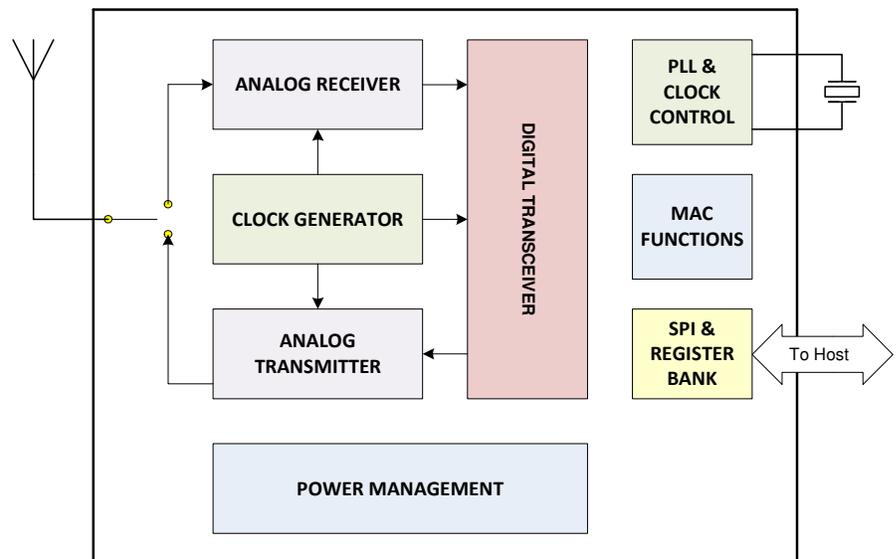


## Overview of DW1000 ScenSor (Seek Control Execute Network Sense Obey Respond)

- A single chip, IEEE802.15.4-2011 UWB compliant, Wireless Transceiver based on Ultra Wideband techniques
- Allows the location of objects in Real Time Location Systems (RTLS) to a precision of 10cm indoors, even while moving at up to 5m/s
- Allows high data rate communications, up to 6.8Mb/s, in Wireless Sensor Networks (WSN)
- Excellent communications range of up to 290m thanks to coherent receiver techniques\*
- Short packet durations support high tag densities – up to 11,000 in a 20m radius
- Highly immune to multipath fading – allows reliable communications in high fading environments
- Low power consumption allows operation from batteries for long periods depending on mode
- Very low silicon area allows the implementation of highly cost-effective solutions in RTLS and WSN

## Key Benefits

- Very precise location of tagged objects delivers enterprise efficiency gains and cost reductions
- Long LOS and NLOS range reduces amount of infrastructure required to deploy systems
- Low chip cost allows cost-effective implementation of solutions
- Low power consumption reduces the need to replace batteries and lowers system lifetime costs
- Standards based solution (IEEE802.15.4-2011), eases proliferation



Functional Block Diagram

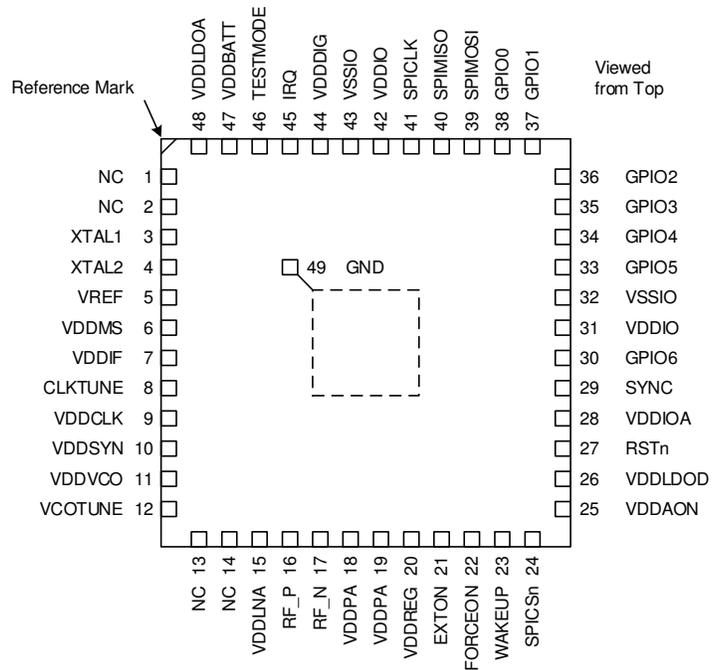
## Target Applications

The DecaWave DW1000 is optimized for applications in Real Time Location Systems and Wireless Sensor Networks across a variety of markets including Agriculture, Building Control and Automation, Factory Automation, Healthcare, Safety & Security, Warehousing & Logistics and a range of others

### Technical Data

- Supports 110kbit/s, 850kbit/s & 6.8Mbit/s data rates
- 6 frequency bands supported with center frequencies from 3.5GHz to 6.5GHz
- Transmit Power -14dBm or -10dBm
- Transmit Power Density < -41.3dBm / MHz
- Preamble Length 64μs to 4ms
- Supports Packet Sizes up to 1023 octets
- Modulation: BPSK with BPM
- Integrated MAC primitives with FEC and CRC insertion and checking
- Standard SPI interface to host (18Mb/s max)
- Allows easy integration with wide range of μControllers
- Single Supply Voltage 2.8V to 3.6V
- Low Power Consumption
  - Transmit mode from 31mA\*
  - Receive mode from 64mA\*
  - 2μA watchdog timer mode
- 100nA deep sleep mode
- Media Access Techniques
  - FDMA: 6 channels
  - CDMA: 12 different channel codes

\*Mode dependent



DW1000 Pin Diagram

- Supports both Two Way Ranging and One Way Ranging, using Time of Flight (TOF) and Time Difference of Arrival (TDOA) methods
- Fabricated in 90nm CMOS
- Industrial Temperature Range - 40 °C to +85 °C
- 6 x 6mm 48 pin QFN package
- Hardware & Software Applications support material available from DecaWave

To find out more contact: [sales@decawave.com](mailto:sales@decawave.com)

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