



# Quectel EC200U Series (Mini PCIe) LTE Standard Module

Introduction

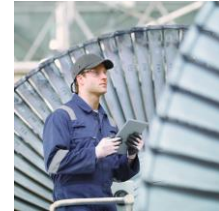
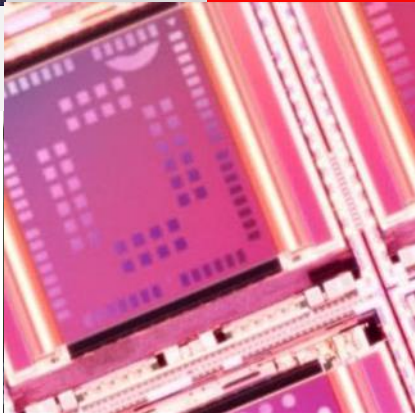
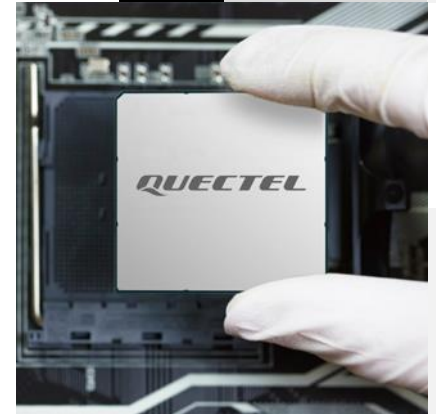
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## Duty of Confidentiality

The Receiving Party shall keep confidential all documentation and information provided by Quectel, except when the specific permission has been granted by Quectel. The Receiving Party shall not access or use Quectel's documentation and information for any purpose except as expressly provided herein. Furthermore, the Receiving Party shall not disclose any of the Quectel's documentation and information to any third party without the prior written consent by Quectel. For any noncompliance to the above requirements, unauthorized use, or other illegal or malicious use of the documentation and information, Quectel will reserve the right to take legal action.

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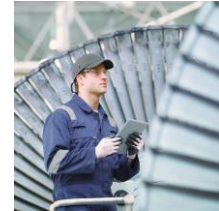
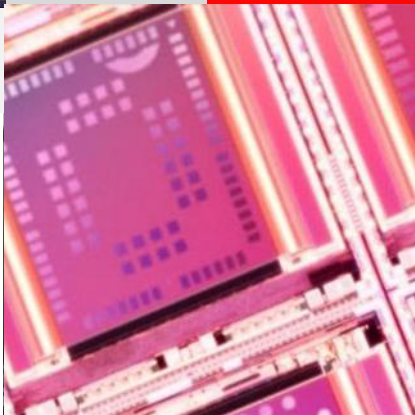
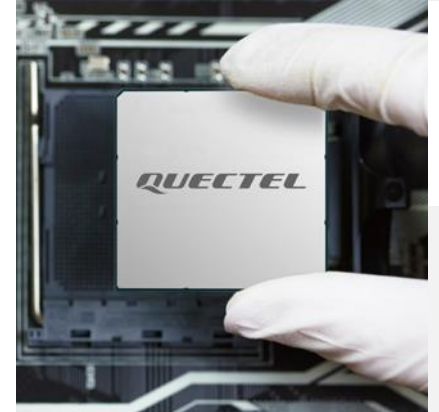
# Highlights & Specifications

Development Timeline

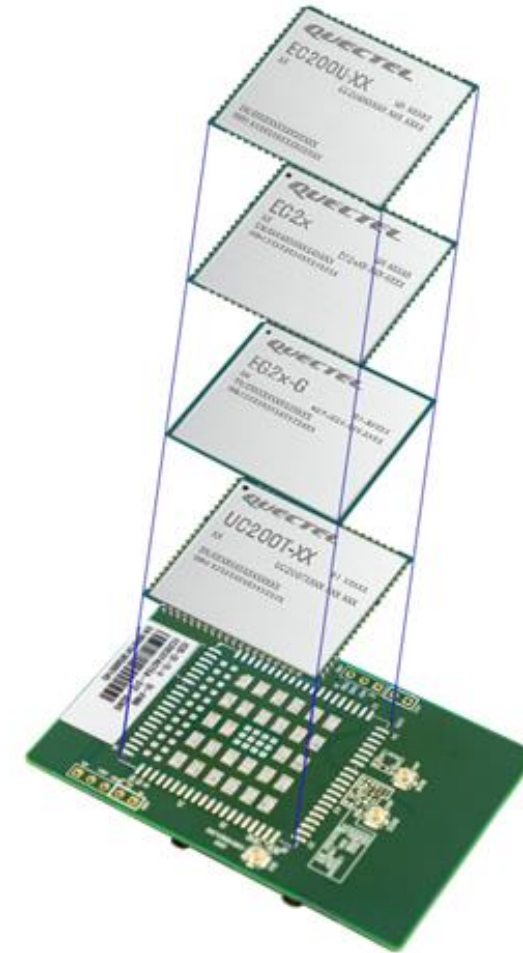
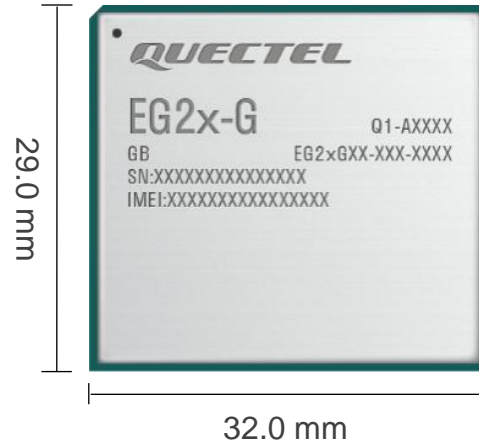
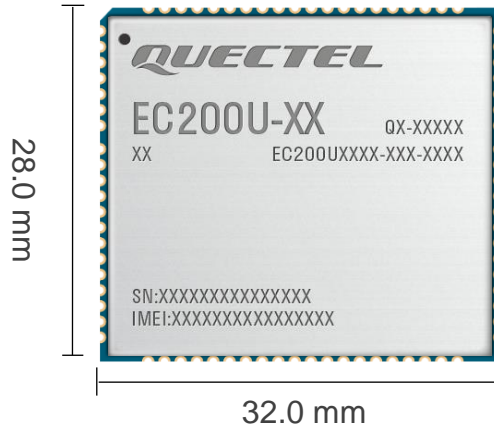
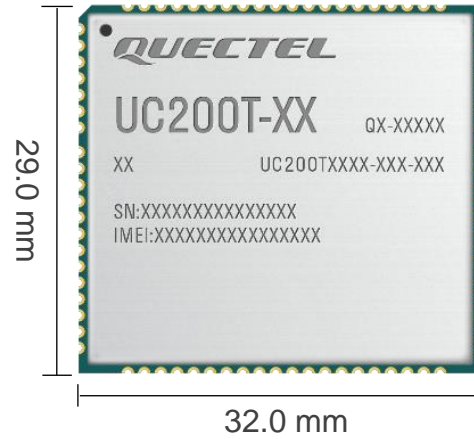
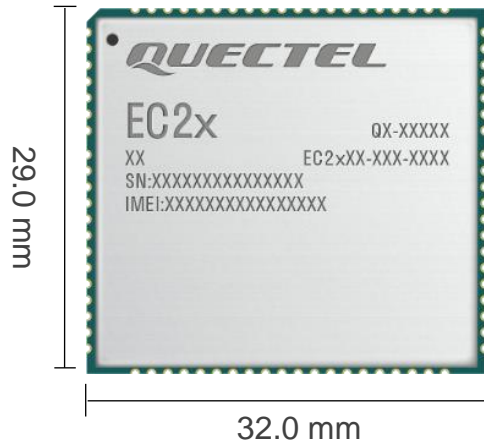
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# EC200U Series Compatible Modules

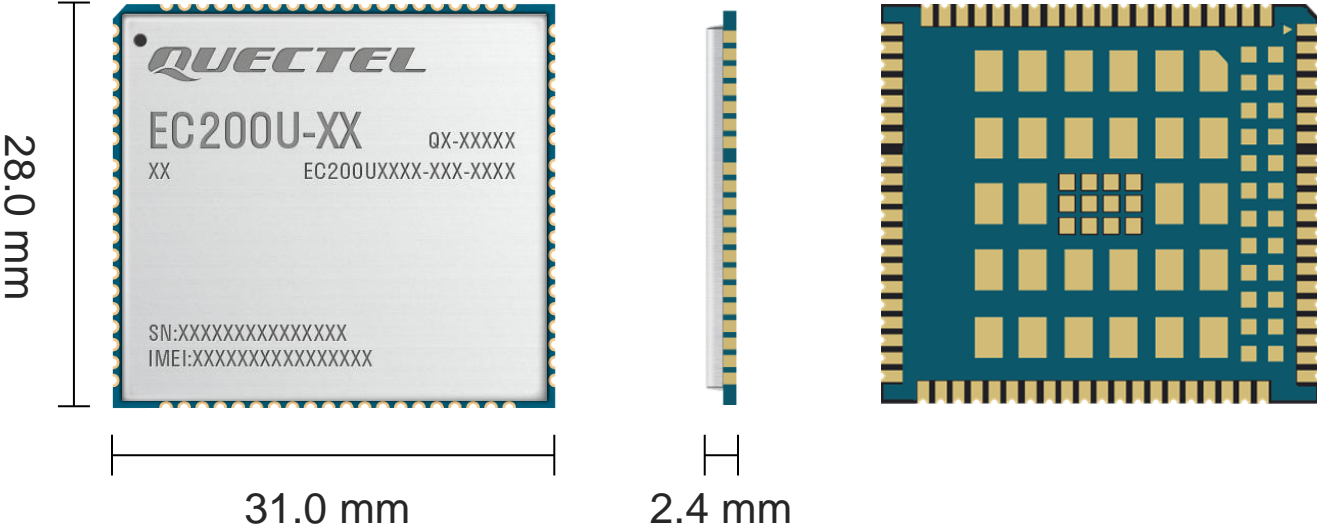


EC200U series module is compatible with Quectel LTE Standard EC2x series/EG2x-G and UMTS/HSPA+ UC200T modules

# EC200U Series Mechanical Dimensions



## Multi-Mode LTE Module



Length: 28.0 mm ( $\pm 0.15$  mm)  
Width: 31.0 mm ( $\pm 0.15$  mm)  
Height: 2.4 mm ( $\pm 0.2$  mm)  
Weight: Approx. 4.3 g

# EC200U Series Specifications



## ■ Multi-Mode LTE Cat 1 Module

28.0 mm × 31.0 mm × 2.4 mm  
10 Mbps DL/ 5 Mbps UL

Variant		EC200U-CN	EC200U-EU	EC200U-AU*
LTE	LTE-FDD	B1/ B3/ B5/ B8	B1/ B3/ B5/ B7/ B8/ B20/ B28	B1/ B2/ B3/ B4/ B5/ B7/ B8/ B28/ B66
	LTE-TDD	B34/ B38/ B39/ B40/ B41	B38/ B40/ B41	B38/ B40/ B41
UMTS	WCDMA	-	-	-
	TD-SCDMA	-	-	-
GSM		B3/ B8	B2/ B3/ B5/ B8	B2/ B3/ B5/ B8
GNSS		Optional	Optional	Optional
QuecLocator®		●	●	●
Analog Audio		●	●	●
Wi-Fi Scan		Optional	Optional	Optional
Bluetooth		Optional	Optional	Optional
VoLTE		●	●	●
FOTA		●	●	●
Power Supply		3.3–4.3 V, typ. 3.8 V	3.3–4.3 V, typ. 3.8 V	3.3–4.3 V, typ. 3.8 V
Region		China/ India	EMEA	Australia/ New Zealand
Certification		<b>Regulatory:</b> SRRC/ NAL/ CCC <b>Carrier:</b> China Telecom/ China Mobile/ China Unicom	<b>Regulatory:</b> CE/ RCM	<b>Regulatory:</b> FCC/ Anatel

# EC200U-EU Mini PCIe Specifications



30.0 mm × 51.0 mm × 4.9 mm  
150 Mbps DL/ 50 Mbps UL

## ■ Multi-Mode LTE Cat 1 Module

Variant		EC200U-EU Mini PCIe
LTE	LTE-FDD	B1/ B3/ B5/ B7/ B8/ B20/ B28
	LTE-TDD	B38/ B40/ B41
GSM		B2/ B3/ B5/ B8
QuecLocator®		●
VoLTE		●
GNSS		Optional
Audio		PCM
Power Supply		3.0–3.6 V, typ. 3.3 V
Region		Europe
Certification		<b>Regulatory:</b> CE/ RCM

● means supported.

# EC200U-CN Mini PCIe-C Specifications

**30.0 mm × 51.0 mm × 3.4 mm**  
**150 Mbps DL/ 50 Mbps UL**

## ■ Multi-Mode LTE Cat 1 Module

Variant		EC200U-CN Mini PCIe-C
LTE	LTE-FDD	B1/ B3/ B5/ B8
	LTE-TDD	B34/ B38/ B39/ B40/ B41
GSM		B3/ B8
QuecLocator®		●
VoLTE		●
GNSS		Optional
Power Supply		3.3–4.3 V, typ 3.8 V
Audio		●
Region		China
Certification		<b>Carrier:</b> China Telecom/ China Mobile/ China Unicom <b>Regulatory:</b> SRRC/ NAL/ CCC

● means supported.



# EC200U Series Highlights



Highlights	Description
Hardware Interfaces	USB 2.0/ PCM/ Analog Audio/ (U)SIM/ UART/ ADC/ I2C/ LCD/ SDIO/ SPI/ Keyboard/ RESET/ PWRKEY/ Antenna Interface(main antenna, GNSS Antenna, Wi-Fi Scan/Bluetooth antenna)
USB Serial Driver	Windows 7/8/8.1/10, Linux 2.6–5.15, Android 4.x–12.x
GNSS Driver	Android 4.x–12.x
RIL Driver	Android 4.x–12.x
USB RNDIS Driver	Windows 7/8/8.1/10, Linux 2.6–5.15
USB ECM Driver	Linux 2.6–5.15
Abundant Protocols	TCP/ UDP/ PPP/ NITZ/ PING/ FILE/ MQTT/ NTP/ HTTP/ HTTPS/ SSL/ FTP/ FTPS/ CMUX/ MMS
Enhanced Features	FOTA (Firmware Upgrade Over-The-Air) (U)SIM card detection SDIO interface for SD card and Wi-Fi
SMS	Text and PDU mode Point-to-point MO and MT SMS cell broadcast SMS storage: ME&SM
QuecOpen®	No need for MCU in peripheral circuits
Audio	Support 1 analog audio + 1 digital audio output GSM: HR/FR/EFR/AMR/AMR-WB Support echo cancellation and noise suppression



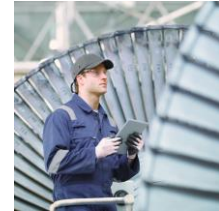
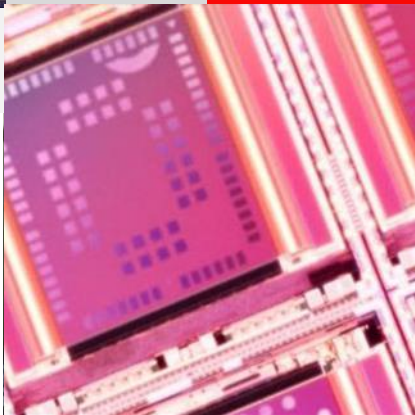
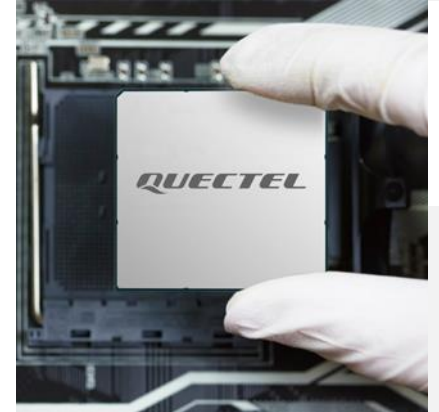
Highlights & Specifications

# Development Timeline

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# EC200U-CN Timeline



2020/2021

## Project Stage

EC200U-CN

MP

## Carrier Certification

China Telecom/ China Mobile/ China Unicom



## Regulatory Certification

SRRC/ NAL/ CCC



## Others

WHQL

# EC200U-EU Timeline



2021

## Project Stage

EC200U-EU

MP

## Regulatory Certification

CE/ RCM



## Others

WHQL

# EC200U-AU\* Timeline



2022

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
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## Project Schedule



ES: Engineering samples ready. Basic functions are available for customers' simple demo purpose.

CS: Commercial samples ready. Stable hardware design and quite stable software design. New software features can be added upon request.

MP: Hardware and software ready for mass production.

## Regulatory Certification

FCC



Anatel



## Others

WHQL

“\*” means under development.



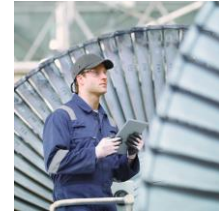
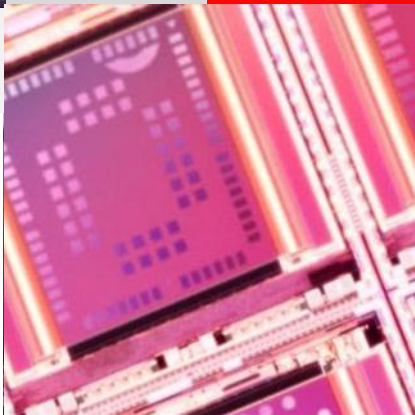
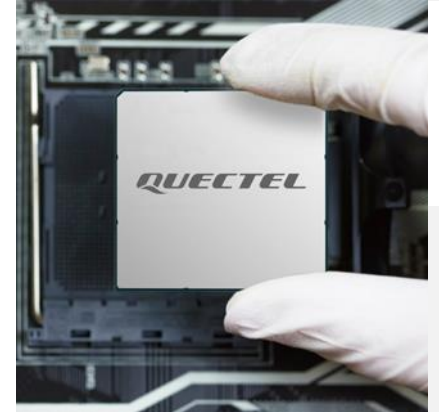
Highlights & Specifications

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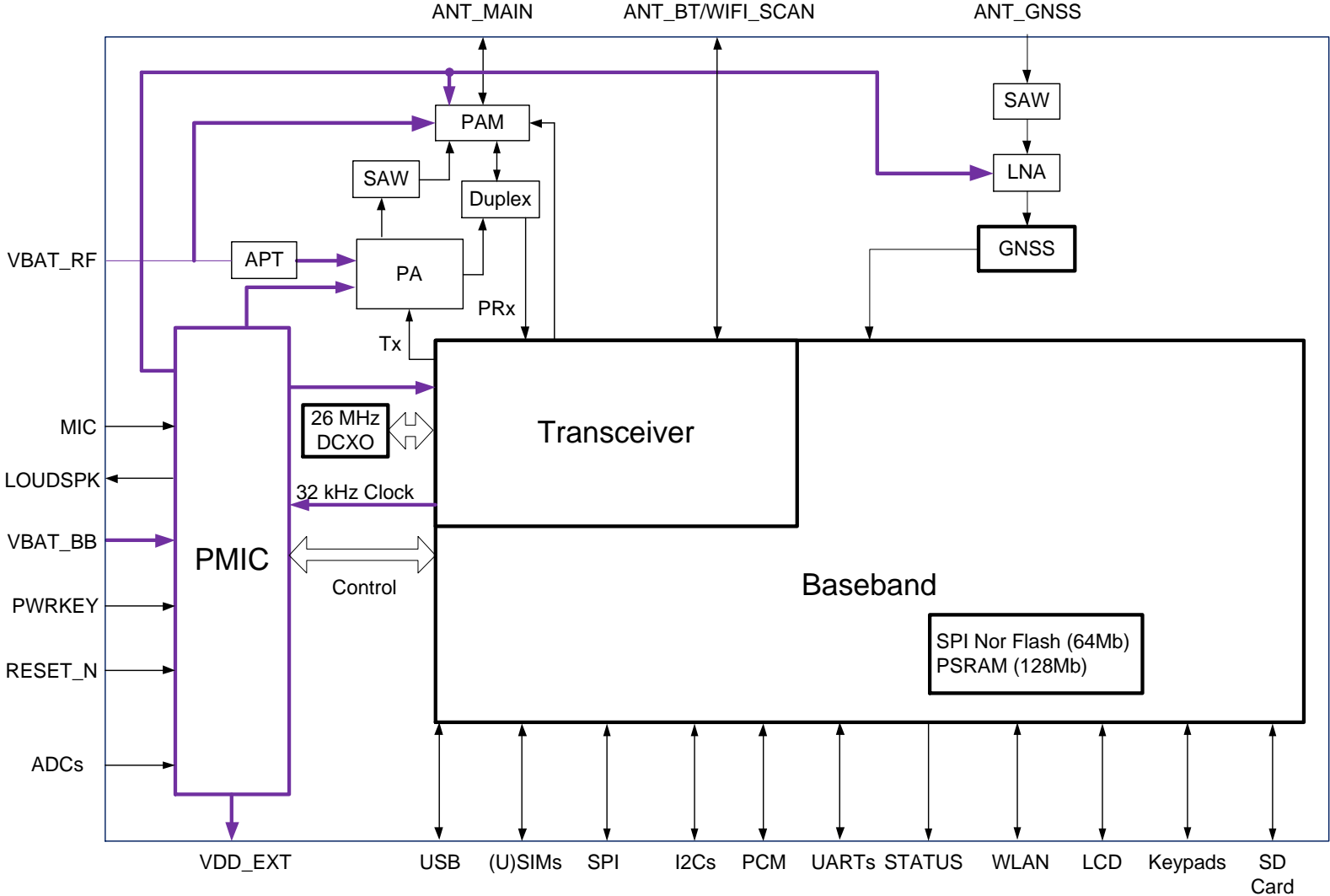
**Technical Details**

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# Hardware Architecture



## USB Serial Driver

- Windows 7/8/8.1/10
- Linux 2.6–5.15
- Android 4.x–12.x

## Quality Guarantee

- Reliable network protocols
- Steady flash protection mechanism
- Superior audio algorithms
- Backup recovery mechanism

## Special Features

- QuecOpen<sup>®</sup>
- QuecPython<sup>®</sup>
- QuecLocator<sup>®</sup>

## GNSS & RIL & USB RNDIS & USB ECM Drivers

- GNSS Driver: Android 4.x–12.x
- RIL Driver: Android 4.x–12.x
- USB RNDIS Driver: Windows 7/8/8.1/10, Linux 2.6–5.15
- USB ECM Driver: Linux 2.6–5.15

## Flexible Applications

- (U)SIM card detection
- DTMF
- VoLTE
- GNSS (Optional)

## Enhanced AT Commands

- 3GPP TS 27.007 (GSM 07.07)
- 3GPP TS 27.005 (GSM 07.05 SMS)
- Quectel Enhanced AT Commands

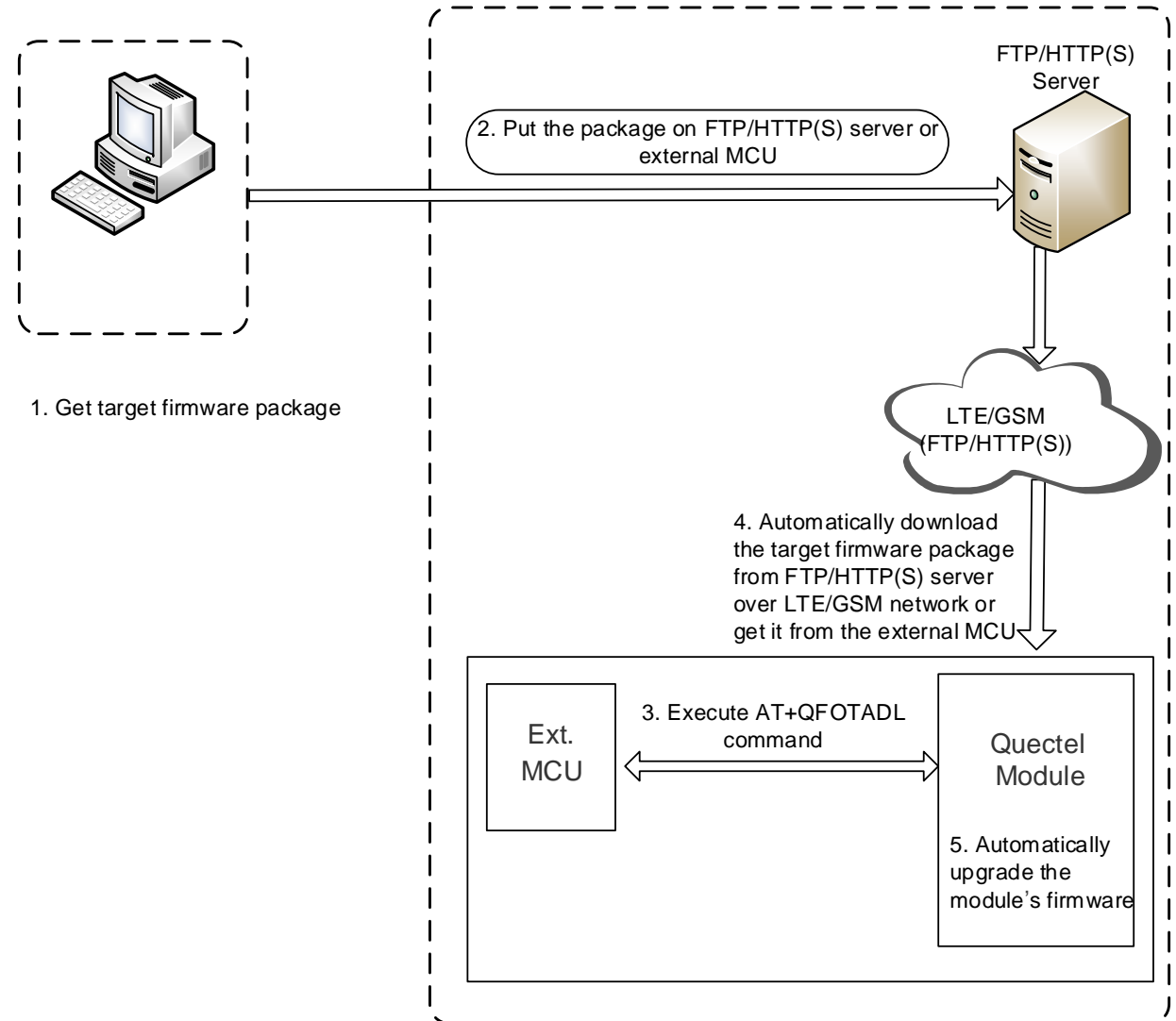


# FOTA

FOTA refers to Firmware Upgrade Over-The-Air. With this function, the firmware can be upgraded to a new version over LTE/GSM networks and also reverted to the old version.

## Firmware Upgrade Process via FOTA

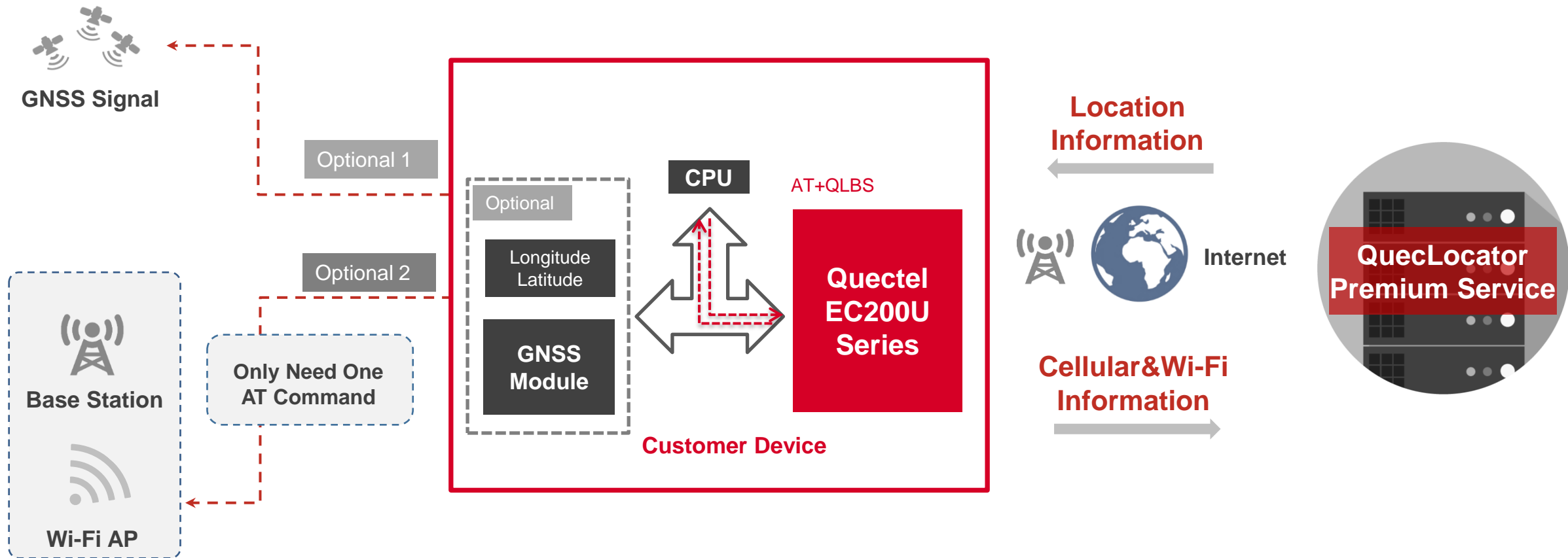
- Get Target Firmware Package.
- Put Target Package on Server.
- Execute AT+QFOTADL Command.
- Automatically Download and Upgrade Firmware.



# QuecLocator<sup>®</sup> Working Process



QuecLocator<sup>®</sup> is an easy and reliable positioning service providing secure and accurate positioning **Anytime, Anywhere.**



NOTE: There is no need for extra GNSS modules when using QuecLocator<sup>®</sup>.

# Support Package - Technical Materials & EVB Kit

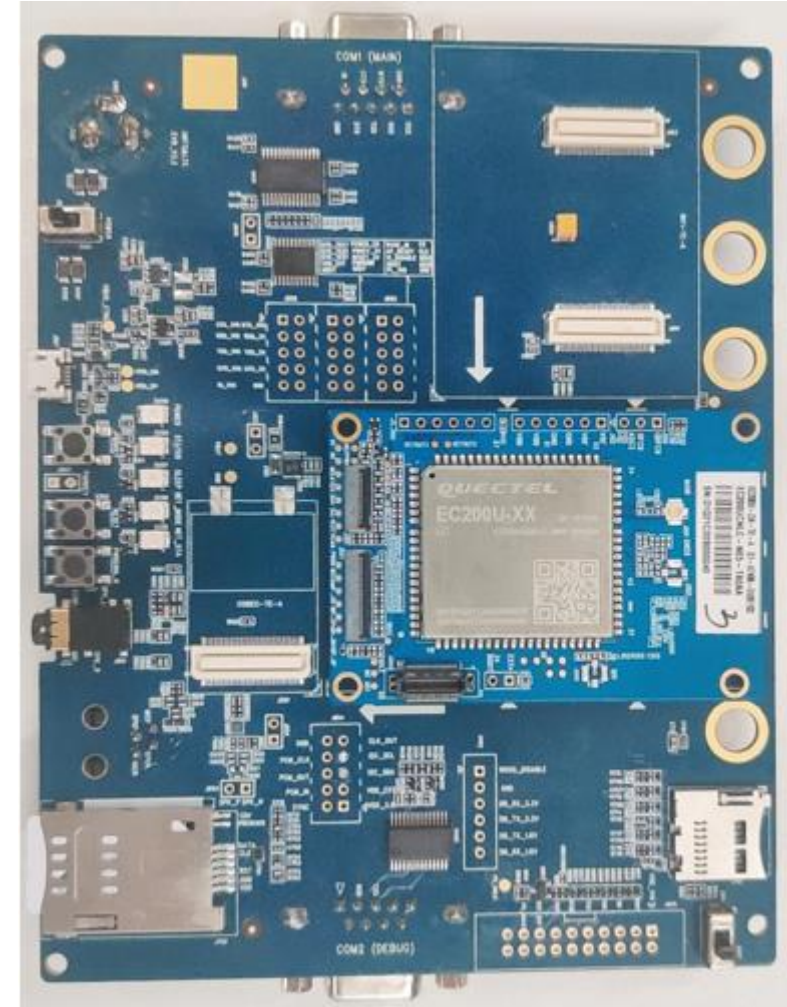


## Technical Materials Package

- Hardware & software documents
- Debug tools, download tools, test tools, EVB kit & USB drivers
- Approvals & test reports
- QNavigator

## Development Tool (UMTS&LTE EVB Kit)

- |                                 |                       |
|---------------------------------|-----------------------|
| ▪ Connectors                    | ▪ Auxiliaries         |
| a) Power supply connectors      | a) Network status LED |
| b) USB connector                | b) Power key          |
| c) UART connectors              | c) Reset key          |
| d) (U)SIM card connector        | d) Test points        |
| e) SD card connector            |                       |
| f) Digital and audio connectors |                       |

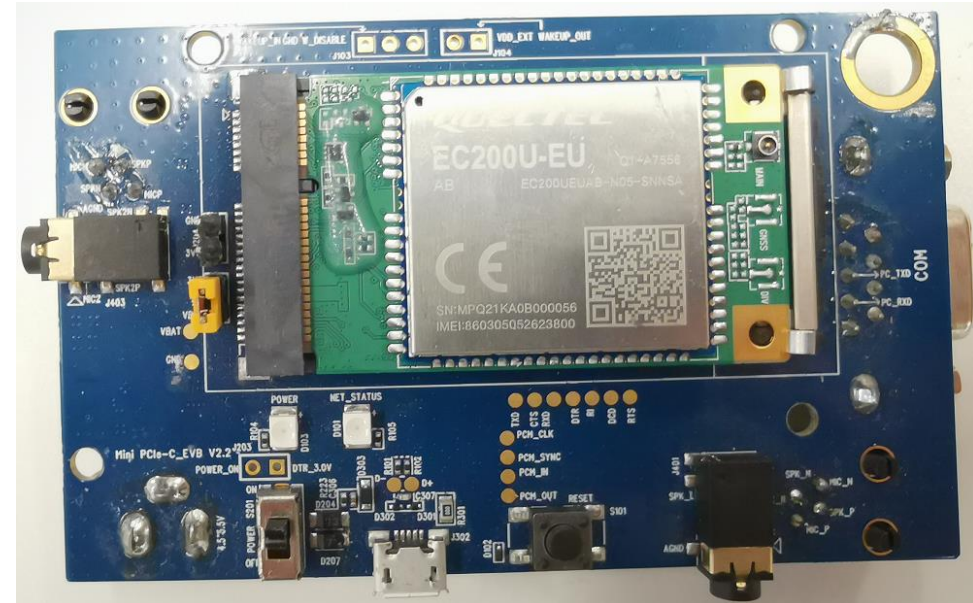


## Technical Materials Package

- Hardware & software documents
- Debug tools, download tools, test tools, EVB kit & USB drivers
- Approvals & test reports
- QNavigator

## Development Tool (Mini PCIe EVB Kit)

- Interfaces
  - a) Power supply interfaces
  - b) USB interface
  - c) UART interfaces
  - d) (U)SIM interface
  - e) Audio interfaces
- Auxiliaries
  - a) Network status LED
  - b) Power key
  - c) Reset key
  - d) Test points



# Support Package - QNavigator



The screenshot displays the QNavigator software interface. On the left is a vertical sidebar with icons for Home, SMS, MMS, Voice Call, TCP/UDP, PPP, QuecLocator, GNSS, AT Command, and QCOM. The main area is titled 'Home' and contains several sections: 'Connect to module' (with a gear icon and a checked 'Automatic initialization' box), 'Module information' (with fields for Manufacturer ID, Device module, and Firmware version), 'Registration information' (with fields for Network registration, GPRS network status, and Preferred operator), and 'SIM card information' (with fields for SIM card IMSI and SIM card ICCID). A 'Serial port parameter set' dialog box is open in the center, showing settings for Port (COM3), Baudrate (115200), DataBits (8), StopBits (1), Parity (None), and FlowCtrl (None). The 'OK' button in the dialog is highlighted with a red box. At the bottom of the interface, there are radio buttons for 'Text', 'Hex', 'SpecialChars', and 'File', a checked 'Send With Enter' checkbox, a text input field, and a 'Send' button. The status bar at the very bottom shows 'QNavigator\_UMTS/HSPA', 'DIR', 'RTS', 'DSR[0] CTS[0] RI[0] DCD[0]', and the timestamp '2017-05-11 09:27:12'.

▶ QNavigator

# Technical Support Team





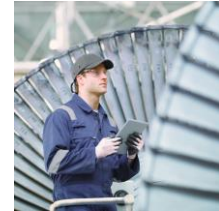
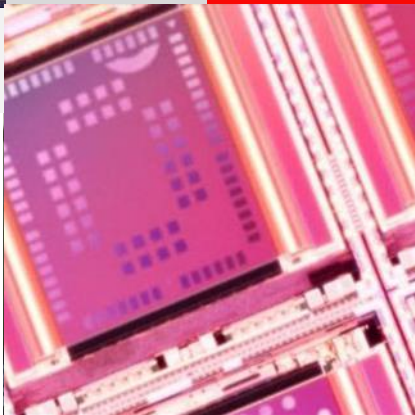
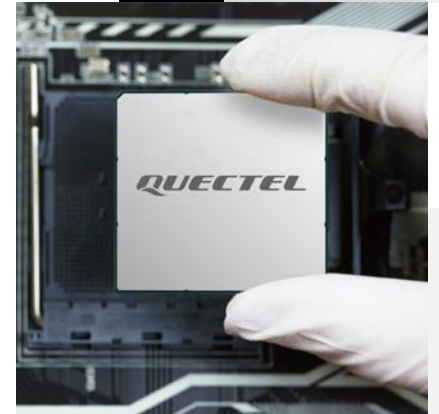
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# Target Applications



## Telematics & Transport

- Automotive OEM
- Vehicle Tracking
- Container Tracking
- Ship Tracking
- Fleet Management
- OBD
- DVR
- Insurance Box



## Energy

- Electricity Meter
- Gas Meter
- Water Meter
- Heat Meter
- Smart Grid
- Wind Turbines
- Solar Panel
- Charging Pile



## Payment

- Wireless POS
- Cash Register
- ATM
- Vending Machine
- Top-up Machine



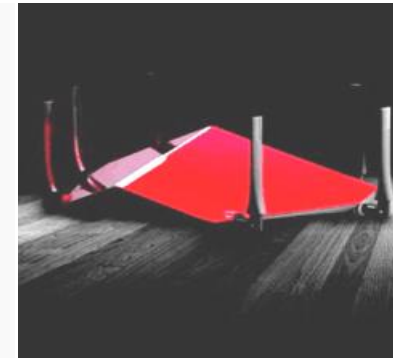
## Security

- Alarm
- Camera
- Video Surveillance
- Intrusion Detection
- Smoke Detector
- Asset Protection



## Smart City

- Street Lighting
- Sharing Economy
- Traffic Light
- Elevator
- Digital Signage
- Advertisement Display
- LED Lighting
- Garbage Bin Monitoring
- Parking



## Gateway

- DTU
- Consumer Router
- Industrial Router
- VoIP
- Server
- Wi-Fi Hotspot



## Industry

- Industrial PDA
- Rugged Tablet PC
- Pipeline Management
- UAV
- Robot
- Flow Meter
- Refrigerator
- Industrial Control
- Industrial Monitoring



## Life & Healthcare

- Personal Tracker
- Household Appliances
- Pet Tracker
- Wearables
- Elderly Monitoring
- Remote Medical Equipment
- Glucometer
- Blood Pressure Monitor
- Gambling Machine



## Agriculture & Environment

- Trail Camera
- Food Traceability
- Farm Machinery
- Irrigation
- Meteorological Station
- Wildlife Tracking
- Environment Monitoring
- Pollution Monitoring





## The number one cellular module vendor in the world and a leading GNSS module supplier

- Unbeatable choice from the broadest module portfolio in the world
- The highest quality products for the best possible prices
- Superb support with the largest R&D team in the industry
- Continuous innovation – first to market with 5G, LPWA, CV2X, snapdragon
- A passionate, dedicated team of “Quectelers” ensure our customers always come first

*Thank You*

**Build a Smarter World**

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