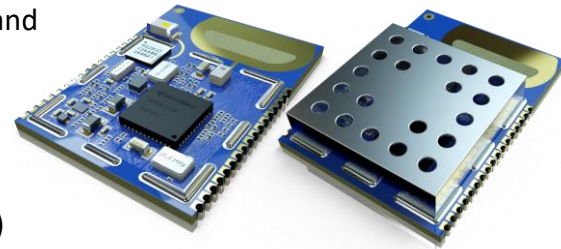


## Overview

- UWB and *Bluetooth*® module based on Decawave’s DW1000 IC and Nordic Semiconductor nRF52832 SoC
- On board motion sensor and integrated antennas
- Embedded firmware enabling:
  - Accurate UWB-based Real-Time Location Systems (RTLS)
  - Data encrypted network connectivity (available: Q1 2018)



**DWM1001 Module**

## Benefits

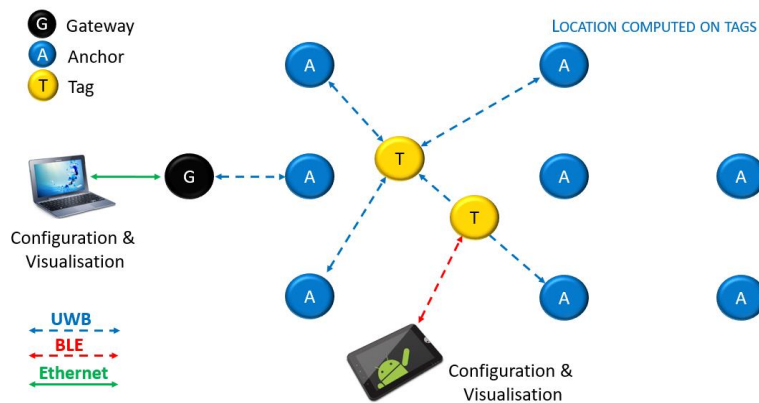
- Build scalable Two-Way-Ranging (TWR) RTLS systems with up to thousands of tags
- Accelerates product designs for faster time-to-market & reduced development costs
- Same module for anchor, tag & gateway designs
- No RF design required
- Embedded DRTLS firmware (DWM1001 TWR RTLS) reduces software development 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
- Certification: Q1 2018

## Example Applications

- Industrial (asset-tracking, factory automation)
- Healthcare (locate assets, patients & staff)
- Retail (security, navigation, customer analytics)
- Consumer (connected home, sports analytics)

## Complementary Products

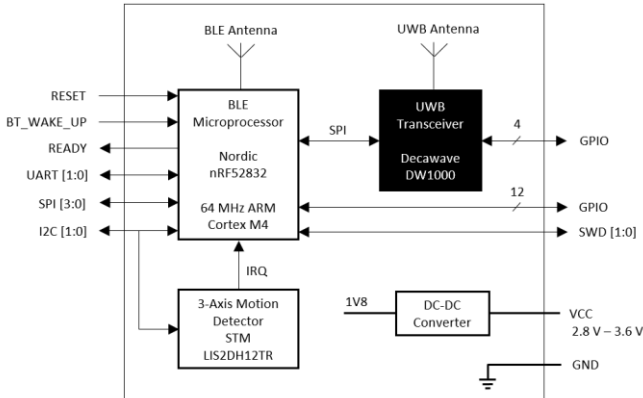
- DWM1001-Dev: Development board for evaluating and programming the module
- MDEK1001: Development and evaluation kit with 12 units, Android tablet application, Web Client



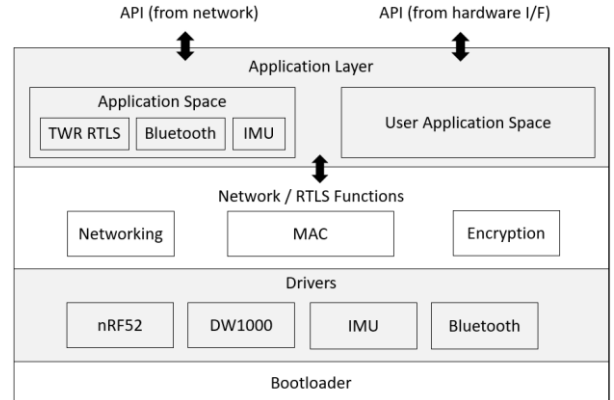
**DWM1001-Based System Architecture**

## Technical Data

### Hardware Features



### Software Features



- Decawave DW1000 UWB transceiver
  - IEEE802.15.4-2011 compliant
- UWB PCB antenna (6.5 GHz centre frequency)
- 6.8 Mbps frame data encoding
- ~60 m UWB line-of-sight range
- Nordic Semiconductor nRF52832 SoC
  - ARM Cortex M4F, 512K Flash
- *Bluetooth*<sup>®</sup> 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
- DRTLS firmware:
  - Complete RTLS & network stack – configurable into anchor, tag or bridge modes
  - User options for partial or full re-flash
  - Location Engine on tag
  - Over-the-air firmware updates
- Application code:
  - Two-Way-Ranging (TWR) RTLS
  - Application memory area for custom code
- Configuration via *Bluetooth*<sup>®</sup> or UART commands
- MAC layer:
  - Resource allocation, frame & slot timing
- Wireless mesh network (available: Q1 2018):
  - Network mgmt. & dynamic data routing
  - Discovery, joining, leaving, self-healing
- Security (available: Q1 2018):
  - AES encryption & decryption
- API access to firmware:
  - Nordic nRF52832 peripherals (GPIOs, I2C)
  - DRTLS Configuration



### Get Started:

- Learn more at: [www.decawave.com/products](http://www.decawave.com/products)
- Download the RTLS SW at [www.decawave.com/support/software](http://www.decawave.com/support/software)

### Join the community:

- <http://www.decawave.com/decaforum/>