

ALT1255 NB-IoT Product Brief



Highly Integrated



Lowest Power



NB-IoT with 2G Fallback



Cost Optimized



High Quality

Sony's Altair Cellular IoT chipset, ALT1255, is the most integrated, cost optimized NB-IoT chipset with 2G fallback available in the market. It is compliant with 3GPP Release 13 and 14 and software upgradeable to Release 15, enabling a wide set of Cellular IoT features, global coverage and outstanding performance, making it ready for 5G network deployment.

The ALT1255 integrates an LTE baseband processor, RF transceiver, memory, cellular based location engine, MCU subsystem, and a hardware based integrated SIM (iSIM). As a complete solution, the ALT1255 provides out-of-the-box secure cloud connectivity, using MQTT, COAP and LWM2M. The integrated SIM (iSIM) removes barriers related to cost, size, and power, while providing an additional layer of security.

The chipset enables miniature complete modules of less than 10x10mm, targeted for power and size sensitive applications. Incorporating Sony's Altair OneSKU™ RF technology, the ALT1255 enables multiple LTE band combinations with a single hardware design.

Featuring ultra-low power consumption in a variety of modes, including PSM and eDRX, the chipset allows optimized power for relevant Cellular IoT use cases to enable over 15 years of battery life in real life applications.

The ALT1255 is designed to operate with rechargeable Li-ion and prime batteries supporting a wide 2.2-4.5V power supply range.

The ALT1255 features a rich set of host, peripheral, and sensor interfaces, making it ideal for integration within a variety of verticals, including smart meters, logistics, vehicles, personal tracking devices, wearables, smart cities, utilities, digital signs, and more.

Totally independent from the modem, the integrated Cortex M4 MCU in ALT1255 has been specifically designed to serve a wide range of customer applications.

The ALT1255 was developed in-house by Sony Semiconductor Israel. The new chipset is based on the ALT1250 chipset and leverages the maturity of its existing technology.

HIGHLIGHT FEATURES

- LTE CAT-NB1, CAT-NB2
 - CAT-NB1: 27.2 Kbps DL, 62.5 Kbps UL
 - CAT-NB2: 127 Kbps DL, 158 Kbps UL
- 3GPP Release 14 features including eDRX, PSM, Relaxed monitoring, RAI (Release Assistance Indication), Large TBS and Dual HARQ processes
- OneSKU™ frequency range 617 – 960 MHz and 1695 – 2200 MHz
 - HD-FDD bands: 1, 2, 3, 4, 5, 8, 12, 13, 14, 17, 18, 19, 20, 25, 26, 28, 66, 70, 71 and 85
- Optional support for 410-467.5 MHz bands: 31, 72, 73, 87, 88
- 2G quad band support: GSM-850, E-GSM-900, DCS-1800, PCS-1900
- Carrier grade integrated SIM (iSIM)
- Secure boot and a robust hardware-based security framework
- ARM Cortex M4 MCU with 192KB RAM for user applications
- Rich application layer
 - IPV4/V6 IP stack, TLS/DTLS, HTTP(s), MQTT, COAP, LWM2M
 - Cloud Connectors
- LWM2M device management and differential FOTA
- Interfaces include: 3xUART, SPI, PSRAM, USIM, GPIOs, I2C, AUX ADC and PWM
- WLCSP packaging for low cost and small size devices
- Full reuse of our globally commercial ALT1250 SW stack, AT commands, carrier features

