Xtreme Low Power Energy Harvesting Single Protocol Wireless SoC
UE962

Xtreme Low Power Single Protocol Wireless Communications Controller

Create a sustainable world is utmost important for future generation. Benefit from our unique Xtreme Low Power Chip with Energy Harvesting plus High Density (HD) Indoor Solar Panel, Universal Electronics Inc. is committed to help transition the world towards a more sustainable future by reducing primary battery wastage and CO2 footprint.

Extreme Low Power
The silicon's unique chip-level extreme low power digital circuit, RF and analog design, ensure every single joules of energy do not go to waste. This is a prefect solution tailor made for the next generation wireless remote controller and sensor applications, and users do not need to change the batteries as frequent as today.

Energy Harvesting
We will capture multiple energy source included light and RF[1] energy presence in the indoor environment. The built-in energy harvesting & power management units ensure the harvested energy stored efficiently. Combining with the extreme low power technology can help to extend single use battery life up to 10x longer, or Battery-for-Life remote control no need to replace the battery anymore.

High Efficiency Single-Cell Solar Panel
The UEI exclusive High Efficiency Single-Cell Solar Panel offers the highest available energy density for integration into smallest form-factors devices like remote control and sensors. Provides 3x the power for the same size of the common used solar panel.

No compromise to the product features
2.5x computing power plus 80% more efficient as compared to previous generation SoC; Advanced features including wireless connectivity, adaptive backlight, powered by QuickSet, multi-platform compatible and always listening without compromise in battery life.

Time to Market without Additional Effort
One-stop shop solution included the single protocol SoC, high density solar panel plus software development kit. We can help to shorten the product development cycle and commercialize product.

Remark(1): *RF incl. Cellular Mobile signal, Wi-Fi, Bluetooth, Zigbee, etc*

Product USPs

Battery for life
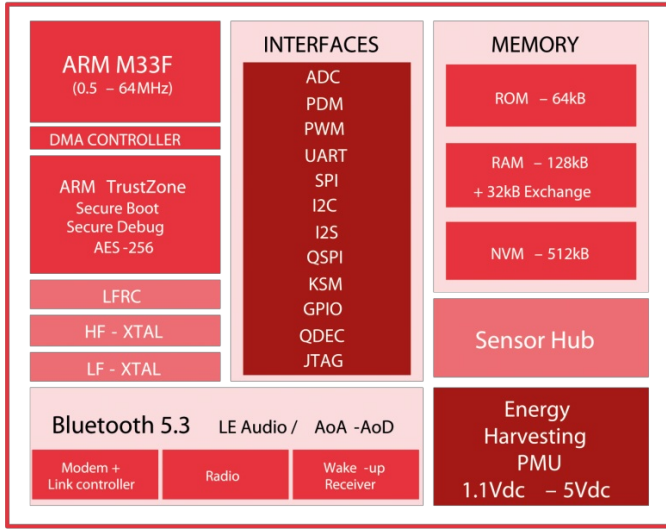
Compatible with QuickSet

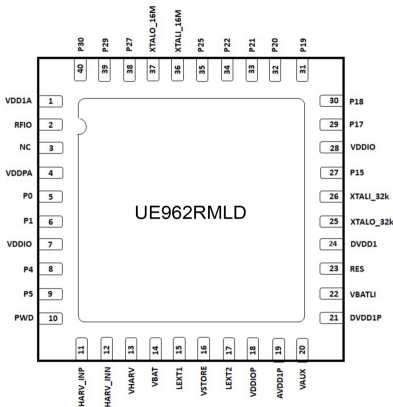Minimize CO2 footprint

Powerful
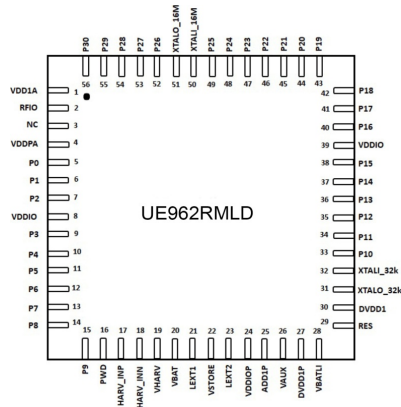
Secure

Features

Block diagram

UE962

ARM M33F (0.5 – 64MHz)
DMA CONTROLLER
ARM TrustZone Secure Boot Secure Debug AES -256
LFRC
HF - XTAL
LF - XTAL

INTERFACES
ADC
PDM
PWM
UART
SPI
I2C
I2S
QSPI
KSM
GPIO
QDEC
JTAG

MEMORY
ROM – 64kB
RAM – 128kB + 32kB Exchange
NVM – 512kB
Sensor Hub

Bluetooth 5.3   LE Audio / AoA -AoD
Modem + Link controller   Radio   Wake -up Receiver

Energy Harvesting PMU 1.1Vdc – 5Vdc

Package Layout

QFN40 5mmx5mm

UE962RMLD

QFN56 7mmx7mm

UE962RMLD

Specifications

Model

- Version Number: UE962RMLD

Connectivity

- Bluetooth
- Bluetooth Low Energy (BLE)
- Bluetooth version: 5.3
- Infrared

Hardware

- Processor: Cortex M33F Processor, 0.5 - 64MHz
- Flash Program Memory: 512kB
- SRAM: 128kB
- IR Features: QuickSet compliant

Power Consumption

- Hibernate mode: 0.7uA
- Sleep mode: 2uA
- RF Rx @-93dBm @3V: 1.1mA
- RF Tx @0dBm @3V: 3.0mA
- Bluetooth Low Energy Voice (5sec): 0.6mA

Energy Harvesting

- PV Harvesting: Direct connection to single cell Photovoltaic, Direct connection to multi Photovoltaic
- RF Harvesting: Support sub GHz or 2.4GHz RF from Cellular Mobile signal, Wi-Fi, Bluetooth, Zigbee, etc.

Interface

- Serial interface: ADC, I2C, I2S, JTAG, KSM, PDM, PWM, QDEC, QSPI, SPI, URAT
- GPIO interface: up to 31 GPIO

Security

- Security Features: AES 256, ARM TrustZone (store sensitive data), Secure boot (prevent hacking & malware attack), Secure debug, Secure execute, SHA-2 256 HW Crypto Engine, SRAM-PUF, True Random Number Generator

Operating Temperature

- Operational Temperature (C): -40°C - +85°C
- Operating Voltage: 1.1V - 3.3V

Package Layout

- Package layout: QFN40 5mmx5mm
- Package layout: QFN56 7mmx7mm

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