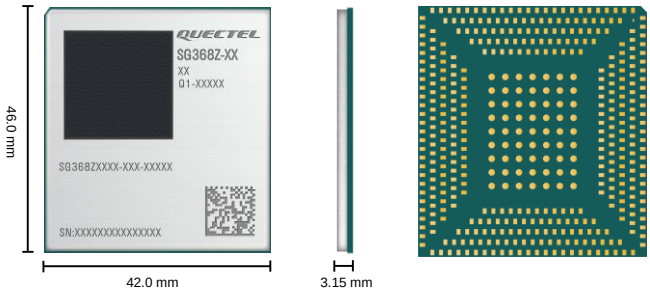
Quectel SG368Z Series

Smart Module
with Wi-Fi & Bluetooth



SG368Z series is Quectel's new generation of smart module. Based on high-performance Quad-core ARM Cortex-A55 CPU, ARM Mali G52 GPU, 8M ISP HDR and 1T NPU, coupled with the embedded LPDDR4, eMMC, Wi-Fi 5 and Bluetooth 4.2, the module is ideal for industrial applications requiring high level of automation and consumer applications requiring high data rate and multimedia functions.

SG368Z series module integrates abundant peripheral interfaces, including video output interfaces (HDMI/ LVDS/ RGB/ MIPI/ eDP) supporting triple screens simultaneously showing the same thing or different things, dual 1000 Mbps ethernet ports, SATA interfaces (multiplexed from other interface), multiple industrial UARTs, four USB 2.0/3.0, two PCIe interfaces, etc. Not only does the module support 4K video decoding and 1T NPU but also it can run deep learning algorithm, which enables the module to satisfy the requirements of smart terminals and industrial edge devices. Meanwhile, the module supports Linux/ Android/ OpenWrt operating system as well as QT components, and can be used with Quectel function modules such as LTE Cat 1/ 4, 5G, Wi-Fi 6 and GNSS, which enables the module to be extensively applied to the use cases in M2M industry, such as IoT gateway, smart commercial display, industrial device terminal, smart hospital, vehicle center console and automotive NVR.

Key Features

- Quad-core ARM Cortex-A55 CPU @ 2 GHz
- ARM Mali-G52 GPU
- 8M ISP HDR
- 1T NPU
- 4K @ 60 fps video decoding
- 1080P @ 60 fps video encoding
- PCIe 3.0/ USB 3.0/ SATA 3.0/ SD 3.0/ RGMII
- HDMI 2.0/ MIPI DSI 1.2/ eDP 1.3/ LVDS/ RGB
- MIPI CSI 1.2
- IEEE 802.11a/ b/ g/ n/ ac
- Bluetooth 4.2

Quad-core ARM Cortex-A55 CPU @ 2.0 GHz

ARM Mali-G52 GPU

Linux/ Android/ OpenWrt

PCI Express

IEEE 802.11 a/ b/ g/ n/ ac

Bluetooth 4.2 (BR/ EDR + BLE)

Multimedia Processing Engine

Dual 1000 Mbps Ethernet Ports

Version: 1.6 | Status: Released

Quectel SG368Z Series

Module	SG368Z-WF	SG368Z-AP
Region/ Operator	Global	Global
CPU	RK3568, Quad-core ARM Cortex-A55 CPU @ 2.0 GHz	RK3568, Quad-core ARM Cortex-A55 CPU @ 2.0 GHz
Memory	Commercial grade: LP4/ LP4x, standard 2 GB + 32 GB (4 GB + 32 GB optional) Industrial grade: LP4/ LP4x, standard 2 GB + 16 GB (4 GB + 32 GB optional)	Commercial grade: LP4/ LP4x, standard 2 GB + 32 GB (4 GB + 32 GB optional) Industrial grade: LP4/ LP4x, standard 2 GB + 16 GB (4 GB + 32 GB optional)
OS	Linux (Kernel 4.19)/ Android 13/ OpenWrt	Linux (Kernel 4.19)/ Android 13/ OpenWrt
Dimensions (mm)	46.0 × 42.0 × 3.15	46.0 × 42.0 × 3.15
Package	LGA	LGA
Weight (g)	Approx. 13.1	Approx. 12.8
Temperature Range		
Operating Temperature	Commecial grade: -10 °C to +75 °C Industrial grade: -40 °C to +85 °C	Commecial grade: -25 °C to +75 °C Industrial grade: -40 °C to +85 °C
Frequency Bands		
WLAN	2.4 & 5 GHz, Wi-Fi 5, 802.11a/ b/ g/ n/ ac	-
Bluetooth	Bluetooth 4.2 (BR/ EDR + BLE)	-
Certifications		
Carrier	-	-
Regulatory	SRRC/ FCC/ IC/ KC	-
Interfaces		
RGMII	Max. × 1	Max. × 2
UART	Max. × 8	Max. × 10
SDIO*	Max. × 1, SDIO 3.0	Max. × 2, SDIO 3.0
I2S	Max. × 1	Max. × 2
PWM	Max. × 14	Max. × 16
GPIO	Max. × 107	Max. × 128
Antenna	× 1, Wi-Fi/ Bluetooth	-

Module	General Features
Interfaces	
LCM	1 × HDMI 2.0: Max. (4096 × 2160) @ 60 Hz 8-lane MIPI DSI 1.2: Max. (2048 × 1536) @ 60 Hz or 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
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 microphones 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 @ level4.2, H.265/ HEVC MP @ level4.1
USB	× 4, compliant with USB 3.0/ 2.0 USB0: supports USB 2.0/ 3.0, supports USB HOST/ USB OTG USB1: supports USB 2.0/ 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
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
SD Card	× 1, SD 3.0
I2C	Max. × 5
ADC	× 5, general-purpose ADC interfaces
SPI	Max. × 4, supports both master and slave modes
CAN	Max. × 3
RTC*	Supported
Keypad	PWRKEY/ RESET_N/ VOL_UP/ BOOT/ VOL_DOWN/ MENU/ ESC
Electrical Features	
Supply Voltage Range	3.3–3.5 V, typ. 3.4 V
Power Consumption (typ.)	Typ. 4.5 mA (SG368Z-WF)/ 4.0 mA (SG368Z-AP) @ sleep mode

NOTE:

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

HQ address: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Tel: +86 21 51086236 Email: info@quectel.com