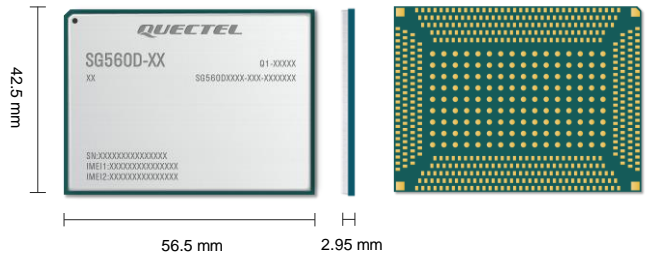


Quectel SG560D Series

5G Sub-6 GHz Smart Module with Wi-Fi 6E & Bluetooth



SG560D series is Quectel’s new generation of multi-mode 5G smart module with built in Android 12 OS. Based on QCM6490 high-performance 64-bit octa-core processors with built in Adreno™ 643 GPU, it is ideal for both industrial and consumer applications requiring high data rates and multimedia functions. SG560D series is available in three variants: SG560D-CN, SG560D-EU and SG560D-WF*.

SG560D series supports 3GPP Rel-15 specification, and supports both 5G NSA and SA modes with 4G/3G fallback. In addition, the module supports Wi-Fi 6E & DBS, IEEE 802.11a/ b/ g/ n/ ac/ ax, Wi-Fi 2 × 2 MU-MIMO and Bluetooth 5.2.

SG560D series supports 5G & LTE Multiple-Input Multiple-Output (MIMO) technology. The use of multiple antennas at the receiver end at the same time and on the same frequency band greatly minimizes errors and optimizes the data speed. The module also combines high-speed wireless connectivity with embedded multi-constellation and high-sensitivity GNSS (GPS, GLONASS, BDS, NavIC, Galileo, QZSS, SBAS) receiver for positioning.

A rich set of interfaces (such as LCM, camera, touch panel, PCIe, UART, USB, I2C and I2S) extend the applicability of the module to a wide range of M2M applications, including smart gateway, CPE, MiFi, MID, PND, POS, router, multimedia terminal, smart phone, digital signage, industrial PDA, etc.

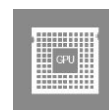


Key Features

- ✓ Built-in Android 12 OS
- ✓ Worldwide 5G/ 4G/ 3G/ 2G coverage
- ✓ Supports Wi-Fi 6E & DBS, 802.11ax, 2 × 2 MU-MIMO
- ✓ Supports 5G & LTE MIMO technology, which meets demands for data rate and link reliability in wireless communication system
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment, supporting L1 + L5 dual-band
- ✓ Supports 4K H.265/ H.264 video encoding and decoding
- ✓ 14 TOPS computing power
- ✓ Supports PCIe interface



5G Sub-6 GHz



Qualcomm® Adreno™ 643 GPU



Android 12



LTE Cat 18



IEEE 802.11 a/ b/ g/ n/ ac/ ax



Bluetooth 5.2



GPS/ GLONASS/ BDS/ NavIC/ Galileo/ QZSS/ SBAS



Powerful Multimedia Functions



LGA Package

Quectel SG560D Series

| 5G Sub-6 GHz | SG560D-CN | SG560D-EU | SG560D-WF* |
|---------------------------------|--|--|--|
| Region/Operator | China/ India | EMEA | Global |
| CPU | QCM6490, octa-core 5G SoC 1 × Gold Plus @ 2.7 GHz 3 × Gold @ 2.4 GHz 4 × Silver @ 1.9 GHz | QCM6490, octa-core 5G SoC 1 × Gold Plus @ 2.7 GHz 3 × Gold @ 2.4 GHz 4 × Silver @ 1.9 GHz | QCM6490, octa-core 5G SoC 1 × Gold Plus @ 2.7 GHz 3 × Gold @ 2.4 GHz 4 × Silver @ 1.9 GHz |
| Memory | 4 GB LPDDR4X + 64 GB UFS (Default) 6 GB LPDDR4X + 128 GB UFS (Optional) 8 GB LPDDR4X + 128 GB UFS (Optional) 8 GB LPDDR4X + 256 GB UFS (Optional) | 4 GB LPDDR4X + 64 GB UFS | 4 GB LPDDR4X + 64 GB UFS |
| OS | Android 12 | Android 12 | Android 12 |
| Dimensions (mm) | 42.5 × 56.5 × 2.95 | 42.5 × 56.5 × 2.95 | 42.5 × 56.5 × 2.95 |
| Package | LGA | LGA | LGA |
| Weight (g) | 17.5 | 17.5 | TBD |
| Temperature Range | | | |
| Operating Temperature | -35 °C to +75 °C | -35 °C to +75 °C | -35 °C to +75 °C |
| Frequency Bands | | | |
| 5G SA/NSA | n1/ 28/ 41/ 78/ 79 | n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 77/ 78 | - |
| 5G MIMO | 4 × 4 MIMO (DL): n1/ 41/ 78/ 79 2 × 2 MIMO (UL): n41/ 78/ 79 | 4 × 4 MIMO (DL): n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78 2 × 2 MIMO (UL): n41/ 77/ 78 | - |
| LTE | B1/ 3/ 5/ 8/ 34/ 38/ 39/ 40/ 41 | B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 39/ 40/ 41/ 42 | - |
| LTE MIMO | 4 × 4 MIMO (DL): B1/ 41 | 4 × 4 MIMO (DL): B1/ 3/ 7/ 38/ 40/ 41/ 42 | - |
| WCDMA | B1/ 5/ 8 | B1/ 5/ 8 | - |
| GSM/EDGE | - | 900/ 1800 MHz | - |
| WLAN | 2.4/ 5/ 6 GHz 802.11a/ b/ g/ n/ ac/ ax, Supports DBS, 2 × 2 MU-MIMO | 2.4/ 5/ 6 GHz 802.11a/ b/ g/ n/ ac/ ax, Supports DBS, 2 × 2 MU-MIMO | 2.4/ 5/ 6 GHz 802.11a/ b/ g/ n/ ac/ ax, Supports DBS, 2 × 2 MU-MIMO |
| Bluetooth | Bluetooth 5.2 | Bluetooth 5.2 | Bluetooth 5.2 |
| GNSS | GPS/ GLONASS/ BDS/ NavIC/ Galileo/ QZSS/ SBAS; L1 + L5 | GPS/ GLONASS/ BDS/ NavIC/ Galileo/ QZSS/ SBAS; L1 + L5 | - |
| Certifications | | | |
| Carrier | TBD | TBD | TBD |
| Regulatory | China: CCC/ SRRC*/ NAL* | Global: GCF ^① Europe: CE ^① UK: UKCA ^① | TBD |
| Others | RoHS/ REACH | RoHS/ REACH | RoHS/ REACH |
| Data Rate | | | |
| 5G SA | 2.1 Gbps (DL)/ 900 Mbps (UL) | 2.1 Gbps (DL)/ 900 Mbps (UL) | - |
| 5G NSA | 2.5 Gbps (DL)/ 650 Mbps (UL) | 2.5 Gbps (DL)/ 650 Mbps (UL) | - |
| LTE | 1.2 Gbps (DL)/ 200 Mbps (UL) | 1.2 Gbps (DL)/ 200 Mbps (UL) | - |
| DC-HSPA+ | 42 Mbps (DL)/ 5.76 Mbps (UL) | 42 Mbps (DL)/ 5.76 Mbps (UL) | - |
| WCDMA | 384 kbps (DL)/ 384 kbps (UL) | 384 kbps (DL)/ 384 kbps (UL) | - |
| EDGE | - | 296 kbps (DL)/ 236.8 kbps (UL) | - |
| GPRS | - | 107 kbps (DL)/ 85.6 kbps (UL) | - |
| Enhanced Features | | | |
| Modem | 5G: Release 15 LTE: Release 15 | 5G: Release 15 LTE: Release 15 | - |
| Rx-diversity | ● | ● | - |
| DL MIMO 4 × 4 | ● | ● | - |
| (U)SIM Detection | ● | ● | - |
| Dual SIM Dual Standby | ● | ● | - |
| Firmware Upgrade via USB | ● | ● | ● |
| Firmware Upgrade via OTA | ● | ● | ● |

Notes:

1. *: Under development/in progress
2. ●: Supported
3. ①: TBD (to be determined)

Quectel SG560D Series

| 5G Sub-6 GHz | General Features of SG560D Series |
|----------------------------|---|
| Interfaces | |
| LCM | Based on 4-lane MIPI_DSI, supports up to 2.5 Gbps/ lane, (1200 × 2520) @ 144 fps Supports DisplayPort 1.4, up to 4K (3840 × 2160) @ 60 fps Support Wi-Fi Miracast 4K @ 60 fps |
| Camera | 4 × 4-lane MIPI_CSI, up to 2.5 Gbps/ lane 3 × ISP, up to 3 × 27 MP @ 24 fps or 3 × 22 MP @ 30 fps; 36 MP + 27 MP @ 24 fps or 36 MP + 22 MP @ 30 fps; 36 MP @ 30 fps |
| Touch Panel | Capacitive touch panel, controlled by I2C |
| Audio | Needs external audio codec |
| USB | × 2 USB0, supports USB 3.1 Type-C interface, compatible with USB 2.0, supports DisplayPort 1.4 and concurrent USB & DP USB1, supports USB 2.0, supports host mode only |
| PCIe | × 1, 2-lane PCIe Gen 3, supports NVMe |
| PWM | × 2 |
| Motor Driver | × 1 |
| Flashlight Driver | × 1 |
| (U)SIM | × 2, supports 1.8/ 2.95 V (U)SIM cards and DSDS |
| UART | × 2, supports up to 4 Mbps with hardware flow control |
| SD Card | × 1, SD 3.0, supports 4-bit SDIO |
| ADC | × 4, general-purpose ADC interfaces |
| I2C | × 8, used for camera, touch panel, sensor and other peripherals |
| I2S | × 2 |
| SPI | × 1 |
| PWRKEY | 1.8 V, pulled up internally |
| GPIO | × 35 |
| Antenna | × 7 (cellular antenna × 4, Wi-Fi antenna × 2, GNSS antenna × 1) |
| Electrical Features | |
| Supply Voltage Range | 3.55–4.4 V, typ. 4.0 V |
| Power Consumption | TBD |