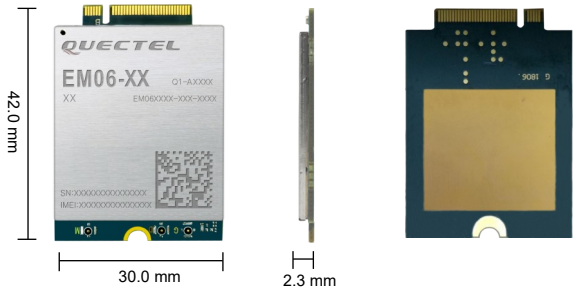
Quectel EM06 Series

IoT/M2M-optimized
LTE-A Cat 6 M.2 Module



Quectel EM06 is a series of LTE Advanced category 6 module optimized specially for M2M and IoT applications. Adopting the 3GPP Release 11 LTE technology, it delivers maximum data rates up to 300 Mbps downlink and 50 Mbps uplink.

Designed in the M.2 form factor, EM06 contains 3 variants (EM06-E, EM06-J and EM06-A) for different target regions and these variants nearly cover all the main stream carriers worldwide.

EM06 supports Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou/Compass, Galileo and QZSS). The integrated GNSS greatly simplifies product design, and provides quicker, more accurate and more dependable positioning capability.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows 7/ 8/8.1/10, Linux, Android) extend the applicability of the module to a wide range of M2M and IoT applications such as industrial router, home gateway, set top box, industrial laptop, consumer laptop, industrial PDA, rugged tablet PC, video surveillance and digital signage, etc.

Key Features

- LTE-A Cat 6 module with M.2 form factor, optimized for M2M and IoT applications
- Support LTE-A carrier aggregation
- Worldwide LTE-A and UMTS/HSPA(+) coverage
- Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- Feature refinements: supports DFOTA and DTMF
- MIMO technology meets demands for data rate and link reliability in modem wireless communication systems

LTE Cat 6
Max. 300 Mbps (DL)
Max. 50 Mbps (UL)

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

M.2 Form Factor

Embedded Abundant Protocols

Voice over LTE

Multi-constellation GNSS

USB 2.0 High Speed Interface

USB Drivers

Quectel Enhanced AT Commands

Version: 1.8| Status: Released

Quectel EM06 Series

LTE Cat 6	EM06-E	EM06-J	EM06-A
Region/Operator	EMEA/APAC①/Brazil	Japan	North America
Dimensions (mm)	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3	42.0 × 30.0 × 2.3
Temperature Range			
Operation Temperature	-30 °C to +70 °C	-30 °C to +70 °C	-30 °C to +70 °C
Extended Temperature	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
Frequency Bands			
LTE-FDD	B1/B3/B5/B7/B8/B20/B28/B32②	B1/B3/B8/B18/B19/B26/B28	B2/B4/B5/B7/B12/B13/B25/B26/B29②/B30/B66
LTE-TDD	B38/B40/B41	B41	B41
2CA	B1 + B1/B5/B8/B20/B28; B3 + B3/B5/B7/B8/B20/B28; B7 + B5/B7/B8/B20/B28; B20 + B32②; B38 + B38; B40 + B40; B41 + B41	B1 + B1/B8/B18/B19/B26/ B28; B3 + B3/B8/B18/B19/B26/ B28; B41 + B41	B2 + B2/B5/B12/B13/B29②; B4 + B4/B5/B12/B13/B29②; B5 + B5/B7/B25/B30/B66; B7 + B7/B12/B26; B12 + B12/B25/B30/B66; B13 + B66; B25 + B25/B26; B30 + B29②; B66 + B29②/B66; B41 + B41
WCDMA	B1/B3/B5/B8	B1/B3/B6/B8/B19	B2/B4/B5
GNSS	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)	GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional)
Certifications			
Carrier	**Europe:** Deutsche Telekom **Australia:** Telstra **Spain:** Telefónica **Korean:** KT/SKT	**Japan:** KDDI	**North America:** Verizon/AT&T/Sprint/T-Mobile
Regulatory	**Global:** GCF **Europe:** CE **Taiwan (China):** NCC **Australia & New Zealand:** RCM **North Africa:** ICASA **South Korea:** KC	**Japan:** JATE/TELEC	**Global:** GCF **North America:** FCC/PTCRB **Canada:** IC
Others	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
Data Rate (Max.)			
LTE-FDD (Mbps)	300 (DL)/50 (UL)	300 (DL)/50 (UL)	300 (DL)/50 (UL)
LTE-TDD (Mbps)	226 (DL)/28 (UL)	226 (DL)/28 (UL)	226 (DL)/28 (UL)
DC-HSPA+ (Mbps)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)
WCDMA (Kbps)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)
Interfaces			
(U)SIM	× 2	× 2	× 2
I2C	× 1	× 1	× 1
PCM (Digital Audio)	× 1	× 1	× 1
Antenna Tuner Control* (ANTCTL)	× 4	× 4	× 4
USB 2.0	× 1	× 1	× 1
W_DISABLE1#	× 1	× 1	× 1
RESET#	× 1	× 1	× 1
WAKE_ON_WAN#	× 1	× 1	× 1
WWAN_LED#	× 1	× 1	× 1
Antennas	× 3 (Main, Diversity and GNSS Antennas)	× 3 (Main, Diversity and GNSS Antennas)	× 3 (Main, Diversity and GNSS Antennas)
Voice			
Speech Codec Modes	AMR/AMR-WB	AMR/AMR-WB	AMR/AMR-WB
Echo Arithmetic	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression
VoLTE	CSFB and VoLTE (Voice over LTE) (Optional)	CSFB and VoLTE (Voice over LTE) (Optional)	CSFB and VoLTE (Voice over LTE) (Optional)
Enhanced Features			
MIMO (2 × 2, 4 × 2, DL)	●	●	●
Digital Audio and VoLTE (Voice over LTE)	Optional	Optional	Optional
(U)SIM Card Detection	●	●	●
DTMF	●	●	●
Dual SIM Single Standby	●	●	●
DFOTA	●	●	●
GNSS	●	●	●

Notes:
1. *: Under development/ In progress.
2. ●: Supported.
3. ①: Excluding Japan and China Mobile.
4. ②: LTE-FDD B29 and B32 support receiving only, and are only for secondary component carrier in 2CA.

Copyright © 2022 Quectel Wireless Solutions Co., Ltd. All Rights Reserved http://www.quectel.com
HQ address: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Tel: +86 21 51086236 Email: info@quectel.com

LTE Cat 6	EM06-E	EM06-J	EM06-A
Drivers			
USB Driver	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x/5.x/6.x/7.x/9.x	Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x/5.x/6.x/7.x/9.x
GNSS Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
RIL Driver	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x	Android 4.x/5.x/6.x/7.x/8.x/9.x
NDIS Driver	Windows 7/8/8.1/10	Windows 7/8/8.1/10	Windows 7/8/8.1/10
MBIM Driver	Windows 8/8.1/10, Linux 3.18–5.4	Windows 8/8.1/10, Linux 3.18–5.4	Windows 8/8.1/10, Linux 3.18–5.4
GobiNet Driver	Linux 2.6–5.4	Linux 2.6–5.4	Linux 2.6–5.4
QMI_WWAN Driver	Linux 3.4–5.4	Linux 3.4–5.4	Linux 3.4–5.4
Electrical Features			
Supply Voltage Range	3.135–4.4 V, typical 3.7 V	3.135–4.4 V, typical 3.7 V	3.135–4.4 V, typical 3.7 V
Power Consumption	50 µA @ Power off 4.1 mA @ Sleep typ. 22.1 mA @ Idle	47 µA @ Power off 3.8 mA @ Sleep typ. 19.5 mA @ Idle	50 µA @ Power off 3.8 mA @ Sleep typ. 21.3 mA @ Idle

Copyright © 2022 Quectel Wireless Solutions Co., Ltd. All Rights Reserved http://www.quectel.com
HQ address: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Tel: +86 21 51086236 Email: info@quectel.com