

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



LTE

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.

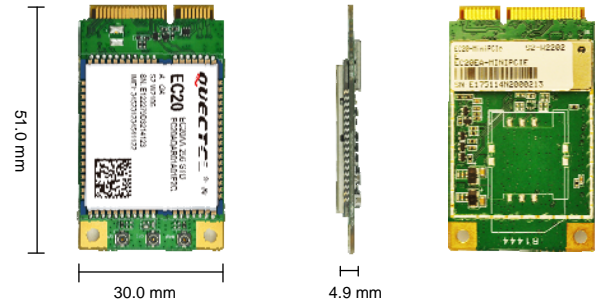
EC20 Mini PCIe supports Rx diversity which allows the end-device to be equipped with two distinct cellular antennas improving the quality and reliability of the wireless connectivity. Leveraging the Multiple-input multiple-output (MIMO) technology, its antennas at each end of the communications circuit 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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General Features

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

Specifications

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

Special Features

| | |
|------------------------|--|
| USB Serial | 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 |
| Drivers RIL | Windows CE6.0*,Windows Mobile 6.1*/6.5*, Android 2.3/4.0/4.2/4.4 |
| NIDS | Windows XP, Windows Vista, Windows 7, Windows8,Windows CE5.0*/6.0*/7.0* |
| DFOTA* | |
| Firmware Update | Firmware Update via USB |
| GNSS | GPS/GLONASS (Optional) |

Electrical Characteristics

| | |
|---------------------|--|
| Output Power | 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 |
| Consumption | 5.5mA@Sleep.Typ |
| Sensitivity | 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

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

* Under development