

Quectel EC20 Mini PCIe

Multi-mode LTE Module



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 three variants: EC20-E Mini PCIe, EC20-A Mini PCIe and EC20-C Mini PCIe, 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 7/8/8.1/10, 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.



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 environment
- ✓ Reference designs, evaluation tools and timely technical support minimize design-in time and development efforts



LTE Cat.3
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
Interface



USB Drivers

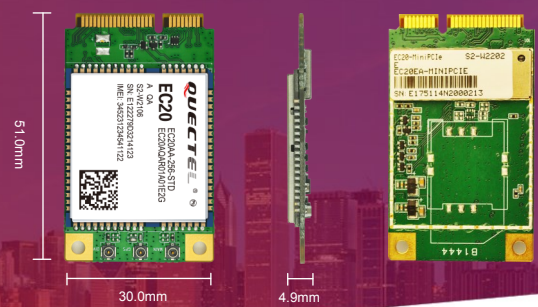


Quectel Enhanced
AT Commands

Quectel

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Multi-mode LTE Module



Variant for EMEA/Korea/Thailand

EC20-E Mini PCIe:

LTE FDD: B1/B3/B5/B7/B8/B20

UMTS: B1/B5/B8

GSM: 850/900/1800/1900MHz

Variant for North America

EC20-A Mini PCIe:

LTE FDD: B2/B4/B5/B12/B17

UMTS: B2/B4/B5

GSM: 850/1900MHz

Variant for China

EC20-C Mini PCIe:

LTE FDD: B1/B3/B8

LTE TDD: B38/B39/B40/B41

TDSCDMA B34/B39

WCDMA: B1/B8

GSM: 900/1800MHz

Data

LTE:

LTE FDD:

Max 100Mbps (DL)/Max 50Mbps (UL)

LTE TDD:

Max 61Mbps (DL)/Max 18Mbps (UL)

DC-HSPA+:

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

UMTS:

Max 384Kbps (DL)/Max 384Kbps (UL)

EDGE:

Max 236.8Kbps (DL)/Max 236.8Kbps (UL)

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

Interfaces

USB 2.0 with High Speed up to 480Mbps

Digital Audio through PCM (Optional)

1.8V/3.0V (U)SIM Card Interface

LED_WWAN# for Network Status Indication

W_DISABLE# for Disabling RF Function

UART × 1

PERST# for Module Resetting

Enhanced Features

eCall*

DFOTA: Delta Firmware Upgrade over the Air

(U)SIM Card Detection

GNSS: GPS/GLONASS

Firmware Update via USB

Antenna: DL MIMO 2 × 2, Support Rx-diversity/

GNSS

Electrical Characteristics

Output Power:

Class 3 (23dBm±2dB) for LTE FDD

Class 3 (23dBm±2dB) for LTE TDD

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

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

Class E2 (27dBm±3dB) for EDGE 850/900MHz

Class E2 (26dBm±3dB) for EDGE 1800/1900MHz

Class 3 (24dBm+6/-1dB) for CDMA BC0

Class 4 (33dBm±2dB) for GSM 850/900MHz

Class 1 (30dBm±2dB) for GSM 1800/1900MHz

Consumption:

5.5mA @Sleep, Typ.

Sensitivity:

FDD B1: -101dBm (10M)

FDD B2: -100.5dBm (10M)

FDD B3: -101dBm (10M)

FDD B4: -101.5dBm (10M)

FDD B5: -101dBm (10M)

FDD B7: -99dBm (10M)

FDD B8: -102dBm (10M)

FDD B12: -102dBm (10M)

FDD B17: -102dBm (10M)

FDD B20: -100dBm (10M)

TDD B38: -100dBm (10M)

TDD B39: -100.5dBm (10M)

TDD B40: -100dBm (10M)

TDD B41: -99.5dBm (10M)

WCDMA B1: -110dBm

WCDMA B2: -111dBm

WCDMA B4: -111dBm

WCDMA B5: -112dBm

WCDMA B8: -111dBm

TDSCDMA B34: -109dBm

TDSCDMA B39: -109dBm

CDMA BC0: -107dBm

GSM 850: -111dBm

GSM 900: -110dBm

GSM 1800: -109dBm

GSM 1900: -110dBm

Software Features

USB Driver:

Windows XP, Windows Vista,

Windows 7/8/8.1/10, Windows CE 5.0/6.0/7.0*,

Linux 2.6/3.x/4.1, Android 4.x/5.x/6.0

RIL Driver:

Android 4.x/5.x/6.0

NDIS Driver:

Windows 7/8/8.1/10, Linux 2.6/3.x/4.1

Protocols:

TCP/UDP/PPP/FTP/FTPS/NDIS/HTTP/HTTPS/

SMTP/SMTPS/MMS*/NTP/PING/DTMF/FILE/

NITZ/CMUX/QMI

General Features

3GPP E-UTRA Release 9

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

Temperature Range: -40°C ~ +80°C

Dimensions: 51.0mm x 30.0mm x 4.9mm

Mini PCIe Package

Approx. 9.8g

Supply Voltage: 3.0V~3.6V, 3.3V Typ.

3GPP TS27.007 and Enhanced AT Commands

Approvals

RoHS Compliant

CE/GCF (Europe)

DoC (Russia)

FCC (North America)

CCC/SRRC/NAL (China)

KC/SKT/KT* (Korea)

NCC (Taiwan)

ICASA (South Africa)

Anatel (Brazil)

* Under Development