

Quectel UC20 Mini PCIe

UMTS/HSPA+ Module



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

The compact profile of 51.0mm × 30.0mm × 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 is ideal for use outdoors or inside at sites that lack of cooling and heating systems.

A rich set of Internet protocols, industry-standard interfaces (USB/UART/PCM/LED_WWAN#/GNSS) and abundant functions (USB drivers for Windows XP, Windows Vista, 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



HSDPA 14.4Mbps
HSUPA 5.76Mbps



Mini PCIe
Package



Embedded Abundant
Protocols



eCall



Audio (Optional)



USB Drivers



Quectel Enhanced
AT Commands



GLONASS+GPS



GPRS/EDGE
Multi-slot Class 12



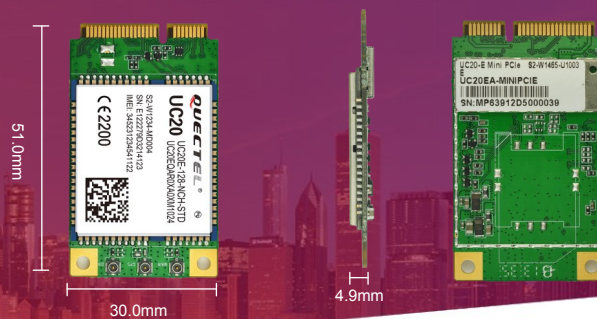
Extended Temperature
Range: -40°C~80°C



Rx-diversity

Quectel UC20 Mini PCIe

UMTS/HSPA+ Module



Variant for Europe

UC20-E Mini PCIe:

900/2100MHz @UMTS

850/900/1800/1900MHz @GSM

Variant for America

UC20-A Mini PCIe:

800/1900 @UMTS, 3G Only

Variant for the Global

UC20-G Mini PCIe:

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

850/900/1800/1900MHz @GSM

Data

HSPA+:

Max. 14.4Mbps (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)

CSD:

14.4Kbps

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

USB 2.0 with High Speed up to 480Mbps

UART

Digital Audio through PCM (Optional)

1.8V/ 3.0V (U)SIM Card Interface

(U)SIM Card Holder

LED_WWAN# for Network Status Indication

W_DISABLE# for Disabling RF Function

PERST# for Module Resetting

Enhanced Features

eCall

GNSS (GPS+GLONASS)

Firmware Update: via USB Interface

QuecFile: File System Access and Management

FOTA: QuecFOTA, DFOTA

QuecLocator: Provide Position Information based

on Cellular Network

GNSS Features

Qualcomm gpsOne Gen8 GNSS Receiver

SBAS (WAAS, EGNOS, MSAS)

Support XTRA™ Technology

Accuracy <1.5m 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 UMTS bands

Class E2 (27dBm±3dB) for EDGE 850/900

Class E2 (26dBm+3/-4dB) for EDGE 1800/1900

Class 4 (33dBm±2dB) for GSM 850/900

Class 1 (30dBm±2dB) for GSM 1800/1900

Consumption (GNSS OFF):

3.1mA @GSM sleep, DRX=9

3.0mA @UMTS sleep, DRX=9

43.0mA @Idle, USB active

365mA @GSM voice, max power

630mA @UMTS voice, max power

681mA @GPRS data, max power

570mA @EDGE data, max power

660mA @HSDPA, max power

640mA @HSUPA, max power

Sensitivity:

-110dBm @UMTS Bands

-108.5dBm @GSM 850/900MHz

-108dBm @GSM 1800/1900MHz

Software Features

USB Driver:

Windows XP/Vista/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

Gobinet Driver:

Linux 2.6/3.x/4.1

QMI_WWAN Driver:

Linux 3.x (3.4 or later)/4.1

Protocols:

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

General Features

Extended Temperature: -40°C ~ +80°C

Dimensions: 51.0mm × 30.0mm × 4.9mm

Approx. 9.8g

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

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

CE/GCF (Europe)

DoC (Russia)

FCC/PTCRB/AT&T (North America)

RCM (Australia)

ICASA (South Africa)

IC (Canada)

* Under Development