

Quectel Smart Module

Product Overview



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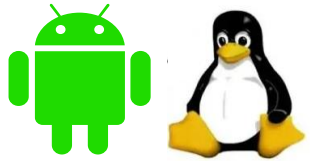
Quectel smart solution advantages

SoC platforms

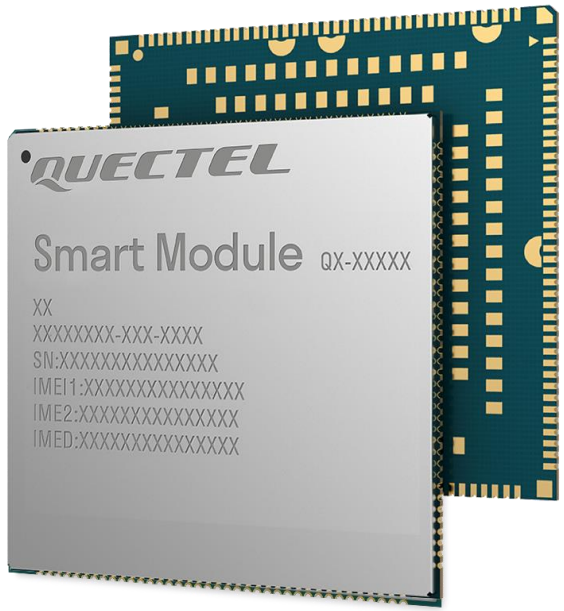
High-performance CPU/ GPU/ NPU/ DSP

Various multimedia functions: LCD/ audio/ camera/ video

Global certifications



Open Android or Linux



Multi-mode: 5G/ LTE/ UMTS/ GSM

Built-in Wi-Fi/ Bluetooth/ GNSS

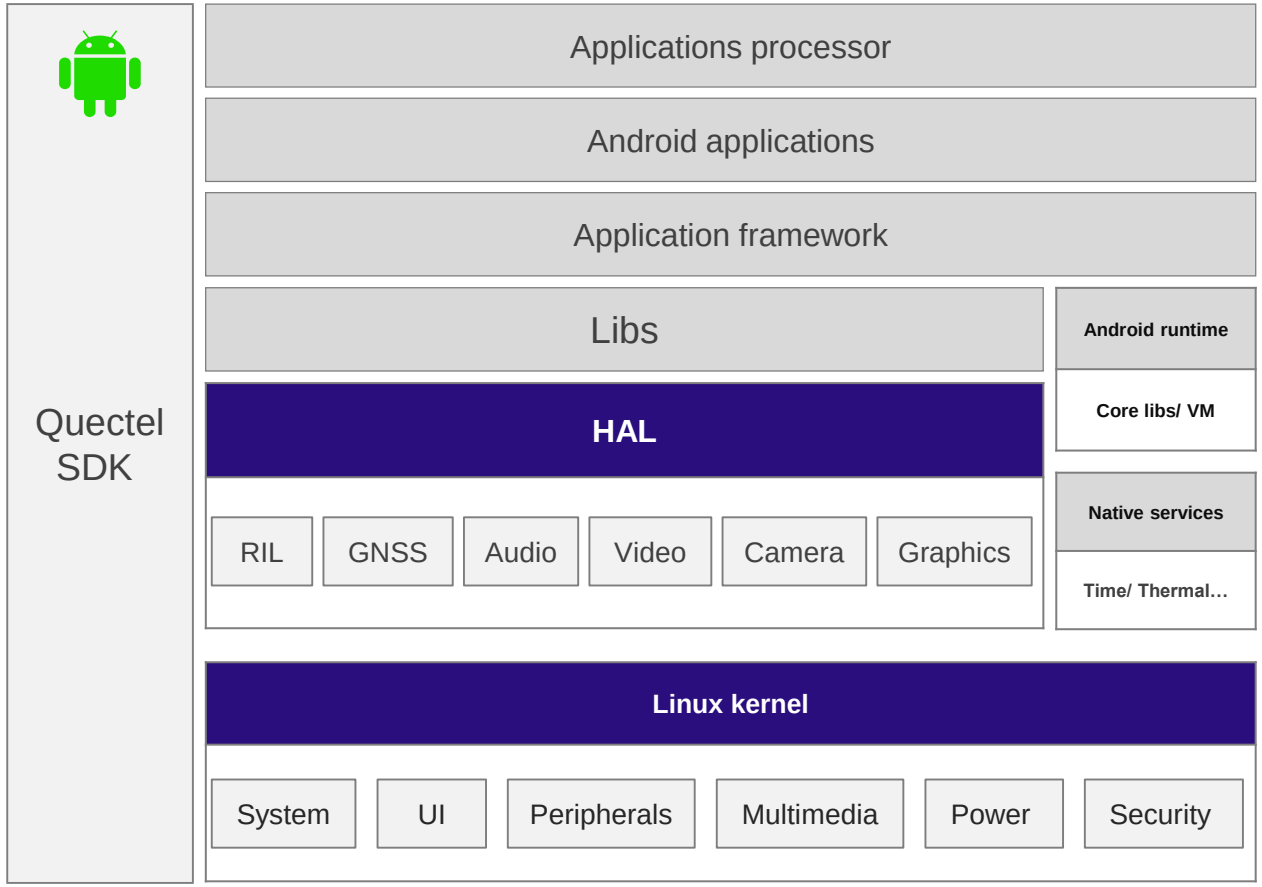
Abundant peripheral interfaces

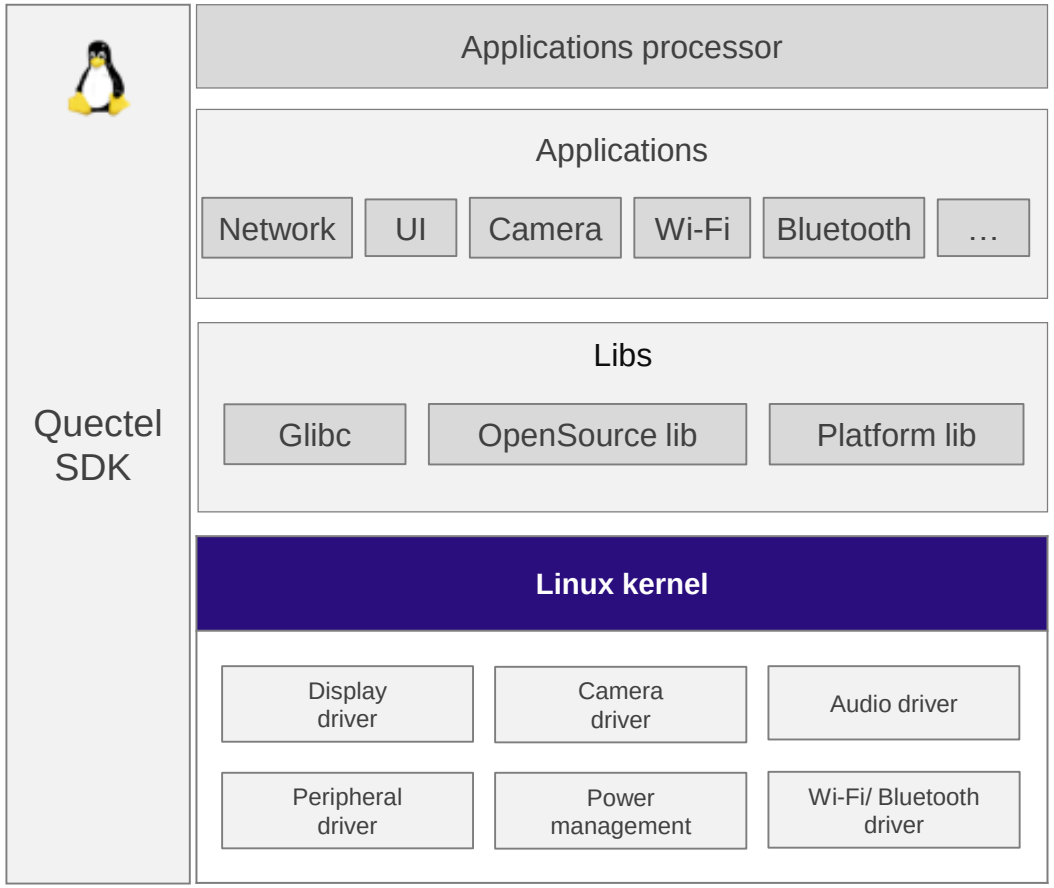
Excellent customer service

GPU: Graphics Processing Unit DSP: Digital Signal Processing NPU: Neural Processing Unit LCD: Liquid-crystal Display

Smart module SDK

Quectel provides Android AOSP or Linux SDK which include libs and source codes to customers under NDA.





AOSP: Android Open-source Project HAL: Hardware Abstraction Layer VM: Virtual Machine RIL: Radio Interface Layer

Smart module evaluation kit





Interfaces

- UART
- USB Type-C
- LCM
- Audio
- Camera
- SIM
- SD

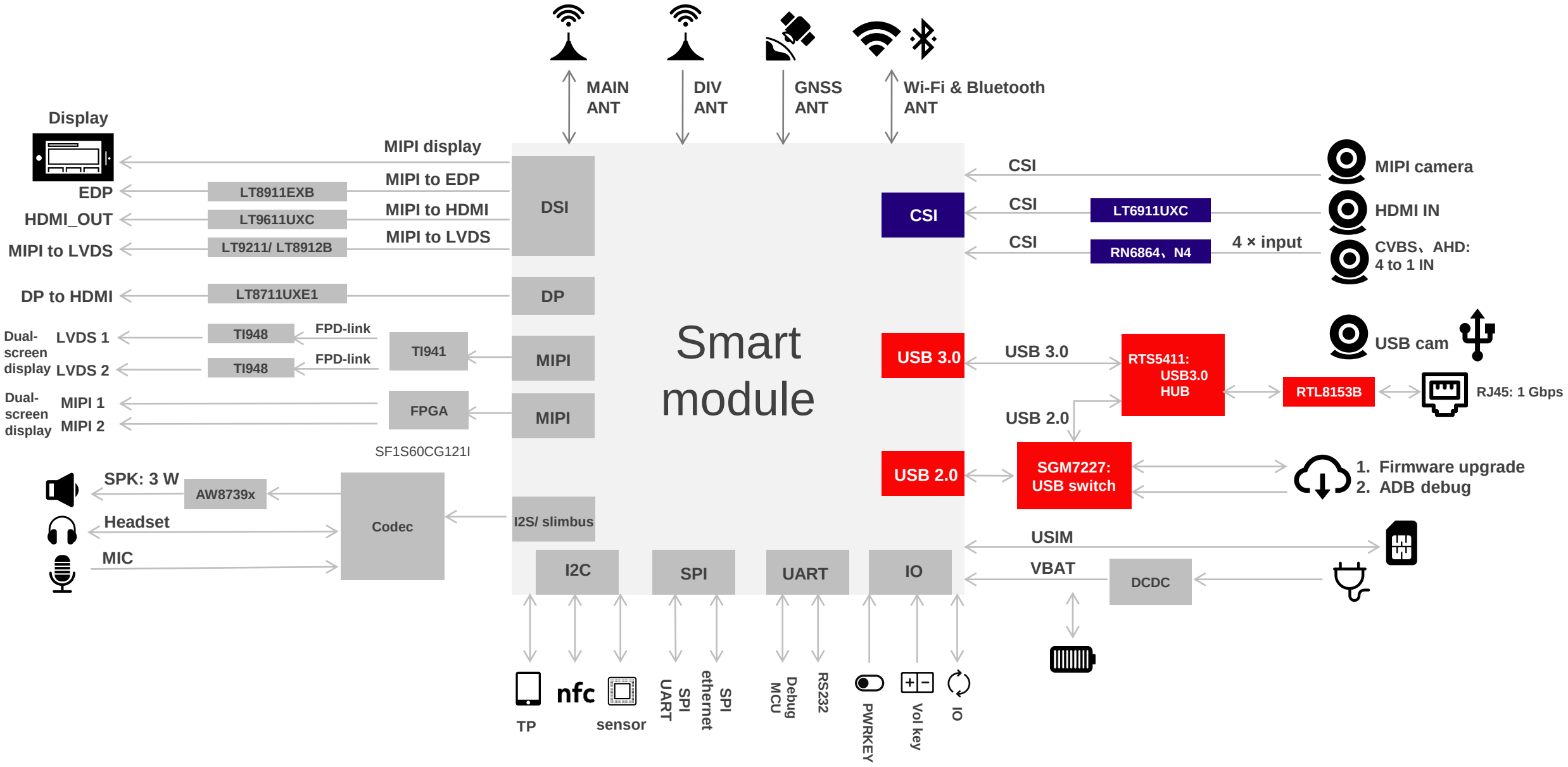
Accessories

- Antenna
- Earphone
- Adapter
- USB Type-C
- RF cables
- USB to UART cables
- U-disk

Reference documents

- Evaluation (main) board schematic
- TE-A (carrier) schematic
- Evaluation and TEA board BOM
- Smart module SDK

Smart module hardware design reference



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Smart module portfolio

Premium level



SG865W
- QCS8250 ①
- CPU: 8x Kryo585 2.84 GHz
- GPU: Adreno 650
- Camera: 64 MP
- Video: 4K @ 240 fps/ 8K @ 60 fps
- Wi-Fi: 2 × 2 11ax; Bluetooth 5.1



SG885G
- QCS8550 ①
- CPU: 1 + 4 + 3 Kryo™ CPU (3.2/ 2.8/ 2.0 GHz)
- GPU: Adreno 740 – 4K 120 fps UI
- Camera: 64 MP
- Video: 4K @ 240 fps / 8K @ 60 fps
- Wi-Fi: 2.4 & 5 & 6 GHz, Wi-Fi 7; Bluetooth 5.3

High level

SC600T/ SC606T (MSM8953)





SC66
- SDM660 ①
- CPU: 4 + 4 Kryo 260 (2.2/ 1.8 GHz)
- GPU: Adreno 512
- Camera: 24 MP
- Video: 4K @ 30 fps
- Wi-Fi: 2 × 2 11ac; Bluetooth 5.0
- Modem: LTE Cat 6
- GNSS: L1



SC668S/ SC696S
- QCM6125 ①
- CPU: 4 + 4 Kryo 260 2.0/ 1.8 GHz
- GPU: Adreno 610
- Camera: 24 MP
- Video: 4K @ 30 fps
- Wi-Fi: 11ac; Bluetooth 5.0
- Modem: LTE Cat 4
- GNSS: L1



SG560D 5G
- QCM6490 ①
- CPU: 1 + 3 + 4 Kyro 670 (2.7/ 2.4/ 1.9 GHz)
- GPU: Adreno 643
- Camera: 64 MP
- Video: 4K30D/ 4K30E
- Wi-Fi: 2 × 2 11ax DBS; Bluetooth 5.2
- Modem: 5G Sub 6/ LTE Cat 18
- GNSS: L1 + L5

Medium level

SC600Y (SDM450)





SC200K
- UIS8581E ②
- CPU: 8x A55 1.6 GHz
- GPU: GE8322
- Camera: 16 MP
- Video: 1080P @ 60 fps
- Wi-Fi: 11ac; Bluetooth 5.0
- Modem: LTE Cat 4
- GNSS: L1



SC680A/ SC686A
- QCM4290 ①
- CPU: 4 + 4 Kryo 260 (2.0/ 1.8 GHz)
- GPU: Adreno 610
- Camera: 25 MP
- Video: 1080P @ 60 fps
- Wi-Fi: 11ac; Bluetooth 5.1
- Modem: LTE Cat 6
- GNSS: L1



SG520B 5G
- QCM4490 ①
- CPU: 2 + 6 Kyro CPU (2.4/ 2.0 GHz)
- GPU: Adreno 613
- Camera: 25 MP
- Video: 1080P @ 60fps
- Wi-Fi: 2 × 2 11ax DBS; Bluetooth 5.2
- Modem: 5G Sub 6/ LTE Cat 15
- GNSS: L1

Entry level

SC20 (MSM8909)





SC200R
- QCM2150 ①
- CPU: 4x A53 1.3 GHz
- GPU: Adreno 308
- Camera: 13 MP
- Video: 1080P @ 30 fps
- Wi-Fi: 11n; Bluetooth 4.2
- Modem: LTE Cat 4
- GNSS: L1



SC200E/ SC206E
- QCM2290 ①
- CPU: 4x A53 2.0 GHz
- GPU: Adreno 702
- Camera: 25 MP
- Video: 1080P @ 30 fps
- Wi-Fi: 11ac; Bluetooth 5.0
- Modem: LTE Cat 4
- GNSS: L1



SC200L
- SL8541E ②
- CPU: 4x A53 1.4 GHz
- GPU: Mali-T820
- Camera: 8 MP
- Video: 1080P @ 30 fps
- Wi-Fi: 11ac; Bluetooth 5.0
- Modem: LTE Cat 4
- GNSS: L1



SG150H
- SL8521E ②
- CPU: 2x A53 1.3 GHz
- GPU: Mali-T820
- Camera: 5 MP
- Video: 720P @ 30 fps
- Wi-Fi: 11n; Bluetooth 4.2
- Modem: LTE Cat 4
- GNSS: L1



SG368Z
- RK3568 ③
- CPU: 4x A55 2.0 GHz
- GPU: Mali-G52
- Camera: 8 MP
- Video: 1080P @ 60 fps
- Wi-Fi: 11ac; Bluetooth 4.2

①: Qualcomm ②: Unisoc ③: Rockchip

Entry level features & comparison

	Entry level						
Item	**SC20 series**	**SC200R series**	**SC200E series**	**SC206E series**	**SC200L series**	**SG150H series**	**SG368Z series**
Dimensions	40.5 × 40.5 × 2.8 mm	40.5 × 40.5 × 2.85 mm	40.5 × 40.5 × 2.85 mm	40.5 × 40.5 × 2.85 mm	40.5 × 40.5 × 2.85 mm	35 × 31 × 2.65 mm	46.0 × 42.0 × 3.15 mm
Form-factor	LCC + LGA	LCC + LGA	LCC + LGA	LCC + LGA	LCC + LGA	LGA	LGA
SKUs	-J/ -AU/ -CE/ -E/ -EL/ -A/ -AL/ -W/ -WL	-CE/ -EM/ -NA/ -WF/ -JP①	-CE/ -EM/ -NA/ -WF /-JP/ -GL	-EM/ -NA/ -WF/ -GL/ -JP①	-CE/ -EU/ -AU/ -WF	-EU/ -AU	-WF/ -AP
Memory	1 GB + 8 GB 2 GB + 16 GB	1 GB + 8 GB 2 GB + 16 GB	2 GB + 16 GB 3 GB + 32 GB	1 GB + 8 GB 2 GB + 16 GB	1 GB + 8 GB 2 GB +16 GB	256 MB + 512 MB	**Commercial grade:** 2 GB + 32 GB 4 GB + 32 GB **Industrial grade:** 1 GB + 8 GB 2 GB + 16 GB
Platform	MSM8909	QCM2150	QCM2290	QCM2290	SL8541E	SL8521E	RK3568
Process	28 nm	28 nm	11 nm	11 nm	28 nm	28 nm	22 nm
Modem	LTE Cat 4	LTE Cat 4	LTE Cat 4	LTE Cat 4	LTE Cat 4	LTE Cat 4	-
OS	Android 7.1/ 8.1/ Yocto Linux	Android 10	Android 12/ 13	Yocto Linux	Android 10/ 12/ Linux*	Linux	Android 13/ Linux (kernel 4.19/)/ OpenWrt*
CPU	4 × A7 @ 1.1 GHz	4 × A53 @ 1.3 GHz	4 × A53 @ 2.0 GHz	4 × A53 @ 2.0 GHz	4 × A53 @ 1.4 GHz	2 × A53 @ 1.3 GHz	4x A55 @ 2.0 GHz
NPU	-	-	-	-	-	-	1 Tops
GPU	Adreno 304 @ 409.6 MHz	Adreno 308 @ 485 MHz	Adreno 702 @ 845 MHz	Adreno 702 @ 845 MHz	Mali-T820 MP1 @ 680 MHz	Mali-T820 MP1 @ 384 MHz	ARM Mali-G52
Display	1 × MIPI DSI HD (1280 × 720)	1 × MIPI DSI HD+ (1440 × 720)	1 × MIPI DSI HD+ (1680 × 720)	1 × MIPI DSI HD+ (1680 × 720)	1 × MIPI DSI HD+ (1440 × 720)	1 × MIPI DSI: 640 × 480 SPI: 320 × 240	3 x HDMI/ MIPI_DSI/ eDP/ LVDS
Camera	1 × ISP Max. 8 MP @ 1 × ISP	2 × ISP，8 MP @ 1 × ISP + 8 MP @ 1 × ISP Max. 13 MP @ 2 × ISP	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. 25 MP @ 2 × ISP	1 × ISP Max. 8 MP + 2 MP	1 × ISP Max. 5 MP	1 × 4-lane MIPI CSI 8 M or 2 × 2-lane, up to 2.5 Gbps/ lane
Video	Encoding: 720p30, H.264 Decoding: 1080p30, H.264, H.265	Encoding: 1080p30, H.264 Decoding: 1080p30, H.264, H.265	Encoding/ Decoding: 1080p30, H.264, H.265	Encoding/ Decoding: 1080p30, H.264, H.265	Encoding: 1080p30, H.264 Decoding: 1080p30, H.264, H.265	Encoding: 720p30, H.264 Decoding: 720p30, H.264	Encoding: 1080P @ 60 fps Decoding: 4K @ 60 fps
Bluetooth	Bluetooth 4.2/ BLE	Bluetooth 4.2/ BLE	Bluetooth 5.0/ BLE	Bluetooth 5.0/ BLE	Bluetooth 5.0/ BLE	Bluetooth 4.2/ BLE	Bluetooth 4.2/ 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 GHz, 802.11a/ b/ g/ n	2.4 & 5 GHz, Wi-Fi 5, 802.11a/ b/ g/ n/ ac
GNSS②	GPS/ GLONASS/ BDS	GPS/ BDS/ GLONASS or GPS/ BDS/ Galileo	GPS/ GLONASS/ BDS/ Galileo/ QZSS	GPS/ GLONASS/ BDS/ Galileo/ QZSS	GPS + GLONASS or GPS + BDS	GPS/ GLONASS or GPS/ BDS	-
USB	1 × USB 2.0	1 × USB 2.0	1 × USB 2.0/ 3.1 (Type-C)	1 × USB 2.0/ 3.1 (Type-C)	2 × USB 2.0	1 × USB 2.0	2 × USB 3.0 + 2 × USB 2.0
Lifetime	2025	2028	2030	2030	2027	2027	2030
Antutu (V6.3.3) benchmark	27,522 (AOS 8.1, 2 +16 GB) 39,101 (AOS 8.1, 2 + 16 GB, Antutu 9.6.2)	35,940 (AOS 10, 2 + 16 GB) 64,740 (AOS 10, 2 + 16 GB, Antutu 9.6.0)	58,766 (AOS 12, 3 + 32 GB) 140,674 (AOS 12, 3 + 32 GB, Antutu 10.2.1)	-	35,101 (AOS 10, 1 + 8 GB) 90,721 (AOS 10, 1 + 8 GB, Antutu 10.2.1)	-	195,691 (AOS 13, 2 + 32 GB, Antutu 10.2.1)

①: TBD (To Be Determined)　②: GNSS is not supported by -WF/ -AP variant of each module series (if any)　*: Under development/ in progress/ planning

Medium level features & comparison

	Medium level				
Item	**SC600Y series**	**SC680A series**	**SC686A series**	**SG520B series**	**SC200K series**
Dimensions	43.0 × 44.0 × 2.85 mm	43.0 × 44.0 × 2.85 mm	43.0 × 44.0 × 2.85 mm	42.5 × 56.5 × 2.95 mm	40.5 × 40.5 × 2.85 mm
Form-factor	LCC + LGA	LCC + LGA	LCC + LGA	LGA	LCC + LGA
SKUs	-EM/ -NA/ -JP/ -WF	-EM/ -NA/ -WF/ -JP	-EM/ -NA/ -WF	-CN*/ -EM*/ -NA①/ -WF①	-CE/ -WF
Memory	2 GB + 16 GB 3 GB + 32 GB	4 GB + 64 GB 3 GB + 32 GB	2 GB + 16 GB 3 GB + 32 GB	4 GB + 64 GB 8 GB + 128 GB	2 GB + 16 GB 3 GB + 32 GB
Platform	SDM450	QCM4290	QCM4290	QCM4490	UIS8581E
Process	14 nm	11 nm	11 nm	4 nm	28 nm
Modem	LTE Cat 6	LTE Cat 6	LTE Cat 6	5G (3GPP Release 16) & LTE Cat 15	LTE Cat 4
OS	Android 9/ 10	Android 12/ 13/ 14*	Yocto Linux	Android 13/ 14*/ 15①/ 16①/ 17①/ 18①	Android 10
CPU	8 × A53 @ 1.8 GHz	4 × Kryo Gold 260 @ 2.0 GHz + 4 × Kryo Silver 260 @ 1.8 GHz	4 × Kryo Gold 260 @ 2.0 GHz + 4 × Kryo Silver 260 @ 1.8 GHz	2 × Kryo Gold (A78) @ 2.4 GHz + 6 × Kryo Silver (A55) @ 2.0 GHz	4 × A55 @ 1.6 GHz + 4 × A55 @ 1.2 GHz
NPU	-	1.1 TOPS	1.1 TOPS	-	-
GPU	Adreno 506 @ 600 MHz	Adreno 610 @ 950 MHz	Adreno 610 @ 950 MHz	Adreno 613	GE8322 @ 550 MHz
Display	2 × MIPI DSI WUXGA (1920 × 1200) FHD (1920 × 1080)	1 × MIPI DSI FHD+ (1080 × 2520)	1 × MIPI DSI FHD+ (1080 × 2520)	1 × MIPI DSI FHD+ (2600 × 1200) @ 120Hz	1 × MIPI DSI FHD+ (2160 × 1080)
Camera	2 × ISP 13 MP @ 1 × ISP + 13 MP @ 1 × ISP Max. 21 MP @ 2 × ISP	3 × ISP 13 MP @ 1 × ISP + 13 MP @ 1 × ISP Max. 25 MP @ 2 × ISP	3 × ISP 13 MP @ 1 × ISP + 13 MP @ 1 × ISP Max. 25 MP @ 2 × ISP	2 × ISP 16 MP @ 1 × ISP + 16 MP @ 1 × ISP Max. 25 MP @ 2 × ISP	2 × ISP 13 MP @ 1 × ISP + 5 MP @ 1 × ISP Max. 16 MP @ 2 × ISP
Video	Encoding/ Decoding: 1080p60, H.264, H.265	Encoding/ Decoding: 1080p60, H.264, H.265	Encoding/ Decoding: 1080p60, H.264, H.265	Encoding/ Decoding: 1080p60, H.264, H.265	Encoding/ Decoding: 1080p30, H.264, H.265
Bluetooth	Bluetooth 4.2/ BLE	Bluetooth 5.1/ BLE	Bluetooth 5.1/ BLE	Bluetooth 5.2	Bluetooth 5.0/ BLE
Wi-Fi	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac/ ax-ready	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac/ ax-ready	2.4 & 5 & 6 GHz, 2 × 2 MIMO,DBS 802.11a/ b/ g/ n/ ac/ ax, Wi-Fi 6E	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac
GNSS②	GPS/ BDS/ GLONASS or GPS/ BDS/ Galileo	GPS/ GLONASS/ BDS/ Galileo/ QZSS	GPS/ GLONASS/ BDS/ Galileo/ QZSS	GPS/ BDS/ GLONASS/ Galileo/ QZSS	GPS + GLONASS or GPS + BDS
USB	1 × USB 2.0/ 3.0 (Type-C)	1 × USB 2.0/ 3.1 (Type-C)	1 × USB 2.0/ 3.1 (Type-C)	1 × USB 3.1 (Type-C)	2 × USB 2.0
Lifetime	2025	2028	2028	2030	2027
Antutu (V10.2.1) benchmark	130,840 (AOS 10, 2 + 16 GB)	250,312 (AOS 13, 4 + 64 GB)	-	385,867 (AOS 13, 4 + 64 GB)	143,429 (AOS 10, 3 + 32 GB)

*: Under development/ in progress/ planning ①: TBD (To Be Determined) ②: GNSS is not supported by -WF variant of each module series (if any)

High level features & comparison

	High level					
Item	**SC600T series**	**SC606T series**	**SC66 series**	**SC668S series**	**SC696S series**	**SG560D series**
Dimensions	43.0 × 44.0 × 2.85 mm	43.0 × 44.0 × 2.85 mm	43.0 × 44.0 × 2.85 mm	43.0 × 44.0 × 2.85 mm	43.0 × 44.0 × 2.85 mm	42.5 × 56.5 × 2.95 mm
Form-factor	LCC + LGA	LCC + LGA	LCC + LGA	LCC + LGA	LCC + LGA	LGA
SKUs	-EM/ -NA/ -JP/ -WF	-EM/ -NA/ -WF	-CE/ -E/ -A/ -J/ -MW	-CN/ -EM/ -NA/ -JP /-WF	-EM/ -NA/ -WF	-CE/ -EM/ -NA/ -WF
Memory	2 GB + 16 GB 3 GB + 32 GB	2 GB + 16 GB	3 GB + 32 GB 4 GB + 64 GB	3 GB + 32 GB 4 GB + 64 GB	2 GB + 16 GB 3 GB + 32 GB	4 GB + 64 GB 6 GB + 128 GB
Platform	MSM8953	MSM8953	SDM660	QCM6125	QCM6125	QCM6490
Process	14 nm	14 nm	14 nm	11 nm	11 nm	6 nm
Modem	LTE Cat 6	LTE Cat 6	LTE Cat 6	LTE CAT 4	LTE CAT 4	5G & LTE Cat 18
OS	Android 9/ 10	Yocto Linux	Android 9/ 10	Android 10/ 11/ 13	Yocto Linux	Android 12/ 13/ 14
CPU	8 × A53 @ 2.0 GHz	8 × A53 @ 2.0 GHz	4 × Kryo Gold 260 @ 2.2 GHz + 4 × Kryo Silver 260 @ 1.8 GHz	4 × Kryo Gold 260 @ 2.0 GHz + 4 × Kryo Silver 260 @ 1.8 GHz	4 × Kryo Gold 260 @ 2.0 GHz + 4 × Kryo Silver 260 @ 1.8 GHz	1 × Kryo Gold Plus @ 2.7 GHz + 3 × Kryo Gold @ 2.4 GHz + 4 × Kryo Silver @ 1.9 GHz
NPU	-	-	-	1.1 TOPS	1.1 TOPS	12 TOPS
GPU	Adreno 506 @ 650 MHz	Adreno 506 @ 650 MHz	Adreno 512 @ 650 MHz	Adreno 610 @ 950 MHz	Adreno 610 @ 950 MHz	Adreno 643 @ 812 MHz
Display	2 × MIPI DSI, WUXGA (1920 × 1200), FHD (1920 × 1080)	2 × MIPI DSI, WUXGA (1920 × 1200), FHD (1920 × 1080)	2 × MIPI DSI, WQXGA (2560 × 1600)	1 × MIPI DSI, WUXGA(1920 × 1200)/ 1080 × 2520	1 × MIPI DSI, WUXGA(1920 × 1200)/ 1080 × 2520	MIPI: 1200 × 2520 @ 144 fps & DP: 4K (3840 × 2160) @ 60 fps Wi-Fi：4K @ 60fps
Camera	2 × ISP, 13 MP @ 1 × ISP + 13 MP @ 1 × ISP, Max. 24 MP @ 2 × ISP	2 × ISP,13 MP @ 1 × ISP + 13 MP @ 1 × ISP, Max. 24 MP @ 2 × ISP	2 × ISP,16 MP @ 1 × ISP + 16 MP @ 1 × ISP, Max. 24 MP @ 2 × ISP	2 × ISP, 16 MP @ 1 × ISP + 16 MP @ 1 × ISP, Max. 24 MP @ 2 × ISP	2 × ISP, 16 MP @ 1 × ISP + 16 MP @ 1 × ISP, Max. 24 MP @ 2 × ISP	4 × 4-lane MIPI CSI, Supports up to 2.5 Gbps/ lane; 3 × ISP, 3 × 27 MP @ 24 fps; or 3 × 22MP @ 30 fps ; or 36 MP + 27 MP @ 24 fps; or 36MP + 22MP @ 30 fps; or Max. 1 × 64 MP @ 30 fps
Video	Encoding/ Decoding: 4K30, 1080p60, H.264, H.265	Encoding/ Decoding: 4K30, 1080p60, H.264, H.265	Encoding/ Decoding: 4K30, 1080p60, H.264, H.265	Encoding/ Decoding: 4K30, 1080p60, H.264, H.265	Encoding/ Decoding: 4K30, 1080p60, H.264, H.265	Encoding: 4K (H.264/ H.265) @ 30 fps Decoding: 4K (H.264/ H.265/ VP9) @ 60 fps
Bluetooth	Bluetooth 4.2/ BLE	Bluetooth 4.2/ BLE	Bluetooth 5.0/ BLE	Bluetooth 5.0/ BLE	Bluetooth 5.0/ BLE	Bluetooth 5.2
Wi-Fi	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, 802.11a/ b/ g/ n/ ac	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac	2.4 & 5 & 6 GHz, 2 × 2 MU-MIMO, 802.11a/ b/ g/ n/ ac/ ax, Wi-Fi 6E
GNSS②	GPS/ BDS/ GLONASS or GPS/ BDS/ Galileo	GPS/ BDS/ GLONASS or GPS/ BDS/ Galileo	GPS/ GLONASS/ BDS/ Galileo/ QZSS	GPS/ GLONASS/ BDS/ Galileo/ QZSS	GPS/ GLONASS/ BDS/ Galileo/ QZSS	GPS/ GLONASS/ BDS/ NavIC/ Galileo/ QZSS
USB	1 × USB 2.0/ 3.0 (Type-C)	1 × USB 2.0/ 3.0 (Type-C)	1 × USB 3.1 (DP over Type-C) + 1 × USB 2.0	1 × USB 2.0/ 3.1 (Type-C/ Native DP)	1 × USB 2.0/ 3.1 (Type-C/ Native DP)	1 × USB 3.1 (DP over Type-C) + 1 × USB 2.0
PCIe	-	-	-	-	-	1 × 2-lane PCIe Gen 3
Lifetime	2025	2025	2028	2028	2028	2036
Antutu (V10.2.1) benchmark	153,298 (AOS 10, 2 + 16 GB)	-	254,276 (AOS 10, 4 + 64 GB)	240,908 (AOS 11, 4 + 64 GB)	-	641,230 (AOS 13, 4 + 64 GB)

*: Under development/ in progress/ planning ①: TBD (To Be Determined) ②: GNSS is not supported by -WF or -MW variant of each module series (if any)

Premium level features & comparison

	Premium level	
Item	**SG865W series**	**SG885G**
Dimensions	42.0 × 46.0 × 2.95 mm	49.0 × 51.0 × 4.15 mm
Form-factor	LGA	LGA
SKUs	-WF/ -AP	-WF
Memory	8 GB + 64 GB 12 GB + 128 GB	8 GB + 128 GB 12 GB + 256 GB
Platform	QCS8250	QCS8550
Process	7 nm	4 nm
Modem	Wi-Fi/ Bluetooth only	Wi-Fi/ Bluetooth only
OS	Android 10/ Ubuntu 18.04	Android 13*
CPU	1 × Kryo 585 Gold prime @ 2.842 GHz + 3 × Kryo 585 Gold @ 2.419 GHz + 4 × Kryo 585 Silver @ 1.805 GHz	1 × Kryo Gold prime @ 3.2 GHz + 4 × Kryo Gold @ 2.8 GHz + 3 × Kryo Silver @ 2.0 GHz
GPU	Adreno 650 @ 587 MHz	Adreno 740
NPU	NPU230, 11 TOPS	Dual eNPU V3, 48 TOPS
DSP	Compute Hexagon DSP with: • 4 × HVX Vector co-processor • Other Hexagon coprocessor	Compute Hexagon DSP with: • 4 × HVX Vector co-processor optimized for pixel processing • 1 × HMX Matrix co-processor optimized for deep neural network processing • Other Hexagon coprocessor
Display	Adreno DPU 995 2 × MIPI DSI + 1 × DP (MST Mode), 4K (5040 × 2160)	Adreno DPU 1295 2 × 4-lane MIPI DSI (3480 × 2160 at 120 Hz, 3360 × 1600 at 144 Hz) + 2 × DP (MST Mode), 4K60
Camera	2 × ISP + 2 × Lite ISP 25 MP @ 1 × ISP + 25 MP @ 1 × ISP Max. 64 MP @ 2 × ISP	6 × 4-lane MIPI CSI, Connect up to 14x/20x cameras, 5x concurrent 3 × ISP + 2 × Lite ISP. some ZSL example are: (36 M + 36 M + 36 M) @ 30 fps - triple camera or (64 M + 36 M) @ 30 fps - dual camera or 108 M @ 30 fps - single camera
Video	Encoding: 4K120/ 8K30, H.264, H.265, VP8, VP9 Decoding: 4K240/ 8K60, H.264, H.265, VP8	Encoding: 4K120/ 8K30, H.265, H.264 Decoding: 4K240/ 8K60, H.265, H.264, VP9
Bluetooth	Bluetooth 5.1/ BLE	Bluetooth 5.3 (BR/ EDR + BLE)
Wi-Fi	2.4 & 5 GHz, 2 × 2 Wi-Fi MIMO, 802.11a/ b/ g/ n/ ac/ ax, Wi-Fi 6	2.4 & 5 & 6 GHz, Wi-Fi 7, 802.11a/ b/ g/ n/ ac/ ax/ be, 2 × 2 Wi-Fi MIMO
USB	1 × USB 3.1 (DP over type-C) + 1 × USB 3.1	1 × USB 3.1 (DP over type-C)
PCIe	2 × 2-lane PCIe Gen 3	1 × 2-lane PCIe Gen 4
Lifetime	2036	2033
Antutu (V10.2.1) benchmark	625,324 (AOS 10, 8 + 64 GB)	1,505,106 (AOS 13, 12 + 256 GB)

*: Under development/ in progress/ planning

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Typical applications





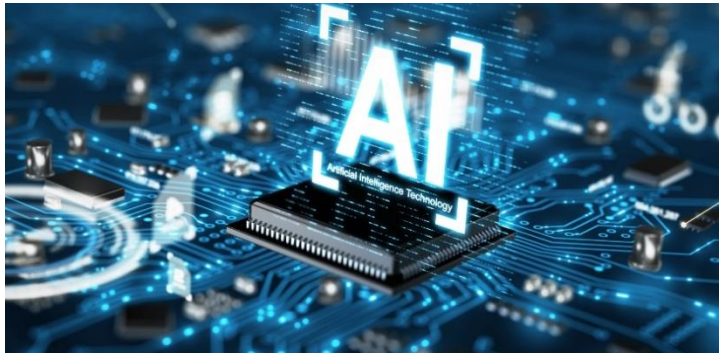














Retail



Functions supported

Secure payment
Meet the security requirements for digital transaction applications in mobile and NFC payments

Multiple wireless modes
Cellular/ Wi-Fi/ Bluetooth

Dual-screen display
Dual-screen display to meet the requirements for cash register

Form-factor compatibility in different modules
Module form-factor is compatible in different modules for easy upgrade

Applications

- Finance
- Restaurant
- Supermarket
- Hotel
- Hospital
- Transportation

Recommended smart modules



Quad-core entry level



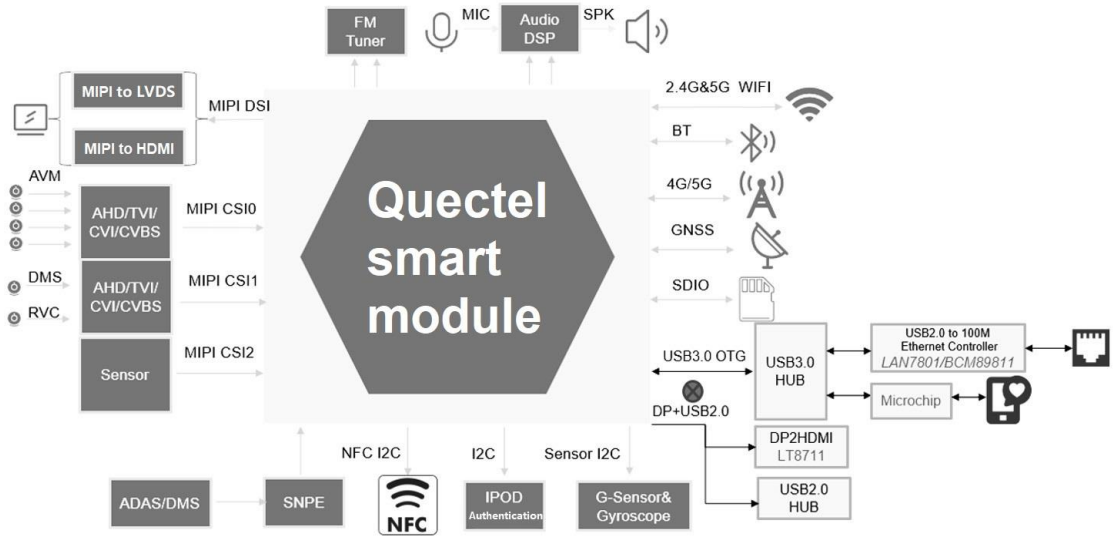
Octa-core medium level



Octa-core high level

Vehicle aftermarket

Solutions



Functions supported

Camera

Multi-way surround view, driving record, fast reverse

Infotainment

Supports multiple video formats, 192K/ 24 Bit audio source output, dynamic and static sound effects adjustment

Internet of Vehicles

4G/ 5G/ Wi-Fi/ GNSS connectivity to meet the requirements for global certification

Vehicle algorithm

ADAS/ DMS, audio algorithm, distortion correction and parity frames

Applications

- Infotainment
- Edging computing BOX
- Dash cam
- Navigation
- Rear headrests
- Smart rear-view mirror

Recommended smart modules



Quad-core entry level



Octa-core medium level



Octa-core high level

Smart home & appliances









Functions supported

- Large high-definition screen
- Smart camera
- Voice recognition
- Abundant peripheral interfaces
- Visual recognition
- Multiple cellular modes
- Wi-Fi
- Multiple operating systems supported

Recommended smart modules



Quad-core entry level

Octa-core medium level

Octa-core high level

Industrial handheld

Applications

- Office
- Logistics & warehouse management
- Education
- Enforcement
- Operation & maintenance inspection
- Medical assistance
- Engineering surveying & mapping
- Automotive diagnosis
- Handheld game console

Functions supported

Abundant interfaces with easy expandability
Multiple cameras, NFC expansion, QR code scanning, RFID

Multiple modules for easy selection
Compatible module form-factor, ease to upgrade

Multiple algorithm integration
Multi MIC noise reduction, EIS, TTS, etc.

Multiple wireless modes
Cellular/ Wi-Fi/ Bluetooth

Recommended smart modules



Quad-core entry level



Octa-core medium level



Octa-core high level



Octa-core premium level

Livestreaming & video conferences





Functions supported

- Multiple functions
- MIC
- Virtual background
- Multiple applications
- Multiple shot switching
- App store

Configuration

- Android
- Processor: Octa-Core CPU
- Memory: 8 GB + 256 GB or higher
- Camera: 21M or higher pixels
- Video: 4K,1080p
- TOPS: 3.5–12.5 TOPS
- Display: 10’’, 32/43’’ with touch
- 4G/ Wi-Fi/ Bluetooth/ GNSS
- Speaker, Mic
- Remote control

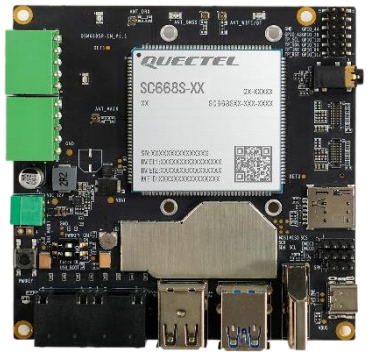
Recommended smart modules



Robotics

Solutions

QSM668SR



QSM560DR



Android + Linux built-in operating systems

Control board

High-integrated full-function control board integrating 4G/ 5G with high-performance edging computing cores and abundant peripheral resources

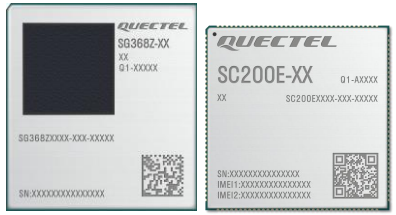
Operation system

Achieve human-computer interaction and robust as well as computing with abundant functions, deeply integrate the development environment on the same platform

Applications

- Smart mower
- AMR
- Guidance, cleaning and delivery
- Accompanying, education and entertainment

Recommended smart modules



Quad-core entry level



Octa-core high level



Octa-core 5G high level



Octa-core premium level

AR/ VR





Augmented reality

Augmented reality overlays computer-generated images on the view of the natural world with the camera on smart phones, tablets, or other mobile devices. Quectel works hard to bring the vision of lightweight and stylish AR glasses to life.

Virtual reality

Through cutting-edge graphics, best-in-class hardware, and artistically rendering experiences, VR lets us explore new worlds, defy obstacles. VR has enormous potential to transform how we play, work, learn, communicate, and experience the world around us.

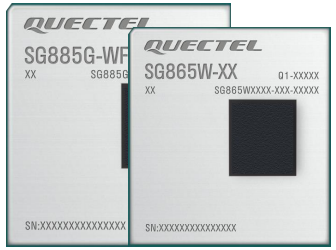
3D scanner

3D measurement scanners can measure cross-sections, thickness, and perform GD&T measurements in a single scan.

Configuration

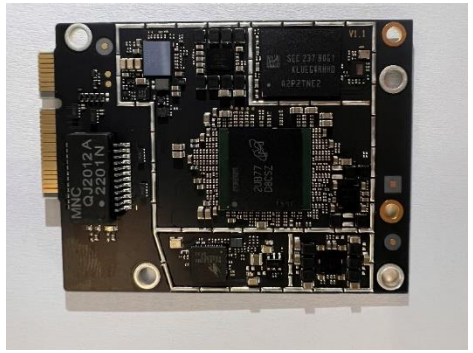
- Android or Linux
- Memory: 8 GB + 64 GB or higher
- TOPS: 12.5 TOPS

Recommended smart modules



ARM array server

Solutions









Cloud games



Cloud mobile phone



Cloud live streaming



Cloud rendering

ARM board	ARM array server case	Cloud service vendors	Cloud-based contents
The board with M.2 interface based on SoC is the core component of ARM array servers	Conduct centralized management and data allocation of multiple ARM boards	ARM array servers deployed to the cloud with the running of multiple virtual channels	Games, mobile, live streaming and rendering



Recommended smart modules



Octa-core premium level



Octa-core premium level

Edge computing

Applications



Smart manufacturing



Smart monitoring



Smart city



Unmanned retail





Functions Supported

- Low-power computing
- Abundant peripheral interfaces
- Multiple Operation Systems
- Cost-effectiveness
- Mobility
- 5G option

Recommended smart modules



Octa-core 5G high level



Octa-core premium level



Octa-core premium level

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Key components supply services

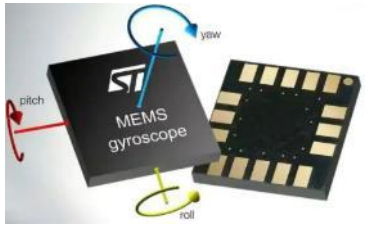
Customers may face difficulties in finding key components used in their board locally. To accelerate customers' development and shorten the time to market, Quectel will use the supply chain to provide the key components to customers.

- ✓ Main key components:
  - LCM + TP
  - Camera module
  - Sensors, NFC ICs, extension ICs, etc.

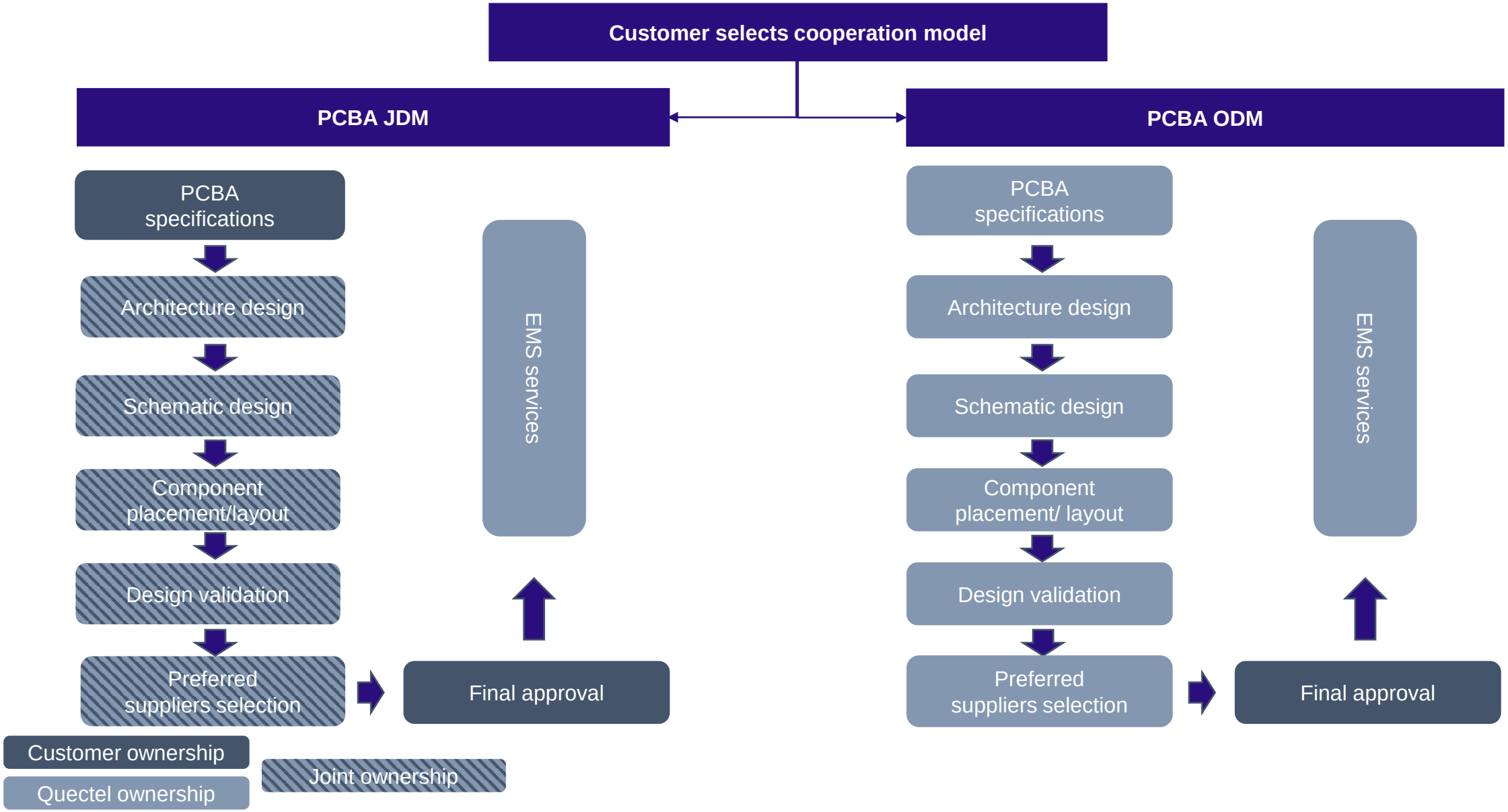








Flexible PCBA service cooperation models



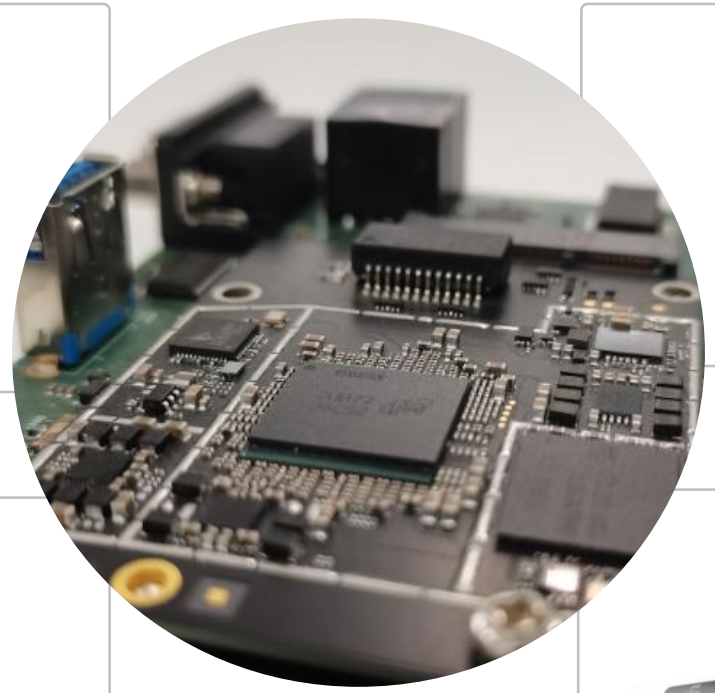
JDM: Joint Development Manufacturer ODM: Original Development Manufacturer EMS: Electronics Manufacturer Services

PCBA service – design & manufacturing

PCBA① development service centers on customer needs, focusing on System-on-Chip (SOC) platforms with Chip-on-Board (COB) or Module-on-Board (MOB) solution delivery.

SOC vendors

Qualcomm UNISOC MEDIATEK Rockchip

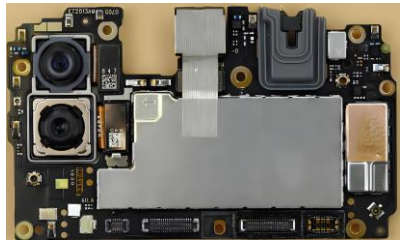


PCBA solutions

MOB



COB



Operating Systems



Applications



①: PCBA - A printed circuit board assembly (PCBA) describes the finished board after all the components have been soldered and installed on a printed circuit board (PCB)

Highly professional manufacturing

Quectel factory is **ISO 9001, IATF 16949**, **ISO 14001** and **ISO 45001 certified**.



Changzhou, China

1 Automatic De-Paneling Machine & Optical Inspection System



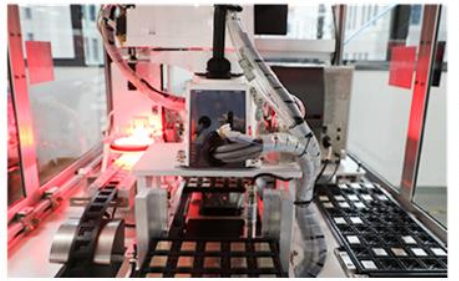
2 Automatic DL & RF Calibration Test Station



3 Automatic Module Flatness Inspection System









6 Real Time Monitoring System for Production Line Quick Response

5 Automatic Tape and Reel Packaging System

4 Convection Oven for module de-humidification

PCBA service – process

1. Requirement evaluation

- Customer requirement evaluation
- SoC solution evaluation
- System design evaluation
- Cost, timeline RD input and other evaluation

3. Sample production and tuning

- Material procurement
- PCBA production
- Hardware debugging and tuning
- Radio frequency performance debugging and tuning
- Software implementation and debugging

5. Product MP

- Production tool development
- Production process standardization
- Automatic test
- After-sales service

INPUT:
Requirement








OUTPUT:
Finished product

2. Product design

- Schematic and PCB layout design
- Hardware simulation
- ID/ MD/ stacking design
- EMC design
- Thermal design and simulation

4. Sample validation

- Radio frequency performance test
- Power consumption test
- Acoustic test
- Reliability and ambient test
- EMC test

PCBA service – Quectel advantages

Strong design ability



- Large and professional R&D team
- Experience in IoT module and application design
- New design or customization possible

Professional service



- Strong supply chain (part of module sourcing)
- Global support (offices in USA, EMEA and APAC)
- Value-added services

Multiple-SoC solutions



- Qualcomm, MTK, Unisoc and Rockchip SoCs
- Multiple selection of smart modules
- COB and MOB

Quality guarantee



- Tests according to defined acceptance standards
- Product quality management system
- Standardized SMT manufacturing

Value-added services

Hardware light-up service

Hardware board light-up:

Camera, LCD, etc.





Software customization service

- Customize Android/ Linux OS deeply
- Customize algorithm
- Customize multimedia functions
- Tune camera, LCD, audio, etc.



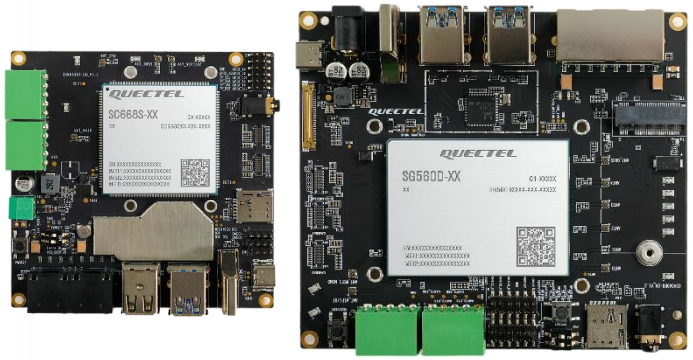
Certification service

RED, CE certifications for the device





PCBA design cases



Robotics & industrial board

- 4G and 5G MOB boards
- Multiple interfaces
- Easy to expand



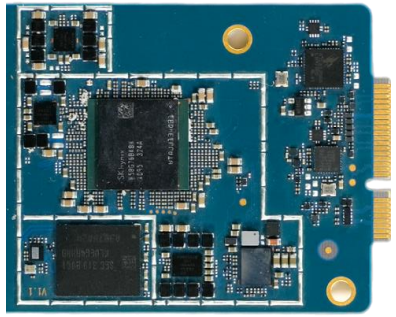
POS

- 4G COB board
- High-voltage Battery charging



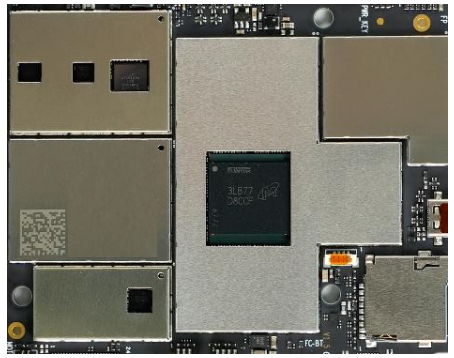
Industrial PDA

- 5G COB board
- Fast charging



ARM server board

- High performance computing COB board
- Mini-PCIe interface
- Thermal design
- Ethernet interface



Game console PCBA

- High performance computing COB board
- Wi-Fi 7
- HDMI
- Fast charging

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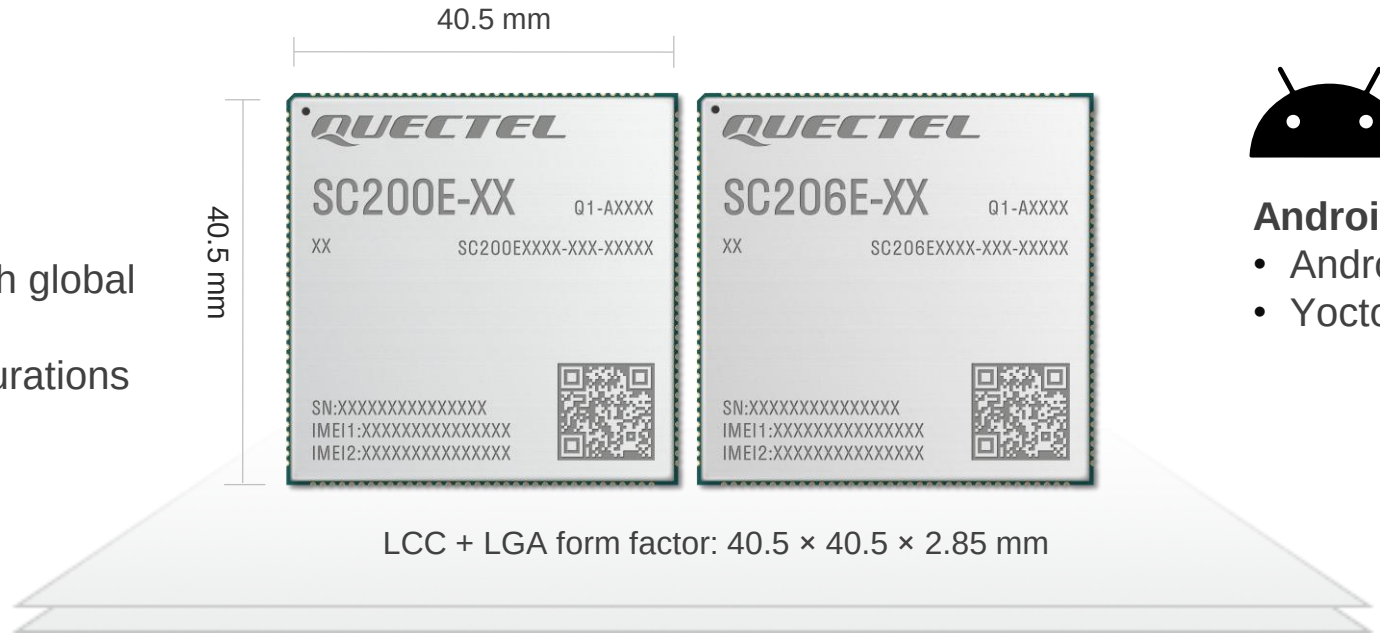
Entry level



SC200E/ SC206E series highlights

Multiple variants:

- Multi-region variants with global certifications
- Multiple memory configurations



LCC + LGA form factor: 40.5 × 40.5 × 2.85 mm

Android or Linux OS:

- Android 12/ 13/ 14 for SC200E
- Yocto Linux (kernel 5.4) for SC206E

Chipset platform: QCM2290.
Entry level SoC chipset supporting multimedia, LTE Cat 4,
Wi-Fi 802.11ac, Bluetooth and GNSS

Long life time:
Till the year of 2030

Compatible with SC20, SC200R, SC200L, SC200K series

SC200E/ SC206E series specifications

Variant		SC200E-GL/ SC206E-GL	SC200E-EM/ SC206E-EM	SC200E-NA/ SC206E-NA	SC200E-JP/ SC206E-JP①	SC200E-CE	SC200E-WF/ SC206E-WF
Region		Global	EMEA/ South Korea/ South Asia/ Latin America/ India/ Australia/ New Zealand/ South Africa	North America	Japan	China	Global
LTE	**FDD band**	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 66/ 71	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 66/ 71	B1/ 3/ 5/ 8/ 11/ 18/ 19/ 21/ 26/ 28	B1/ 3/ 5/ 8	-
	TDD band	B34/ 38/ 39/ 40/ 41	B38/ 40/ 41	B41	B41	B34/ 38/ 39/ 40/ 41	-
UMTS	**WCDMA band**	B1/ 2/ 4/ 5/ 6/ 8/ 19	B1/ 2/ 4/ 5/ 8	-	B1/ 6/ 8/ 19	B1/ 8	-
EVDO/ CDMA		-	-	-	-	BC0	-
GSM/ EDGE		Quad-band	Quad-band	-	-	900/ 1800 MHz	-
GNSS		Supported	Supported	Supported	Supported	Supported	-
Wi-Fi/ Bluetooth		Supported	Supported	Supported	Supported	Supported	Supported
Certification		**Carrier:** Verizon*/ AT&T*/ T-Mobile① **Regulatory:** CE/ UKCA①/ FCC/ IC/ GCF*/ PTCRB*/ RCM/ KC/ JATE/ TELEC/ Anatel①	**Carrier:** Telstra① **Regulatory:** CE/ RCM/ GCF/ UKCA/ KC/ Anatel②	**Carrier:** Verizon/ AT&T/ T-Mobile **Regulatory:** FCC/ IC/ GCF/ PTCRB	**Carrier:** NTT DOCOMO **Regulatory:** JATE/ TELEC	**Regulatory:** CCC/ SRRC/ NAL	**Regulatory:** KC/ IC/ FCC/ CE/ UKCA/ NCC/ JATE/ TELEC/ RCM/ Anatel/ NBTC②
Project stage		CS	MP	**SC200E-NA:** MP **SC206E-NA:** CS	CS	MP	MP

*: Under development/ in progress/ planning ①: TBD (To Be Determined) ②: Anatel certification of SC206E-EM is still in progress

SC200E/ SC206E series features and interfaces

Key features		Interfaces	
CPU	QCM2290, Quad-core ARM Cortex-A53 64-bit CPU @ 2.0 GHz	**LCM**	4-lane MIPI DSI, HD+ (1680 × 720) @ 60 fps
GPU	Qualcomm® Adreno™ 702 Graphics Processing Unit (GPU) with 64-bit addressing	**Camera**	Two 4-lane MIPI CSI, up to 2.5 Gbps/ lane Supports 2 or 3 cameras, up to 25 MP or 13 MP + 13 MP with dual ISP
Video	Encoding: 1080P 8-bit H.264/ H.265 @ 30 fps Decoding: 1080P 8-bit H.264/ H.265 VP9 @ 30 fps	**Touch panel**	Capacitive touch panel, controlled by I2C
Memory	SC200E series: 2 GB + 16 GB (LPDDR4X eMCP, default) 3 GB + 32 GB (LPDDR4X eMCP, optional) SC206E series: 1 GB + 8 GB (LPDDR4X eMCP, default) 2 GB + 16 GB (LPDDR4X eMCP, optional)	**Audio**	Analog channels: 3 inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC) 3 outputs: Line out, earpiece, headphone
OS	Android 12/ 13/ 14 for SC200E Yocto Linux (kernel 5.4) for SC206E	**USB**	× 1 USB 2.0/ 3.1 (Type-C)
Wi-Fi	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac 433 Mbps, STA/ AP/ P2P	**(U)SIM**	× 2 Supports 1.8/ 2.95 V (U)SIM cards, with (U)SIM card detection function Supports DSDS
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.0 LE	**UART**	× 3 Up to 4 Mbps, one of them supports hardware flow control
GNSS①	GPS/ BDS/ GLONASS/ Galileo/ QZSS	**SD card**	× 1 SD 3.0, 4-bit SDIO
Modem	3GPP Release 10	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported	**Antenna**	× 4 Main/ rx-diversity/ GNSS/ Wi-Fi & Bluetooth antenna interface respectively (SC200E-WF/ SC206E-WF: × 1, Wi-Fi & Bluetooth antenna interface)

①: GNSS is not supported by SC200E-WF/ SC206E-WF

SC200E-EM/ -JP timelines

2022					2023												2024					
Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.

SC200E-EM

MP

Certification

Carrier Telstra ---------- TBD

Regulatory GCF/ CE/ RCM/ KC/ UKCA/ Anatel ---------- Completed

SC200E-JP

Project schedule

ES — CS — MP

Certification

JATE/ TELEC/ NTT DOCOMO ---------- Completed

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".

SC206E-NA timeline

2022										2023												2024					
Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.

SC206E-NA

Project schedule

ES — CS — MP

Certification

Carrier	Verizon	Completed
	AT&T	Completed
	T-Mobile	Completed
Regulatory	GCF/ PTCRB/ FCC/ IC	Completed

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".

SC200E-GL timeline

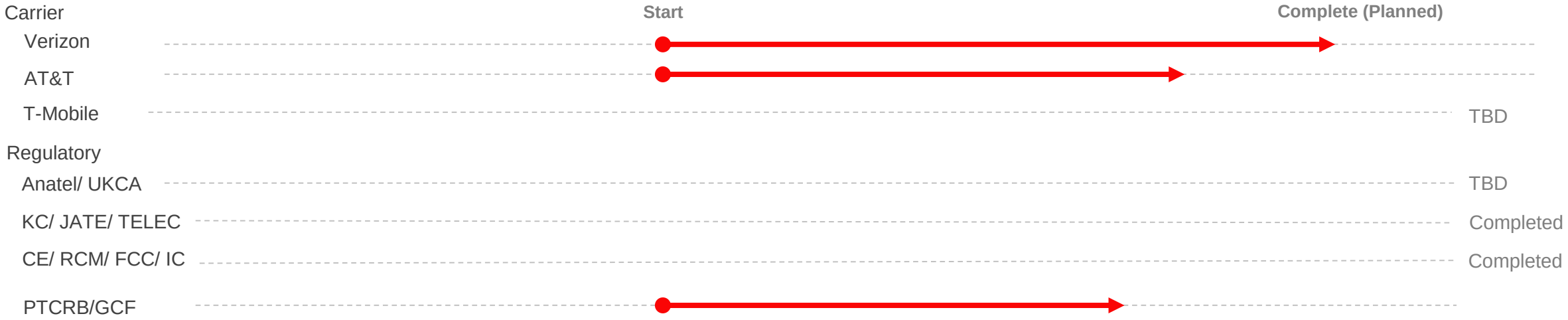
2023								2024											
May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

SC200E-GL

Project schedule



Certification



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".

TBD: To Be Determined

SC206E-GL timeline

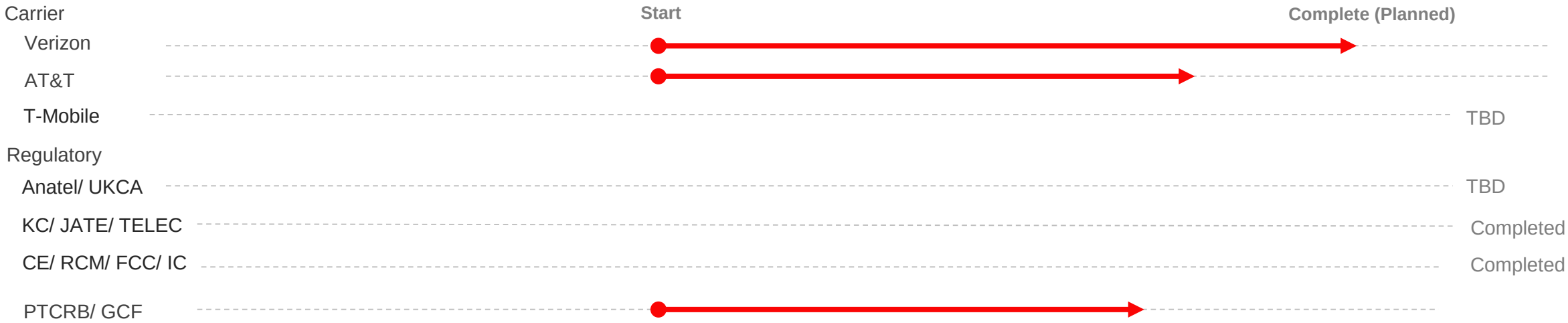
2023								2024											
May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.

SC206E-GL

Project schedule



Certification

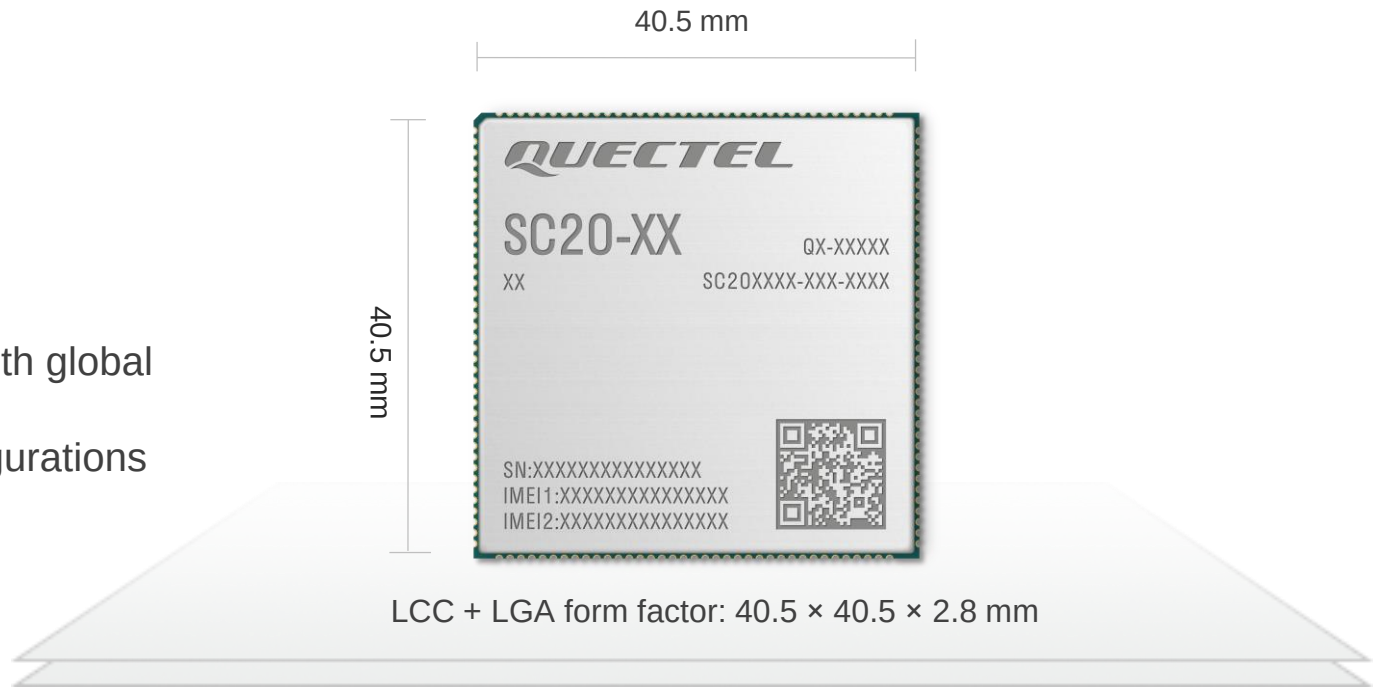


ES: Engineering samples ready. Basic functions are available for customers' simple demo purpose.
CS: Commercial samples ready. Stable hardware design and quite stable software design. New software features can be added upon request.
MP: Hardware and software ready for mass production. For certification status, please refer to the "certification schedule".

TBD: To Be Determined

SC20 series highlights

Multiple variants:
- Multi-region variants with global certifications
- Multiple memory configurations



LCC + LGA form factor: 40.5 × 40.5 × 2.8 mm

Android or Linux OS:
- Android 7.1/ 8.1
- Yocto Linux (kernel 3.18)

Chipset platform: MSM8909.
Entry level SoC chipset supporting multimedia, LTE Cat 4,
Wi-Fi 802.11n, Bluetooth and GNSS

Long life time:
Till the year of 2025

Compatible with SC200R, SC200E, SC206E, SC200L, SC200K series

SC20 series specifications

Variant		SC20-E/ -EL①	SC20-A/ -AL①	SC20-J	SC20-AU	SC20-CE	SC20-W/ -WL①
Region		EMEA/ South Korea/ Thailand/ India/ Vietnam	North America	Japan	Australia/ Brazil	China	Global
LTE	**FDD band**	B1/ 3/ 5/ 7/ 8/ 20	B2/ 4/ 5/ 7/ 12/ 13/ 25/ 26	B1/ 3/ 8/ 18/ 19/ 26	B1/ 3/ 5/ 7/ 8/ 28	B1/ 3/ 5/ 8	-
	TDD band	B38/ 40/ 41	-	B41	B40	B38/ 39/ 40/ 41	-
UMTS	**WCDMA band**	B1/ 5/ 8	B1/ 2/ 4/ 5/ 8	B1/ 6/ 8/ 19	B1/ 2/ 5/ 8	B1/ 8	-
	TD-SCDMA band	-	-	-	-	B34/ 39	-
EVDO/ CDMA		-	-	-	-	BC0	-
GSM/ EDGE		Quad-band	850/ 1900 MHz	-	Quad-band	900/ 1800 MHz	-
Embedded GNSS		Supported	Supported	Supported	Supported	Supported	-
Wi-Fi/ Bluetooth		Supported	Supported	Supported	Supported	Supported	Supported
Certification		**Regulatory:** **SC20-E:** GCF/ CE/ UKCA/ KC/ NBTC **SC20-EL:** GCF/ CE/ UKCA/ RCM **SC20-EX:** GCF/ CE/ UKCA/ RCM	**Carrier:** **SC20-A:** Verizon/ AT&T/ T-Mobile②/ Rogers/ Telus② **SC20-AL:** Verizon/ AT&T **SC20-AX:** Verizon/ AT&T **Regulatory:** **SC20-A:** GCF/ PTCRB/ FCC/ IC **SC20-AL:** GCF/ PTCRB/ FCC/ IC **SC20-AX:** 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:** **SC20-W:** CE/ FCC/ UKCA/ IC/ Anatel/ JATE/ TELEC/ RCM **SC20-WL:** CE/ FCC/ UKCA/ IC/ Anatel/ JATE/ TELEC/ RCM
Project stage		MP	MP	MP	MP	MP	MP

①: SC20-EL/ -AL/ -WL are variants with Yocto Linux OS inside ②: T-Mobile/ Telus for Data Only version only

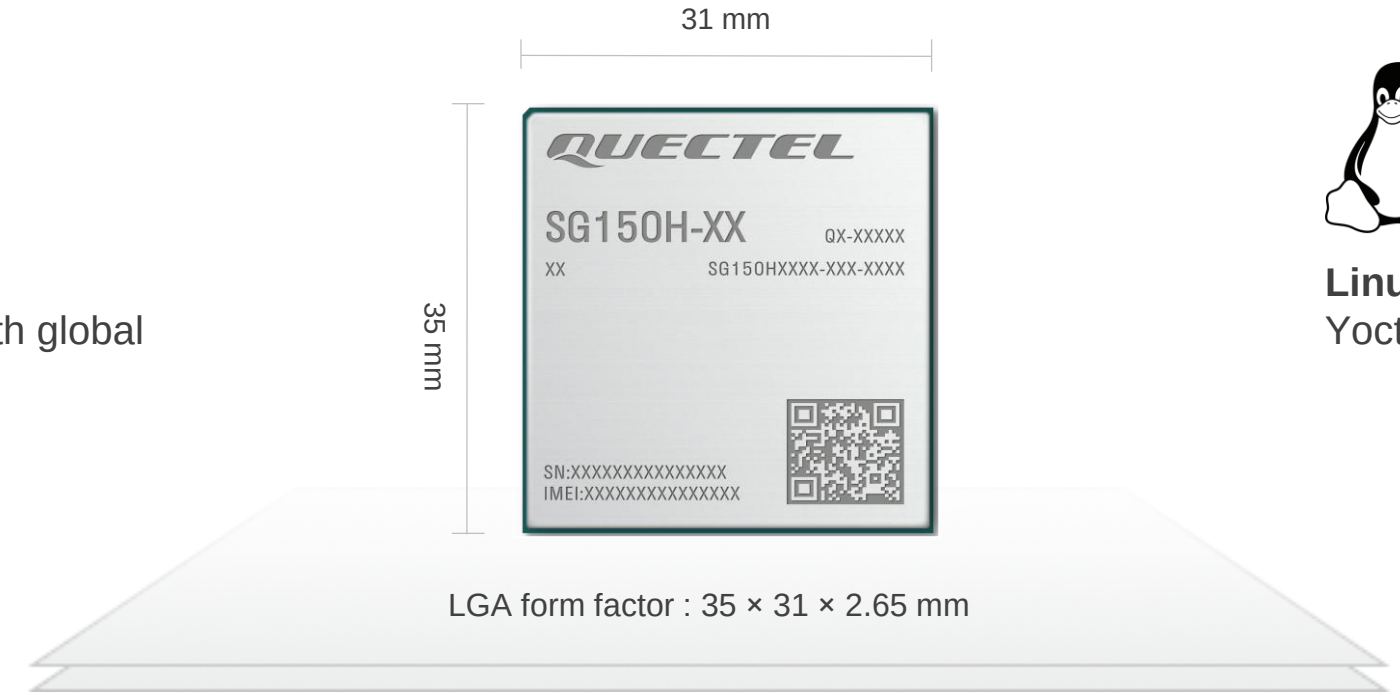
SC20 series features and interfaces

Key features		Interfaces	
CPU	MSM8909, Quad-core A7, up to 1.1 GHz	**LCM**	4-lane MIPI DSI, 1.5 Gbps/ lane, HD (720P) @ 60 fps Supports MIPI to RGB, MIPI to LVDS and MIPI to HDMI
GPU	Qualcomm® Adreno™ 304 Graphics Processing Unit (GPU), up to 409.6 MHz	**Camera**	2-lane rear camera and 1-lane front camera or 4-lane rear camera only MIPI CSI, 1.5 Gbps/ lane, up to 8 MP, Bayer/ YUV format
Video	Encoding: • 720P (H.264) @ 30 fps • WVGA (MPEG-4/ VP8) @ 30 fps Decoding: • 1080P (H.264/ MPEG-4/ VP8/ H.265/ DivX4/ 5/ 6) @ 30 fps • WVGA (H.263) @ 30 fps	**Touch panel**	Capacitive touch panel, I2C controls
Memory	SC20 series (Android OS): 1 GB + 8 GB (LPDDR3 eMCP, default) 2 GB + 16 GB (LPDDR3 eMCP, optional) SC20 series (Linux OS): 1 GB + 8 GB (LPDDR3 eMCP)	**Audio**	Analog channels: 2 inputs: MIC1, MIC2 3 outputs: speaker, earpiece, headphone
OS	Android 7.1/ 8.1 in SC20-E/ -A/ -J/ -AU/ -CE/ -W Yocto Linux (Kernel 3.18) in SC20-EL/ -AL/ -WL	**USB**	× 1 USB 2.0, supports USB OTG, High Speed 480 Mbps
Wi-Fi	2.4 & 5 GHz; 802.11a/ b/ g/ n 150 Mbps; STA/ AP/ P2P	**(U)SIM**	× 2 Supports 1.8/ 3 V (U)SIM cards, with (U)SIM card detection function Supports DSDS
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE Supports a maximum of 10 ACL/ EL/ SCO links	**UART**	× 2 Supports up to 4 Mbps with hardware flow control
GNSS ①	GPS/ BDS/ GLONASS	**SD card**	× 1 SD 3.0, 4-bit SDIO
Modem	3GPP Release 10 compliant	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported	**Antenna**	× 4 Main/ rx-diversity/ GNSS/ Wi-Fi & Bluetooth

①: GNSS is not supported by SC20-W/ -WL

SG150H series highlights

Multiple variants:
Multi-region variants with global certifications



LGA form factor : 35 × 31 × 2.65 mm

Linux OS:
Yocto Linux (kernel 4.14)

Chipset platform: SL8521E (Unisoc)
Powerful system performance, multimedia,
LTE Cat 4
Wi-Fi 4 (802.11b/ g/ n), Bluetooth, GNSS

Long life time:
Till the year of 2027

SG150H series specification

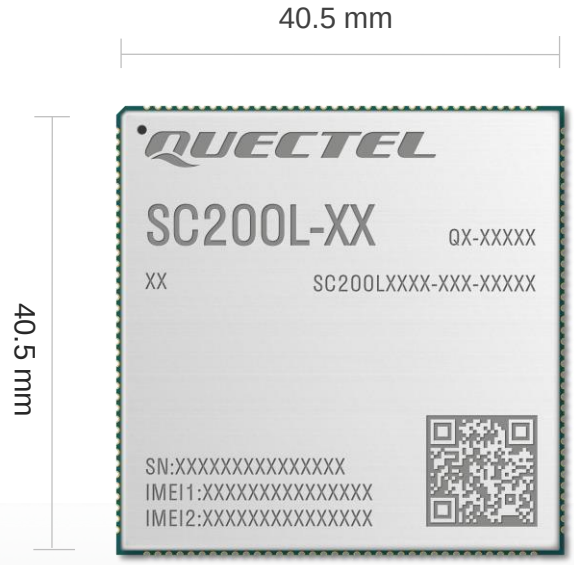
Variants		SG150H-EU	SG150H-AU
Region		EMEA/ APAC	Latin America
LTE	LTE-FDD	B1/ 3/ 5/ 7/ 8/ 20	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 28
	LTE-TDD	B38/ 40/ 41	-
WCDMA		B1/ 5/ 8	B1/ 2/ 4/ 5/ 8
GSM/EDGE		900/ 1800 MHz	Quad-band
GNSS		GPS/ GLONASS or GPS/ BDS	GPS/ GLONASS or GPS/ BDS
Wi-Fi/ Bluetooth		Supported	Supported
Certification		CE	Anatel
Project stage		MP	MP

SG150H series features and interfaces

Key features		Interfaces	
CPU	SL8521E, dual-core ARM Cortex-A53 64-bit CPU @ 1.3 GHz	**LCM**	MIPI DSI interface supports 640 × 480 SPI interface supports 320 × 240
GPU	Mali-T820 MP1 @ 384 MHz	**Camera**	One 2-lane MIPI CSI, 1 × ISP Supports Max. 5 MP camera
Video	Encoding: 720P (H.264) @ 30 fps Decoding: 720P (H.264) @ 30 fps	**Touch Panel**	Capacitive touch panel, I2C controls
Memory	256 MB LPDDR2 + 512 MB NAND	**Audio**	Analog channels: 2 inputs: MIC1, MIC2 1 output: speaker
OS	Yocto Linux (kernel 4.14)	**USB**	× 1 USB 2.0, supports USB OTG
Wi-Fi	2.4 GHz, 802.11b/ g/ n	**(U)SIM**	× 2
Bluetooth	Bluetooth 2.1 + EDR/ 4.2 BLE	**UART**	× 3 1 of them supports hardware flow control
GNSS	GPS/ GLONASS or GPS/ BDS	**SD Card**	× 2 SDIO • 1 general-purpose SDIO • 1 SDIO interface shared with LCD SPI interface
Modem	3GPP Release 10 compliant	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported	**Antenna**	× 3 Main/ GNSS/ Wi-Fi & Bluetooth

SC200L series highlights

Multiple variants:
- Multi-region variants with regional certifications
- Multiple memory configurations



LCC + LGA form factor: 40.5 × 40.5 × 2.85 mm

Android or Linux OS:
Android 10/ 12/ Linux

Chipset platform: SL8541E.
Entry level SoC chipset supporting multimedia, LTE Cat 4,
Wi-Fi 802.11n, Bluetooth and GNSS

Long life time:
Till the year of 2027

Compatible with SC20, SC200R, SC200E, SC206E, SC200K series

SC200L series specifications

Variant		SC200L-EU	SC200L-AU	SC200L-CE	SC200L-WF
Region		EMEA/ APAC	Latin America	China/ India	Global
LTE	**FDD band**	B1/ 3/ 5/ 7/ 8/ 20/ 28	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 28	B1/ 3/ 5/ 8	-
	TDD band	B38/ 40/ 41	B38	B34/ 38/ 39/ 40/ 41	-
UMTS	**WCDMA band**	B1/ 5/ 8	B1/ 2/ 4/ 5/ 8	B1/ 8	-
EVDO/ CDMA		-	-	-	-
GSM/ EDGE		900/ 1800 MHz	Quad-band	900/ 1800 MHz	-
Embedded GNSS		Supported	Supported	Supported	-
Wi-Fi/ Bluetooth		Supported	Supported	Supported	Supported
Certification		**Regulatory:** CE/ GCF/ RCM	**Regulatory:** Anatel	**Regulatory:** CCC/ SRRC*/ NAL*	-
Project stage		MP	MP	MP	MP

*: Under development/ in progress/ planning

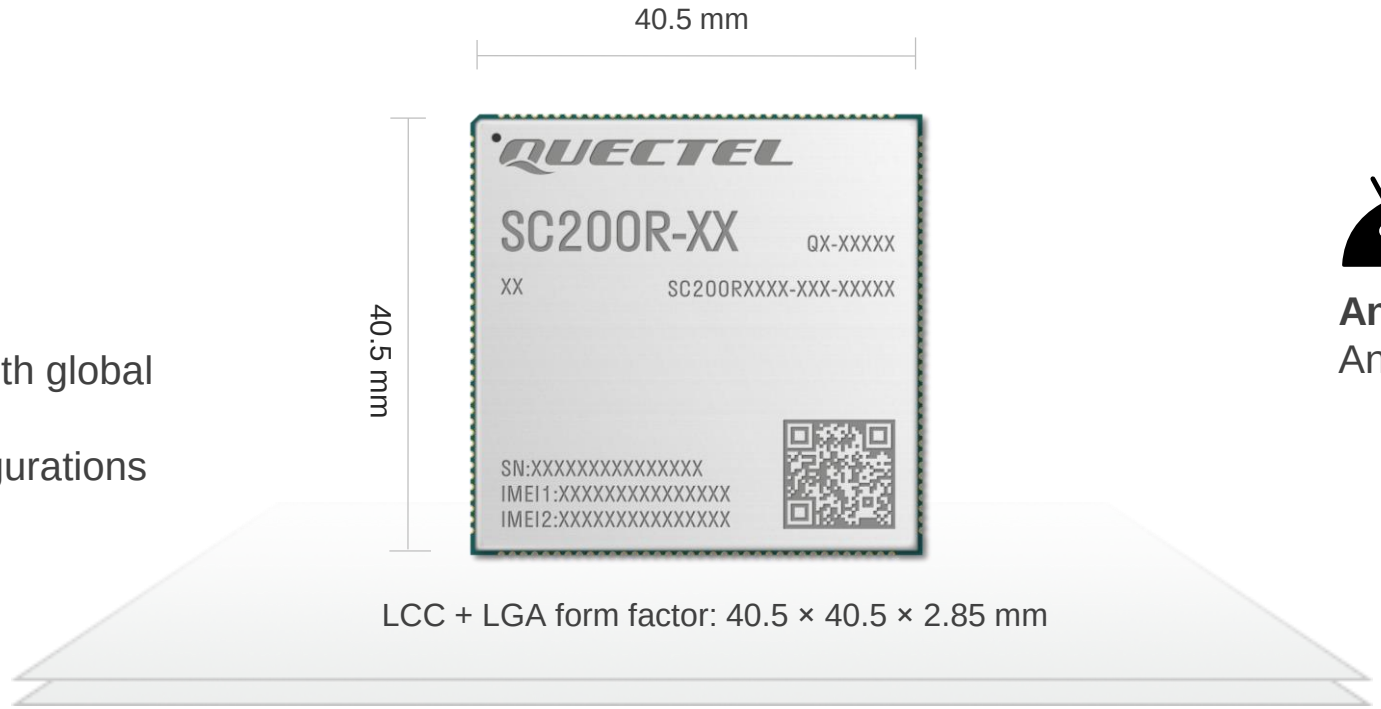
SC200L series features and interfaces

Key features		Interfaces	
CPU	SL8541E, Quad-core ARM Cortex-A53 64-bit CPU @ 1.4 GHz	**LCM**	4-lane MIPI DSI, HD+ (1440 × 720) @ 60 fps
GPU	ARM Mali-T820 as 3D graphics accelerator, up to 680 MHz	**Camera**	2 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)
Video	Encoding: • 1080P (H.264) @ 30 fps • WVGA (MPEG-4/ VP8) @ 30 fps Decoding: • 1080P (H.264/ MPEG-4/ VP8/ H.265/ DivX4/5/6) @ 30 fps • WVGA (H.263) @ 30 fps	**Touch panel**	Capacitive touch panel, I2C controls
Memory	1 GB + 8 GB (LPDDR3 eMCP, default) 2 GB + 16 GB (LPDDR3 eMCP, optional)	**Audio**	Analog channels: 3 inputs: MIC1, MIC2, MIC3 (MIC1 and MIC3 supports dual-microphone noise reduction) 3 outputs: speaker, earpiece, headphone
OS	Android 10/ 12/ Linux	**USB**	× 2 USB 2.0 USB1 supports USB OTG, does not support USB hub; up to 480 Mbps USB2 supports USB Host mode and USB hub; up to 100 Mbps
Wi-Fi	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac 433 Mbps; STA/ AP/ P2P	**(U)SIM**	× 2 Supports 1.8/ 2.95 V (U)SIM cards, with (U)SIM card detection function Supports DSDS
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.0 LE Supports a maximum of 10 ACL/ EL/ SCO links	**UART**	× 2 Up to 3.25 Mbps; UART0 supports hardware flow control
GNSS①	GPS/ GLONASS or GPS/ BDS	**SD card**	× 1 SD 3.0, 4-bit SDIO
Modem	3GPP Release 10 compliant	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported	**Antenna**	× 4 Main/ rx-diversity/ GNSS/ Wi-Fi & Bluetooth

①: GNSS is not supported by SC200L-WF

SC200R series highlights

Multiple variants:
- Multi-region variants with global certifications
- Multiple memory configurations



LCC + LGA form factor: 40.5 × 40.5 × 2.85 mm

Android OS:
Android 10

Chipset platform: QCM2150.
Entry level SoC chipset supporting multimedia, LTE Cat 4,
Wi-Fi 802.11n, Bluetooth and GNSS

Long life time:
Till the year of 2028

Compatible with SC20, SC200E, SC206E, SC200L, SC200K series

SC200R series specifications

Variant		SC200R-EM	SC200R-NA	SC200R-CE	SC200R-WF
Region		EMEA/ India/ South Korea/ South Asia/ Latin America/ Australia/ New Zealand/ South Africa	North America	China	Global
LTE	**FDD band**	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 66/ 71	B1/ 3/ 5/ 8	-
	TDD band	B38/ 40/ 41	B41	B34/ 38/ 39/ 40/ 41	-
UMTS	**WCDMA band**	B1/ 2/ 4/ 5/ 8	B2/ 4/ 5	B1/ 8	-
EVDO/ CDMA		-	-	BC0	-
GSM/ EDGE		Quad-band	-	900/ 1800 MHz	-
Embedded GNSS		Supported	Supported	Supported	-
Wi-Fi/ Bluetooth		Supported	Supported	Supported	Supported
Certification		**Carrier:** Telstra **Regulatory:** GCF/ CE/ RCM/ Anatel/ KC	**Carrier:** Verizon/ AT&T/ T-Mobile① **Regulatory:** GCF/ PTCRB/ FCC/ IC	**Regulatory:** CCC/ SRRC/ NAL①	**Regulatory:** CE/ FCC/ IC/ RCM
Project stage		MP	MP	MP	MP

①: TBD (To Be Determined)

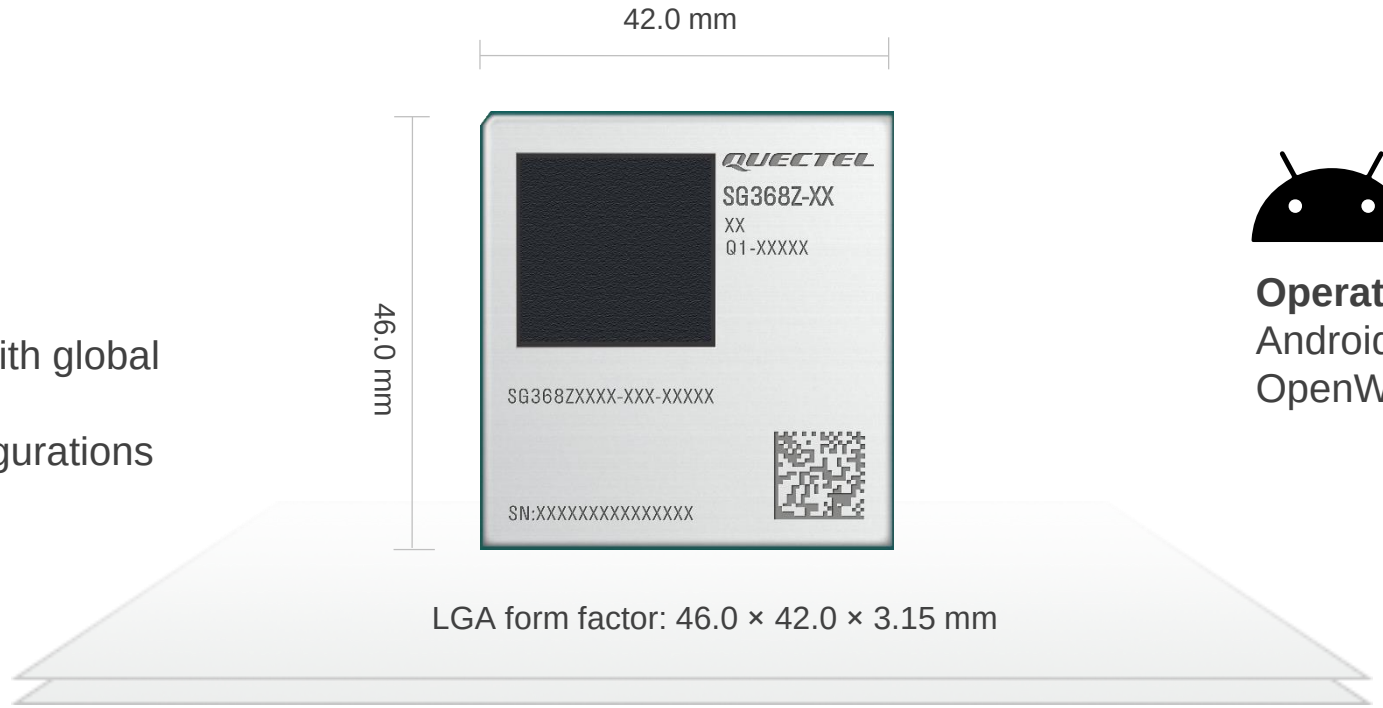
SC200R series features and interfaces

Key features		Interfaces	
CPU	QCM2150, Quad-core ARM Cortex-A53 64-bit CPU @ 1.3 GHz	**LCM**	4-lane MIPI DSI, HD+ (1440 × 720) @ 60 fps Wi-Fi display: 1080P @ 30 fps (UBWC)
GPU	Qualcomm® Adreno™ 308 Graphics Processing Unit (GPU) with 64-bit addressing, up to 485 MHz	**Camera**	Two 4-lane MIPI CSI, up to 2.1 Gbps/ lane, 2 × ISP Supports 2 or 3 cameras, up to 13 MP with dual ISP
Video	Encoding: • 1080P (H.264) @ 30 fps • WVGA (MPEG-4/ VP8) @ 30 fps Decoding: • 1080P (H.264/ MPEG-4/ VP8/ H.265/ DivX4/ 5/ 6) @ 30 fps • WVGA (H.263) @ 30 fps	**Touch panel**	Capacitive touch panel, I2C controls
Memory	1 GB + 8 GB (LPDDR3 eMCP, default) 2 GB + 16 GB (LPDDR3 eMCP, optional)	**Audio**	Analog channels: 3 inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC) 3 outputs: speaker, earpiece, headphone
OS	Android 10	**USB**	× 1 USB 2.0, supports USB OTG
Wi-Fi	2.4 & 5 GHz, 802.11a/ b/ g/ n 150 Mbps; STA/ AP/ P2P	**(U)SIM**	× 2 Supports 1.8/ 2.95 V (U)SIM cards, with (U)SIM card detection function Supports DSDS
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE Supports a maximum of 10 ACL/ BEL/ SCO links	**UART**	× 3 Up to 4 Mbps, 1 of them supports hardware flow control
GNSS①	GPS/ BDS/ GLONASS or GPS/ BDS/ Galileo	**SD card**	× 1 SD 3.0, 4-bit SDIO
Modem	3GPP Release 10 compliant	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported	**Antenna**	× 4 Main/ rx-diversity/ GNSS/ Wi-Fi & Bluetooth (SC200R-WF: × 1, Wi-Fi & Bluetooth Antenna)

①: GNSS is not supported by SC200R-WF

SG368Z series highlights

Multiple variants:
- Multi-region variants with global certifications
- Multiple memory configurations



Operating systems:
Android 13/ Linux (kernel 4.19)/ OpenWrt*

Chipset platform: RK3568
Powerful system performance, abundant interfaces, Wi-Fi 5, Bluetooth 4.2

Long life time:
Till the year of 2030

*: Under development/ in progress/ planning

SG368Z series specifications

Variant	SG368Z-WF	SG368Z-AP
Region	Global	Global
Wi-Fi/ Bluetooth interface	Supported	-
Certification	**Regulatory:** SRRC/ FCC/ IC/ KC	TBD
Project stage	MP	MP

TBD: To Be Determined

SG368Z series features and interfaces

Key features	
CPU	Quad-core ARM Cortex-A55 @ 2.0 GHz
GPU	ARM Mali-G52
Memory	**Commercial grade:** 2 GB + 32 GB (LPDDR4X + eMMC, default) 4 GB + 32 GB (LPDDR4X + eMMC, optional) **Industrial grade:** 1 GB + 8 GB (LPDDR4X + eMMC, default) 2 GB + 16 GB (LPDDR4X + eMMC, optional)
WLAN	2.4 & 5 GHz, Wi-Fi 5, 802.11 a/ b/ g/ n/ ac
Bluetooth	Bluetooth 4.2 (BR/ EDR + BLE)
LCM	1 × HDMI 2.0: Max. (4096 × 2160) @ 60 Hz 8-lane MIPI DSI 1.2: Max. (2048 × 1536) @ 60 Hz 8-lane LVDS: Max. (1920 × 1080) @ 60 Hz 2 × 4-lane MIPI DSI 1.2: Max. (1920 × 1080) @ 60 Hz 4-lane eDP 1.3: Max. (2560 × 1600) @ 60 Hz 4-lane LVDS: Max. (1280 × 800) @ 60 Hz LCDC RGB parallel display interface supports Max. 24 bits RGB*: Max. (1920 × 1080) @ 60 Hz
	3 channels of display can work simultaneously, 4-lane is treated as 1 channel, 8-lane is treated as 2 channels, HDMI is treated as 1 channel
Camera	1 × 4-lane MIPI CSI 8M or 2 × 2-lane, up to 2.5 Gbps/ lane Supports DVP* (BT.656/ 1120) analog camera
Audio	Loudspeaker, earpiece, analog microphone and digital audio interfaces
Video	Encoding: 1080p @ 60 fps Decoding: 4K @ 60 fps H.264 AVC/ MVC Main10 Profile yuv400/ yuv420/ yuv422 @ L5.1, H.265 HEVC/ MVC Main10 Profile yuv420 @ L5.1, H.264/ AVC BP/ MP/ HP @ level 4.2, H.265/ HEVC MP @ level 4.1

Interfaces	
PCIe	× 2 PCIe1: 1-lane, Gen 2; only supports RC mode PCIe2: 2-lane, Gen 3; supports both RC and EP modes, can be divided into two single lanes
SATA	Max. × 3, SATA 3.0, supports SATA PM
RGMII	Max. × 1 (SG368Z-WF); Max. × 2 (SG368Z-AP)
UART	Max. × 8 (SG368Z-WF); Max. × 10 (SG368Z-AP)
USB	× 4, compliant with USB 3.0/ 2.0 USB0: supports USB 2.0/ USB 3.0, supports USB HOST/ USB OTG USB1: supports USB 2.0/ USB 3.0, only supports USB HOST USB2: only supports USB 2.0, only supports USB HOST USB3: only supports USB 2.0, only supports USB HOST
SD card	× 1, SD 3.0
I2C	Max. × 5
I2S	Max. × 1 (SG368Z-WF); Max. × 2 (SG368Z-AP)
ADC	× 5, general-purpose ADC interfaces
CAN	Max. × 3
PWM	Max. × 14 (SG368Z-WF); Max. × 16 (SG368Z-AP)
Keypad	PWRKEY/ RESET_N/ BOOT/ VOL_UP/ VOL_DOWN/ MENU/ ESC
GPIO	Max. × 107 (SG368Z-WF); Max. × 128 (SG368Z-AP)

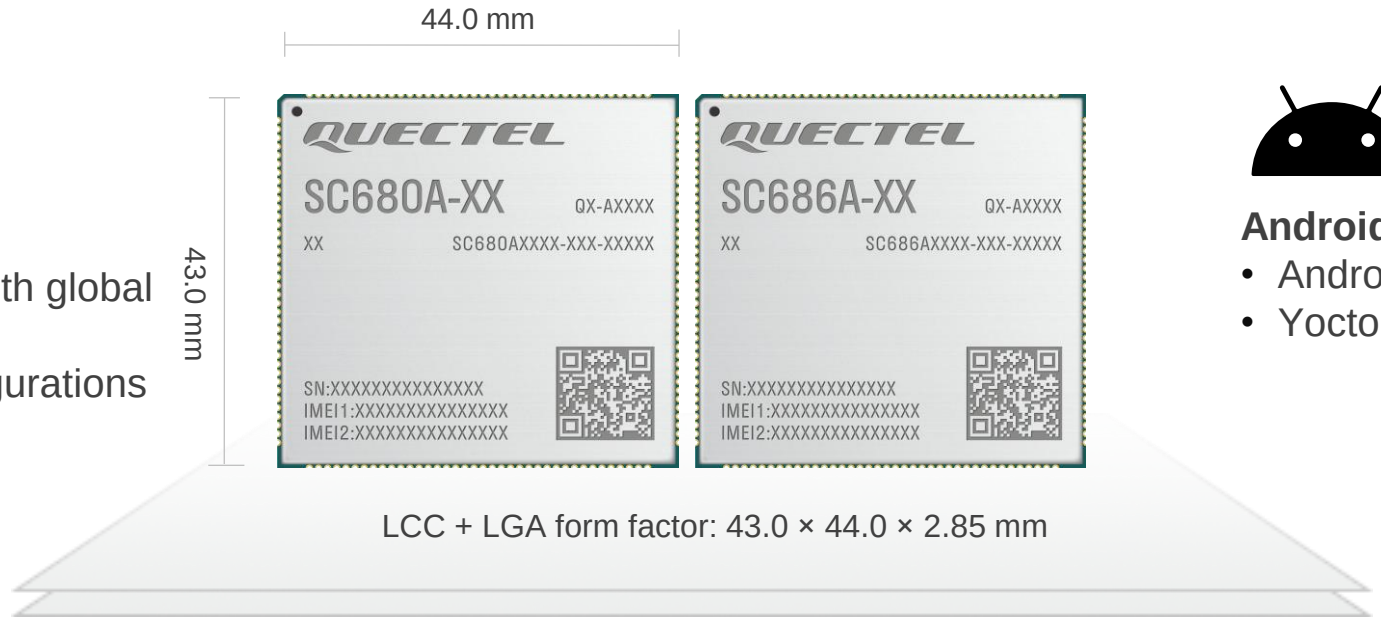
*: Under development/ in progress/ planning

Medium level



SC680A/ SC686A series highlights

Multiple variants:
- Multi-region variants with global certifications
- Multiple memory configurations



LCC + LGA form factor: 43.0 × 44.0 × 2.85 mm

Android or Linux OS:
- Android 12/ 13/ 14* for SC680A
- Yocto Linux (kernel 5.4) for SC686A

Chipset platform: QCM4290. Powerful system performance, multimedia, LTE Cat 6, Wi-Fi 802.11ac, Bluetooth, GNSS L1

Long life time:
Till the year of 2028

Compatible with SC600Y, SC600T, SC606T, SC66, SC668S, SC696S series

*: Under development/ in progress/ planning

SC680A/ SC686A series specifications

Variant		SC680A-EM/ SC686A-EM	SC680A-NA/ SC686A-NA	SC680A-JP	SC680A-WF/ SC686A-WF
Region		EMEA/ South Korea/ South Asia/ Latin America/ India/ Australia/ New Zealand/ South Africa	North America	Japan	Global
LTE	**FDD band**	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 66/ 71	B1/ 3/ 5/ 8/ 11/ 18/ 19/ 21/ 26/ 28	-
	TDD band	B38/ 40/ 41	B41	B41	-
UMTS	**WCDMA band**	B1/ 2/ 4/ 5/ 8	-	B1/ 6/ 8/ 19	-
GSM/ EDGE		Quad-band	-	-	-
GNSS		Supported	Supported	Supported	-
Wi-Fi/ Bluetooth		Supported	Supported	Supported	Supported
Certification		**Carrier:** Telstra① **Regulatory:** GCF/ CE/ UKCA/ KC/ RCM	**SC680A-NA:** **Carrier:** Verizon/ AT&T/ T-Mobile **Regulatory:** FCC/ IC/GCF/ PTCRB **SC686A-NA:** **Carrier:** Verizon/ AT&T/ T-Mobile **Regulatory:** FCC/ IC/GCF/ PTCRB	**Carrier:** NTT DOCOMO/ KDDI **Regulatory:** JATE/ TELEC	**Regulatory:** CE/ UKCA/ KC/ FCC/ IC/ JATE/ TELEC/ RCM
Project stage		MP	MP	MP	MP

①: TBD (To Be Determined)

SC680A/ SC686A series features and interfaces

Key Features		Interfaces	
CPU	QCM4290, A customized 64-bit Arm v-8.0 compliant applications processor (Qualcomm® Kryo™ 260 CPU) Kryo 260 Gold: quad high-performance cores 2.0 GHz + Kryo 260 Silver: quad low-power cores 1.8 GHz	**LCM**	4-lane MIPI DSI; DSI D-PHY 1.2; Split link supported FHD+ (2520 × 1080) aspect ratio, up to 10 bpc QSEED4, 4 L, Q-SYNC, SVI, CABL, and FOSS
GPU	Qualcomm® Adreno™ 610 Graphics Processing Unit (GPU) @ 950 MHz	**Camera**	3 × ISP, (13 MP + 13 MP) or (25 MP + 5 MP) at 30 fps or (16 MP + 16 MP) @ 24 fps Three 4-lane MIPI CSI, up to 2.1 Gbps/ lane Supports 3 or 4 cameras, up to 25 MP with dual ISP
Video	Encoding: • 1080p60 8 bit H.265 • 1080p60 8 bit H.264 Decoding: • 1080p60 8 bit H.265, VP9 • 1080p60 8 bit H.264	**Touch panel**	Capacitive touch panel, I2C controls
Memory	SC680A series: 4 GB + 64 GB (LPDDR4X uMCP, default) 3 GB + 32 GB (LPDDR4X eMCP, optional) SC686A series: 2 GB + 16 GB (LPDDR4X eMCP, default) 3 GB + 32 GB (LPDDR4X eMCP, optional)	**Audio**	Analog channels: 3 inputs: MIC1, MIC2, MIC3 (including 1 noise-canceling MIC) 3 outputs: speaker, earpiece, headphone
OS	Android 12/ 13/ 14* for SC680A Yocto Linux (kernel 5.4) for SC686A	**USB**	× 1 USB 2.0/ 3.1 (Type-C)
Wi-Fi	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac/ ax-ready	**(U)SIM**	× 2 Supports 1.8/ 2.95 V (U)SIM cards, with (U)SIM card detection function Supports DSDS
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.1 LE	**UART**	× 4 Supports 4 Mbps with hardware flow control, 2 of them are default UART, the other 2 of them are multiplexing UART
GNSS①	• GPS/ BDS/ GLONASS/ Galileo/ QZSS • L1	**SD card**	× 1 SD 3.0, 4-bit SDIO
Modem	3GPP Release 10 with selected Release 12 features	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported	**Antenna**	× 4 Main/ rx-diversity/ GNSS/ Wi-Fi & Bluetooth

①: GNSS is not supported by SC680A-WF/ SC686A-WF *: Under development/ in progress/ planning

SG520B series highlights

Multiple variants:
- Multi-region variants with global certifications
- Multiple memory configuration



LGA form factor : 42.5 × 56.5 × 2.95 mm

Android OS:
Android 13/ 14*/ 15①/ 16①/ 17①/ 18①

Chipset platform: QCM4490.
Powerful system performance, multimedia,
5G Sub-6 GHz/ LTE Cat 15,
Wi-Fi 6E (2 × 2 MIMO/ 802.11ax), Bluetooth,
GNSS

Long life time:
Till the year of 2030

Compatible with SG560D

①: TBD (To Be Determined) *: Under development/ in progress/ planning

SG520B series specifications

Variant		SG520B-CN	SG520B-EM	SG520B-NA①	SG520B-WF①
Region		China	EMEA/ Korea/ South Africa/ Latin America/ Australia/ New Zealand/ India/ China	North America	Global
5G NR	**5G NR**	3GPP Release 16 NSA/ SA Operation, Sub-6 GHz	3GPP Release 16 NSA/ SA Operation, Sub-6 GHz	3GPP Release 16 NSA/ SA Operation, Sub-6 GHz	-
	SA/ NSA bands	n1/ 3/ 5/ 8/ 28/ 41/ 78/ 79	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78/ 79	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	-
	DL 4 × 4 MIMO	n1/ 41/ 78/ 79	n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78/ 79	n2/ 7/ 25/ 30/ 38/ 41/ 48/ 66/ 70/ 77/ 78	-
	UL 2 × 2 MIMO	-	n41/ 77/ 78/ 79	n38/ 41/ 48/ 77/ 78	-
LTE	**LTE category**	Cat 15	Cat 15	Cat 15	-
	LTE bands	B1/ 3/ 5/ 8/ 34/ 38/ 39/ 40/ 41	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 17/ 18/ 19/ 20/ 26/ 28/ 32/ 38/ 39/ 40/ 41/ 42	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 46/ 48/ 66/ 71	-
	DL 4 × 4 MIMO	B1/ 41	B1/ 3/ 7/ 38/ 40/ 41/ 42	B2/ 4/ 7/ 25/ 30/ 38/ 41/ 42/ 43/ 48/ 66	-
UMTS	**WCDMA**	B1/ 5/ 8	B1/ 2/ 4/ 5/ 6/ 8/ 19	-	-
GSM		-	B2/ 3/ 5/ 8	-	-
Embedded GNSS		Supported	Supported	Supported	-
WLAN/ Bluetooth		Supported	Supported	Supported	Supported
Certification		**Regulatory:** CCC/ SRRC/ NAL	**Regulatory①:** GCF/ CE/ RCM	TBD	TBD
Project stage		CS	ES	Planning	Planning

①: TBD (To Be Determined)

SG520B series features and interfaces

Key features		Interfaces	
CPU	QCM4490, 4 nm, 2 × Kryo Gold (A78) @ 2.4 GHz + 6 × Kryo Silver (A55) @ 2.0 GHz	**LCM**	1 × 4-lane MIPI DSI, FHD+ (2520 x 1080) @ 120 fps, VESA DSC 1.2
GPU	Qualcomm® Adreno™ 613	**Camera**	3 × 4-lane MIPI CSI, 2 × ISP: 25 MP @ 30 pfs, 16 + 16 MP @ 30 fps, 25 MP @ 30 fps ZSL, 64 MP NZSL
Video	Encoding: 1080P (H.264/ H.265) @ 60 fps Decoding: 1080P (H.264/ H.265/ VP9) @ 60 fps	**Touch panel**	Capacitive touch panel, I2C controls
Memory	4 GB + 64 GB (LPDDR4X uMCP, default) 8 GB + 128 GB (LPDDR4X uMCP, optional)	**Audio**	Needs external audio codec
OS	Android 13/ 14*/ 15①/ 16①/ 17①/ 18①	**USB**	× 1 USB 3.1 Gen 1, compatible with USB 2.0
Wi-Fi	2.4 & 5 & 6 GHz, 802.11a/ b/ g/ n/ ac/ ax Wi-Fi 6E, 2 × 2 MU-MIMO, DBS	**PCIe**	-
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.2 LE	**(U)SIM**	× 2 Supports 1.8/ 2.95 V (U)SIM cards, with (U)SIM card detection function; Supports DSDS
GNSS②	GPS/ GLONASS/ BDS/ Galileo/ QZSS	**UART**	Supported
Modem	5G: 3GPP Release 16	**SD card**	× 1 SD 3.0, 4-bit SDIO
	LTE: 3GPP Release 16	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported	**Antenna**	× 8 (Cellular antenna × 5, Wi-Fi/ Bluetooth antenna × 1, Wi-Fi MIMO antenna × 1, GNSS antenna × 1)

①: TBD (To Be Determined) ②: GNSS is not supported by SG520B-WF

SG520B series timelines

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

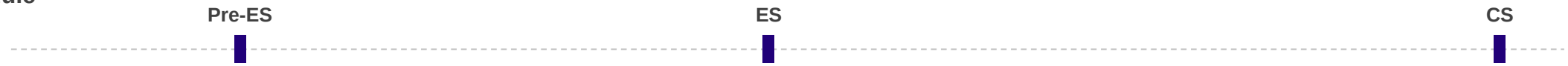
SG520B-CN

Project schedule



SG520B-EM

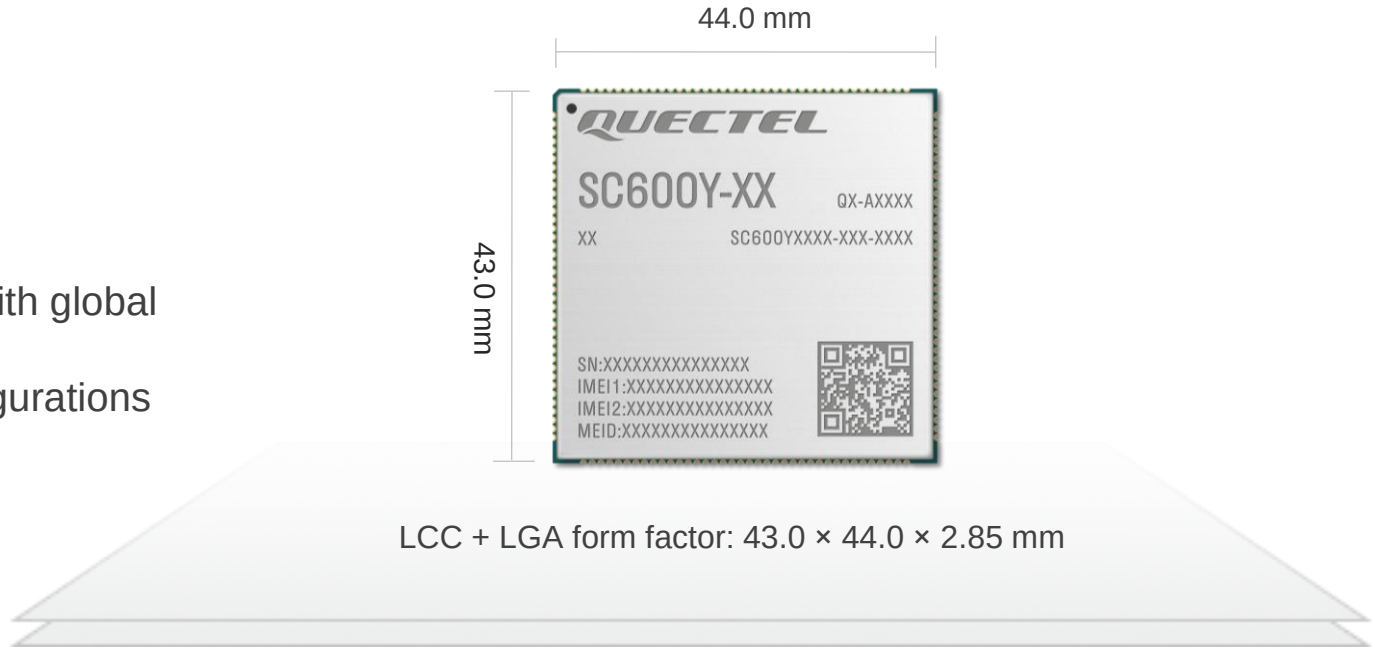
Project schedule



ES：Engineering sample stage; The basic functions are complete and they can be used for Demo demonstration
CS：Commercial sample phase; Stable hardware design and relatively stable software design, software features can be added as required

SC600Y series highlights

Multiple variants:
- Multi-region variants with global certifications
- Multiple memory configurations



LCC + LGA form factor: 43.0 × 44.0 × 2.85 mm

Android OS:
Android 9/ 10

Chipset platform: SDM450
Powerful system performance, multimedia, LTE Cat 6, Wi-Fi 802.11ac, Bluetooth, GNSS

Long life time:
Till the year of 2025

Compatible with SC600T, SC606T, SC66, SC680A, SC686A, SC668S, SC696S series

SC600Y series specifications

Variant		SC600Y-EM	SC600Y-NA	SC600Y-JP	SC600Y-WF
Region		EMEA/ India/ South Korea/ South Asia/ Latin America/ Australia/ New Zealand/ South Africa	North America	Japan	Global
LTE	**FDD band**	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 66/ 71	B1/ 3/ 5/ 8/ 11/ 18/ 19/ 21/ 26/ 28	-
	TDD band	B38/ 39/ 40/ 41	B41	B41	-
UMTS	**WCDMA band**	B1/ 2/ 4/ 5/ 8	B2/ 4/ 5	B1/ 6/ 8/ 19	-
	TD-SCDMA band	-	-	-	-
CDMA		-	-	-	-
GSM/ EDGE		Quad-band	-	-	-
Embedded GNSS		Supported	Supported	Supported	-
Wi-Fi/ Bluetooth		Supported	Supported	Supported	Supported
Certification		**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/ UKCA
Project stage		MP	MP	MP	MP

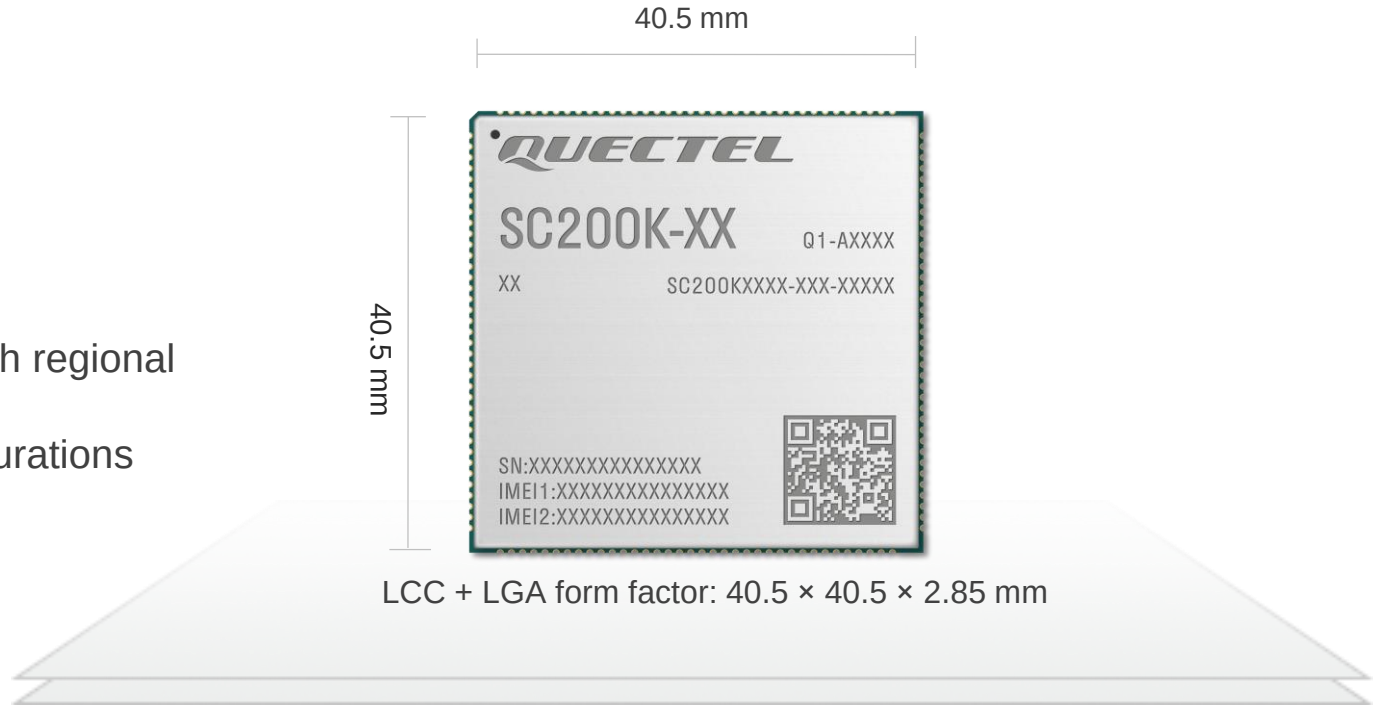
SC600Y series features and interfaces

Key features		Interfaces	
CPU	SDM450, Octa-core ARM Cortex-A53 64-bit CPU @ 1.8 GHz	**LCM**	Dual LCDs for independent display: dual 4-lane MIPI DSI; WUXGA (1920 × 1200) @ 60 fps for primary display and FHD (1920 × 1080) @ 60 fps for secondary display Wi-Fi display: 1080P @ 30 fps (UBWC)
GPU	Qualcomm® Adreno™ 506 GPU with 64-bit addressing	**Camera**	Three 4-lane MIPI CSI, up to 2.1 Gbps per lane. 2 × ISP Supports 3 cameras (4-lane + 4-lane + 4-lane) or 4 cameras (4-lane + 4-lane + 2-lane + 1-lane) Up to 21 MP with dual ISPs
Video	Encoding/ Decoding: • Up to 1080P @ 60 fps High frame rate encoding: • 720P @ 120 fps; 60 Mbps; Maximum 972000 macro block/s 1080P @ 60 fps decoding + 1080P @ 30 fps encoding	**Touch panel**	× 2 Capacitive touch panel, I2C controls
Memory	2 GB + 16 GB (LPDDR3 eMCP, default) 3 GB + 32 GB (LPDDR3 eMCP, optional)	**Audio**	Analog channels: 3 inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC) 3 outputs: speaker, earpiece, headphone
OS	Android 9/ 10	**USB**	× 1 USB 2.0/ 3.0 (Type-C), USB OTG + Charge
Wi-Fi	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac 433 Mbps, STA/ AP/ P2P	**(U)SIM**	× 2 Supports 1.8/ 2.95 V (U)SIM cards, with (U)SIM card detection function Supports DSDS
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE Supports a maximum of 10 ACL/ EL/ SCO links	**UART**	× 3 Up to 4 Mbps, UART5 supports hardware flow control
GNSS①	GPS/ BDS/ GLONASS or GPS/ BDS/ Galileo	**SD Card**	SD 3.0, 4-bit SDIO
Modem	3GPP Release 10 compliant	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported	**Antenna**	× 4, main/ rx-diversity/ GNSS/ Wi-Fi & Bluetooth antenna interface respectively (SC600Y-WF: × 1, Wi-Fi & Bluetooth antenna interface)

①: GNSS is not supported by SC600Y-WF

SC200K series highlights

Multiple variants:
- Multi-region variants with regional certifications
- Multiple memory configurations



LCC + LGA form factor: 40.5 × 40.5 × 2.85 mm

Android OS:
Android 10

Chipset platform: UIS8581E. Powerful system performance, multimedia, LTE Cat 4, Wi-Fi 802.11ac, Bluetooth, GNSS

Long life time:
Till the year of 2027

Partly compatible with SC20, SC200R, SC200E, SC206E, SC200L series

SC200K series specifications

Variant		SC200K-EU①	SC200K-CE	SC200K-WF
Region		EMEA/ APAC	China/ India	Global
LTE	**FDD band**	B1/ 3/ 5/ 7/ 8/ 20/ 28	B1/ 3/ 5/ 8	-
	TDD band	B38/ 40/ 41	B34/ 38/ 39/ 40/ 41	-
UMTS	**WCDMA band**	B1/ 5/ 8	B1/ 8	-
GSM/ EDGE		900/ 1800 MHz	900/ 1800 MHz	-
GNSS		Supported	Supported	Supported
Wi-Fi/ Bluetooth		Supported	Supported	Supported
Certification		**Regulatory:** GCF/ CE	**Regulatory:** SRRC/ NAL/CCC	**Regulatory①:** CE/ UKCA/ KC/ NCC/ JATE/ TELEC/ NBTC
Project stage		Developing	MP	MP

①: TBD (To Be Determined)

SC200K series features and interfaces

Key features		Interfaces	
CPU	Unisoc UIS8581E, 4 × A55 @ 1.6 GHz + 4 × A55 @ 1.2 GHz	**LCM**	4-lane MIPI DSI, FHD+ (2160 × 1080) @ 60 fps
GPU	PowerVR Fentale GE8322	**Camera**	Two 4-lane MIPI CSI Supports 3 cameras (4-lane + 2-lane + 1-lane), up to 16 MP
Video	Encoding: • 1080P (H.264) @ 30 fps • WVGA (MPEG-4/ VP8) @ 30 fps Decoding: • 1080P (H.264/ MPEG-4/ VP8/ H.265/ DivX4/ 5/ 6) @ 30 fps • WVGA (H.263) @ 30 fps	**Touch panel**	Capacitive touch panel, I2C controls
Memory	2 GB + 16 GB (LPDDR4X eMCP, default) 3 GB + 32 GB (LPDDR4X eMCP, optional)	**Audio**	Analog channels: 3 inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC) 3 outputs: speaker, earpiece, headphone
OS	Android 10	**USB**	× 2 USB 2.0 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
Wi-Fi	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac	**(U)SIM**	× 2 Supports 1.8/ 2.95 V (U)SIM cards, with (U)SIM card detection function, Supports DSDS (SC200K-WFdoes not support (U)SIM card)
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.0 LE	**UART**	× 3 Up to 3 Mbps, 1 of them supports hardware flow control
GNSS	GPS/ GLONASS or GPS/ BDS	**SD card**	× 1 SD 3.0, 4-bit SDIO
Modem	3GPP Release 12	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported	**Antenna**	× 4 Main, rx-diversity, GNSS, Wi-Fi/ Bluetooth antennas respectively (SC200K-WF: × 2, GNSS, Wi-Fi/ Bluetooth antennas respectively)

High level



SG560D series highlights

Multiple variants:
- Multi-region variants with global certifications
- Multiple memory configurations



Android OS:
Android 12/ 13/ 14

5G

Chipset platform: QCM6490.
Powerful system performance, multimedia,
5G Sub-6 GHz/ LTE Cat 18,
Wi-Fi 6E (2 × 2 MIMO/ 802.11ax), Bluetooth, GNSS

Long life time:
Till the year of 2036

SG560D series specifications

Variant		SG560D-EM	SG560D-CE	SG560D-NA	SG560D-WF
Region		EMEA/ South Korea/ South Africa/ Latin America/ Australia/ India/ New Zealand/ Japan	China/ India	North America	Global
5G NR	**5G NR**	3GPP Release 15 NSA/ SA Operation, Sub-6 GHz	3GPP Release 15 NSA/ SA Operation, Sub-6 GHz	3GPP Release 15 NSA/ SA Operation, Sub-6 GHz	-
	SA/ NSA bands	n1/ 3/ 5/ 7/ 8 / 20/ 28/ 38/ 40/ 41/ 77/ 78/ 79	n1/ 3/ 5/ 8/ 28/ 41/ 78/ 79	n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 71/ 70/ 77/ 78	-
	DL 4 × 4 MIMO	n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78/ 79	n1/ 41/ 78/ 79	n2/ 7/ 25/ 30/ 38/ 41/ 48/ 66/ 70/ 77/ 78	-
	UL 2 × 2 MIMO	n41/ 77/ 78/ 79	-	n38/ 41/ 48/ 77/ 88	-
LTE	**LTE category**	Cat 18	Cat 18	Cat 18	-
	LTE bands	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 17/ 18/ 19/ 20/ 26/ 28/ 32/ 34/ 38/ 39/ 40/ 41/ 42	B1/ 3/ 5/ 8/ 34/ 38/ 39/ 40/ 41	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 46/ 48/ 66/ 71	-
	DL 4 × 4 MIMO	B1/ 3/ 7/ 38/ 40/ 41/ 42	B1/ 41	B2/ 4/ 7/ 25/ 30/ 38/ 41/ 42/ 43/ 48/ 66	-
UMTS	**WCDMA band**	B1/ 2/ 4/ 5/ 6/ 8/ 19	B1/ 5/ 8	-	-
GSM		B2/ 3/ 5/ 8	-	-	-
Embedded GNSS		Supported	Supported	Supported	-
Wi-Fi/ Bluetooth		Supported	Supported	Supported	Supported
Certification		**Regulatory①:** CE/ RCM/ GCF/ JATE/ TELEC	**Regulatory:** SRRC*/ NAL/ CCC	**Carrier①:** Verizon/ AT&T/ T-Mobile **Regulatory:** GCF*/ PTCRB*/ FCC*/ IC*	**Regulatory:** CE/ RCM/ UKCA/ FCC/ IC
Project stage		CS	CS	CS	MP

①: TBD (To Be Determined) *: Under development/ in progress/ planning

SG560D series features and interfaces

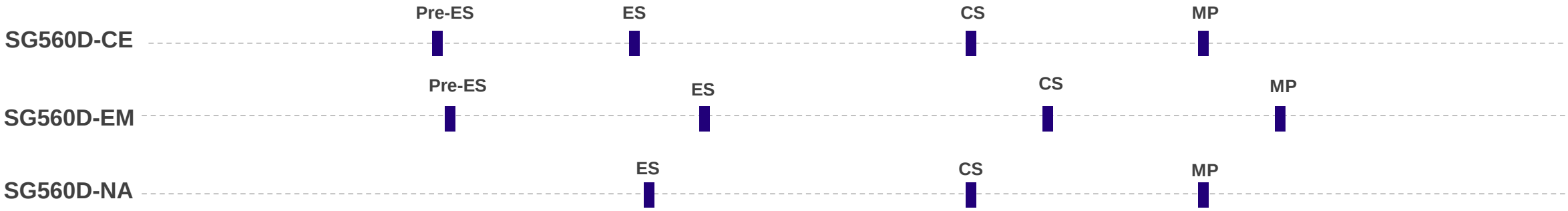
Key features		Interfaces	
CPU	QCM6490, 6 nm Kryo 670, 1 × Gold Plus @ 2.7 GHz + 3 × Gold @ 2.4 GHz + 4 × Silver @ 1.9 GHz	**LCM**	1 × 4-lane MIPI DSI, supports up to 2.5 Gbps/ lane, 1200 × 2520 @ 144 fps 1 × DP over Type C, supports up to 4K (3840 × 2160) @ 60 fps Support Wi-Fi Miracast 4K @ 60fps
GPU	Qualcomm® Adreno™ 643 @ 812 MHz	**Camera**	4 × 4-lane MIPI CSI, Supports up to 2.5 Gbps/ lane; 3 × ISP, 3 × 27 MP @ 24 fps; or 3 × 22MP @ 30 fps; or 36 MP + 27 MP @ 24 fps; or 36MP + 22MP @ 30 fps; or Max. 1 × 64 MP @ 30 fps
Video	Encoding: 4K (H.264/ H.265) @ 30 fps Decoding: 4K (H.264/ H.265/ VP9) @ 60 fps	**Touch panel**	Capacitive touch panel, I2C controls
Memory	4 GB + 64 GB (LPDDR4X uMCP, default) 6 GB + 128 GB (LPDDR4X uMCP, optional)	**Audio**	Need external audio codec
OS	Android 12/ 13/ 14	**USB**	× 2 USB 3.1 Type-C with DisplayPort 1.4, compatible with USB 2.0 USB 2.0 Host
Wi-Fi	2.4 & 5 & 6 GHz, 802.11a/ b/ g/ n/ ac/ ax Wi-Fi 6E, 2 × 2 MU-MIMO, DBS	**PCIe**	× 1 2-lane PCIe Gen 3, supports NVMe
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.2 LE	**(U)SIM**	× 2 Supports 1.8/ 2.95 V (U)SIM cards, with (U)SIM card detection function; Supports DSDS
GNSS ②	• GPS/ GLONASS/ BDS/ NavIC/ Galileo/ QZSS • L1 + L5	**UART**	× 11 Supports 4 Mbps with hardware flow control (2 of them are default UART, while the other 9 of them are UART multiplexed from other interfaces)
Modem	5G: 3GPP Release 15	**SD Card**	× 1 SD 3.0, 4-bit SDIO
	LTE: 3GPP Release 15	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported	**Antenna**	SG560D-CE/ -EM/ -NA: × 8 (cellular antenna × 5, Wi-Fi/ Bluetooth antenna × 1, Wi-Fi MIMO antenna × 1, GNSS antenna × 1)
			SG560D-WF: × 2 (Wi-Fi/ Bluetooth antenna × 1, Wi-Fi MIMO antenna × 1)

②: GNSS is not supported by SG560D-WF

SG560D-CE/ -EM/ -NA timelines

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

Project schedule



Certification

SG560D-CE

Regulatory SRRC

SG560D-NA

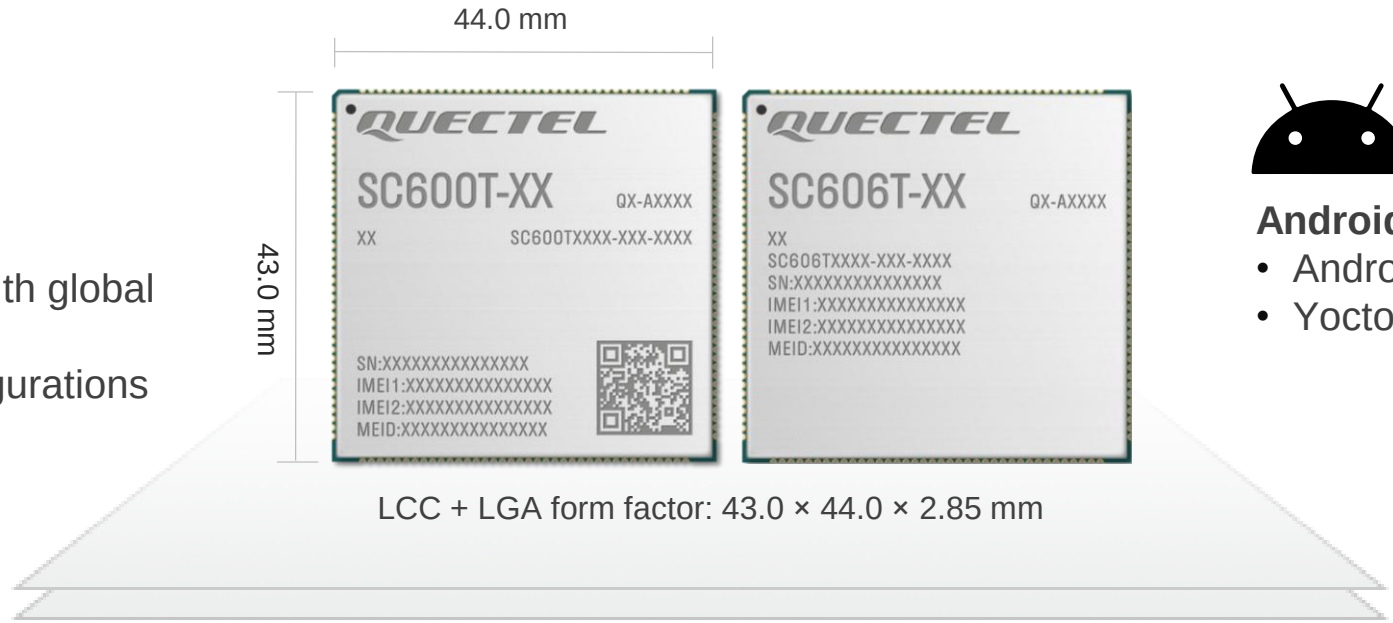
Regulatory FCC/ IC

GCF/ PTCRB



SC600T/ SC606T series highlights

Multiple variants:
- Multi-region variants with global certifications
- Multiple memory configurations



LCC + LGA form factor: 43.0 × 44.0 × 2.85 mm

Android or Linux OS:
- Android 9/ 10 for SC600T
- Yocto Linux (kernel 3.18) for SC606T

Chipset platform: MSM8953. Powerful system performance, multimedia, LTE Cat 6, Wi-Fi 802.11ac, Bluetooth, GNSS

Long life time: Till the year of 2025

Compatible with SC600Y, SC66, SC680A, SC686A, SC668S, SC696S series

SC600T/ SC606T series specifications

Variant		SC600T-EM/ SC606T-EM	SC600T-NA/ SC606T-NA	SC600T-JP/ SC606T-JP	SC600T-WF/ SC606T-WF
Region		EMEA/ India/ South Korea/ South Asia/ Latin America/ Australia/ New Zealand/ South Africa	North America	Japan	Global
LTE	**FDD band**	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 66/ 71	B1/ 3/ 5/ 8/ 11/ 18/ 19/ 21/ 26/ 28	-
	TDD band	B38/ 39①/ 40/ 41	B41	B41	-
UMTS	**WCDMA band**	B1/ 2/ 4/ 5/ 8	B2/ 4/ 5	B1/ 6/ 8/ 19	-
	TD-SCDMA band	-	-	-	-
CDMA		-	-	-	-
GSM/ EDGE		Quad-band	-	-	-
Embedded GNSS		Supported	Supported	Supported	-
Wi-Fi/ Bluetooth		Supported	Supported	Supported	Supported
Certification②		**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/ UKCA③
Project stage		MP	MP	**SC600T-JP:** MP **SC606T-JP:** Developing	MP

①: B39 is not supported by SC606T-EM ②: Certification for SC600T series only; cannot be shared by SC606T series ③: TBD (To Be Determined)

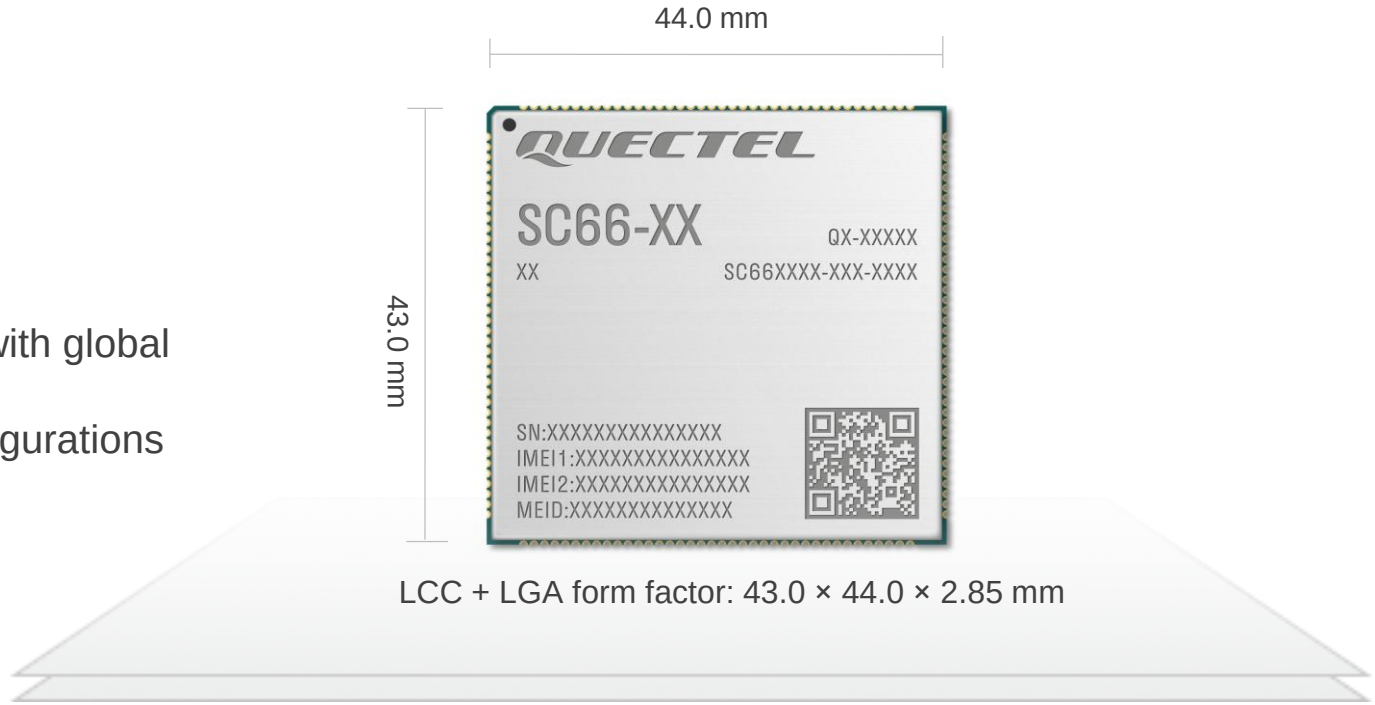
SC600T/ SC606T series features and interfaces

Key features		Interfaces	
CPU	MSM8953, Octa-core ARM Cortex-A53 64-bit CPU @ 2.0 GHz	**LCM**	Dual LCDs for independent display: dual 4-lane MIPI DSI; WUXGA (1920 × 1200) @ 60 fps for primary display and FHD (1920 × 1080) @ 60 fps for secondary display Wi-Fi display: 1080P @ 30 fps (UBWC)
GPU	Qualcomm® Adreno™ 506 graphics processing unit (GPU) with 64-bit addressing	**Camera**	Three 4-lane MIPI CSI, up to 2.1 Gbps per lane. 2 × ISP Supports 3 cameras (4-lane + 4-lane + 4-lane) or 4 cameras (4-lane + 4-lane + 2-lane + 1-lane) Up to 24 MP with dual ISPs
Video	Encoding/ Decoding: • Up to 4K @ 30 fps • High frame rate encoding: • 720P @ 120 fps; 60 Mbps; Maximum 972000 macro block/s 1080P @ 60 fps decoding + 1080P @ 30 fps encoding	**Touch panel**	× 2 Capacitive touch panel, I2C controls
Memory	2 GB + 16 GB (LPDDR3 eMCP, default) 3 GB + 32 GB (LPDDR3 eMCP, optional)	**Audio**	Analog channels: 3 inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC) 3 outputs: speaker, earpiece, headphone
OS	Android 9/ 10 for SC600T Yocto Linux (kernel 3.18) for SC606T	**USB**	× 1 USB 2.0/ 3.0 (Type-C), USB OTG + charge
Wi-Fi	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac 433 Mbps, STA/AP/P2P	**(U)SIM**	× 2 Supports 1.8/ 2.95 V (U)SIM cards, with (U)SIM card detection function Supports DSDS
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE Supports a maximum of 10 ACL/ EL/ SCO links	**UART**	× 3 Up to 4 Mbps, UART5 supports hardware flow control
GNSS①	GPS/ BDS/ GLONASS or GPS/ BDS/ Galileo	**SD card**	SD 3.0, 4-bit SDIO
Modem	3GPP Release 10 compliant	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported by SC600T	**Antenna**	× 4 Main/ rx-diversity/ GNSS/ Wi-Fi & Bluetooth antenna interface respectively (SC600T-WF/ SC606T-WF: × 1, Wi-Fi & Bluetooth antenna interface)

①: GNSS is not supported by SC600T-WF and SC606T-WF

SC66 series highlights

Multiple variants:
- Multi-region variants with global certifications
- Multiple memory configurations



LCC + LGA form factor: 43.0 × 44.0 × 2.85 mm

Android OS:
Android 9/ 10/ 12

Chipset platform: SDM660.
Powerful system performance, multimedia, LTE Cat 6,
Wi-Fi (2 × 2 MIMO/ 802.11ac),
Bluetooth, GNSS

Long life time:
Till the year of 2028

Compatible with SC600Y, SC600T, SC606T, SC680A, SC686A, SC668S, SC696S series

SC66 series specifications

Variant		SC66-E	SC66-A	SC66-J	SC66-CE	SC66-MW
Region		Europe/ India/ South Korea/ South Asia/ Latin America/ Australia/ South Africa	North America	Japan	China	Global
LTE	**FDD band**	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28(A+B)	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 66/ 71	B1/ 3/ 5/ 8/ 11/ 18/ 19/ 21/ 26/ 28(A+B)	B1/ 3/ 5/ 8	-
	TDD band	B38/ 39/ 40/ 41①	B41①	B41②	B34/ 38/ 39/ 40/ 41②	-
UMTS	**WCDMA band**	B1/ 2/ 4/ 5/ 8	B2/ 4/ 5	B1/ 6/ 8/ 19	B1/ 8	-
	TD-SCDMA band	-	-	-	B34/ 39	-
EVDO/ CDMA		-	-	-	BC0	-
GSM/ EDGE		Quad-band	-	-	900/1800 MHz	-
Embedded GNSS		Supported	Supported	Supported	Supported	-
Wi-Fi/ Bluetooth		Supported (MIMO supported)	Supported (MIMO supported)	Supported (MIMO supported)	Supported (MIMO not supported)	Supported (MIMO supported)
Certification		**Carrier:** Telstra③ **Regulatory:** GCF/ CE/ UKCA/ KC/ NCC/ RCM/ Anatel③	**Carrier:** Verizon/ AT&T/ T-Mobile **Regulatory:** GCF/ PTCRB/ FCC/ IC	**Carrier:** NTT DOCOMO③ **Regulatory:** JATE/ TELEC	**Regulatory:** SRRC/ NAL/ CCC	**Regulatory:** CE/ FCC/ IC/ KC/ RCM
Project stage		MP	MP	MP	MP	MP

①: B41 of SC66-E/ SC66-A only supports 200 MHz bandwidth ②: B41 of SC66-J/ SC66-CE only supports 120 MHz bandwidth ③: TBD (To Be Determined)

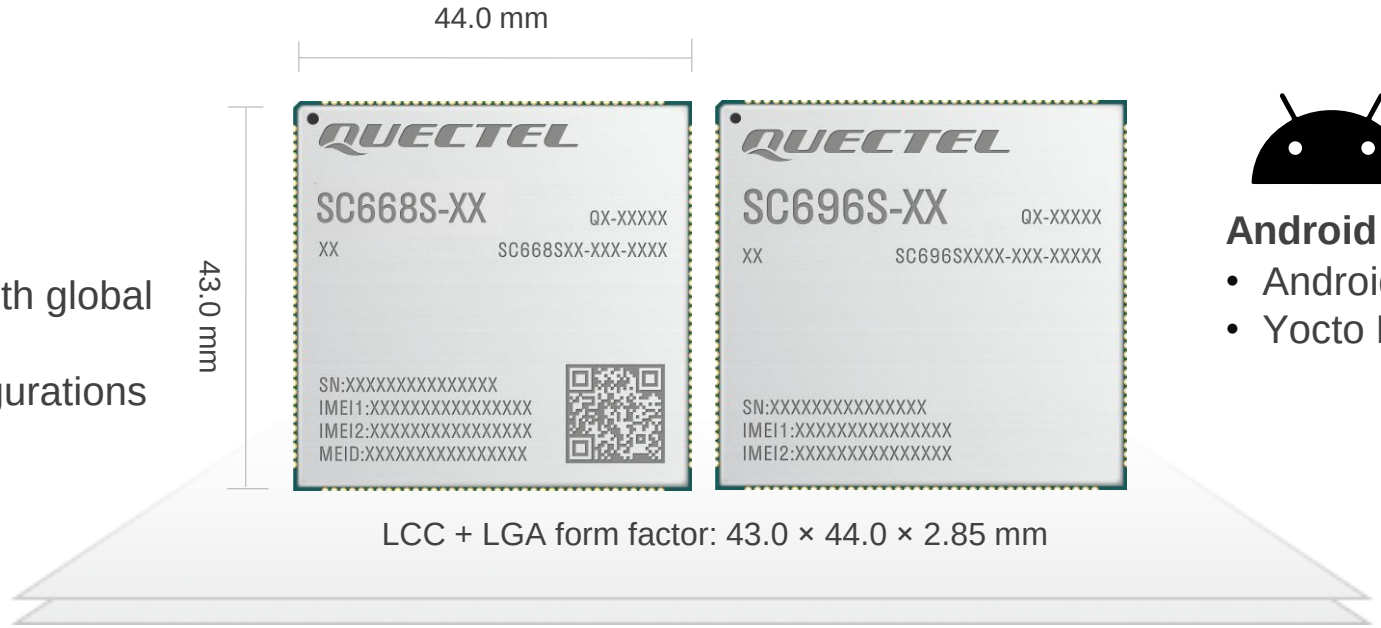
SC66 series features and interfaces

Key features		Interfaces	
CPU	SDM660, Customized 64-bit ARM v8.0-compliant AP (Kryo 260 CPU): 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	**LCM**	2 × 4-lane MIPI DSI Default: MIPI DSI (2560 × 1600 @ 60 fps) + DP over USB Type-C (4096 × 2160 @ 30 fps) Optional: MIPI DSI0 (1920 × 1080 @ 60 fps) + MIPI DSI1 (1920 × 1080 @ 60 fps) Wi-Fi display: 1080P @ 30 fps
GPU	Qualcomm® Adreno 512 @ 650 MHz, OpenGL ES3.1 + AEP, DX12_FL12, Vulkan, OpenCL2.0 FP, RenderScript	**Camera**	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
Video	Decoding: 4K @ 30 fps; H.264, VP8, VP9 and H.265 Encoding: 4K @ 30 fps; H.265, H264, VP8 and MPEG-4	**Touch panel**	Capacitive touch panel, I2C controls
Memory	3 GB + 32 GB (LPDDR4X eMCP, default) 4 GB + 64 GB (LPDDR4X eMCP, optional)	**Audio**	Analog channels: 3 inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC) 3 outputs: speaker, earpiece, headphone
OS	Android 9/ 10/ 12	**USB**	× 2 1 × USB 3.1, supports DP over Type-C, compatible with USB 2.0 1 × USB 2.0, only supports USB Host mode
Wi-Fi ①	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac 2 × 2 MIMO Wi-Fi	**(U)SIM**	× 2 Supports 1.8/ 2.95 V (U)SIM cards, with (U)SIM card detection function Supports DSDS
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.0 LE	**UART**	× 4 Up to 4 Mbps, 1 of them supports hardware flow control
GNSS②	GPS/ GLONASS/ BDS/ Galileo/ QZSS	**SD card**	× 1 SD 3.0, 4-bit SDIO
Modem	3GPP Release 12	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Supported	**Antenna**	× 5, main/ rx-diversity/ GNSS/ Wi-Fi & Bluetooth/ Wi-Fi MIMO antenna respectively (SC66-MW: × 2, Wi-Fi & Bluetooth/ Wi-Fi MIMO antennas)

①: 2 × 2 MIMO Wi-Fi is not supported by SC66-CE ②: GNSS is not supported by SC66-MW

SC668S/ SC696S series highlights

Multiple variants:
- Multi-region variants with global certifications
- Multiple memory configurations



LCC + LGA form factor: 43.0 × 44.0 × 2.85 mm

Android or Linux OS:
- Android 10/ 11/ 13 for SC668S
- Yocto Linux (kernel 4.14) for SC696S

Chipset platform: QCM6125. Powerful system performance, multimedia, LTE Cat 4, Wi-Fi 802.11ac, Bluetooth, GNSS

Long life time:
Till the year of 2028

Compatible with SC600Y, SC600T, SC606T, SC66, SC680A and SC686A series

SC668S/ SC696S series specifications

Variant		SC668S-EM/ SC696S-EM	SC668S-NA/ SC696S-NA	SC668S-WF/ SC696S-WF①	SC668S-JP	SC668S-CN
Region		EMEA/ South Korea/ South Asia/ Latin America/ India/ Australia/ New Zealand/ South Africa	North America	Global	Japan	China/ India
LTE	**FDD band**	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 66/ 71	-	B1/ 3/ 5/ 8/ 11/ 18/ 19/ 21/ 26/ 28	B1/ 3/ 5/ 8
	TDD band	B38/ 39/ 40/ 41 (200 MHz)	B41 (200 MHz)	-	B41	B34/ 38/ 39/ 40/ 41 (200 MHz)
UMTS	**WCDMA band**	B1/ 2/ 4/ 5/ 8	-	-	B1/ 6/ 8/ 19	B1/ 8
EVDO/ CDMA		-	-	-	-	BC0
GSM/ EDGE		Quad Band	-	-	-	900/ 1800 MHz
GNSS		Supported	Supported	-	Supported	Supported
Wi-Fi/ Bluetooth		Supported	Supported	Supported	Supported	Supported
Certification		**SC668S-EM:** **Regulatory:** CE/ RCM/ UKCA/ KC/ GCF **SC696S-EM:** **Regulatory:** CE/ RCM/ GCF	**SC668S-NA:** **Carrier:** Verizon/ AT&T **Regulatory:** FCC/ IC/ GCF/ PTCRB **SC696S-NA:** **Carrier:** Verizon*/ AT&T **Regulartory:** FCC/ IC/ GCF/ PTCRB	**Regulatory:** CE/ FCC/ IC/ RCM/ UKCA	**Regulatory:** TELEC/ JATE	**Regulatory:** SRRC/ NAL/ CCC
Project stage		MP	MP	MP	MP	MP

*: Under development/ in progress/ planning ①: Certification of SC696S-WF is TBD (To Be Determined)

SC668S/ SC696S series features and interfaces

Key features		Interfaces	
CPU	QCM6125, custom 64-bit ARM v8.0 application processor (Qualcomm® Kryo™ 260 CPU) Kryo Gold quad-core high-performance processor @ 2.0 GHz + Kryo Silver Quad Core Low Power Processor @ 1.8 GHz	**LCM**	One 4-lane MIPI DSI supporting up to 1920 × 1200 @ 60 fps or 1080 × 2520 @ 60 fps + Native DP supporting 1920 × 1200 @ 60 fps
GPU	Qualcomm® Adreno™ 610 graphics processing unit (GPU) @ 950 MHz	**Camera**	Three 4-lane MIPI CSI up to 2.1 Gbps/ lane Each group of 4-lane can be disassembled into 2-lane + 1-lane, which can support up to 6 cameras and open up to 2 cameras at the same time Dual ISP, supports up to two simultaneous 16 MP + 16 MP or single 24 MP
Video	Decoding: 4K @ 30 fps; HEVC/H.264/VP8/VP9 1080P @ 30 fps; MPEG-2 Encoding: 4K @ 30 fps; HEVC/H.264/VP8	**Touch panel**	Capacitive touch panel
Memory	SC668S series: 4 GB + 64 GB (LPDDR4X uMCP, default) 3 GB + 32 GB (LPDDR4X eMCP, optional) SC696S series: 2 GB + 16 GB (LPDDR4X eMCP, default) 3 GB + 32 GB (LPDDR4X eMCP, optional)	**Audio**	Analog channels: 3 inputs: MIC1, MIC2, MIC3 (including 1 noise-canceling MIC) 3 outputs: Line Out, earpiece, headphone
OS	Android 10/ 11/ 13 for SC668S series Yocto Linux (Kernel 4.14) for SC696S series	**USB**	× 1, supports USB 3.1 Type-C interface, compatible with USB 2.0, supports native DP
Wi-Fi	2.4 & 5 GHz, 802.11a/ b/ g/ n/ ac	**(U)SIM**	× 2, supports 1.8/ 2.95 V (U)SIM cards; supports (U)SIM card hot swap detection and dual-SIM dual-standby
Bluetooth	Bluetooth 2.1 + EDR/ 3.0/ 4.1 LE/ 4.2 BLE/ 5.0 LE	**UART**	× 3 Debug UART: 2-wire serial port, specialized for debugging use UART03: 2-wire serial port UART00: 4-wire serial port, supports RTS and CTS hardware flow control with maximum data rate of 4 Mbps
GNSS①	GPS/ GLONASS/ BDS/ Galileo/ QZSS	**SD card**	× 1, SD 3.0, supports 4-bit SDIO
Modem	3GPP Release 12	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Battery charge	Not supported	**Antenna**	× 4, main, rx-diversity, GNSS, Wi-Fi/ Bluetooth antennas respectively (SC668S-WF/ SC696S-WF: × 1, Wi-Fi/ Bluetooth antenna)

①: GNSS is not supported by SC668S-WF/ SC696S-WF

SC696S-NA timeline

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

SC696S-NA MP

SC696S-NA

Certification

Regulatory	GCF/ PTCRB	Completed
	FCC/ IC	Completed
Carrier	Verizon	Start → Compete (Planned)
	AT&T	Completed

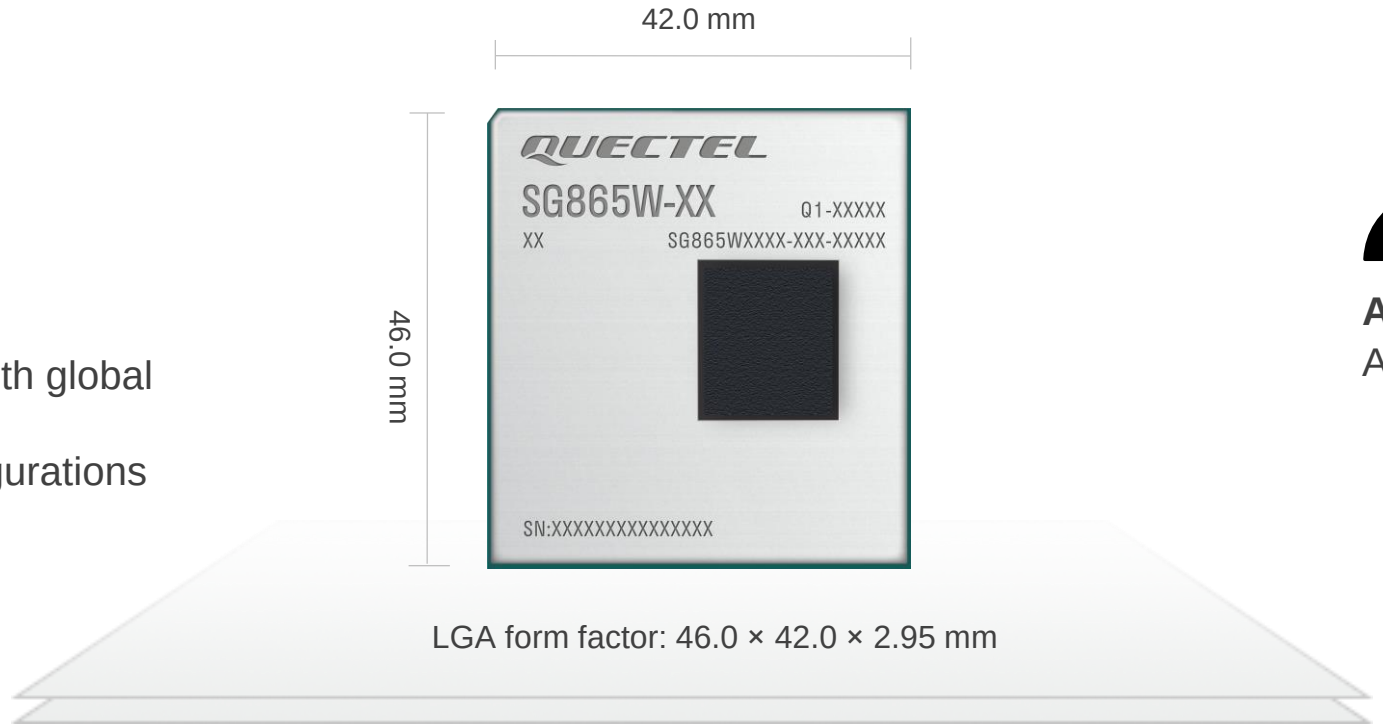
ES: Engineering samples ready. Basic functions are available for customers' simple demo purpose.
CS: Commercial samples ready. Stable hardware design and quite stable software design. New software features can be added upon request.
MP: Hardware and software ready for mass production. For certification status, please refer to the "certification schedule".

Premium level



SG865W series highlights

Multiple variants:
- Multi-region variants with global certifications
- Multiple memory configurations



Android or Ubuntu OS:
Android 10/ Ubuntu 18.04

Chipset platform: QCS8250.
Premium system performance, multimedia functionality, Wi-Fi 6 (2 × 2 MIMO)①, Bluetooth①

Long life time:
Till the year of 2036②

①: Only for SG865W-WF SKU ②: According to Qualcomm latest plan, it may subject to change

SG865W series specifications

Variant	SG865W-WF	SG865W-AP
Region	Global	Global
Wi-Fi/ Bluetooth	Supported	-
Certification	**Regulatory:** CE/ FCC/ IC/ KC	**Regulatory:** CE*/ KC*
Project stage	MP	MP

*: Under development/ in progress/ planning

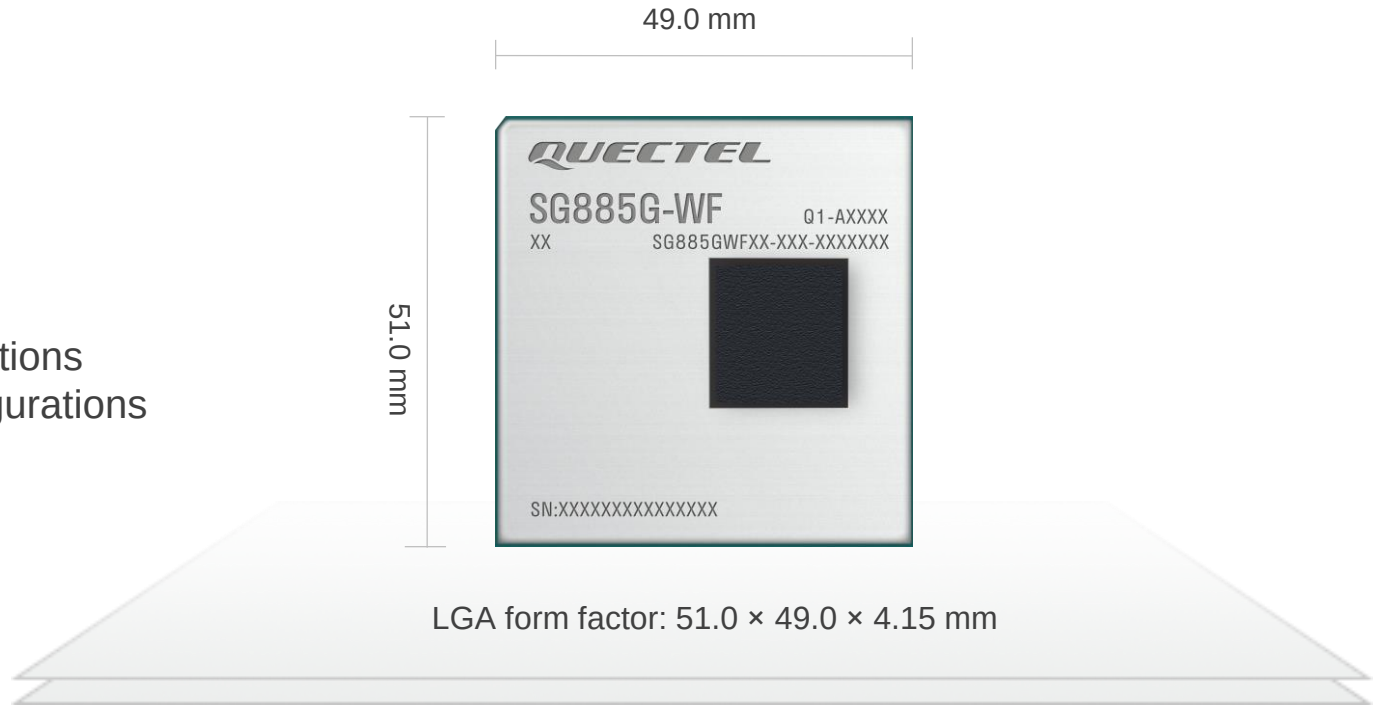
SG865W series features and interfaces

Key features		Interfaces	
CPU	QCS8250, 64-bit application processors (Kryo 585) with 4 MB L3 cache: 1 × Kryo 585 Gold prime core @ 2.842 GHz - with 512 KB L2 cache + 3 × Kryo 585 Gold cores @ 2.419 GHz - with 256 KB L2 cache per core + 4 × Kryo 585 Silver cores @ 1.805 GHz - with 128 KB L2 cache per core	**LCM**	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
GPU	Adreno 650 @ 587 MHz– 4K 60 fps UI or 2 × 2K 60 fps UI	**Camera**	6 × 4-lane MIPI CSI 2 × Full ISP + 2 × Lite ISP 2 × Front-end input: 25 MP (4:3 aspect ratio) or 18 MP (16:9 aspect ratio) 2 × Front-end input: Mono/ YUV interface Max. 64 MP @ 30 fps ZSL @ 2 × ISP
NPU	NPU230	**Touch panel**	Capacitive touch panel, I2C controls
Video	Encoding: 4K @ 120 fps; 8K @ 30 fps Decoding: 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)	**USB**	× 2 USB 3.1, compatible with USB 2.0, 1 of them supports DisplayPort v1.4
Memory	8 GB + 64 GB (LPDDR5 + UFS, default) 12 GB + 128 GB (LPDDR5 + UFS, optional)	**PCIe**	× 2 2-lane PCIe Gen 3
OS	Android 10/ Ubuntu 18.04	**UART**	× 3, Up to 3 Mbps, one of them is used for debugging only
WLAN①	2.4 & 5 GHz, 2 × 2 MIMO, 802.11a/ b/ g/ n/ ac/ ax, Wi-Fi 6, DBS	**SD card**	× 1 SD 3.0, 4-bit SDIO
Bluetooth①	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.1 LE	**I2C/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Modem	Supports Quectel 2G/ 3G/ 4G/ 5G modules	**Antenna**	× 2① Wi-Fi & Bluetooth antenna connectors
Audio	Need external audio codec		

①: Only for SG865W-WF

SG885G-WF highlights

SG885G-WF:
- Multiple global certifications
- Multiple memory configurations



Android OS:
Android 13*

Chipset platform: QCS8550.
Premium system performance, multimedia functionality, Wi-Fi 7 (2 × 2 MIMO), Bluetooth

Long life time:
Till the year of 2033

*: Under development/ in progress/ planning

SG885G-WF features and interfaces

Key features		Interfaces	
CPU	QCS8550, 1 × Kryo Gold prime @ 3.2 GHz + 4 × Kryo Gold @ 2.8 GHz + 3 × Kryo Silver @ 2.0 GHz	**LCM**	Adreno DPU 1295 2 × 4-lane MIPI DSI (3480 × 2160 @ 120 Hz, 3360 × 1600 @ 144 Hz) + 2 × DP (MST Mode), 4K60
GPU	Adreno 740 – 4K 120 fps UI	**Camera**	6 × 4-lane MIPI CSI, Connect up to 14x/20x cameras, 5x concurrent, 3 × ISP + 2 × Lite ISP. some ZSL example are: (36 M + 36 M + 36 M) @ 30 fps - triple camera, or (64 M + 36 M) @ 30 fps - dual camera, or 108 M @ 30 fps - single camera
DPU	Adreno 1295 DPU, 2 × 4-lane MIPI DSI, 3480 × 2160 @ 120 Hz, 3360 × 1600 @ 144 Hz + 2 × DP (MST Mode), 4K60		
VPU	Adreno VPU 8550	**Audio**	SWR, Digital Microphone, MI2S interfaces, HIFI I2S
NPU	Dual eNPU V3	**Touch panel**	Capacitive touch panel, I2C controls
Video	Encoding: 4K @ 120 fps; 8K @ 30 fps Native encoding supports for H.265 Main 10, H.265 Main, H.264 high formats Decoding: 4K @ 240 fps; 8K @ 60 fps Native decoding supports for H.265 Main 10, H.265 Main, H.264 High, and VP9 profile 2	**USB**	× 1 USB 3.1/ 2.0 compliant
Memory	8 GB + 128 GB (LPDDR5X + UFS, default) 12 GB + 256 GB (LPDDR5X + UFS, optional)	**PCIe**	× 1 PCIe1: 2-lane, Gen4
OS	Android 13*	**UART**	× 1, Debug UART
WLAN	2.4 & 5 & 6 GHz, Wi-Fi 7, 802.11a/ b/ g/ n/ ac/ ax/ be, 2 × 2 Wi-Fi MIMO	**SD card**	× 1 SD 3.0
Bluetooth	Bluetooth 5.3 (BR/ EDR + BLE)	**I2C/ I2S/ SPI/ ADC/ GPIO/ PWRKEY**	Supported
Charging management	Supports battery voltage detection, fuel gauge, battery temperature detection	**Ethernet**	Can be supported with the external conversion IC
Modem	Supports Quectel 2G/ 3G/ 4G/ 5G modules	**Antenna**	× 2 Wi-Fi/ Bluetooth and Wi-Fi MIMO antenna interfaces

*: Under development/ in progress/ planning

SG885G-WF timeline

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

SG885G-WF

Project schedule



Certification TBD

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".

Thank you

For more information, please visit: quectel.com, LinkedIn, Facebook and X.
Media contact: media@quectel.com

Sales support: **sales@quectel.com**
Technical support: **support@quectel.com** General: **info@quectel.com**