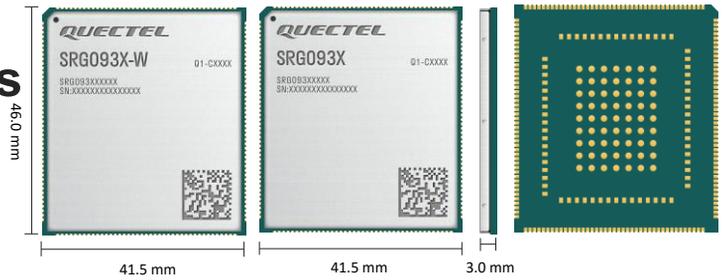


Quectel SRG093X Series

Short-Range Module with Wi-Fi & Bluetooth



SRG093X series is Quectel’s short-range module, featuring NXP’s IoT chip MIMX9332CVVXMAC as its core. This chip integrates a high-performance dual-core Arm Cortex-A55 CPU operating at up to 1.7 GHz, along with a Cortex-M33 microcontroller running at up to 250 MHz. With embedded 1GByte LPDDR4X, 16GByte 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.

SRG093X series module integrates a comprehensive set of peripheral interfaces, including video output interfaces (LVDS/ RGB/ MIPI) supporting LCD screen displays, ethernet ports, SPI, UARTs, I2C, I3C, two USB 2.0, CAN-FD interfaces, ADC interfaces, 32-pin FlexIO interfaces and SPDIF. The module features a programmable image sensor interface supporting resolutions up to 2K and a Display PXP engine for 2D graphics acceleration, enabling it to efficiently run 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, such as industrial HMI, gateways, scanners, printers, energy meters, EV charging stations, smart speakers, POS systems, smart doorbells and smart locks.



Key Features

- ✓ Dual-core 64-bit ARM Cortex-A55 CPU
- ✓ L2 cache 64 KB/ L3 cache 256 KB
- ✓ 2M ISI @ Programmable resolutions up to 2K
- ✓ SDIO 3.0/ USB 2.0/ CAN-FD/ I2C/ I3C/ ADC/ RGMII
- ✓ LVDS/ MIPI/ RGB
- ✓ SPDIF
- ✓ 2D Graphics PXP
- ✓ 32-pin FlexIO
- ✓ IEEE 802.11a/ b/ g/ n/ ac/ax (optional)
- ✓ Bluetooth 5.4 (optional)
- ✓ IEEE 802.15.4 (Thread/Zigbee (optional))



Dual-core 64-bit ARM Cortex-A55 CPU



L2 cache 64 KB L3 cache 256 KB



Linux/ Zephyr



Multiple Interfaces



IEEE 802.11 a/ b/ g/ n/ ac/ax (optional)



Bluetooth 5.4 (optional)



Multimedia Processing Engine



Dual 1 Gbps Ethernet Ports

Quectel SRG093X Series

Module	SRG093X-W	SRG093X
CPU	2x Arm Cortex-A55 @ 1.7 GHz Nominal mode L2 cache 64 KB L3 cache 256 KB	2x Arm Cortex-A55 @ 1.7 GHz Nominal mode L2 cache 64 KB L3 cache 256 KB
Micro Controller	a Cortex-M33 @ 250 MHz	a Cortex-M33 @ 250 MHz
Memory	Max.2 GByte LPDDR4X Max. 256 GByte eMMC Max. 512 MByte Nand Flash LPDDR4X 1 GByte @ eMMC 16 GByte LPDDR4X 1 GByte @ SPI Nand Flash 512 MByte (optional)	Max. 2 GByte LPDDR4X Max. 256 GByte eMMC Max. 512 MByte Nand Flash LPDDR4X 1 GByte @ eMMC 16 GByte LPDDR4X 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*
Interface		
MIPI CSI 2-lane	Max. × 1	Max. × 1
MIPI DSI 4-lane	Max. × 1	Max. × 1
LVDS	Max. × 1	Max. × 1
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		
MIPI CSI	One 2-lane MIPI CSI-2 camera input: <ul style="list-style-type: none"> ● Complaint with MIPI CSI-2 specification v1.3 and MIPI D-PHY specification v1.2 ● Supports up to 2 Rx data lanes (plus 1 Rx clock lane) ● Supports 80 Mbps – 1.5 Gbps per lane data rate in high-speed operation ● Supports 10 Mbps data rate in low power operation 	
LCM	4-lane MIPI DSI 1.2: <ul style="list-style-type: none"> ● Up to 1920 × 1200p60 ● Up to active pixel rate of 140 Mpixel/s with 24-bit RGB ● Up to 80 Mbps—1.5 Gbps per lane in high-speed operation ● Up to 10 Mbps in low power operation; 4-lane LVDS: Up to 1366 × 768p60 or 1280 × 800p60 Parallel display: Up to 1366 × 768p60 or 1280 × 800p60, 24 bpp RGB	
Ethernet	Max. 2x Gbps Ethernet: AVB and IEEE 1588 for sync and EEE for low power. 1 w/TSN	
Camera	2-lane 1080p30 MIPI CSI Parallel camera ^①	
Audio	Serial Audio Interface PDM SPDIF	
USB	× 2, USB 2.0 with PHY	
ADC	× 4, 12 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	

Note:

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

Quectel SRG093X Series

Model	Ordering Code	Antenna	Development Board (Only for Debugging)
SRG093X	SRG093XAAMD	-	SRG093XAATA
SRG093X-W	SRG093XWAAMD	One antenna	SRG093XWAATA