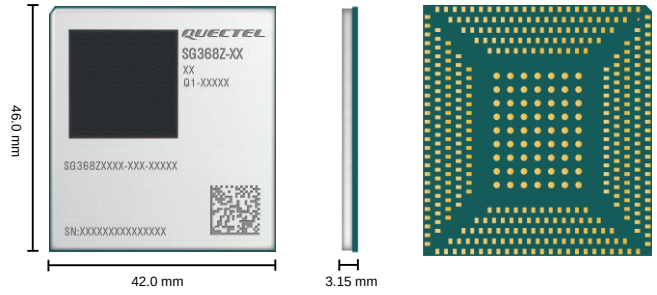


Quectel SG368Z Series

Smart Module

with Wi-Fi & Bluetooth



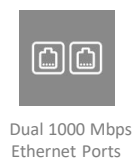
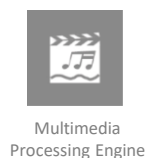
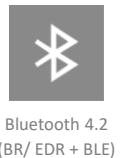
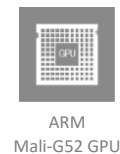
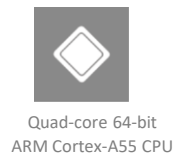
SG368Z series is Quectel's new generation of smart module, which integrates Rockchip IoT chip RK3568B2/ RK3568J, including high-performance quad-core 64-bit ARM Cortex-A55 CPU, ARM Mali G52 GPU, 8M ISP HDR and 1 TOPS NPU computing power. With embedded LPDDR4 and eMMC memory, Wi-Fi 5 and Bluetooth 4.2, the module is ideal for industrial applications requiring high levels of automation and consumer applications requiring high data rates and multimedia functions.

SG368Z series module integrates abundant peripheral interfaces, including video output interfaces (HDMI/ LVDS/ RGB/ MIPI/ eDP) supporting triple-screen concurrent displays, dual 1000 Mbps ethernet ports, SATA interfaces (multiplexed from other interfaces), multiple industrial UARTs, four USB 2.0/ 3.0, two PCIe interfaces, etc. With the capabilities of 4K video decoding and 1 TOPS NPU computing power, the module can run deep learning algorithms to satisfy the requirements of smart terminals and industrial edge devices. Meanwhile, the module, supporting Linux/ Android/ Ubuntu/ OpenWrt operating systems and components such as QT, can be used with Quectel LTE Cat 1/ 4, 5G, Wi-Fi 6 and GNSS modules, which extends the module's applicability to such use cases in M2M industry as IoT gateway, smart commercial display, industrial device terminal, smart hospital, vehicle center console and automotive NVR.



Key Features

- ✓ Quad-core 64-bit ARM Cortex-A55 CPU
- ✓ ARM Mali-G52 GPU
- ✓ 8M ISP HDR
- ✓ 1 TOPS NPU computing power
- ✓ 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



Version: 2.0 | Status: Released

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: LP4/ LP4x, default 2 GB + 32 GB (optional 4 GB + 32 GB) Industrial-grade: LP4/ LP4x, default 2 GB + 16 GB (optional 4 GB + 32 GB)	Commercial-grade: LP4/ LP4x, default 2 GB + 32 GB (optional 4 GB + 32 GB) Industrial-grade: LP4/ LP4x, default 2 GB + 16 GB (optional 4 GB + 32 GB)
OS	Linux (Kernel 4.19/ 5.10/ 6.10*)/ Android 13/ Ubuntu/ OpenWrt	Linux (Kernel 4.19/ 5.10)/ Android 13/ Ubuntu/ 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		
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 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 ^① : Max. (1920 × 1080) @ 60 Hz	
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	
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: 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
*: In progress/ under development

