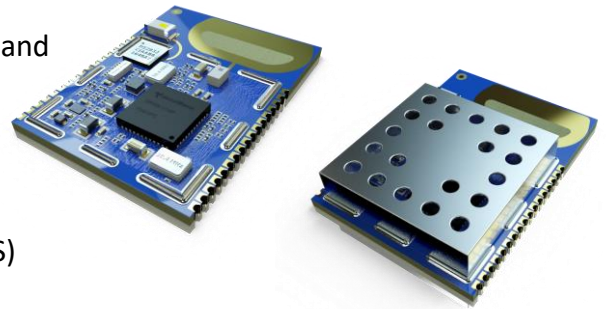## Overview

- UWB and *Bluetooth®* module based on Decawave's DW1000 IC and Nordic Semiconductor nRF52832 SoC

- On board motion sensor and integrated antennas

- Embedded firmware available enabling:

    - Accurate UWB-based Real-Time Location Systems (RTLS)

    - Data encrypted network connectivity
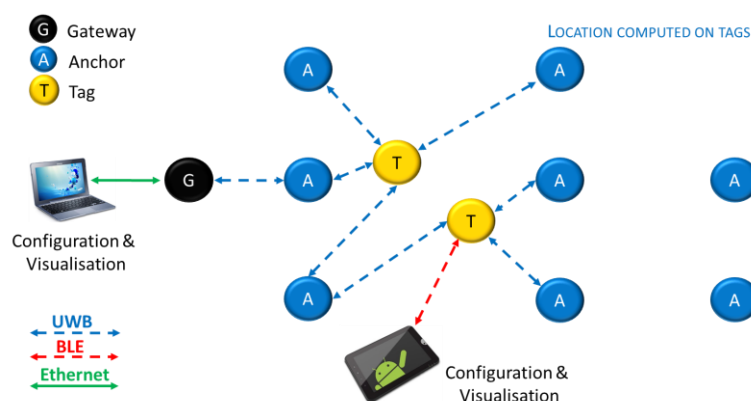
DWM1001C

Benefits

- Build scalable Two-Way-Ranging (TWR) RTLS systems with up to thousands of tags

- Accelerates product designs for faster time-to-market & reduced development costs

- Same module for anchor, tag and gateway designs

- No RF design required

- Embedded DRTLS firmware (DWM1001 SS-TWR RTLS) reduces software development effort

    - Firmware API to customise embedded user application

    - SPI, UART and *Bluetooth®* APIs to access DWM1001 from an external device

- On-board *Bluetooth®* for connectivity to phones/tablets

- Low-power hardware and software architecture for longer battery life

- The DWM1001C is the certified version of the module. It is certified for FCC, ISED and ETSI

Example Applications

- Industrial (asset-tracking, factory automation)

- Healthcare (locate assets, patients & staff)

- Retail (security, navigation, customer analytics)

- Consumer (connected home, sports analytics)
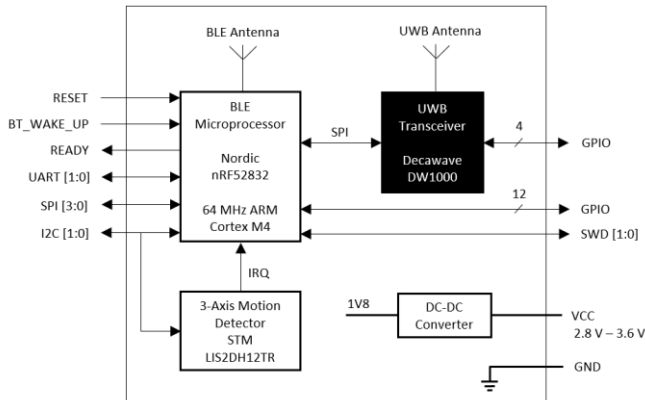
Complementary Products

- DWM1001-Dev: Development board for evaluating and programming the module

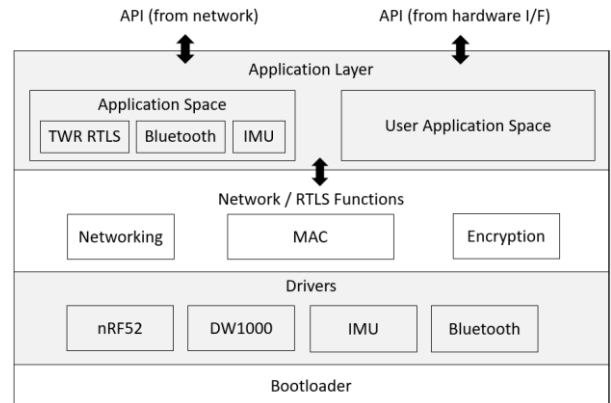- MDEK1001: Development and evaluation kit with 12 units

DWM1001-Based System Architecture

Decawave

PRODUCT BRIEF: **DWM1001C**

Technical Data

Hardware Features

- Decawave DW1000 UWB transceiver
  - IEEE802.15.4-2011 compliant
- UWB PCB antenna (6.5 GHz centre frequency)
- 6.8 Mbps frame data encoding
- Point to point range: up to 60m (line-of-sight)
- Nordic Semiconductor nRF52832 SoC
  - ARM Cortex M4F, 512K Flash
- *Bluetooth®* chip antenna
- 3-axis accelerometer: STM LIS2DH12TR
- Low power - Sleep mode: <5µA
- Supply voltage: 2.8 V to 3.6 V
- 19.125 mm x 26.125 mm x 2.6 mm
- 34 x 1 mm pitch side castellations
- Serial Wire Debug (SWD)
- External Interfaces:
  - SPI slave, I2C, UART
  - I2S Audio
  - NFC Ready
  - GPIOs
  - Bluetooth Wakeup

Software Features

- PANS firmware:
  - Complete RTLS & network stack – configurable into anchor, tag or bridge nodes
  - User options for partial or full re-flash
  - Location Engine on tag
  - BLE and UWB Over-the-air firmware updates
- Application code:
  - Two-Way-Ranging (TWR) RTLS
  - Application memory area for custom code
- Configuration via *Bluetooth®* or SPI/UART commands
- MAC layer:
  - Resource allocation, frame & slot timing
- Wireless network:
  - Discovery, joining, leaving, and scaling
  - Re-configuration and management from cloud
- Security:
  - AES encryption of UWB packets
- API access to firmware:
  - Nordic nRF52832 peripherals (GPIOs, I2C)

Get Started:
- Learn more at: www.decawave.com/products
- Download the RTLS SW at www.decawave.com/product/dwm1001-module/

Join the community:
- www.decawave.com/decaforum/