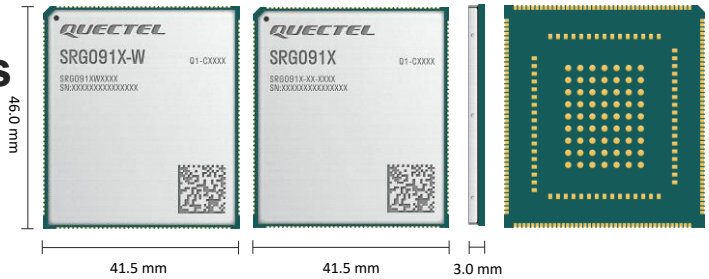
Quectel SRG091X Series

Short-Range Module with Wi-Fi & Bluetooth



SRG091X series is Quectel's short-range module, featuring NXP's IoT chip MIMX9131CVVXJAB as its core. This chip integrates a high-performance Arm Cortex-A55 CPU core with a maximum operating frequency of up to 1.4 GHz. With embedded 1GByte LPDDR4, 8GByte eMMC memory, Wi-Fi 6 and Bluetooth 5.4, 802.15.4 (Thread/ Zigbee), the module is ideal for industrial applications requiring high-level automation and consumer applications requiring high data rates and multimedia functions.

SRG091X series module integrates a comprehensive set of peripheral interfaces, including RGB interface supporting LCD screen display, ethernet ports, SPI, UARTs, I2C, I3C, USB 2.0, CAN-FD interfaces, ADC and SPDIF. Equipped with a programmable image sensor interface supporting resolutions up to 2K, the module is capable of running deep learning algorithms to meet the demands of smart terminals and industrial edge devices. Furthermore, with support for Linux/ Zephyr operating systems and frameworks such as QT, the module can be paired with Quectel Wi-Fi HaLow and Wi-Fi modules, extending its applicability to a wide range of applications, including industrial HMIs, gateways, scanners, printers, energy meters, EV charging stations, smart speakers, POS systems, smart doorbells, smart locks.

Key Features

- One-core 64-bit ARM Cortex-A55 CPU
- L2 cache 256 KB
- 2M ISI @ Programmable resolutions up to 2K
- SDIO 3.0/ USB 2.0/ CAN-FD/ I2C/ I3C/ ADC
- RGB
- SPDIF
- IEEE 802.11a/ b/ g/ n/ ac/ax (optional)
- Bluetooth 5.4 (optional)
- IEEE 802.15.4 (Thread/ Zigbee) (optional)

Version: 1.0.0 | Status: Preliminary

Quectel SRG091X Series

Module	SRG091X-W	SRG091X
CPU	1x Arm Cortex-A55 @ 1.4 GHz Nominal mode L2 cache 256 KB	1x Arm Cortex-A55 @ 1.4 GHz Nominal mode L2 cache 256 KB
Memory	Max. 2 GByte LPDDR4 Max. 256 GByte eMMC Max. 512 MByte SPI Nand Flash LPDDR4 1 GByte@ eMMC 8 GByte LPDDR4 1 GByte @ SPI Nand Flash 512 MByte (optional)	Max. 2 GByte LPDDR4 Max. 256 GByte eMMC Max. 512 MByte Nand Flash LPDDR4 1 GByte@ eMMC 8 GByte LPDDR4 1 GByte@ SPI Nand Flash 512 MByte (optional)
OS	Linux, Zephyr*	Linux, Zephyr*
Dimensions (mm)	46.0 × 41.5 × 3.0	46.0 × 41.5 × 3.0
Package	LGA + LCC	LGA + LCC
Weight (g)	Approx. 11.81	Approx. 11.81
Temperature Range		
Operating Temperature	-40 °C to +85 °C	-40 °C to +85 °C
Frequency Bands		
WLAN	2.4 & 5 GHz, Wi-Fi 6, 802.11a/ b/ g/ n/ ac/ax	-
Bluetooth	Bluetooth 5.4	-
IEEE 802.15.4	Supported Thread, Zigbee*	-
Certifications		
Regulatory	**China:** SRRC* **America:** FCC* **Europe:** CE*	**China:** SRRC* **America:** FCC* **Europe:** CE*
Interfaces		
RGMII	Max. × 2	Max. × 2
USB	Max. × 2	Max. × 2
SDIO 3.0	Max. × 1	Max. × 2
SPI	Max. × 4	Max. × 8
UART	Max. × 6	Max. × 8
I2C	Max. × 7	Max. × 8
SAI	Max. × 2	Max. × 3
GPIO	Max. × 75	Max. × 94
Antenna	× 1, Wi-Fi/ Bluetooth & 802.15.4	-
SPDIF	× 1	× 1
Interfaces		
Ethernet	Max. 2x Gbps Ethernet: AVB and IEEE 1588 for sync and EEE for low power. 1 w/TSN	
LCM	Parallel display: Max.1366 × 768p60 or 1280 × 800p60,24bpp RGB/YUV*	
Camera	8-bit parallel YUV / RGB camera①	
Audio	Serial Audio Interface PDM SPDIF	
USB	× 2, USB 2.0 with PHY	
ADC	× 4, 16 bits	
CAN-FD	Max. × 2	
Keypad	ON/OFF/ VBAT/ UART1/ UART2/ SAI1	
Electrical Features		
Supply Voltage Range	3.0–3.45 V, typ. 3.3 V	
Power Consumption	TBD	

Model	Ordering Code	Antenna	Development Board (Only for Debugging)
SRG091X	SRG091XAAMD	-	SRG091XAATA
SRG091X-W	SRG091XWAAMD	One antenna	SRG091XWAATA

Note:

1. *: Under development/ in progress.
2. ①: If the function is required, contact Quectel Technical Support.
3. 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