

Quectel SG368Z Series Smart Module

Introduction



Duty of confidentiality

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SG368Z series specifications

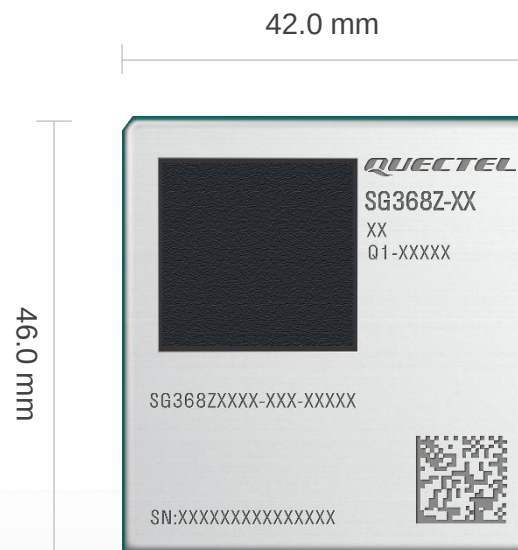
SG368Z series typical applications

SG368Z series highlights

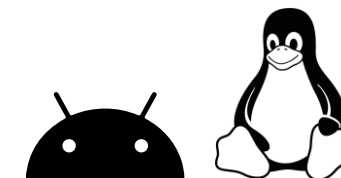


Multi-region variants:

- Multiple global certifications
- Multiple memory configurations



LGA form factor: 46.0 × 42.0 × 3.15 mm



Operating systems:

Linux (Kernel 4.19/ 5.10/ 6.1*)/
Android 13/ OpenWrt 22.03



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



Long life time:
Till the year of 2035

*: Under development

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Build a smarter world

SG368Z variants (pin-to-pin compatible)

Variant	SG368Z-WF	SG368Z-AP
Region	Global	Global
Wi-Fi/ Bluetooth interface	Supported	-
Certification	Regulatory/ conformance: SRRG/ FCC/ IC/ KC/ CE/ RCM	Regulatory/ conformance: CE/ RCM
Product stage	MP	MP

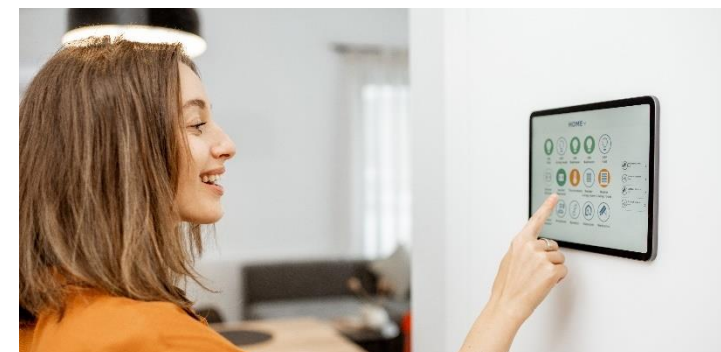
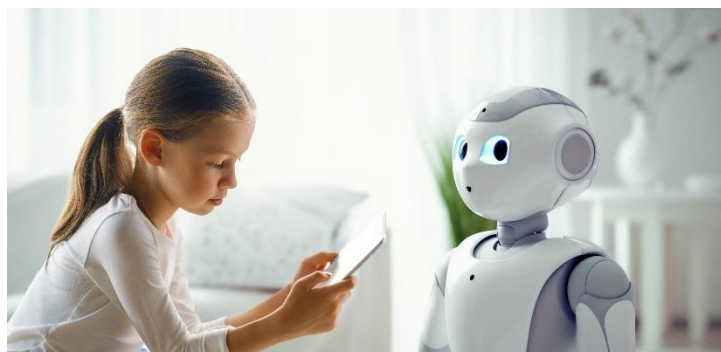
SG368Z series features and interfaces

Key features	
CPU	Commercial grade: 4 × A55 @ 2.0 GHz Industrial grade: 4 × A55 @ 1.4 GHz
GPU	ARM Mali-G52
Memory	Commercial-grade: 2 GB + 32 GB (LPDDR4X + eMMC, default) 1 GB + 8 GB (LPDDR4X + eMMC, optional) 4 GB + 32 GB (LPDDR4X + eMMC, optional) 4 GB + 64 GB (LPDDR4X + eMMC, optional) Industrial-grade: 2 GB + 16 GB (LPDDR4X + eMMC, default) 4 GB + 32 GB (LPDDR4X + eMMC, optional)
WLAN	2.4 & 5 GHz, Wi-Fi 5, 802.11 a/ b/ g/ n/ ac
Bluetooth	4.2 (BR/ EDR + BLE)
LCM	1 × HDMI 2.0: Max. (4096 × 2160) @ 60 Hz 8-lane MIPI DSI 1.2: Max. (2560 × 1600) @ 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 LCD RGB parallel display interface supports Max. 24 bits RGB ^① : Max. (1920 × 1080) @ 60 Hz 3 channels of display can work simultaneously, among which HDMI is one channel, 8-lane (or two 4-lanes) MIPI or 4-lane EDP is one channel, and 4-lane LVDS is one channel
Camera	1 × 4-lane MIPI CSI 8M or 2 × 2-lane, up to 2.5 Gbps/ lane DVP ^① (BT.656/ 1120) analog camera
Audio	Loudspeaker, earpiece, analog microphone and digital audio
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; RC mode only PCIe2: 2-lane, Gen 3; both RC and EP modes, can be divided into two single lanes
SATA	Max. × 3, SATA 3.0, 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: USB 2.0/ USB 3.0, USB HOST/ USB OTG USB1: USB 2.0/ USB 3.0, USB HOST only USB2: USB 2.0 only, USB HOST only USB3: USB 2.0 only, USB HOST only
SD card	× 1, SD 3.0 (SG368Z-WF); × 2, SD 3.0 (SG368Z-AP)
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)

①: In case of using this function, contact Quectel Technical Support

SG368Z series typical applications



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Build a smarter world

Retail



Functions supported



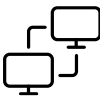
Secure payment

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

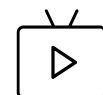


Functions supported



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



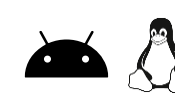
Visual recognition



Multiple cellular modes



Wi-Fi



Multiple operating systems supported

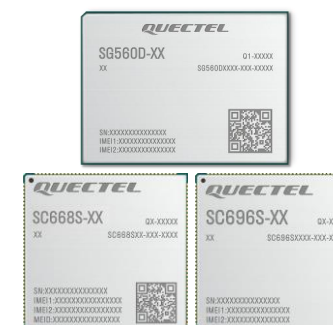
Recommended smart modules



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.

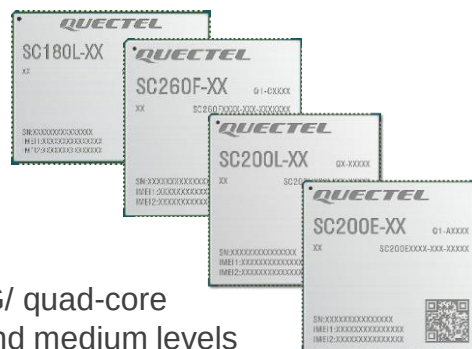


Multiple wireless modes

Multiple wireless communication methods to be selected as needed

Recommended smart modules

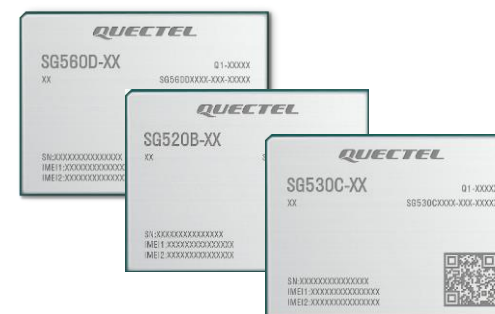
4G/ quad-core
entry and medium levels



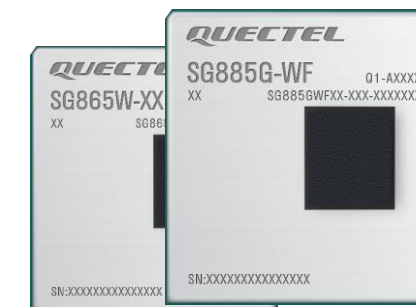
4G/ octa-core
medium and high levels



High-performance
5G high-end



High-performance
Wi-Fi-only flagship



Smart displays

Functions supported



Multiple concurrent windows



Graphics rendering



Multiple platforms & configurations

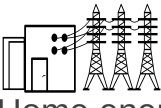


E-ink display

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

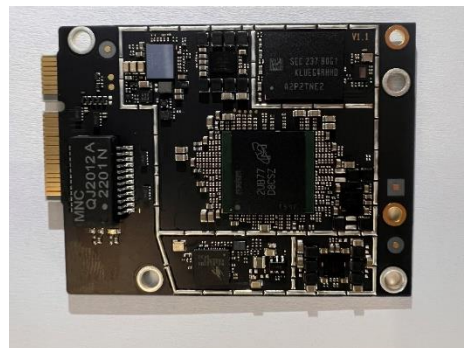


high-performance 5G high-end



ARM array server

Solutions



ARM board

The board with M.2 interface based on SoC is the core component of ARM array servers



ARM array server case

Conduct centralized management and data allocation of multiple ARM boards



Cloud service vendors

ARM array servers deployed to the cloud with the running of multiple virtual channels



Cloud games



Cloud mobile phone



Cloud live streaming



Cloud rendering



Recommended smart modules



Octa-core premium level



Octa-core premium level

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

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Media contact: media@quectel.com

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

