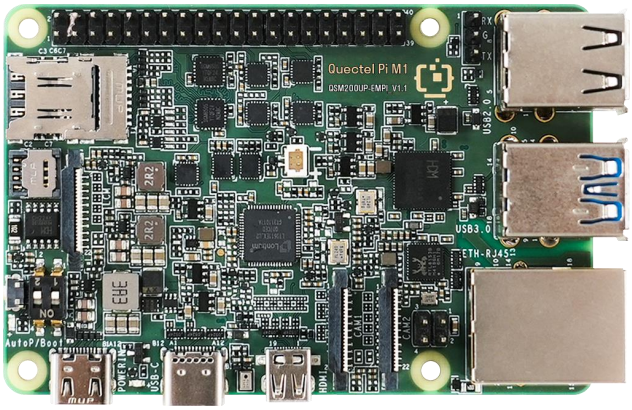
# Quectel Pi M1

## Single-Board Computer

## Product Introduction

Quectel Pi M1 is a smart Single-Board Computer (SBC) built on the Qualcomm SM6115 platform. Featuring an ARM octa-core 64-bit processor (4 x A73 @ 2.0 GHz + 4 x A53 @ 1.8 GHz) and a Qualcomm Adreno™ 610 GPU, the product is not only equipped with 4 GB LPDDR4X + 64 GB eMMC storage, and a USB Type-C power interface, but also supports LTE Cat 4, dual-band Wi-Fi (2.4 & 5 GHz) compliant with IEEE 802.11a/ b/ g/ n/ ac, Bluetooth 5.0, and display output via LCM or HDMI, thereby delivering robust performance and rich multimedia capabilities to meet the demands of both industrial and consumer applications for high-speed connectivity, multimedia processing, and computing power.




Wi-Fi
2.4 & 5 GHz

Feature-rich
Interfaces

USB Type-C
Power Input

Compact, Full-Featured Design with
Extended Temperature Range

## Main Advantages

- **ARM octa-core 64-bit processor:** Well-suited for most algorithm prototyping & inference application development.
- **Adreno™ 610 GPU:** Balances high performance with power efficiency, optimized for embedded and IoT applications.
- **Feature-rich interfaces:** USB, HDMI, ADC, audio, Ethernet, camera, antenna, etc.
- **Wireless connectivity:** Wi-Fi 2.4 & 5 G, 802.11a/ b/ g/ n/ ac, delivering enhanced wireless connectivity.
- **Multiple operating systems:** Linux/ Debian/ Android.
- **Extended temperature range:** For harsh outdoor & industrial use; withstand ambient temperatures from -20 °C to +70 °C.
- **Diverse application scenarios:** Edge computing, robotics, industrial automation, multimedia terminals, digital signage, smart security, rugged PDAs, etc.

Version: 3.1
Status: Released

# Hardware Specifications

| Parameter | Details |
|---|---|
| **Application Processor** | ARM octa-core 64-bit Kryo™ 260 processor:<br>• 4 x A73 @ 2.0 GHz, 1 MB L2 cache<br>• 4 x A53 @ 1.8 GHz, 512 KB L2 cache |
| **GPU** | 64-bit Adreno™ 610 @ 1050 MHz |
| **Memory** | 4 GB LPDDR4X + 64 GB eMMC |
| **OS** | Yocto Linux (Kernel 5.15)*/ Debian 13*/ Android 14* |
| **USB Interfaces** | • 1 x USB 3.0 Type-C with up to 5 Gbps data rate, for firmware programming (when the boot jumper is set) and host-mode communication<br>• 2 x standard USB 3.0 Type-A ports, host mode only, with up to 5 Gbps data rate<br>• 2 x standard USB 2.0 Type-A ports, host mode only, with up to 480 Mbps data rate<br>• 1 x USB Type-C, for main power supply |
| **Display Interfaces** | • 1 x Micro HDMI interface①, HDMI 2.0 (the frame rate is to be determined*); encoding: 1080p (H.264/ H.265) @ 60 fps*, decoding: 1080p (H.264/ H.265/ VP9) @ 60 fps*<br>• 1 x FPC connector①, based on MIPI standard, with FHD+ (1080 x 2520) @ 60 fps* |
| **Audio Interfaces** | • 1 x SH1.0-4P audio interface<br>• 1 x HDMI interface, for audio output<br>• 1 x MEMS microphone |
| **Camera Interfaces** | 2 x FPC connectors, 4-lane MIPI CSI, with up to 2.5 Gbps/ lane data rate |
| **Ethernet Interface** | 1 x standard RJ45, supporting 10/ 100/ 1000 Mbps Ethernet and POE function |
| **SIM Card Interfaces** | 2 x (U)SIM interfaces, 1.8/ 2.95 V (U)SIM cards, DSDS (Nano SIM and eSIM) |
| **SD Card Interface** | 1 x SD 3.0, 4-bit SDIO |
| **DBG-UART Interface** | 2.54 mm pin header (1 x 3-pin), only for debugging |
| **Extension Interfaces** | • 4 x I2C interfaces (multiplexed with other interfaces)<br>• 3 x SPI interfaces (multiplexed with other interfaces, host mode only)<br>• 4 x UART interfaces (multiplexed with other interfaces)<br>• 28 x GPIO interfaces (multiplexed with other interfaces) |
| **Keypad** | 1 x PWRKEY; internally pulled up |
| **LED Indicators** | Blue and green |
| **Antenna Interfaces** | • 1 x MAIN (Main)<br>• 1 x DRX (Rx-diversity)<br>• 1 x GNSS (GNSS)<br>• 1 x WIFI/BT (Wi-Fi & Bluetooth) |
| **LTE** | Compliant with 3GPP Rel-10 FDD and TDD |
| **GNSS (Optional)** | GPS, GLONASS, BDS, Galileo, QZSS and SBAS |
| **WLAN** | • Operating modes: AP and STA<br>• Operating frequencies: 2.4 GHz and 5 GHz |
| **Bluetooth** | • *Bluetooth Core Specification Version 5.0*<br>• Bluetooth Classic and Bluetooth Low Energy (BLE) |
| **Temperature Range** | • Operating temperature: -20 °C ~ +70 °C<br>• Storage temperature: -40 °C ~ +85 °C |
| **Power Supply Requirements** | USB Type-C power input; recommended power adapter: 18 W USB-PD |
| **Shielding Cover** | N/A |
| **Firmware Upgrade** | • USB0<br>• OTA |
| **RoHS** | All components are fully compliant with the EU RoHS Directive 2011/65/EU |

Notes:
*: Under development.
①: The Micro HDMI and MIPI display interfaces are mutually exclusive and cannot be used simultaneously.

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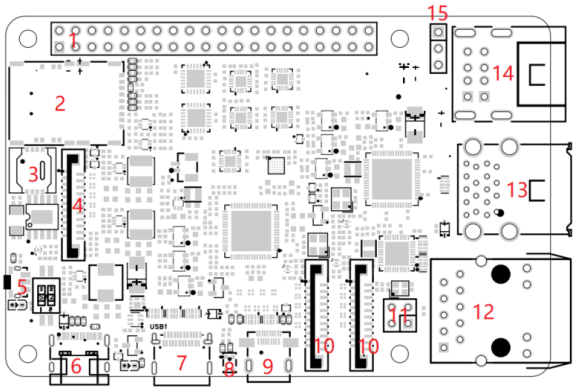
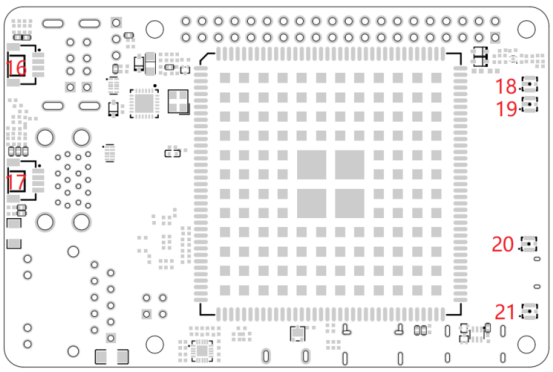
# Interface Specifications




| Interface Type | No. | Interface Name | Description |
|---|---|---|---|
| **Extension** | 1 | 2 x 20-pin header | Multi-function GPIOs (configurable as I2C, SPI, etc.) |
| **Memory** | 2 | SD card interface | Combo SD/ Nano-SIM Socket (SD 3.0) |
| **SIM Card** | 2 | (U)SIM card interface | Combo SD/ Nano-SIM Socket, supporting 1.8/ 2.95 V (U)SIM cards |
| | 3 | eSIM card interface | eSIM (MFF2) flip-open connector, supporting 1.8/ 2.95 V eSIM |
| **Display** | 4 | Display interface | One 4-lane MIPI DSI, with up to 1.5 Gbps/ lane data rate, based on MIPI standard, supporting FHD+ (1080 × 2520) @ 60 fps* |
| | 9 | Micro HDMI inteface | Micro HDMI interface for video output, supporting 1080P @ 60 Hz* |
| **Camera** | 5 | Camera interface | Two 4-lane MIPI CSIs, with up to 2.5 Gbps/ lane data rate |
| **Multimedia** | 17 | Audio input/ output interface | SH1.0-4P interface for audio input and output |
| | 8 | MEMS input | MEMS microphone |
| **USB** | 7 | USB Type-C | USB 3.0 Type-C interface |
| | 13 | USB Type-A 3.0 | Two USB 3.0 Type-A interfaces |
| | 14 | USB Type-A 2.0 | Two USB 2.0 Type-A interfaces |
| **Communication** | 12 | Ethernet interface | 10/ 100/ 1000 Mbps Ethernet |
| | 20 | Main antenna interface | IPEX-4 test socket |
| | 19 | Rx-diversity antenna interface | |
| | 18 | GNSS antenna interface | |
| | 21 | Wi-Fi/ Bluetooth antenna interface | |
| **Others** | 5 | PWRKEY button | Power button |
| | 6 | USB Type-C power input | DC power is supplied via USB Type-C with support for Power Delivery (PD) |
| | 16 | ADC interface | SH1.0-4P interface: dual-channel ADC input, with 0–5.0 V range. |
| | 11 | POE interface | Two 2-pin headers for POE power output |
| | 15 | DBG interface | One 3-pin header |

Note:
*: Under development.

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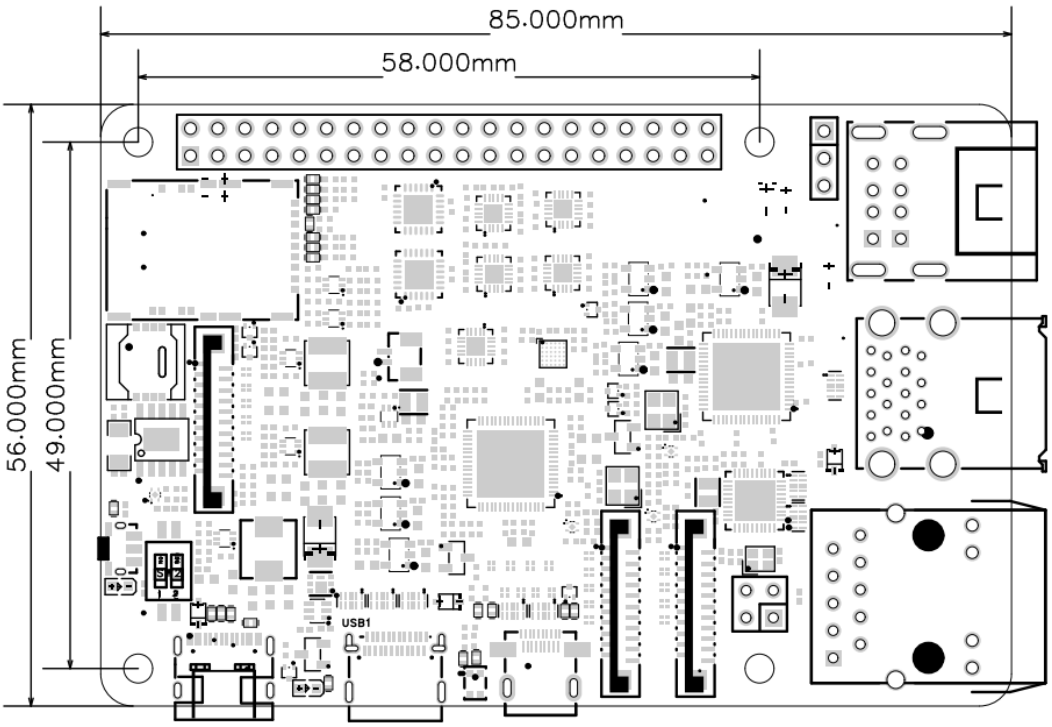
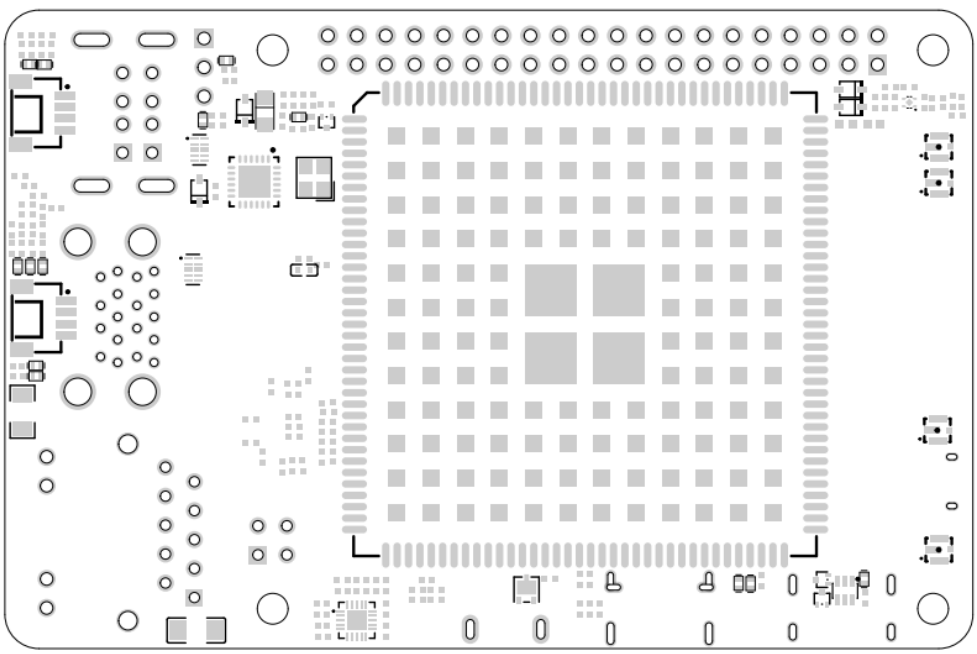
# Dimensions & Appearance



Note:
All dimensions are in millimeters (mm) and are subject to an overall tolerance of ±0.2 mm.

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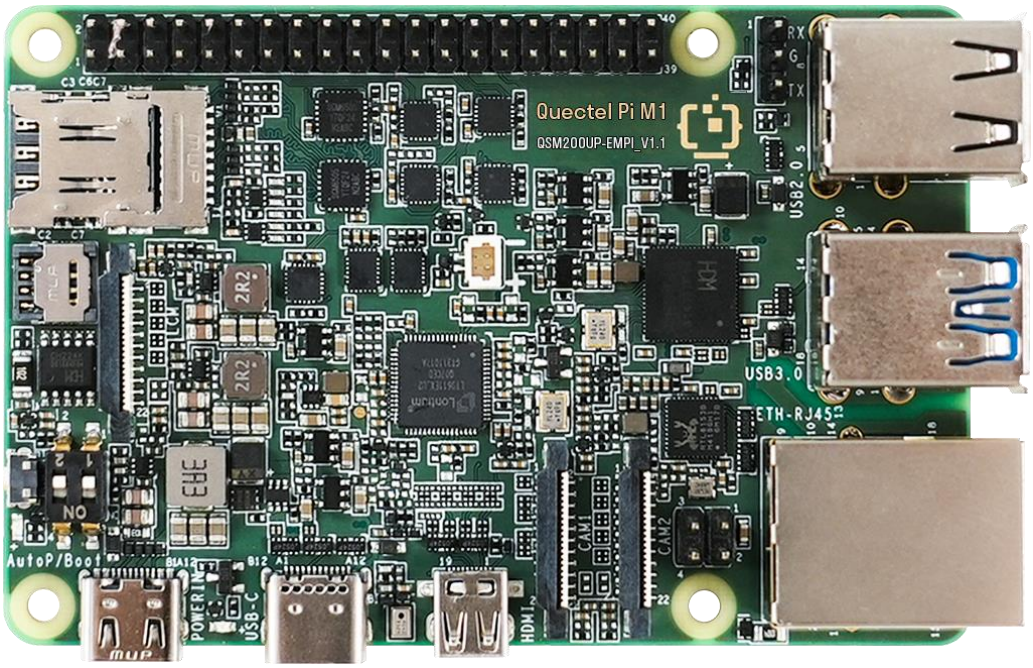
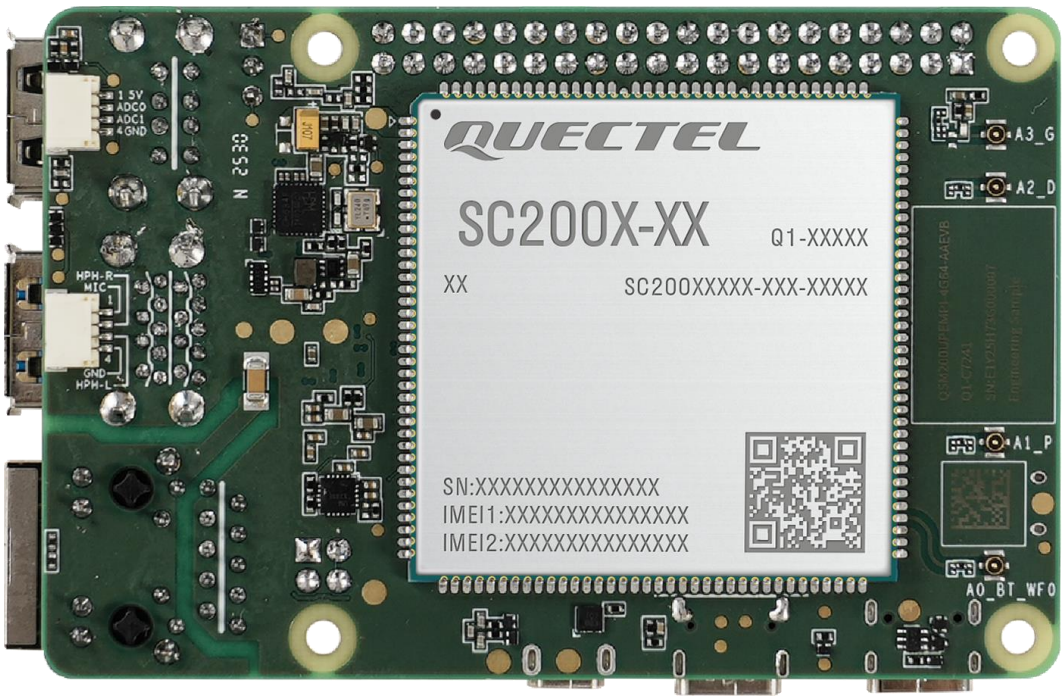
## Product Photos

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