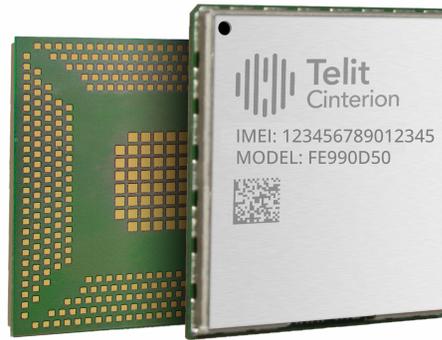


PRELIMINARY

FE990D50

5G/LTE-Advanced



Product Description

The Telit Cinterion FE990D50 LGA module family enables next-generation, high-performance 5G LGA modules. They feature 5G sub-6 technology with Gigabit LTE and WCDMA support, plus a state-of-the-art multiconstellation GNSS receiver.

This LGA module is ideal for applications that require ruggedized modems that are feature- and interface-rich with a compact footprint. It's suitable for high-performance enterprise and industrial applications, including:

- Indoor and outdoor fixed wireless access (FWA)
- Video streaming and surveillance devices
- Mobile and industrial routers and gateways

This module leverages Qualcomm Snapdragon® X82 5G Modem-RF System and is compliant with 3GPP 5G Release (Rel) 18 5G deployments, including:

- Non-stand-alone (NSA) LTE/5G NR dual connectivity (EN-DC)
- Full 5G NR stand-alone (SA) mode
- Dynamic spectrum sharing (DSS) between LTE and 5G
- Network Slicing

The FE990D50 modules are available in two regional variants:

- **FE990D50-RWD:** Support key sub-6 frequency bands in Europe, the Middle East, South America and Oceania with LTE and WCDMA fallback technologies
- **FE990D50-NAD:** Support key sub-6 frequency bands in North America with LTE fallback technology

Key Benefits

- Available in two regional variants (EMEA and North America) with 5G sub-6 FDD and TDD bands
- Supports SA and NSA operations and 5G core network Opt. 3a/3x and Opt. 2 for full network compatibility
- Next-generation 5G Rel 18 networks
- 4 x 4 MIMO DL support on all bands
- 4G Category (Cat) 20 up to 5xCA
- Intraband and interband UL CA supported on 4G networks for better throughput performance for uplink-centric applications (e.g., surveillance cameras and 4K/8K video streaming)
- 3G HSPA+ Rel 8 for fallback to legacy networks
- (FE990D50-RWD only)
- Compact form factor (41 x 41 x 2.9 mm)
- Multiple PCIe interfaces: Gen 4 (one lane) or Gen 3 (two lanes) and USB 3.1 Gen 2 support for maximum application design flexibility
- GNSS L1 and L5 support with dedicated antenna pad and internal GNSS LNA to allow less expensive passive antennas, which lowers the cost of ownership
- An array of interfaces exposed (over 350 pads): USB, PCIe Gen 3, UART, Wi-Fi coexistence etc.
- High-performance quad-core CPU and Linux OpenWRT OS, ideal for router development without an external CPU
- Dual SIM Dual Standby (DSDS) support to ensure optimal connectivity

AVAILABLE FOR

NA
EMEA
APAC



Variants

| | FE990D50-RWD | FE990D50-NAD |
|-------------------------------------|--|---|
| Market | EMEA, Oceania, South America | North America |
| 5G FR1 Bands | n1, n3, n5, n7, n8, n20, n26, n28, n38 n40, n41, n75, n76, n77, n78, n79 | n2, n5, n7, n12, n13, n14, n25, n26, n29, n30, n38, n41, n48, n66, n70, n71, n77, n78 |
| 5G FR1 Bandwidths | up to 300 MHz, 4CC CA DL | |
| 5G FR1 4 x 4 MIMO DL Support | All bands | |
| 5G FR1 2 x 2 MIMO UL Support | n38, n40, n41, n77, n78, n79 | n38, n41, n77, n78 |
| LTE Bands | B1, B3, B5, B7, B8, B18, B19, B20, B26, B28, B32, B40, B41, B42, B43, B68 | B2, B4, B5, B7, B12, B13, B14, B17, B25, B26, B29, B30, B41 (B38), B42, B43, B48, B66, B71 |
| LTE 4 x 4 MIMO DL Support | All bands | |
| WCDMA Bands | B1, B5, B6, B8, B19 | N/A |
| GNSS | Multiconstellation (L1 and L5) | |
| VoLTE, VoNR | Data only, voice support available on request | |
| Certifications | Anatel, CE/RED, GCF, Vodafone, Deutsche Telekom, VF* | FCC, IC, PTCRB, AT&T, T-Mobile U.S., Verizon* |

*Planned

Product Features

- 5G sub-6 FDD and TDD, SA and NSA operations
- 5G core network Opt. 3a/3x and Opt. 2
- 4G: 5xCA up to 20 layers DL, 2xCA UL; 256-QAM DL/UL
- 3G: HSPA+ Rel 8; 42 Mbps DL, 11 Mbps UL (-RW variants only)
- GNSS: gpsOne Gen 9 with dedicated antenna pad, L1 and L5
- Antenna ports: four 5G sub-6/LTE and one GNSS
- Support of up to three Wi-Fi and two Ethernet transceivers
- Quad core ARM Cortex A55 @ 2.2 GHz
- Firmware over-the-air (FOTA) support

Hardware and Electrical Specifications

- Dimensions: 41 x 41 x 2.9 mm LGA
- USB 3.1 Gen 2 and 2.0
- Up to three PCIe interfaces
- Two USXGMII interfaces
- Three UART ports
- Two 1.8 V SIM card interfaces with DSDS (Dual SIM Dual Standby) support
- Wi-Fi coexistence
- Driver support: Windows 11, Linux
- Operating temperature range:
-40° C to +85° C

Data Throughput

FE990D50

- 5G NSA: up to 4.57 Gbps DL, 0.55 Gbps UL
- 5G SA: up to 7.7 Gbps DL, 0.55 Gbps UL
- 4G: 2Gbps DL, 210 Mbps UL
- 3G (HSPA+): 42 Mbps DL, 11 Mbps UL

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