



Build a smarter world

Quectel SG560D Series Smart Module

Introduction



Duty of confidentiality

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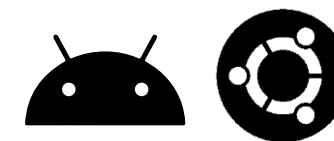


Multi-region variants:

- Multiple global certifications
- Multiple memory configurations



LGA form factor : 42.5 × 56.5 × 2.95 mm



Operating systems:

Ubuntu/ Android 12/ 13/ 14/ 15



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 variants (pin-to-pin compatible)

Variant		SG560D-EM	SG560D-CE	SG560D-NA	SG560D-WF
Region		EMEA/ South Korea/ South Africa/ Latin America/ Australia/ India/ New Zealand/ Japan/ China	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		Regulatory/ Conformance: CE/ RCM/ GCF	Regulatory/ Conformance: SRRC/ NAL/ CCC	Carrier: Verizon*/ AT&T/ T-Mobile Regulatory/ Conformance: GCF/ PTCRB/ FCC/ IC	Regulatory/ Conformance: CE/ RCM/ UKCA/ FCC/ IC
Product stage		MP	MP	MP	MP

*: In progress

SG560D series features and interfaces

Key features		Interfaces	
CPU	QCM6490, 6 nm Kryo 670, 1 × A78 @ 2.7 GHz + 3 × A78 @ 2.4 GHz + 4 × A55 @ 1.9 GHz	LCM	Based on 4-lane MIPI DSI, up to 2.5 Gbps/ lane data rate, up to 1200 × 2520 @ 144 fps resolution DisplayPort 1.4, up to 4K (3840 × 2160) @ 60 fps Wi-Fi Miracast 4K @ 60fps
GPU	Qualcomm® Adreno™ 643 @ 812 MHz	Camera	4 × 4-lane MIPI CSI, up to 2.5 Gbps/ lane data rate 3 × ISP, up to 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 pixels
NPU	12 TOPS		
Video	Encoding: 4K (H.264/ H.265) @ 30 fps Decoding: 4K (H.264/ H.265/ VP9) @ 60 fps	Touch panel	Capacitive touch panel, controlled by I2C
Memory	4 GB + 64 GB (LPDDR4X uMCP, default) 6 GB + 128 GB (LPDDR4X uMCP, only optional for SG560D-WF) 8 GB + 128 GB (LPDDR4X uMCP, optional)	Audio	Need external audio codec
OS	Ubuntu/ Android 12/ 13/ 14/ 15	USB	× 2 USB0: USB 3.1 Type-C, compatible with USB 2.0, DisplayPort 1.4 and concurrent USB & DP USB1: USB 2.0, host mode only
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, NVMe
Bluetooth	Bluetooth 2.1 EDR/ 3.0 HS/ 4.2 LE/ 5.2 LE	(U)SIM	× 2, 1.8/ 2.95 V (U)SIM cards, (U)SIM card hot-swap, DSDS (Dual Sim Dual Standby)
GNSS	GPS/ GLONASS/ BDS/ NavIC/ Galileo/ QZSS; L1 + L5	UART	× 11 ① Up to 4 Mbps data rate with hardware flow control; debug UART is only for debugging
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)

①: Multiplex interfaces included

SG560D-NA timeline

2024												2025							
Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.

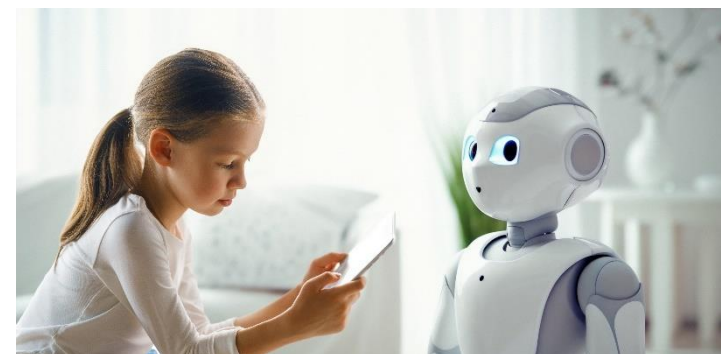
Certification

SG560D-NA



Please contact Quectel to confirm the specific firmware version corresponding to each carrier/conformance certification

SG560D series typical applications



Retail



Functions supported



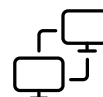
Secure payment

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



Multiple wireless modes

Cellular/ Wi-Fi/ Bluetooth



Dual-screen displays

Dual-screen displays to meet the requirements for cash registers



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

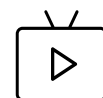


Functions supported



Automotive Camera

360° panoramic view, multi-channel video stitching, driving record, fast reversing, HDR



Automotive multimedia

Multi-screen display/ linkage, audio and video effect optimization, Wi-Fi/ Bluetooth screen projection, Bluetooth calls



Internet of Vehicles

4G/ 5G/ Wi-Fi 5/6E/ GNSS connectivity to meet global certification requirements



Automotive algorithms

ADAS/ DMS, audio noise reduction, echo cancellation, distortion correction, odd-even field merging

Applications



Central vehicle controller



Navigation tablet



Edge computing



Rear headrest



Driving recorder



Smart rearview mirror

Recommended smart modules



4G/ quad-core entry and medium levels



4G/ octa-core medium and high levels



high-performance 5G high-end

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

Tablets & other handhelds

Applications



Functions supported



Abundant interfaces for easy expansion

Multiple cameras, extended NFC, terminal scanning, RFID, etc.



Diverse products to be selected easily

Mutually compatible packages between product series to ensure easy product upgrade



Multiple integrated algorithms

Multi-microphone noise reduction, EIS, TTS, some products can run large edge computing models, etc.

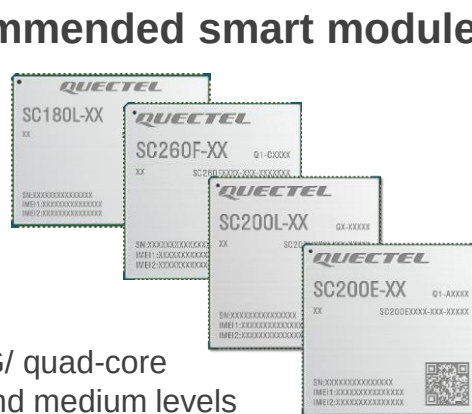


Multiple wireless modes

Multiple wireless communication methods to be selected as needed

Recommended smart modules

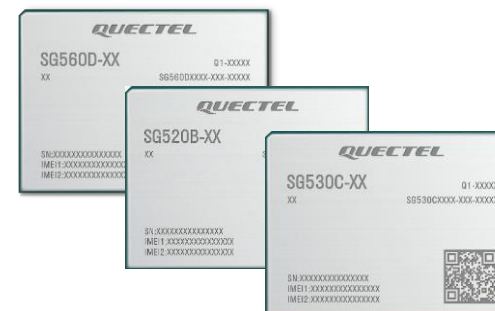
4G/ quad-core
entry and medium levels



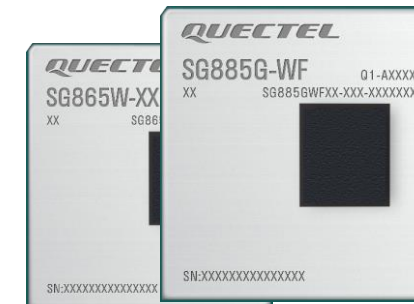
4G/ octa-core
medium and high levels



High-performance
5G high-end



High-performance
Wi-Fi-only flagship



Smart displays

Functions supported



Multiple concurrent windows



Graphics rendering



Multiple platforms & configurations



E-ink display

Applications



Educational tablets



Home energy storage control



Advertising screens



Handwritten books

Recommended smart modules



4G/ quad-core entry and medium levels



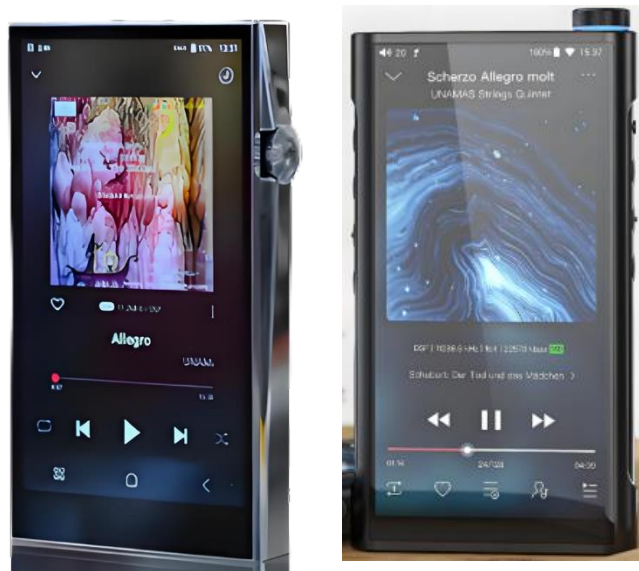
4G/ octa-core medium and high levels



high-performance 5G high-end



Hi-Fi music player



Functions supported



Power consumption optimization for various scenarios



System function removal and optimization

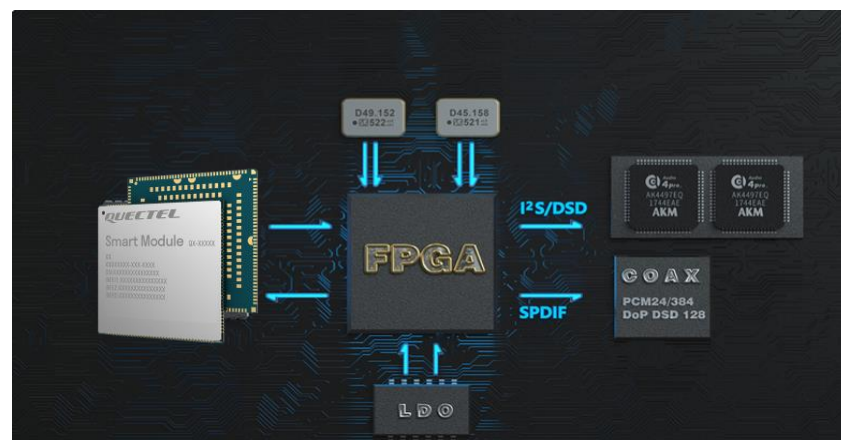
Removal of redundant capabilities such as dial, camera, wireless, etc.



APTx encoding capability



768KHz sampling rate output



Recommended smart modules



Octa-core
medium level

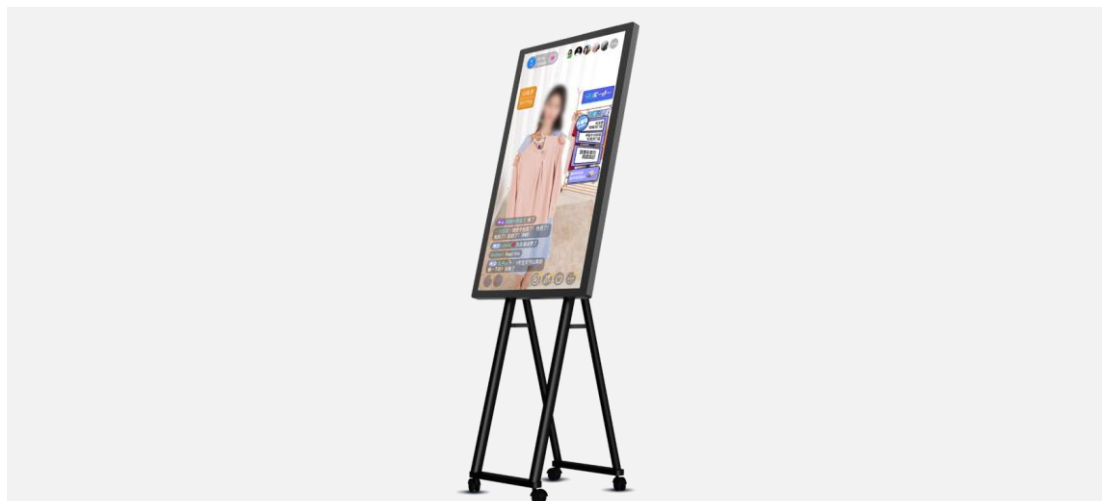


Octa-core
high-end



High-performance
flagship

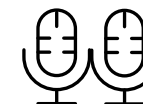
Livestreaming & video conferences



Functions supported



Multiple functions



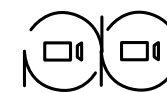
MIC



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



Edge & industrial computing

Applications



Smart factory



Smart safety



Smart city



Unmanned Retail

Product images



Functions supported



Multiple integrated algorithms

Various edge computing algorithm development or integration for customers



Operating system optimization

Provide multiple operating systems to meet customer application development and optimize the systems as needed



LLM solution support

Provide customers with technical solutions such as large model fine-tuning, business process design, and localized deployment

Recommended smart modules



High-end
flagship with
48 TOPS
Wi-Fi 7



5G medium and
high level with
12 TOPS



5G medium and high
levels with 8 TOPS
and domestic platform

Thank you

For more information, please visit: [quectel.com](https://www.quectel.com), [LinkedIn](#), [Facebook](#) and [X](#).
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