

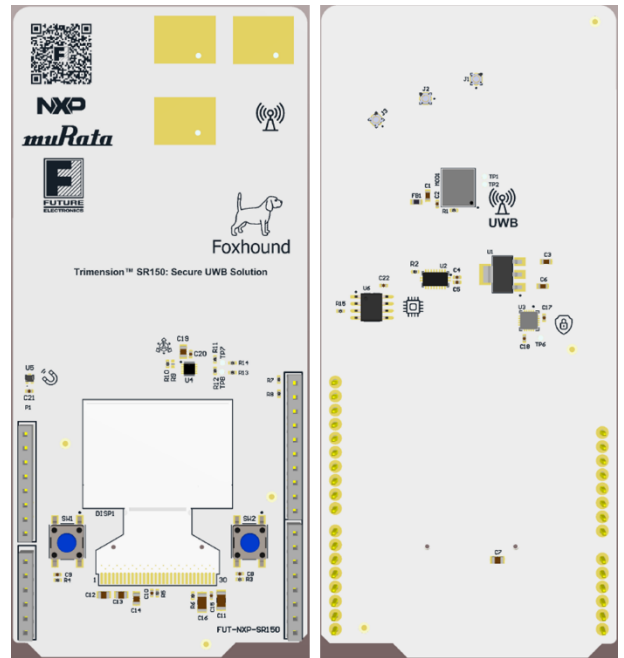
# Foxhound Ultra-Wideband (UWB) Evaluation Board

## Overview

Foxhound ([FUT-NXP-SR150](#)) is an evaluation board developed by Future Electronics to showcase the NXP SR150 Ultra-Wideband (UWB) positioning and ranging solution, optimized for IoT applications.

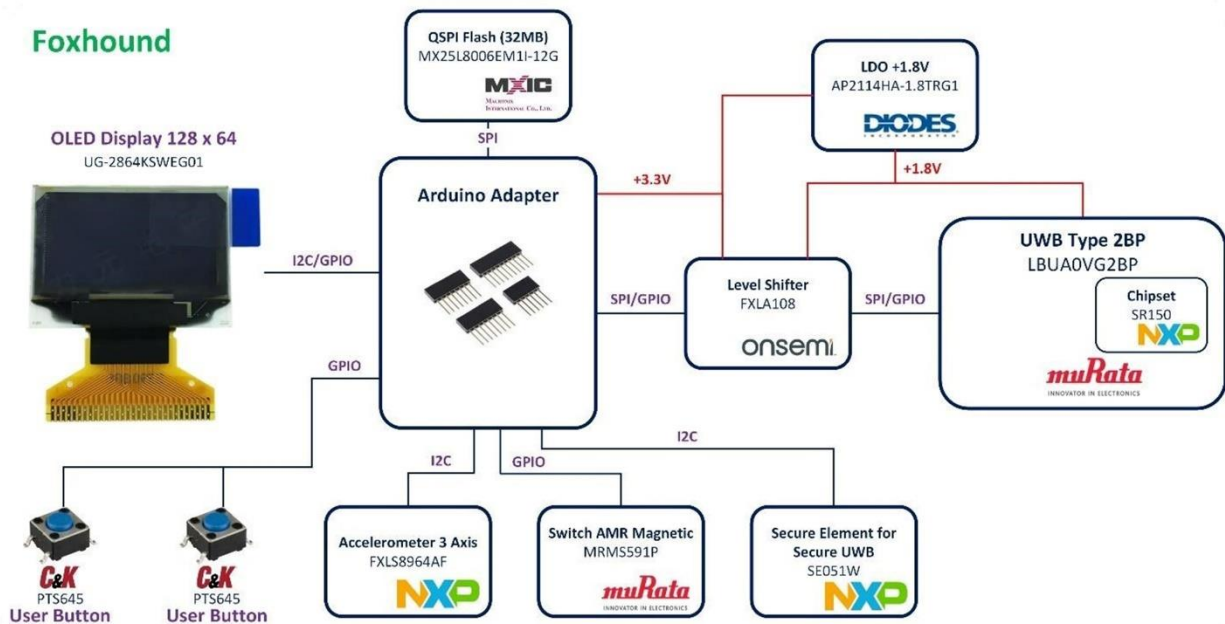
The Foxhound design integrates the Murata Type 2BP ultra-small UWB module, which includes NXP's SR150 UWB chipset, clock, filters, and peripheral components. It is compatible with the Arduino form factor, making it easy to use with a wide range of evaluation platforms. The board also features the NXP SE051W secure element IC, an OLED display, 8Mb flash memory, and on-board PCB antennas.

The Foxhound board includes embedded software and pre-built binary files to simplify firmware development, loading, and debugging. It also supports on-board demos and communication with PC console software such as PUTTY or Tera Term.



[FUT-NXP-SR150](#)

## System Block Diagram



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Data Brief

## Key Components from NXP Semiconductors

### Trimention™ SR150: Secure UWB Solution for IoT Devices

Designed with the specific needs of IoT devices in mind, Trimention [SR150](#) adds Angle-of-Arrival (AoA) technology for an added level of precision. The integrated FiRa™ MAC by NXP supports interoperability with the growing set of UWB devices to market.

#### Features:

- Apple MFi certification and interoperability with Apple U1 chip with firmware (v.3.14.0)
- Dual-RX for AoA functionality
- 3D AoA capable
- Can be connected to EdgeLock® SE051W for secure ranging use cases
- RTOS and Linux SW Solution for IoT integration
- Industry first FiRa certified chipset
- IEEE 802.15.4z compatible
- Arm® Cortex®-based



### EdgeLock® SE051W: Secure Element for Secure UWB Ranging in IoT

EdgeLock [SE051W](#) comes with the necessary crypto routines for secure ranging and IoT security. It securely stores the credentials for secure binding and secure ranging. A dedicated middleware package is provided on top for easy integration with Trimention SR150 in the host system.

#### Features:

- EdgeLock SE051 platform features
- Pre-integrated security software for multiple IoT and secure localization use cases
- Enablement of secure binding between Trimention SR150 and EdgeLock SE051W
- FiRa™ compliant
- Establishment of UWB session via secure channel
- Wrapping and encryption of UWB data
- Support of MIFARE® DESFire EV2 ecosystem
- Plug and Trust approach for ease of integration



### FXLS8964AF: ±2g/±4g/±8g/±16g, Low-Power 12-Bit Digital Accelerometer

[FXLS8964AF](#) is a compact 3-axis accelerometer designed for applications requiring ultra-low power wake up on motion. With AECQ100 qualification and an extended temperature range, this device is an ideal choice for Automotive Key Fob application.

#### Features

- 2 mm x 2 mm x 0.95 mm 10-pin DFN package
- AEC-Q100, extended temperature range from -40 °C to +105 °C
- ≤ 1 µA I<sub>DD</sub> up to 6.25 Hz, 20 µA I<sub>DD</sub> at 400 Hz
- 650 nA in standby mode, 50 nA in hibernate mode
- 12 bit resolution, 0.78 Hz to 3200 Hz output data rate
- I<sup>2</sup>C interface up to 1 MHz and SPI up to 4 MHz
- Configurable interrupts



# Foxhound Ultra-Wideband (UWB) Evaluation Board

## Key Components

Function	Part Number	Description	Manufacturer
UWB	<a href="#">LBUA0VG2BP</a>	Small size UWB module with conformal shielding	Murata / NXP
Secure MCU	<a href="#">SE051W2HQ1/Z019TZ</a>	Secure element for Secure UWB Ranging in IoT	NXP
Sensor	<a href="#">FXLS8964AF</a>	$\pm 2g/\pm 4g/\pm 8g/\pm 16g$ , Low-Power 12-Bit Digital Accelerometer	NXP
Sensor	<a href="#">MRMS591P</a>	Magnetic sensor	Murata
Display	<a href="#">UG-2864KSWEG01</a>	0.96" OLED Display 128 x 64	Wisechip
Memory	<a href="#">MX25L8006EM1I-12G</a>	3V, 8M-BIT [x 1/x 2] CMOS SERIAL FLASH MEMORY	Macronix
Signal Chain	<a href="#">FXLA108BOX</a>	Dual Supply 8-Bit Voltage Translator	onsemi
Power	<a href="#">AP2114HA-1.8TRG1</a>	1A Low Noise CMOS LDO Regulator with ENABLE	Diodes Incorporated
Switch	<a href="#">PTS645SM43SMTR92</a> <a href="#">LFS</a>	6 mm Tactile Switches	Littlefuse/C&K

## Typical Applications

The Foxhound board is ideal for developing industrial IoT applications, including secure, hands-free physical and logical access control, indoor positioning anchors, and smart home control.

