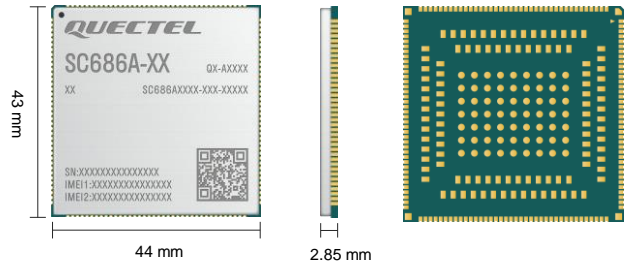


Quectel SC686A Series

Multi-mode Smart LTE Module with Wi-Fi & Bluetooth



SC686A series is Quectel’s new generation of multi-mode Smart LTE Cat 6 module with built-in Linux OS. Based on Qualcomm octa-core and 64-bit ARM v8.0 compliant application processor with built-in Adreno™ 610 GPU, the module is designed to support high performance, various multimedia features and Quick Charge 3.0 technology. It is ideal for both industrial and consumer applications with high data rate and multimedia functions.

SC686A series supports multiple-input multiple-output (MIMO) technology. The use of multiple antennas at the receiver end on the same frequency band greatly minimizes errors and optimizes the data speed. This module also combines high-speed wireless connectivity with embedded dual-band multi-constellation and high-sensitivity GNSS (GPS/GLONASS/BDS/Galileo/NavIC/QZSS) receiver for positioning.

A rich set of interfaces (such as LCM, Camera, Touch Panel, MIC, SPK, UART, USB, I2C, SPI) extend the applicability of the module to a wide range of M2M applications, including smart POS, smart cash registers, smart home gateways, smart robots, smart wearables, security surveillance, PDA & tablets, vending machines, delivery lockers, police and law enforcement equipment, video streaming and entertainment systems, etc.



Key Features

- ✓ LTE Cat 6 modem supporting 2 × 20 MHz carrier aggregation, with maximum downlink speed of up to 300 Mbps
- ✓ Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- ✓ 4-lane MIPI_DSI for 2520 × 1080 @ 60 fps display
- ✓ Maximum of 4 cameras, supports 2 cameras working simultaneously
- ✓ Dual-band multi-constellation GNSS receiver for applications requiring fast and accurate fixes in any environment
- ✓ Recording and playback of 1080P videos @ 60 fps



64-bit ARM v8.0 Processor (Octa-core)



Qualcomm® Adreno™ 610 GPU



Linux OS



Smart LTE Cat 6
Max. 300 Mbps (DL)
Max. 50 Mbps (UL)



IEEE 802.11 a/b/g/n/ac



Bluetooth 5.0 (BR/EDR + BLE)



GPS/GLONASS/BDS/
Galileo/NavIC/QZSS (L1 + L5)



Powerful Multimedia Functions



LCC + LGA Packages

Quectel SC686A Series

| LTE Cat 6 | SC686A-EM | SC686A-NA | SC686A-WF |
|--------------------------|--|---|---|
| Region/Operator | EMEA/Korea/South Asia/ Latin America/India/Australia/ New Zealand/South Africa | North America | Global |
| OS | Linux | Linux | Linux |
| Memory | 64 GB eMMC + 4 GB LPDDR4X | 64 GB eMMC + 4 GB LPDDR4X | 64 GB eMMC + 4 GB LPDDR4X |
| Dimensions (mm) | 43.0 × 44.0 × 2.85 | 43.0 × 44.0 × 2.85 | 43.0 × 44.0 × 2.85 |
| Temperature Range | | | |
| Operating Temperature | -35 °C to +75 °C | -35 °C to +75 °C | -35 °C to +75 °C |
| Frequency Bands | | | |
| LTE-FDD | B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28 | B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 66/ 71 | - |
| LTE-TDD | B38/ 40/ 41 | B41 | - |
| WCDMA | B1/ 2/ 4/ 5/ 8 | - | - |
| GSM | 850/900/1800/1900 MHz | - | - |
| Bluetooth | Bluetooth 5.0 | Bluetooth 5.0 | Bluetooth 5.0 |
| Wi-Fi | 2.4&5 GHz, 802.11a/b/g/n/ac | 2.4&5 GHz, 802.11a/b/g/n/ac | 2.4&5 GHz, 802.11a/b/g/n/ac |
| Bandwidth | 1.4/3/5/10/15/20 MHz | 1.4/3/5/10/15/20 MHz | - |
| GNSS | GPS/GLONASS/BDS/Galileo/NavIC/QZSS, L1 + L5 | GPS/GLONASS/BDS/Galileo/NavIC/QZSS, L1 + L5 | - |
| Certifications | | | |
| Carrier | Australia: Telstra* | America: Verizon*/AT&T*/T-Mobile* | - |
| Regulatory | Global: GCF* Europe: CE* South Korea: KC* Australia/New Zealand: RCM* | Global: GCF* North America: PTCRB* America: FCC* Canada: IC* | Europe: CE* South Korea: KC* Japan: JATE*/TELEC* Australia/New Zealand: RCM* |
| Others | RoHS*/REACH* | RoHS*/REACH* | RoHS*/REACH* |
| Data Transmission | | | |
| LTE-FDD Data Rate (Mbps) | 300 (DL)/50 (UL) | 300 (DL)/50 (UL) | - |
| LTE-TDD Data Rate (Mbps) | 265 (DL)/30 (UL) | 265 (DL)/30 (UL) | - |
| WCDMA Data Rate (kbps) | 384 (DL)/384 (UL) | - | - |
| GPRS Data Rate (kbps) | 107 (DL)/85.6 (UL) | - | - |
| Enhanced Features | | | |
| 3GPP E-UTRA | Release 10 | Release 10 | - |
| Rx-diversity | ● | ● | - |
| DL MIMO 2 × 2 | ● | ● | - |
| (U)SIM Card Detection | ● | ● | - |
| Firmware Upgrade via USB | ● | ● | ● |
| Firmware Upgrade via OTA | ● | ● | ● |
| General Features | | | |
| Supply Voltage Range (V) | 3.55–4.4, typ. 3.8 | | |
| Power Consumption | TBD | | |
| Weight (g) | 11.8 | | |
| Interfaces | | | |
| LCM | 4-lane MIPI_DSI WUXGA (2520 × 1080) @ 60 fps | | |
| Camera | 3 groups of 4-lane MIPI_CSI, up to 2.1 Gbps per lane Supports maximum of 4 cameras, up to 25 MP with dual ISPs | | |
| Capacitive Touch Panel | Supported | | |
| UART | × 3 (Supports 4 Mbps with hardware flow control) | | |
| USB | USB 3.1 Gen1(5 Gbps)/2.0 compliant, supports USB OTG | | |
| Audio | 3 analog inputs: MIC1, MIC2, MIC3 (including one noise-canceling MIC) 3 analog outputs: speaker, earpiece, headphone | | |
| GPIO | × 21 | | |
| SD Card | × 1 (SD 3.0, 4-bit SDIO) | | |
| I2C | × 5 | | |
| ADC | × 2 | | |
| SPI | × 3 (Can be multiplexed into UART and I2S respectively, and the multiplexed I2S supports both Tx and Rx) | | |
| PWRKEY | Pulled up internally to 1.8 V | | |
| Motor Drive | × 1 | | |
| (U)SIM | × 2 (1.8/2.95 V) | | |
| Flashlight | × 2 | | |
| LED | × 1 | | |
| Antenna | × 4, Main/Rx-diversity/GNSS/Wi-Fi & Bluetooth antenna interface respectively (SC686A-WF: × 1, Wi-Fi & Bluetooth antenna interface) | | |

Notes:

1. *: under development/planning
2. ●: supported
3. TBD: to be determined.