SONY

ALT1350

PRODUCT BRIEF

Lowest Power

Cellular+ :
5G Massive IoT low power solution with subGHz radio

Most Integrated

Sensor Hub & Positioning Technologies

Sony's Altair ALT1350 is the lowest power LTE-M/NB-IoT chipset, designed for the rapidly expanding 5G Massive Internet of Things market. It is the world's first cellular IoT chipset to enable additional unlicensed spectrum communications protocols, as well as satellite connectivity (NTN) in a single chipset. These abilities enable faster development, lower power, and smaller size - resulting in reduced costs to optimize use cases and emerging new trends.

Developed to answer the evolving and growing needs of the cellular LPWA IoT market, the SoC features ultra-low power consumption in a variety of modes, including 3GPP PSM and eDRX, which significantly increase the longevity of battery-operated devices. Its optimized standby mode (eDRX) reduces power consumption by 80% compared to the current generation and by 85% for sending short messages. Overall improvements in the system's power consumption will lead to 4 times longer battery life for a typical device, enabling additional functionalities and use cases with smaller batteries.

Designed to support 3GPP release 15/16/17 LTE-M/NB-IoT, the ALT1350 has an AI engine for edge processing, indoor & outdoor positioning technologies bundled with a sensor hub which collects data from the sensors while maintaining its ultra-low power and high level of security. The ALT1350 integrates multi-layered security architecture, including hardware and software based Secure Element to ensure end-to-end security. It also includes an iSIM designed for PP-0117 to meet GSMA requirements and EAL5+ certification. The integrated sub-GHz and 2.4GHz transceiver enables hybrid connectivity supporting various network topologies. This enhances coverage, reduces costs, and further decreases power consumption utilizing IEEE 802.15.4 based protocols such as Wi-Sun, U-Bus Air, and wM-Bus, in addition to point-to-point and proprietary mesh technologies.

The chipset is designed to support the wide-ranging market needs of utilities, vehicle, tracking devices, smart cities, connected health, and other verticals.

HIGHLIGHT FEATURES

- 3GPP Release 14 (3GPP releases 15-17 to be supported by SW in the future)
  - CAT-M1: R14 Up to 588 Kbps in DL, and 1119 Kbps in uplink
  - CAT-NB2: R14 Up to 127 Kbps in DL, and 158 Kbps in uplink

- Ultra-low power with 1uA sleep current (PSM mode for LTE-M, NB-IoT)

- HFDD (Half Duplex FDD) and TDD

- Frequency Band Support
  - OneSKU™ frequency range:
    - Low Band: 617–960 MHz
    - Middle Band: 1700–2200 MHz
  - Supported Band List:
    - LTE-M: 1, 2, 3, 4, 5, 8, 12, 13, 14, 18, 19, 20, 25, 26, 27, 28, 66, 71
    - NB-IoT: 1, 2, 3, 4, 5, 8, 12, 13, 14, 17, 18,19, 20, 25, 26, 28, 65, 66, 70, 71, 85
  - 410-466MHz (bands 31, 72, 73, 87, 88) can be supported using additional RF FE components.

- Application network protocols: supporting IPv4/IPv6 with TCP/UDP, PPP, FTP, HTTTP, TLS, HTTPS, SSL, DTSL, MQTT, CoAP, LWM2M

- Operating temperature:
  - Maximum temperature: 85c
  - Minimum temperature: -40c

- Integrated PMU with Voltage Regulators and Real-Time clock (RTC)

- ARM cortex-M4 integrated MCU with 1.3MB NVRAM and 725KB RAM

- Low power always-on sensing hub based ARM Cortex-M0+ integrated MCU

- GNSS, Wi-Fi and cellular based location engine for location services

- Sub 1GHz and 2.4GHz for short range communication and GW

- Carrier grade iSIM-based iSE

- Enhanced application layer security-based iSE

- AI low power acceleration for edge processing

- Interfaces: UART, SPI master and slave, I2C master and slave, PCM/I2S audio, PWM, LED, GPIOs, USIM or eIUCC, auxiliary ADC, capture/compare timer, anti-tampering, QUAD SPI flash and PSRAM extension ports.

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