



# UWB SoC Solutions —ZN2014

Hangzhou Ultraception Technology Co., Ltd.  
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# ZN2014 UWB SoC

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The ZN2014 is a fully integrated single chip Impulse Radio Ultra-Wide Band (IR-UWB) SoC with low-power low-cost 1T3R transceiver compliant to IEEE802.15.4z. With BPRF & HPRF transmission, it can be used in Single-Sided (SS) and Double-Sided (DS) Two-Way Ranging (TWR) , Time Differential of Arrival (TDoA) and Phase Differential of Arrival (PDoA) systems to locate assets to a ranging accuracy of +/-5cm and angle accuracy of +/-3°.

It also integrates secure module for data encryption and generation of the Scrambled Timing Sequence (STS) needed for IEEE802.15.4z enhanced secure ranging, which can effectively prevent the relay attacks for Passive-Entry-Passive-Start (PEPS) systems. Further, the key derivation for STS can be directly generated on-chip, fully compatible with the standard requirement of Car Connectivity Consortium (CCC3.0).

The ZN2014 also supports data transfer at different rates of 850Kbps, 6.8Mbps, 27.2Mbps and up to 54.4Mbps, which can support wireless audio and video transmission with much less latency compared with BLE, Wi-Fi, 5.8G and other wireless techniques.

- **Power Supply**
  - ✓ Single power input: 1.8-3.6V
- **RF**
  - ✓ Channel 5 & 9 (6489.6MHz & 7987.2 MHz)
  - ✓ UWB transceiver with 1T3R structure
  - ✓ Integrated all RF switches and baluns
  - ✓ Programmable transmitter output peak power up to 10dBm
- **Modem**
  - ✓ IEEE802.15.4z Compatible and Fira 1.0 Certified.
  - ✓ BPRF: 62.4MHz PRF
  - ✓ HPRF: 124.8MHz and 249.6MHz PRF
  - ✓ Supporting packet length from 0 to 1023 bytes
  - ✓ Supports 2-way ranging (SS-TWR & DS-TWR), TDoA and PDoA
  - ✓ Static & Dynamic Scrambled Timing Sequence (STS) supported
  - ✓ Integrated HW AES 128/256
  - ✓ Integrated CCC3.0 Key Derivation
  - ✓ Data rates: 850Kbps, 6.8Mbps, 27.2Mbps and 54.4Mbps
  - ✓ Ranging accuracy less than  $\pm 5\text{cm}$
  - ✓ Angle of arrival accuracy less than  $\pm 3^\circ$
- **Package**
  - ✓ ZN2014FMC: QFN52-6.0mm x 6.0mm x 0.85mm
  - ✓ ZN2014BFMC: QFN48-6.0mm x 6.0mm x 0.85mm
  - ✓ ZN2014CWEC: WLCSP58-3.3mm x 3.0mm x 0.35mm
- **MCU Core**
  - ✓ ARM China Star-SE, 124.8MHz
  - ✓ 8K D-Cache + 8K I-Cache
  - ✓ DMA Supported
  - ✓ 2K bits OTP
  - ✓ 512KB flash
  - ✓ 64KB ROM
  - ✓ 256KB RAM
- **Oscillator**
  - ✓ 32.768KHz crystal
  - ✓ 38.4MHz crystal
  - ✓ Internal 13KHz RC oscillator
  - ✓ 124.8MHz Active Clock
- **Peripheral IPs**
  - ✓ 1 UART
  - ✓ 1 SWD
  - ✓ 2 SPIs
  - ✓ 1 I2C
  - ✓ 1 CAN
  - ✓ 3 PWMs
  - ✓ 10-bit ADC
  - ✓ 17 GPIOs



## Certificate of Conformance

FiRa™ Consortium is pleased to award this FiRa Certificate of Conformance to:

**Hangzhou Ultraception Technology Co., Ltd.**

For the following device:

**Name:** ZN2014

**Category:** Chipset

**Certification Type:** Base

**Certification Record Number:** CRN22014

**Hardware Version:** ZN2014\_PHY\_1.0

**Software Version:** ZN2014\_MAC\_1.0

**TRSL Version:** 1.4.0

In connection with the device listed above, the FiRa Consortium has granted the rights, privileges, and obligations associated with the FiRa Certification Mark to the FiRa Member as set forth in the FiRa Brand Guidelines and per the FiRa Certification Mark and License Agreement.

September 21, 2022

Date

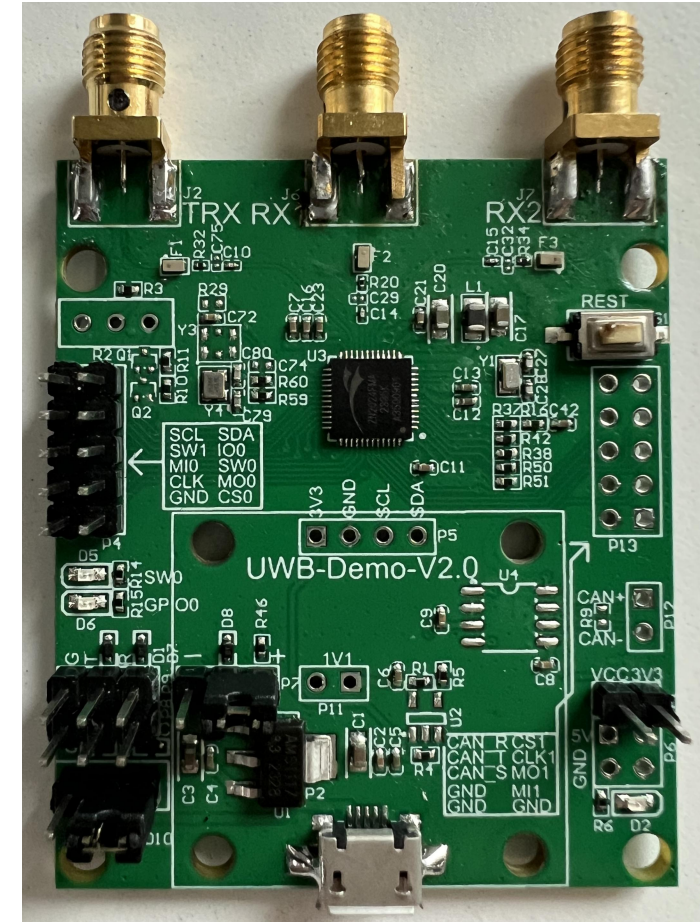
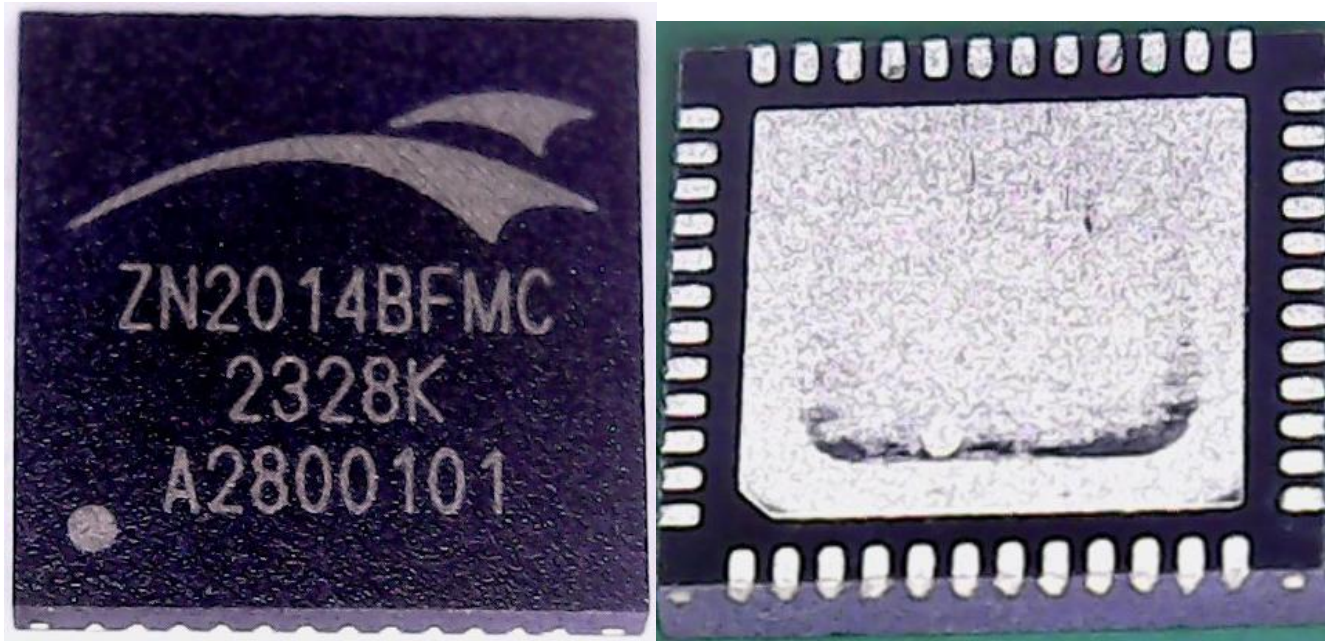
*Jianzhong Charlie Zhang*

Signature Name





# ZN2014 UWB SoC & Demo



# Website & Contact Information

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Company Logo