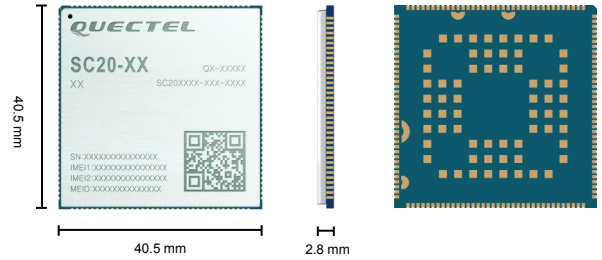




# Quectel SC20 Series

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



SC20 series is Quectel's new generation of multi-mode Smart LTE Cat 4 module. It contains five variants with built-in Android OS: SC20-E, SC20-A, SC20-AU, SC20-J and Wi-Fi & BT only version SC20-W. Additionally, it contains five variants with built-in Yocto Linux OS: SC20-EL, SC20-AL, SC20-AUL, SC20-JL and Wi-Fi & BT only version SC20-WL.

SC20 series module delivers maximum data rates of up to 150 Mbps downlink and 50 Mbps uplink based on LTE network, and supports wireless communication via IEEE 802.11a/b/g/n and BT 4.2 LE. It is an ideal solution for both industrial and consumer applications requiring high data rates and high-speed Internet access. The module is backward-compatible with existing EDGE and GSM/GPRS networks, ensuring connection even in remote areas devoid of 3G or 4G coverage.

SC20 series module 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, Galileo 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 MID, PND, POS, router, data card, in-vehicle solutions, smartphone, digital signage, security and industrial PDA.



### Key Features

- ✓ Integration of Android OS or Yocto Linux OS, Wi-Fi, Bluetooth and GNSS
- ✓ Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- ✓ MIMO technology which 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 + LGA package which ensures reliable connectivity with applications



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



Android OS



Yocto Linux OS



IEEE 802.11  
a/b/g/n



BT 4.2  
(BR/EDR + BLE)



GPS/GLONASS/  
Galileo/BeiDou



Powerful Multimedia  
Functions



USB 2.0 High Speed  
Interface



LCC + LGA  
Package

Version: 1.9 | Status: Released

# Quectel SC20 Series

LTE Cat 4	SC20-E/-EL	SC20-A/-AL	SC20-AU/-AUL	SC20-J/-JL	SC20-W/-WL
<b>Region/Operator</b>	EMEA/Korea/Thailand/India	North America	Australia/Taiwan/Brazil	Japan	Global
<b>OS</b>	SC20-E: Android SC20-EL: Yocto Linux	SC20-A: Android SC20-AL: Yocto Linux	SC20-AU: Android SC20-AUL: Yocto Linux	SC20-J: Android SC20-JL: Yocto Linux	SC20-W: Android SC20-WL: Yocto Linux
<b>eMCP (LPDDR3 + eMMC)</b>	SC20-E: 1 GB + 8 GB 2 GB + 16 GB SC20-EL: 1 GB + 8 GB	SC20-A: 1 GB + 8 GB 2 GB + 16 GB SC20-AL: 1 GB + 8 GB	SC20-AU: 1 GB + 8 GB 2 GB + 16 GB SC20-AUL: 1 GB + 8 GB	SC20-J: 1 GB + 8 GB 2 GB + 16 GB SC20-JL: 1 GB + 8 GB	SC20-W: 1 GB + 8 GB 2 GB + 16 GB SC20-WL: 1 GB + 8 GB
<b>Dimensions (mm)</b>	40.5 × 40.5 × 2.8	40.5 × 40.5 × 2.8	40.5 × 40.5 × 2.8	40.5 × 40.5 × 2.8	40.5 × 40.5 × 2.8
<b>Temperature Range</b>					
<b>Operating Temperature</b>	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C
<b>Frequency Bands</b>					
<b>LTE-FDD</b>	B1/B3/B5/B7/B8/B20	B2/B4/B5/B7/B12/B13/B25/B26	B1/B3/B5/B7/B8/B28	B1/B3/B8/B18/B19/B26	/
<b>LTE-TDD</b>	B38/B40/B41 <sup>①</sup>	/	B40	B41	/
<b>WCDMA</b>	B1/B5/B8	B1/B2/B4/B5/B8	B1/B2/B5/B8	B1/B6/B8/B19	/
<b>GSM/EDGE</b>	850/900/1800/1900 MHz	850/1900 MHz	850/900/1800/1900 MHz	/	/
<b>BT</b>	BT 2.1+EDR/3.0/4.1 LE/4.2 BLE	BT 2.1+EDR/3.0/4.1 LE/4.2 BLE	BT 2.1+EDR/3.0/4.1 LE/4.2 BLE	BT 2.1+EDR/3.0/4.1 LE/4.2 BLE	BT 2.1+EDR/3.0/4.1 LE/4.2 BLE
<b>Wi-Fi</b>	2.4/5 GHz, 802.11a/b/g/n	2.4/5 GHz, 802.11a/b/g/n	2.4/5 GHz, 802.11a/b/g/n	2.4/5 GHz, 802.11a/b/g/n	2.4/5 GHz, 802.11a/b/g/n
<b>Bandwidth</b>	1.4/3/5/10/15/20 MHz	1.4/3/5/10/15/20 MHz	1.4/3/5/10/15/20 MHz	1.4/3/5/10/15/20 MHz	/
<b>GNSS</b>	GPS/BeiDou/GLONASS or GPS/BeiDou/Galileo	GPS/BeiDou/GLONASS or GPS/BeiDou/Galileo	GPS/BeiDou/GLONASS or GPS/BeiDou/Galileo	GPS/BeiDou/GLONASS or GPS/BeiDou/Galileo	/
<b>Certifications<sup>②</sup></b>					
<b>Carrier</b>	/	<b>America:</b> Verizon/AT&T/T-Mobile <sup>③</sup> /Sprint <sup>④</sup> <b>Canada:</b> Rogers/Telus <sup>③</sup>	<b>Australia:</b> Telstra	<b>Japan:</b> NTT DOCOMO/KDDI/SoftBank*	/
<b>Regulatory</b>	<b>Global:</b> GCF <b>Europe:</b> CE <b>South Korea:</b> KC <b>Thailand:</b> NBTC	<b>Global:</b> GCF <b>North America:</b> PTCRB <b>America:</b> FCC <b>Canada:</b> IC	<b>Global:</b> GCF <b>Europe:</b> CE <b>Brazil:</b> Anatel <b>Taiwan/China:</b> NCC <b>Australia/New Zealand:</b> RCM	<b>Japan:</b> JATE/TELEC	<b>Europe:</b> CE <b>America:</b> FCC <b>Canada:</b> IC <b>Brazil:</b> Anatel <b>Japan:</b> JATE/TELEC <b>Australia/New Zealand:</b> RCM
<b>Others</b>	RoHS/REACH	RoHS/REACH	RoHS/REACH	RoHS/REACH	RoHS/REACH
<b>Data Transmission</b>					
<b>LTE-FDD Data Rate (Mbps)</b>	150 (DL)/50 (UL)	150 (DL)/50 (UL)	150 (DL)/50 (UL)	150 (DL)/50 (UL)	/
<b>LTE-TDD Data Rate (Mbps)</b>	130 (DL)/30 (UL)	/	130 (DL)/30 (UL)	130 (DL)/30 (UL)	/
<b>DC-HSPA+ Data Rate (Mbps)</b>	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	/
<b>WCDMA Data Rate (kbps)</b>	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	/
<b>EDGE Data Rate (kbps)</b>	296 (DL)/236.8 (UL)	296 (DL)/236.8 (UL)	296 (DL)/236.8 (UL)	/	/
<b>GPRS Data Rate (kbps)</b>	107 (DL)/85.6 (UL)	107 (DL)/85.6 (UL)	107 (DL)/85.6 (UL)	/	/
<b>Enhanced Features</b>					
<b>3GPP E-UTRA</b>	Release 10	Release 10	Release 10	Release 10	/
<b>Rx-diversity</b>	●	●	●	●	/
<b>DL MIMO 2 × 2</b>	●	●	●	●	/
<b>(U)SIM Card Detection</b>	●	●	●	●	/
<b>Firmware Upgrade via USB</b>	●	●	●	●	●

#### Notes:

- ① B41 of SC20-E/-EL does not support full band and therefore is not certified by CE.
- ② The certification status listed here are only for Android-version SC20 series modules.
- ③ T-Mobile/Telus for data-only version has been done and that for voice version is TBD.
- ④ means TBD.
- \* means ongoing.
- means supported.

# Quectel SC20 Series

## General features

<b>Supply Voltage Range</b>	3.5–4.2 V, Typ. 3.8 V
<b>Power Consumption</b>	20 $\mu$ A @ power off Typ. 3 mA @ sleep
<b>Weight</b>	Approx. 9.8 g
<b>Package</b>	LCC + LGA
<b>Interfaces</b>	
<b>LCM</b>	4-lane MIPI_DSI, up to 1.5 Gbps/lane, HD (720P) @ 60 fps
<b>Camera</b>	Uses MIPI_CSI, up to 1.5 Gbps/lane, supports two cameras: <ul style="list-style-type: none"><li>• 2-lane MIPI_CSI for rear camera, up to 8 MP</li><li>• 1-lane MIPI_CSI for front camera, up to 2 MP</li></ul>
<b>Touch Panel</b>	Capacitive touch panel
<b>UART</b>	× 2, UART1 supports hardware flow control, up to 4 Mbps
<b>USB 2.0</b>	<ul style="list-style-type: none"><li>• Supports high speed mode, up to 480 Mbps</li><li>• Supports USB 2.0 OTG, USB OTG + charge and USB to Ethernet functions</li></ul>
<b>(U)SIM</b>	× 2, supports 1.8/3 V (U)SIM cards, (U)SIM card detection function and DSDS
<b>Audio</b>	Analog channels: <ul style="list-style-type: none"><li>• Two inputs: MIC1, MIC2</li><li>• Three outputs: speaker, earpiece, headphone</li></ul>
<b>Video</b>	<ul style="list-style-type: none"><li>• Encoding: 720P (H.264) @ 30 fps; WVGA (MPEG-4/VP8) @ 30 fps</li><li>• Decoding: 1080P (H.264/MPEG-4/VP8/H.265/DivX4/5/6) @ 30 fps; WVGA (H.263) @ 30 fps</li></ul>
<b>GPIO</b>	× 25
<b>SD Card</b>	× 1, SD 3.0, 4-bit SDIO
<b>I2C</b>	× 3
<b>General-purpose ADC</b>	× 1
<b>SPI</b>	× 1, multiplexed from GPIO
<b>PWM</b>	× 1
<b>Motor Drive</b>	× 1
<b>Keypad</b>	PWRKEY, KEY_VOL_UP, KEY_VOL_DOWN
<b>Antenna</b>	× 4, main antenna, Rx-diversity antenna, GNSS antenna and Wi-Fi/BT antenna interface respectively

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