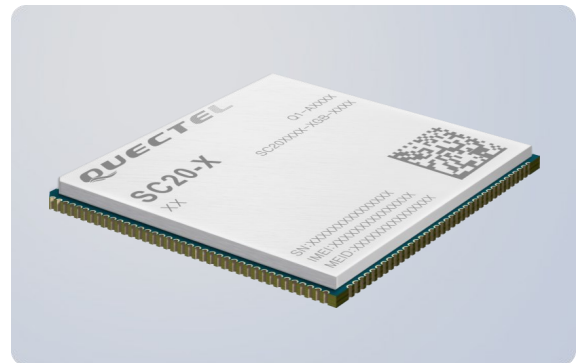


# Quectel SC20

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



SC20 is Quectel’s new generation of multi-mode Smart LTE Cat 4 module with built-in Android OS. It contains five variants: SC20-CE, SC20-E, SC20-A, SC20-AU and SC20-J.

SC20 delivers maximally 150Mbit/s downlink and 50Mbit/s uplink data rates based on LTE network , and additionally supports wireless communication via IEEE 802.11 a/b/g/n (IEEE 802.11 b/g/n for SC20-CE R1.0) and BT4.1 LE. It is ideal for both industrial and consumer applications requiring high data rate and high-speed internet access. SC20 is backward-compatible with existing EDGE and GSM/GPRS networks, ensuring that it can be connected even in remote areas devoid of 3G or LTE coverage.

SC20 supports multiple-input multiple-output (MIMO) technology. The use of multiple antennas at the receiver end at the same time and on the same frequency band greatly minimizes errors and optimizes the data speed. The module also combines high-speed wireless connectivity with embedded multi-constellation and high-sensitivity GNSS (GPS, GLONASS and BeiDou) receiver for positioning.

A rich set of interfaces (such as LCM, Camera, Touch Panel, MIC, SPK, UART, USB, I2C) extend the applicability of the module to a wide range of M2M applications, such as CPE, wireless POS, smart metering, router, data card, automotive, smart phone, digital signage, alarm panel, security and industry PDA.



### Key Benefits

- ✓ Integrates Android OS, Wi-Fi, Bluetooth and GNSS into one module
- ✓ Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- ✓ MIMO technology meets demands for data rate and link reliability in modem wireless communication systems
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- ✓ LCC package ensures reliable connectivity with applications



Smart LTE Cat 4  
Max 150Mbps (DL)  
Max 50Mbps (UL)



Max 42Mbps (DL)  
Max 5.76Mbps (UL)



Android OS



8GB EMMC  
+1GB LPDDR3



Powerful Multimedia  
Function



Multi-constellation  
GNSS



USB 2.0 High Speed  
Interface



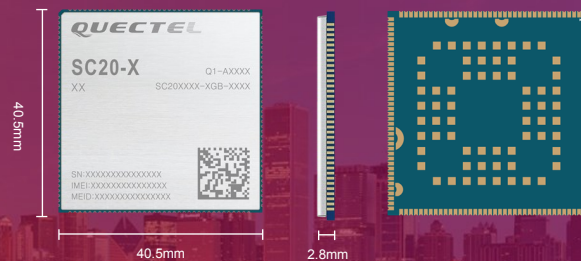
Quectel Enhanced  
AT Commands



LCC Package

# Quectel SC20

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



### Variant for China/India

#### SC20-CE:

LTE FDD: B1/B3/B5/B8  
LTE TDD: B38/B39/B40/B41  
TD-SCDMA: B34/B39  
CDMA: BC0  
WCDMA: B1/B8  
GSM: 900/1800MHz

### Variant for EMEA/Korea/Thailand

#### SC20-E:

LTE FDD: B1/B3/B5/B7/B8/B20  
LTE TDD: B38/B40/B41  
WCDMA: B1/B5/B8  
GSM: 850/900/1800/1900MHz

### Variant for North America

#### SC20-A:

LTE FDD: B2/B4/B5/B7/B12/B13/B25/B26  
WCDMA: B1/B2/B4/B5/B8  
GSM: 850/1900MHz

### Variant for Australia/Taiwan/Brazil

#### SC20-AU:

LTE FDD: B1/B3/B5/B7/B8/B28  
LTE TDD: B40  
WCDMA: B1/B2/B5/B8  
GSM: 850/900/1800/1900MHz

### Variant for Japan

#### SC20-J:

LTE FDD: B1/B3/B8/B18/B19/B26  
LTE TDD: B41  
WCDMA: B1/B6/B8/B19

### Data

#### LTE:

LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL)  
LTE TDD: Max 130Mbps (DL)/Max 35Mbps (UL)

#### UMTS:

DC-HSDPA: Max 42Mbps (DL)  
HSUPA: Max 5.76Mbps (UL)  
WCDMA: Max 384Kbps (DL/UL)

#### TD-SCDMA:

Max 4.2Mbps (DL)/Max 2.2Mbps (UL)

#### CDMA2000:

EVDO: Max 3.1Mbps (DL)/Max 1.8Mbps (UL)  
1X Advanced: Max 307.2Kbps (DL/UL)

#### GSM:

GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL)  
EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL)

### Voice

#### Speech Codec Modes:

HR/FR/EFR/AMR/AMR-WB

#### Echo Arithmetic:

Echo Cancellation/Noise Reduction

### VoLTE:

Digital Audio and VoLTE (Voice over LTE)

### Interfaces

#### LCM:

4-lane MIPI\_DSI, up to 1.5Gbps/lane  
HD (720P) @60fps

#### Camera:

Use MIPI\_CSI, up to 1.5Gbps/lane  
Support Two Cameras:  
2-lane MIPI\_CSI for Rear Camera, up to 8MP  
1-lane MIPI\_CSI for Front Camera, up to 2MP

#### Touch Panel:

Capacitive Touch Panel

**Audio:** MP3, AAC+, eAAC, AMR-NB, -WB, G.711, WMA 9/10 Pro

#### Video:

Encode: 30fps 720P (H.264), 30fps WVGA (MPEG-4/VP8)

Decode: 30fps 1080P (H.264/MPEG-4/VP8/H.265 DivX4/5/6), 30fps WVGA (H.263)

**USB 2.0:** High Speed up to 480Mbps, Support OTG

**(U)SIM Interface:** × 2, 1.8V/2.95V

**I2C:** × 3

**GPIO:** × 25

**UART:** × 2 (high speed UARTs)

**SD Card:** × 1 (3.0, 4-bit SDIO)

**Keypad:** PWRKEY, VOL UP, VOL DOWN

**ADC:** × 3 (BAT\_SNS, BAT\_THERM, ADC)

**Antenna:** 4 Solder Pads for Main/Diversity/GNSS/Wi-Fi&BT Antenna, Respectively

### Enhanced Features

#### OS:

Android 6.0/7.1

#### WLAN:

2.4G/5.8G, 802.11 a/b/g/n (SC20-E/-A/-AU/-J, SC20-CE R1.1)

2.4G, 802.11 b/g/n (SC20-CE R1.0)

#### Bluetooth:

BT2.1+EDR/3.0/4.1 LE

#### GNSS:

GPS/GLONASS/BeiDou

#### (U)SIM Card Detection

DL MIMO 2 × 2, Support Rx-diversity

Firmware Upgrade via USB

### Electrical Characteristics

#### Output Power:

Class 3 (23dBm±2dB) for LTE FDD Bands

Class 3 (23dBm±2dB) for LTE TDD Bands

Class 3 (24dBm+1/-3dB) for WCDMA Bands

Class 2 (24dBm+1/-3dB) for TD-SCDMA Bands

Class 3 (24dBm+3/-1dB) for CDMA BC0

Class 4 (33dBm±2dB) for GSM850 and EGSM900

Class 1 (30dBm±2dB) for DCS1800 and PCS1900

Class E2 (27dBm±3dB) for GSM850 and EGSM900  
8-PSK

Class E2 (26dBm±3dB) for DCS1800 and PCS1900

8-PSK

### Consumption:

20uA @Power off

3mA @Sleep, Typ.

### Sensitivity:

LTE FDD B1: -102dBm LTE TDD B39: -101dBm

LTE FDD B2: -101dBm LTE TDD B40: -100dBm

LTE FDD B3: -101dBm LTE TDD B41: -100dBm

LTE FDD B4: -101dBm WCDMA B1: -110dBm

LTE FDD B5: -101dBm WCDMA B2: -110dBm

LTE FDD B7: -100dBm WCDMA B4: -110dBm

LTE FDD B8: -101dBm WCDMA B5: -110dBm

LTE FDD B12: -100dBm WCDMA B6: -110dBm

LTE FDD B13: -100dBm WCDMA B8: -110dBm

LTE FDD B18: -100dBm WCDMA B19: -110dBm

LTE FDD B19: -100dBm TD-SCDMA: -108dBm

LTE FDD B20: -99dBm CDMA/EVDO: -109dBm

LTE FDD B25: -99dBm GSM 850: -109dBm

LTE FDD B26: -99dBm GSM 900: -109dBm

LTE FDD B28: -99dBm GSM 1800: -109dBm

LTE TDD B38: -100dBm GSM 1900: -109dBm

### General Features

Supply Voltage: 3.5V~4.2V, 3.8V Typ.

3GPP E-UTRA Release 11

Bandwidth: 1.4/3/5/10/15/20MHz

Temperature Range: -40°C ~ +75°C

Dimensions: 40.5mm × 40.5mm × 2.8mm

LCC Package

Weight: Approx. 9.8g

### Approvals

RoHS Compliant

CE/GCF\* (Europe)

FCC/PTCRB\*/AT&T\*/Verizon\* (North America)

RCM\*/Telstra\* (Australia)

JATE/TELEC (Japan)

CCC/SRRC/CTA (China)

\* Under Development