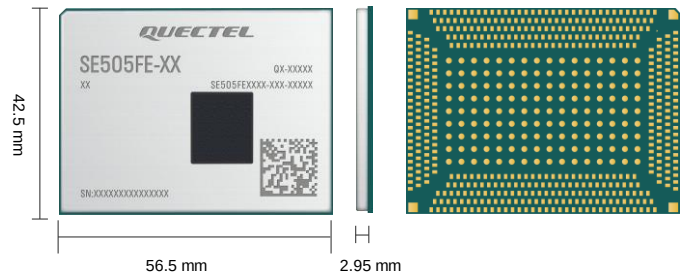


Quectel SE505FE Series

5G Sub-6 GHz Smart Module with Wi-Fi & Bluetooth



SE505FE series is Quectel's new generation of multi-mode 5G smart module with built-in Mali-G57 GPU. Based on MT8863T high-performance 64-bit octa-core processors with built-in IMG GE8300 @ 660 MHz GPU, it is an ideal solution for a wide range of industrial and consumer applications requiring high data rates and multimedia functions. SE505FE series module is available in three variants: SE505FE-EM, SE505FE-NA, SE505FE-WF(support Wi-Fi & Bluetooth only).

SE505FE series module supports multiple-input multiple-output (MIMO) technology. The concurrent use of multiple antennas at the receiver end on the same frequency band greatly minimizes bit error rate and optimizes the data speed, thereby improving communication quality. The module also supports multi-constellation GNSS (GPS, BDS, GLONASS, Galileo and QZSS) receiver for fast and accurate positioning.

A rich set of interfaces (such as LCM, camera, touch panel, Microphone, UART, USB, I2C and SPI) are integrated to extend the applicability of the module to a wide range of M2M applications, including smart cash registers, smart POS, tax control machines, smart safety, on-board equipment, smart robots, smart home, smart hardware, industrial smart handheld equipment, audio and video recorders, smart interphones, smart wearables, vending machines, logistics cabinets, etc.



Key Features

- ✓ Exceptional system performance based on MTK MT8863T
- ✓ Built-in high-performance IMG GE8300 @ 660 MHz GPU
- ✓ Worldwide LTE, UMTS/ HSPA+ and GSM/ GPRS/ EDGE coverage
- ✓ Supports camera up to 32 MP @ 30 fps
- ✓ Supports recording and playback of 1080 × 2520 @ 120 fps videos
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment



ARM A53 64-bit
Processor (octa-core)



MTK
GE8300 @ 660 GPU



Android OS



5G Sub-6 GHz



IEEE 802.11
a/ b/ g/ n/ ac



Bluetooth 5.2



GPS/ GLONASS/
BDS/ Galileo/ QZSS



Powerful Multimedia
Function



LGA Package

Quectel SE505FE Series

5G Sub-6 GHz	SE505FE-EM*	SE505FE-NA*	SE505FE-WF*
Region/ Operator	EMEA/ Korea/ South Asia/ Latin America/ India/ Australia/ New Zealand/ South Africa	North America	Global
CPU	MT8863T, 2 × A76 @ 2.4 GHz + 6 × A55 @ 2.0 GHz	MT8863T, 2 × A76 @ 2.4 GHz + 6 × A55 @ 2.0 GHz	MT8863T, 2 × A76 @ 2.4 GHz + 6 × A55 @ 2.0 GHz
Memory	4 GB LPDDR4X + 64 GB eMMC (default) 2 GB LPDDR4X + 32 GB eMMC (Optional)	4 GB LPDDR4X + 64 GB eMMC (default) 2 GB LPDDR4X + 32 GB eMMC (Optional)	4 GB LPDDR4X + 64 GB eMMC (default) 2 GB LPDDR4X + 32 GB eMMC (Optional)
OS	Android 16*	Android 16*	Android 16*
Dimensions (mm)	42.5 × 56.5 × 2.95	42.5 × 56.5 × 2.95	42.5 × 56.5 × 2.95
Package	LGA	LGA	LGA
Weight (g)	-	-	-
Temperature Range			
Operating Temperature	-35 °C ~ +75 °C	-35 °C ~ +75 °C	-35 °C ~ +75 °C
Frequency Bands			
5G	N1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 77/ 78	N2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78	-
LTE-FDD	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 18/ 19/ 20 / 26 / 28/ 32/ 66	B2/ 4/ 5/ 7/ 12/ 13/ 14/ 17/ 25/ 26/ 29/ 30/ 43/ 46/ 48/ 66/ 71	-
LTE-TDD	B38 / 40/ 41/ 42 / 43	B38/ 41/ 42	-
WCDMA	B1/ 2/ 4/ 5/ 8	-	-
WLAN	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
Bluetooth	Bluetooth 5.2	Bluetooth 5.2	Bluetooth 5.2
GNSS	GPS/ BDS/ GLONASS/ Galileo/ QZSS, L1	GPS/ BDS/ GLONASS/ Galileo/ QZSS, L1	-
Certifications			
Carrier	TBD	TBD	TBD
Regulatory	Europe: CE Brazil: Anatel Australia/New Zealand: RCM		
Others	RoHS/ REACH	RoHS/ REACH	RoHS/ REACH
Data Rates			
NR (Gbps)	3.27 (DL)/ 1.25 (UL)	3.27 (DL)/ 1.25 (UL)	-
LTE (Mbps)	400 (DL)/ 210 (UL)	400 (DL)/ 210 (UL)	-
DC-HSPA+ (Mbps)	42 (DL)/ 11.5 (UL)	42 (DL)/ 11.5 (UL)	-
WCDMA (kbps)	384 (DL)/ 384 (UL)	-	-
Enhanced Features			
3GPP E-UTRA	Release 16	Release 16	-
Bandwidth	2CC 140M	2CC 140M	-
Rx-diversity	●	●	-
DL MIMO 4 × 4	●	●	-
(U)SIM Card Detection	●	●	-
DSDS	●	●	-
Firmware Upgrade via USB	●	●	●
Firmware Upgrade via OTA	●	●	●

Notes:
1. ●: Supported
2. *: Under development/ in progress/ planning



Quectel SE505FE Series

5G Sub-6 GHz	General Features
Interfaces	
LCM	4-lane MIPI DSI, supports up to 1080 × 2520 @ 120 fps
Camera	Three 4-lane MIPI CSI, 32M@30fps; 16 MP + 16 MP @30 fps
Touch Panel	Capacitive touch panel, controlled by I2C
Audio	3 analog input: MIC1, MIC2 (earpiece), MIC3 3 analog output: Line-out, earpiece, headphone
Video	Encode: 2K 30 fps, H.264/265 Decode: 2K 30 fps, H.264/265/VP9
USB	× 1, USB 3.1 is backward compatible with USB 2.0
(U)SIM	× 2, supports 1.8/ 3 V (U)SIM cards; supports (U)SIM card hot swap detection and dual-SIM dual-standby
UART	× 2 Debug UART: 2-wire UART, dedicated for debugging UART1: 4-wire UART, up to 3 Mbps data rate, supports RTS and CTS hardware flow control
SD Card	× 1, SD 3.0, supports 4-bit SDIO
ADC	× 5, general-purpose ADC interface
I2C ^①	× 9 (Multiplexed)
I2S ^①	× 2 (Multiplexed)
SPI ^①	× 2 (Multiplexed)
PWRKEY	Pull it down to power on
GPIO ^①	× 181
Antenna	× 7, Cellular antenna(×5), GNSS antenna, Wi-Fi & Bluetooth antenna
Electrical Features	
Supply Voltage Range	3.55–4.4 V, typ. 3.8 V
Power Consumption (Typ.)	TBD

Notes:

- ①: SPI, I2C, I2S and GPIO outputs are multiplexed. Let us know your requirements if you need to customize them. We will assist you in customizing the software needed.
- *: Under development/ in progress/ planning