

# Quectel UC20 Mini PCIe

## UMTS/HSPA+ Module



Quectel UC20 Mini PCIe is a powerful UMTS/HSPA+ module featuring a maximum data rate of 14.4Mbps downlink and 5.76Mbps uplink. The module is designed to provide customers with global network coverage on the connectivity of UMTS/HSPA+, and it is also fully backward compatible with existing EDGE and GSM/GPRS networks.

The compact profile of 30.0mm × 50.95mm × 4.9mm in standard Mini PCIe form factor and the high integration level enable integrators and developers to easily design their applications and truly benefit from the low power consumption and convenient Plug and Play function.

With an extended operation temperature range from -40°C up to +80°C, UC20 Mini PCIe functions reliably in extreme environments, and thus it is ideal to be used in outdoor or indoor sites devoid of cooling and heating systems.

A rich set of Internet protocols, industry-standard interfaces (USB/UART/PCM/LED\_WWAN#/GNSS) and abundant functions (USB serial drivers for Windows 7/8/8.1/10, Windows CE, Linux, Android) extend the applicability of the module to a wide range of commercial and industrial M2M applications.



### Key Benefits

- ✓ Worldwide UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- ✓ Standard Mini PCIe form factor maximizes the convenience for customers to design and use
- ✓ High-quality data and image transmission even in harsh environment
- ✓ High sensitivity GNSS receiver available for applications requiring fast and accurate fixes in any location
- ✓ Fast time-to-market: reference designs, evaluation tools and timely technical support minimize design-in time and development efforts
- ✓ Robust mounting and interfaces



Dual-mode & Multi-band  
for UMTS & GSM



Max 14.4Mbps (DL)  
Max 5.76Mbps (UL)



Mini PCIe  
Package



Embedded Abundant  
Protocols



GPRS/EDGE



DFOTA



GLONASS+GPS



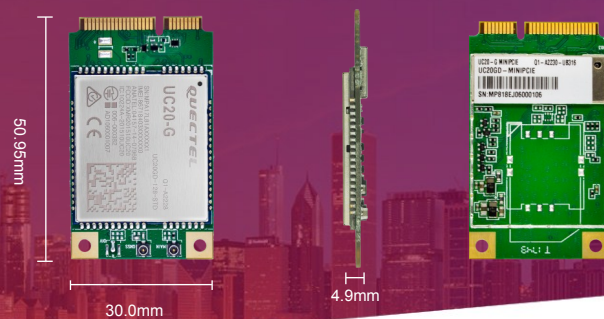
eCall



Audio (Optional)

# Quectel UC20 Mini PCIe

## UMTS/HSPA+ Module



### Variant for the Global

#### UC20-G Mini PCIe:

800/850/900/1900/2100MHz @UMTS

850/900/1800/1900MHz @GSM

### Data

HSDPA: Max. 14.4Mbps (DL)

HSUPA: Max. 5.76Mbps (UL)

WCDMA: Max.384Kbps (DL)/Max.384Kbps (UL)

EDGE: Max. 236.8Kbps (DL)/Max. 236.8Kbps (UL)

GPRS: Max. 85.6Kbps (DL)/ Max. 85.6Kbps (UL)

CSD: Max. 14.4Kbps (DL)/ Max. 14.4Kbps (UL)

### Voice

#### Speech Codec Modes:

HR/FR/EFR/AMR/AMR-WB

#### Echo Arithmetic:

Echo Cancellation/Noise Reduction

### SMS

Point-to-point MO and MT

SMS Cell Broadcast

Text and PDU Mode

### Interfaces

UART × 1

USB × 1 : USB 2.0 with High Speed up to 480Mbps

(U)SIM × 1 : 1.8V/ 3.0V (U)SIM Card

PCM and I2C Interfaces: Digital Audio through PCM Interface (Optional)

LED\_WWAN# for Network Status Indication

W\_DISABLE# for RF Function Control

PERST# for Module Resetting

### Enhanced Features

eCall

GNSS (GPS+GLONASS)

Firmware Update: via USB or UART Interface

QuecFile: File System Access and Management

FOTA: QuecFOTA/DFOTA

### GNSS Features

Qualcomm gpsOne Gen8 GNSS Receiver

SBAS (WAAS/EGNOS/MSAS)

Support XTRA™ Technology

Accuracy <2.5m CEP-50 @Open Sky

TTFF@-130dBm with XTRA™:

Cold/Warm/Hot Start: Typ. 22s/3s/2s

TTFF@-130dBm without XTRA™:

Cold/Warm/Hot Start: Typ. 32s/29s/2.5s

#### Sensitivity with LNA:

Cold Start/Reacquisition/Tracking:

-147dBm/-159dBm/-161dBm

Power Saving Mode: DPO Mode

Dedicated GNSS AT Commands

### Electrical Characteristics

#### Output Power:

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

UMTS800/850/900/1900/2100

Class E2 (27dBm±3dB) for GSM850 and

EGSM900 8-PSK

Class E2 (26dBm+3/-4dB) for DCS1800 and

PCS1900 8-PSK

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

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

#### Consumption (GNSS OFF):

3.4mA @GSM Sleep, DRX=9

2.8mA @WCDMA Sleep, DRX=9

40.0mA @Idle, USB Active

348mA @GSM Voice, Max Power

643mA @WCDMA Voice, Max Power

685mA @GPRS Data, Max Power

578mA @EDGE Data, Max Power

647mA @HSDPA, Max Power

622mA @HSUPA, Max Power

#### Sensitivity:

-110dBm @UMTS Bands

-108.5dBm @GSM850/EGSM900

-108dBm @DCS1800/PCS1900

### Software Features

#### USB Serial Driver:

Windows 7/8/8.1/10,

Windows CE 5.0/6.0/7.0\*,

Linux 2.6/3.x/4.1~4.14

Android 4.x/5.x/6.x/7.x/8.x

RIL Driver: Android 4.x/5.x/6.x/7.x/8.x

NDIS Driver: Windows 7/8/8.1/10

Gobinet Driver: Linux 2.6/3.x/4.1~4.14

QMI\_WWAN Driver: Linux 3.x(3.4 or later)/4.1~4.14

#### Protocols:

TCP/UDP/PPP/FTP/HTTP/SMTP/MMS/SSL

### General Features

Temperature Range: -40°C ~ +80°C

Dimensions: 30.0mm × 50.95mm × 4.9mm

Weight: Approx. 9.8g

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

(U)SIM Card Connector (Optional)

HSPA+: Release 5/6 (UL category 6, DL category 10)

GPRS/EDGE: Multi-slot Class 12 (10 by default)

WCDMA: Release 99

GSM: Release 99/4

3GPP TS 27.007, 3GPP TS 27.005 and Quectel

Enhanced AT Commands

### Approvals

RoHS Compliant

GCF (Global)

CE (Europe)

FCC/PTCRB/AT&T (North America)

RCM (Australia & New Zealand)

IC (Canada)

\* Under Development