

# Quectel EC20

## Mini PCIe

### Multi-mode LTE Module



Cat3  
Max. 100Mbps(DL)  
Max. 50Mbps(UL)



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



Mini PCIe Package



Embedded Abundant  
Protocols



eCall



GLONASS+GPS



USB 2.0 High Speed  
Compliant Interface



USB Drivers



Quectel Enhanced  
AT Commands



## Key Benefits

- Worldwide LTE and UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- Standard form factor ideal for manufacturers to easily integrate wireless connectivity into their devices
- MIMO technology meets demands for data rate and link reliability in modem wireless communication systems
- GNSS receiver available for applications requiring fast and accurate fixes in any environments
- Reference designs, evaluation tools and timely technical support minimize design-in time and development efforts

EC20 Mini PCIe adopts the standard PCI Express® MiniCard form factor (miniPCIe) and provides global network coverage on the connectivity of LTE. It delivers 50Mbps-up and 100Mbps-down data rates on LTE FDD networks and can also be fully backward compatible with existing UMTS and GSM/GPRS networks. It contains two variants EC20 Mini PCIe-A and EC20 Mini PCIe-E, which makes it backward-compatible with existing EDGE and GSM/GPRS networks to ensure that it can connect even in remote areas devoid of 4G or 3G coverage.

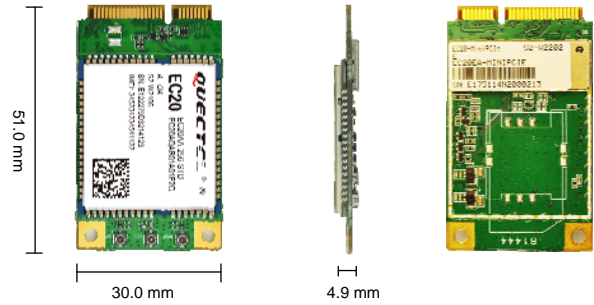
EC20 Mini PCIe supports Rx diversity which allows the end-device to be equipped with two distinct cellular antennas improving the quality and reliability of the wireless connectivity. Leveraging the Multiple-input multiple-output (MIMO) technology, its antennas at each end of the communications circuit are combined to minimize errors and optimize data speed. It also combines high-speed wireless connectivity with embedded multi-constellation high-sensitivity positioning GPS+GLONASS receiver.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows XP, Windows Vista, Windows 7, Windows 8/8.1, Linux, Android/eCall) extend the applicability of the module to a wide range of M2M applications such as CPE, router, data card, rugged tablet, automotive, security and industry PDA.

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### Multi-mode LTE Module



#### General Features

<b>Frequency Bands</b>	<b>EC20-E Mini PCIe</b> FDD LTE:B1/B3/B5/B7/B8/B20 UMTS:B1/B5/B8 GSM:850/900/1800/1900MHz <b>EC20-A Mini PCIe</b> FDD LTE:B2/B4/B5/B12/B17 UMTS:B2/B4/B5 GSM:850/1900MHz
<b>LTE Version</b>	3GPP E-UTRA Release 9
<b>Bandwidth</b>	1.4/3/5/10/15/20MHz
<b>Antenna</b>	DL MIMO 2x2, supports Rx-diversity, GNSS
<b>Supply Voltage Range</b>	3.0V~ 3.6V , 3.3V Typ.
<b>Operation Temperature</b>	-40 °C ~ +85 °C
<b>Dimensions</b>	51.0mmx30.0mmx4.9mm
<b>Weight</b>	Approx. 9.5g
<b>Control via AT commands</b>	3GPP TS27.007 and enhanced AT Commands

#### Specifications

<b>LTE</b>	LTE-FDD Max 100Mbps (DL) Max 50Mbps (UL)
<b>DC-HSPA+</b>	Max 42Mbps(DL) Max 5.76Mbps(UL)
<b>Data UMTS</b>	Max 384Kbps (DL) Max 384Kbps(UL)
<b>EDGE</b>	Max 236.8Kbps(DL) Max 236.8Kbps
<b>GPRS</b>	Max 85.6Kbps(DL) Max 85.6Kbps(UL)
<b>Voice Speech Codec Modes</b>	HR,FR,EFR,AMR,AMR-WB
<b>Echo Arithmetic</b>	Echo Cancellation Noise Reduction
<b>eCall*</b>	Accident, Emergency Services
<b>VoLTE*</b>	Digital Audio and VoLTE( Voice over LTE) (Optional)
<b>Protocols*</b>	TCP/UDP*/PPP/FTP*/HTTP*/SMTP*/MMS*/ SSL*

#### Special Features

<b>USB Serial</b>	Windows XP, Windows Vista, Windows 7, Windows 8/8.1, Windows CE5.0*/6.0*/7.0*, Linux 2.6 or later, Android 2.3/4.0/4.2/4.4
<b>Drivers RIL</b>	Windows CE6.0*,Windows Mobile 6.1*/6.5*, Android 2.3/4.0/4.2/4.4
<b>NIDS</b>	Windows XP, Windows Vista, Windows 7, Windows8,Windows CE5.0*/6.0*/7.0*
<b>DFOTA*</b>	
<b>Firmware Update</b>	Firmware Update via USB
<b>GNSS</b>	GPS/GLONASS (Optional)

#### Electrical Characteristics

<b>Output Power</b>	Class 3 (23dBm ±2dB) for LTE Class 3 (24dBm +1/-3dB) for UMTS Class E2 (27dBm ±3dB) for EDGE 850/900MHz Class E2 (26dBm ±3dB) for EDGE 1800/1900MHz Class 4 (33dBm ±2dB) for GSM 850/900MHz Class 1 (30dBm ±2dB) for GSM 1800/1900MHz
<b>Consumption</b>	5.5mA@Sleep.Typ
<b>Sensitivity</b>	LTE B1:-97dBm(20M) LTE B3:-96dBm(20M) LTE B5:-99dBm(10M) LTE B7:-97dBm(20M) LTE B8:-98dBm(20M) LTE B20:-96dBm(20M) UMTS B1:-110dBm UMTS B5:-112dBm UMTS B8:-111dBm GSM 850:-111dBm GSM 900:-110dBm GSM 1800:-109dBm GSM 1900:-109dBm

#### Interfaces

<b>USB 2.0 Device</b>	High Speed, 480Mbps Device Interface, Full Speed (12Mbps) Compliant
<b>PCM</b>	×1.Digital Audio through PCM Interface (Optional)
<b>USIM</b>	1.8V/3V
<b>LED_WWAN#</b>	Network Status
<b>W_DISABLE#</b>	Disable RF Function
<b>UART</b>	×1UART
<b>PERST#</b>	Reset Pin

\* Under development

