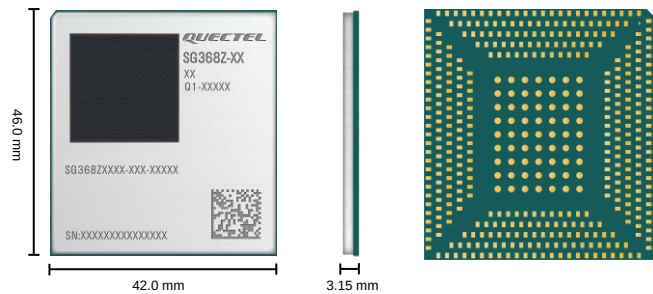


Quectel SG368Z Series

Smart Module

with Wi-Fi & Bluetooth



The Quectel SG368Z series is a new-generation smart module based on the Rockchip RK3568B2/ RK3568J IoT chip. Featuring a high-performance quad-core 64-bit ARM Cortex-A55 CPU, an ARM Mali-G52 GPU, an 8 M ISP with HDR, and a 1 TOPS NPU, the module integrates LPDDR4 and eMMC memory and supports Wi-Fi 5 and Bluetooth 4.2 connectivity, making it ideal for industrial applications that demand high automation and consumer applications that demand high data rates and multimedia capabilities.

The module integrates feature-rich peripheral interfaces, including video output interfaces (HDMI, LVDS, RGB, MIPI, eDP) that support triple-screen display, dual Gigabit Ethernet ports, SATA (multiplexed from other interfaces), multiple industrial UARTs, four USB 2.0/ 3.0 interfaces, and two PCIe interfaces. Driven by its 4K video decoder and 1 TOPS NPU, the module can run deep learning algorithms natively, making it a powerful solution for smart terminals and industrial edge computing. Powered by multiple operating systems (Linux, Android, OpenWrt), along with frameworks like QT, the module is also compatible with Quectel's LTE Cat 1/ 4, 5G, Wi-Fi 6, and GNSS modules, making it ideal for various M2M use cases, such as IoT Gateways, Smart Commercial Displays, Industrial Device Terminals, Smart Healthcare Systems, Vehicle Center Consoles, and Automotive NVRs.



Key Features

- ✓ Quad-core 64-bit ARM Cortex-A55 CPU
- ✓ ARM Mali-G52 GPU
- ✓ 8 M ISP HDR
- ✓ 1 TOPS NPU computing power
- ✓ 4K @ 60 fps video decoder
- ✓ 1080P @ 60 fps video encoder
- ✓ 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 64-bit ARM Cortex-A55 CPU	 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 Gigabit Ethernet Ports	

Quectel SG368Z Series

Module	SG368Z-WF	SG368Z-AP
Region/ Operator	Global	Global
CPU	Commercial-grade: RK3568B2, 4 × A55 @ 2.0 GHz Industrial-grade: RK3568J, 4 × A55 @ 1.4 GHz	Commercial-grade: RK3568B2, 4 × A55 @ 2.0 GHz Industrial-grade: RK3568J, 4 × A55 @ 1.4 GHz
NPU	1 TOPS	1 TOPS
Memory	Commercial-grade: 2 GB + 64 GB (LPDDR4X + eMMC, default) 1 GB + 8 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)	Commercial-grade: 2 GB + 64 GB (LPDDR4X + eMMC, default) 1 GB + 8 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)
OS	Linux (Kernel 4.19/ 5.10/ 6.1*)/ Android 13/ OpenWrt 22.03	Linux (Kernel 4.19/ 5.10/ 6.1*)/ Android 13/ OpenWrt 22.03
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	Commercial-grade: -25 °C to +75 °C Industrial-grade: -40 °C to +85 °C	Commercial-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		
Regulatory	SRRC/ FCC/ IC/ KC/ CE/ RCM	CE/ RCM
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. (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 microphones and digital audio Encoder: 1080P @ 60 fps	
Video	Decoder: 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: USB 2.0/ 3.0, USB HOST/ USB OTG USB1: USB 2.0/ 3.0, USB HOST only USB2: USB 2.0 only, USB HOST only USB3: USB 2.0 only, USB HOST only	
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	
I2C	Max. × 5	
ADC	× 5, general-purpose ADC interfaces	
SPI	Max. × 4, 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. 4.5 mA (SG368Z-WF)/ 4.0 mA (SG368Z-AP) @ sleep mode	

Notes:

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

*: Under development