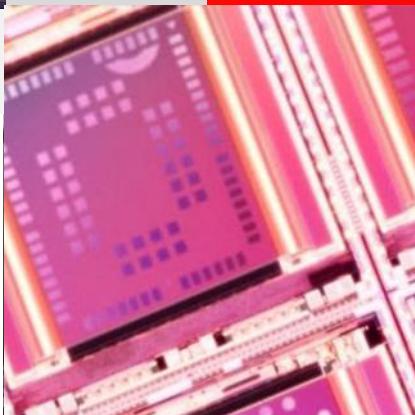
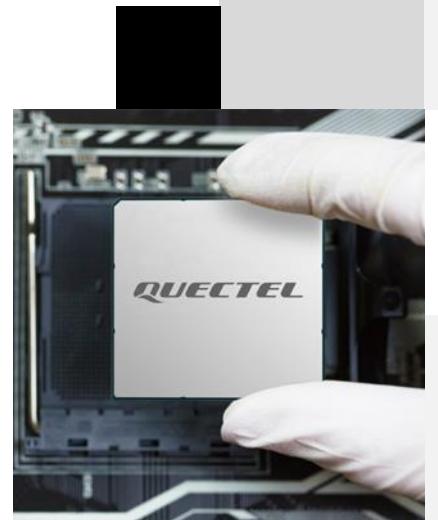
Roadmap

Specifications

Applications

Customer Support

Build a Smarter World



Target Applications



Wireless POS

Support Magnetic Stripe Cards, Contact Smart Cards, and Bill Printing



Government Agency

ID Card Verification
Fingerprint Capturing
Parking Ticket Printing

Mobile Devices

Phone
PDA



Smart City

Event Data Recorder
Digital Advertising
Vending Machine
Smart Home



Express Delivery Industry

Barcode Scanning
RFID



Public Utilities/ Petrochemical/ Medical/Tobacco

Infrared Meter Reading
HD Camera



Smart POS, Payment Terminal

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Cash Register, Vending Machine

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Industrial PDA, Tablets & PTT

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Infotainment, Mirror, DVR (SC600Y/T, SC606T, SC66)

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2-Wheeler, Motorcycle

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Live Video
Conference/Broadcast



Robotics



Gaming

AR (Augmented Reality) (SA800U, SG865W)

QUECTEL



Gaming (SA800U, SG865W)

QUECTEL



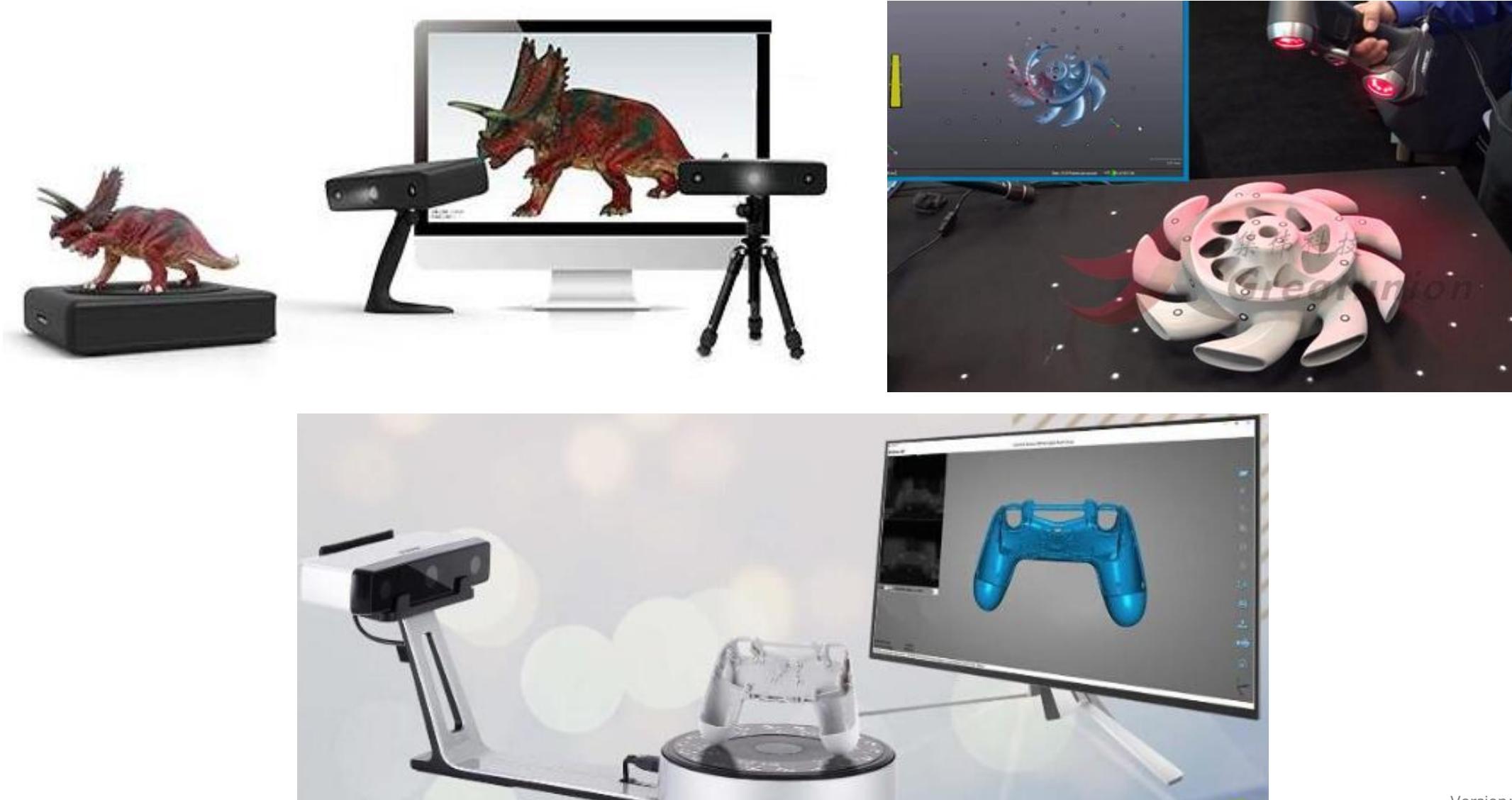
Unmanned Aerial Vehicle Control (SA800U, SG865W)

QUECTEL



3D Scanner (SA800U, SG865W)

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Gym Equipment (SA800U, SG865W)

QUECTEL





Smart Solution Overview

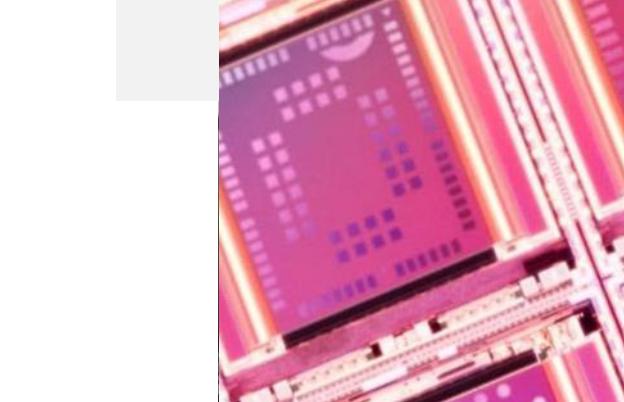
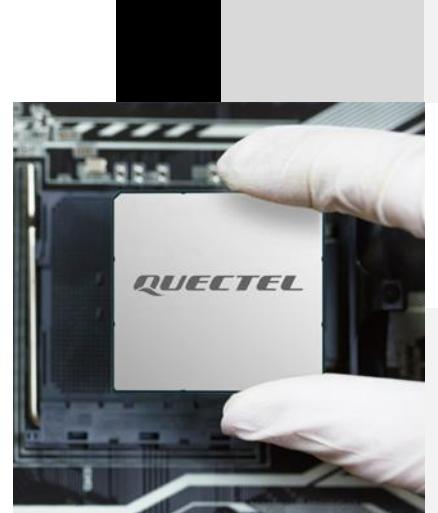
Roadmap

Specifications

Applications

Customer Support

Build a Smarter World



1. System Evaluation

- Analyze customer's requirements
- Recommend the right module for the customer
- Antenna placement evaluation
- Antenna design



2. Design In

- Recommend referenced hardware designs
- Check schematic and layout
- Provide software design support

3. Prototype

- Provide design validation testing
- Recommend suppliers

5. Mass Production

- Provide assembly and testing guidelines
- After-sales service

4. Testing Service

- RF testing
- Power consumption testing
- Audio testing
- Reliability & environmental testing
- ESD testing
- Certification testing
- Antenna debug



The number one cellular module vendor in the world and a leading GNSS module supplier

- Unbeatable choice from the broadest module portfolio in the world
- The highest quality products for the best possible prices
- Superb support with the largest R&D team in the industry
- Continuous innovation – first to market with 5G, LPWA, CV2X, snapdragon
- A passionate, dedicated team of “Quectelers” ensure our customers always come first

Thank You

Build a Smarter World

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