

Description

The ZWIR4512 enables secure low-power wireless IPv6 communication for sensors and small devices. IDT provides a user-programmable, royalty-free 6LoWPAN stack with mesh routing capability with the ZWIR4512. 6LoWPAN is an Internet Engineering Task Force (IETF) standard for building wireless, low-power IP-based sensor, and device networks. These networks can easily be integrated into existing IT infrastructure or operate autonomously.

Secure communication is provided by standard-compliant implementations of the Internet Protocol Security (IPSec) protocol suite and the Internet Key Exchange Protocol version 2 (IKEv2), which enable highly secure end-to-end communication, including over unsecure network nodes.

The module is powered by an ARM® Cortex™-M3 (ARM, Ltd. trademark) microcontroller and provides a rich set of GPIO and peripheral interfaces. Up to 192kB of flash and 32kB of RAM are available for applications. Different low power modes are provided to save energy in battery-operated devices. The modules provide superior radio properties without the need for complicated external RF design.

Firmware Features

- Serial command interface with built-in security and over-the-air update (OTA) functionality
- Royalty-free library bundle for custom firmware: 6LoWPAN communication library with mesh routing capability; IPSec and IKEv2 security libraries; over-the-air update library; several peripheral libraries

Available Support

- Development Kit
- Programming guide and application notes
- Ethernet, USB and UART gateways
- Free packet sniffer and example programs demonstrating C-API usage
- Windows® (Microsoft Corp. trademark) and Linux® (Linus Torvalds trademark) support tools

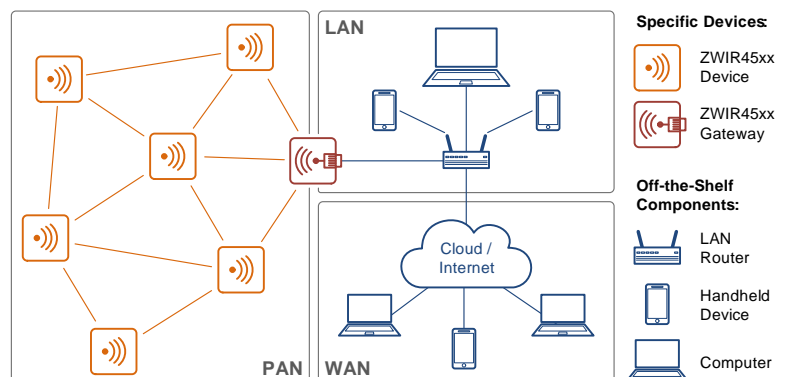
Typical Applications

- The ZWIR4512 serves as a universal secure radio communication module. Typical applications include home and industry automation, health monitoring, smart metering / smart grid applications, and keyless entry systems.
- Its very low current consumption makes the module suitable for battery-operated devices.

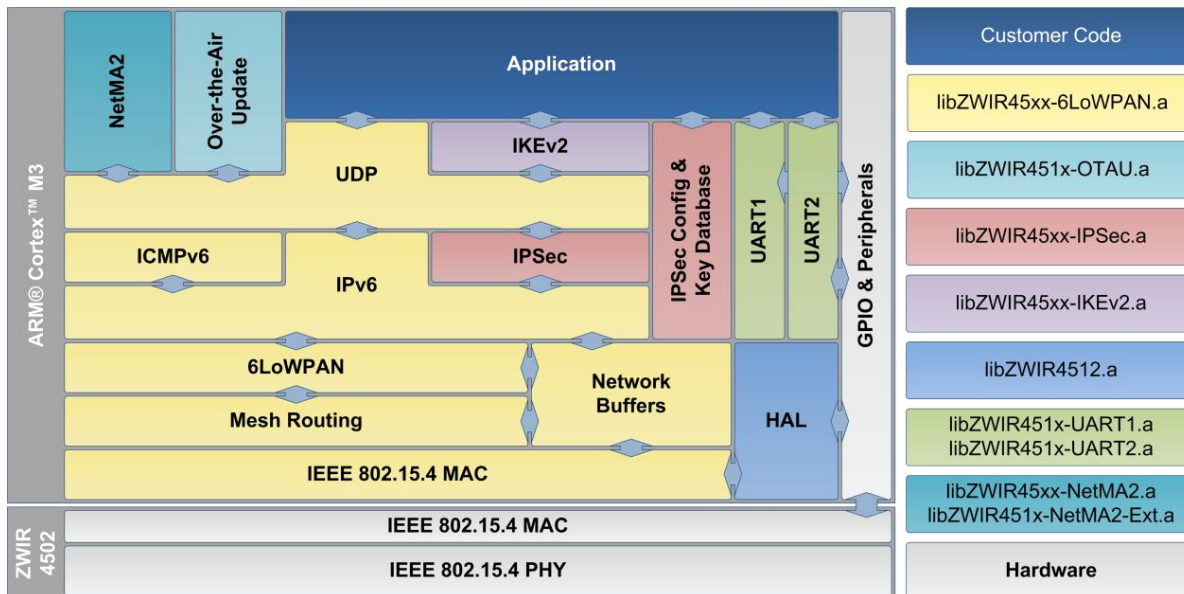
Hardware Features

- License-free 868/915MHz frequency bands
- ARM® Cortex™-M3 32-bit microcontroller
- ≤192kB flash and 32kB RAM for user applications
- Unique EUI64 address
- 4 channels in EU mode; 10 channels in US mode
- 19 (ZWIR4512AC1) or 21 (ZWIR4512AC2) GPIOs with multiplexed peripheral functions:
 - 2 x UART, SPI, 3 x ADC, 2 x DAC, 11 x PWM, USB, CAN, I2C, 8 x timer
 - Several 5V tolerant I/Os available
- Low current consumption: 3.5µA in Standby Mode; 10.5mA in Receive Mode; 16.0mA in Transmit Mode at 0dBm
- Modulation schemes
 - BPSK (20kBps EU, 40kBps US)
 - O-QPSK (100kBps EU, 250kBps US)
- Receiver sensitivity: up to -110dBm
- TX output power: up to 10dBm (US Mode)
- Uniquely simple programmability
- Standard-compliant security solution
- No need for external microcontroller
- Plug-and-play integration into local and wide-area networks
- No RF design required
- 2D barcode label containing MAC address
- Superior radio propagation
- ETSI/FCC certified
- Supply voltage: 2.0V to 3.6V
- Operating temperature: -40°C to +85°C
- 30-pin edge-board contact package or 32-pin land grid array package

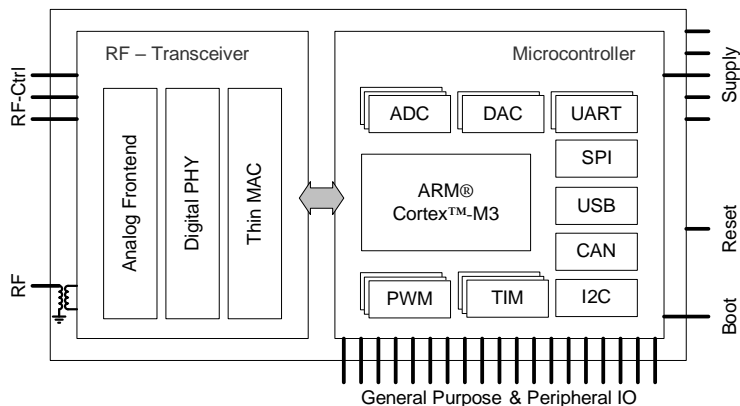
Typical ZWIR4512 Application Setup



Stack Architecture



ZWIR4512 Functional Block Diagram



Corporate Headquarters

6024 Silver Creek Valley Road
San Jose, CA 95138
www.IDT.com

Sales

1-800-345-7015 or 408-284-8200
Fax: 408-284-2775
www.IDT.com/go/sales

Tech Support

www.IDT.com/go/support

DISCLAIMER Integrated Device Technology, Inc. (IDT) and its affiliated companies (herein referred to as "IDT") reserve the right to modify the products and/or specifications described herein at any time, without notice, at IDT's sole discretion. Performance specifications and operating parameters of the described products are determined in an independent state and are not guaranteed to perform the same way when installed in customer products. The information contained herein is provided without representation or warranty of any kind, whether express or implied, including, but not limited to, the suitability of IDT's products for any particular purpose, an implied warranty of merchantability, or non-infringement of the intellectual property rights of others. This document is presented only as a guide and does not convey any license under intellectual property rights of IDT or any third parties.

IDT's products are not intended for use in applications involving extreme environmental conditions or in life support systems or similar devices where the failure or malfunction of an IDT product can be reasonably expected to significantly affect the health or safety of users. Anyone using an IDT product in such a manner does so at their own risk, absent an express, written agreement by IDT.

Integrated Device Technology, IDT and the IDT logo are trademarks or registered trademarks of IDT and its subsidiaries in the United States and other countries. Other trademarks used herein are the property of IDT or their respective third party owners. For datasheet type definitions and a glossary of common terms, visit www.idt.com/go/glossary. All contents of this document are copyright of Integrated Device Technology, Inc. All rights reserved.