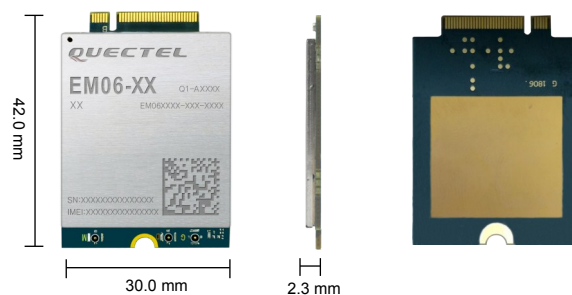




Quectel EM06 Series

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: 1.7 | Status: Released

Quectel EM06 Series

| LTE Cat 6 | EM06-E | EM06-J | EM06-A |
|--|--|---|--|
| Region/Operator | EMEA/APAC ^① /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/B32 ^② | B1/B3/B8/B18/B19/B26/B28 | B2/B4/B5/B7/B12/B13/B25/B26/B29 ^③ /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 + B32 ^④ ; 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/B29 ^④ ; B4 + B4/B5/B12/B13/B29 ^④ ; B5 + B5/B7/B25/B30/B66; B7 + B7/B12/B26; B12 + B12/B25/B30/B66; B13 + B66; B25 + B25/B26; B30 + B29 ^④ ; B66 + B29 ^④ /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 | Japan: KDDI | North America: Verizon/AT&T/Sprint |
| Regulatory | Global: GCF Europe: CE Taiwan (China): NCC Australia & New Zealand: RCM North Africa: ICASA South Korea: KC | Japan: JATE/TELECOM | 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. ④: LTE-FDD B29 and B32 support receiving only, and are only for secondary component carrier in 2CA.

Quectel EM06 Series

| 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 μ A @ Power off 4.1 mA @ Sleep typ. 22.1 mA @ Idle | 47 μ A @ Power off 3.8 mA @ Sleep typ. 19.5 mA @ Idle | 50 μ A @ Power off 3.8 mA @ Sleep typ. 21.3 mA @ Idle |