Qualcomm

Qualcomm® E52 4G Modem-RF

A new Cat 1bis modem purpose-built for IoT with highly-integrated, low-power, compact, and cost-efficient designs for size-constrained devices. This modem is ideal for a variety of industrial devices such as smart meters, IP cameras, wearable and healthcare devices, POS terminals, and similar applications that need low-power compute, connectivity, and design flexibility.

The Qualcomm E52 4G Modem-RF is a new modem purpose-built for industrial IoT applications. With a highly integrated design that supports a rich array of peripherals, ODMs, OEMs, and developers can easily build, deploy, and scale devices that use Cat 1bis networks that support applications across smart metering, IP cameras, POS terminals, and other devices that require low-power compute, connectivity, and design flexibility in a compact, cost-effective, and power-optimized design.

Related Products

Qualcomm Technologies offers low-power Cat 1bis modems optimized for IoT devices that required a compact, cost-conscious design:

216 LTE IoT Modem

E41 4G Modem-RF

Highlights

Power-Optimized Connectivity

Enable battery-powered devices in remote and distributed settings with reliable, low-latency, and power-optimized connectivity.

Compact and Cost-Effective Design

With a smaller footprint, available software-enabled GPS, and built-in PMU and RFIC, OEMs can use this modem to build form-factor-constrained devices and help optimize BOM costs.

Rich Peripheral Support

Support for a rich array of peripherals for a wide array of IoT applications and functionality.

Materials are subject to change without notice.
87-87712-1 Rev. C

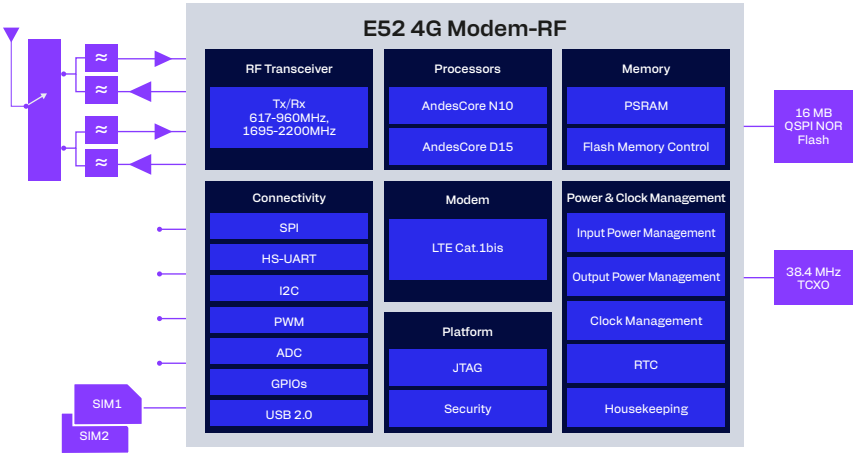
Target Applications

- Smart Meters
- Smart City Devices
- Intelligent Parking Solutions
- Healthcare Devices
- Wearable Devices
- IP Cameras
- Point-of-Sale Terminals

Features

- Connects devices on 3GPP Rel.14 LTE Cat.1bis networks
- Support for Rel.14 with increased TBS size, HARQ chase combining, and incremental redundancy
- Inter-frequency measurements for improved mobile performance
- Dual-UICC interfaces compliant with ETSI TS 102 221 specification
- Multi-interface support for external SIM cards or a soldered SIM card
- Single-rail power input with a wide voltage range
- Intra- and inter-frequency handover features
- Integrated PMU that supplies all SoC subsystems and external flash, analog front end, and SIM card
- 3GPP RF-compliant from 3.1 V (USB disabled) and 3.2 V (USB enabled) to 5.5 V
- Three auxiliary ADC inputs for monitoring of temperature, voltage, and other sensors
- Integrated, programmable RTC
- Extended DRX and PSM features for prolonged-sleep use cases
- Support for different low-power modes with eight wake signals and an ultra-low deep sleep mode

Block Diagram



Specifications

Category	Specifications
CPU	**CPU Clock Speed:** Up to 204 MHz **CPU Cores:** Dual-Core
Cellular Modem-RF	**Peak Download Speed:** 10 Mbps (Rel.14) **Peak Upload Speed:** 5 Mbps (Rel.14) **Cellular Technology:** Rel.14 LTE
Network Protocols	IPv4/IPv6 stack with TCP and UDP, TLS, HTTPS, MQTT, OMA Lightweight M2M, CoAP, SSL, DTLS, ping
RF	**LTE low bands:** B5, B8, B12, B13, B14, B20, B28 **LTE mid bands:** B1, B2, B3, B4, B25, B66
Power Management	**Supply Voltage Range:** 3.1 V to 4.5 V
Battery	Battery voltage monitoring capability
Interfaces	2x I2S, Up to 32 GPIOs, 4-channel ADC, 3x UARTs, 2x SPI, USB 2.0
Operating Temperature Range	**Maximum Temperature:** 95 °C **Minimum Temperature:** -30 °C
Software Options	**Operating System:** FreeRTOS
Location	GTP
SIM	2x SIM or eSIM

To learn more visit: qualcomm.com

Qualcomm