nRF52833 DK
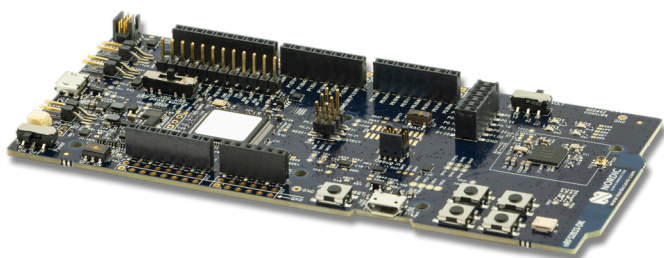
Development kit for Bluetooth Low Energy/Bluetooth mesh/Thread/Zigbee/802.15.4/2.4 GHz applications for the nRF52820 and nRF52833 SoCs

Product Overview

The nRF52833 DK is an affordable single-board development kit for *Bluetooth*® Low Energy (Bluetooth 5.2), Bluetooth mesh, Thread, Zigbee, 802.15.4 and 2.4 GHz proprietary applications using the nRF52833 multi-protocol SoC. It also supports development for the nRF52820 SoC.

The kit is compatible with the Arduino Uno Rev3 standard making it possible to use a wide range of 3rd-party shields during development, including the compatible Power Profiler Kit from Nordic Semiconductor.

The kit has access to all I/Os (42) and interfaces via connectors and there is an integrated PCB trace antenna and an RF connector for direct RF test measurements. There is also a connector for an external NFC antenna (included in kit).

Get started

Development on the nRF52833 DK is supported by the nRF5 Software Development Kit (SDK), providing all necessary examples, libraries and drivers to get started with Bluetooth Low Energy development. SoftDevice S140 is a Bluetooth 5.1 qualified protocol stack and includes support for high through-put with 2 Mbps transfer, Bluetooth Long Range, Advertising Extensions, and improved coexistence with Channel Selection Algorithm #2. nRF5 SDK for Mesh or nRF Connect SDK can be used for Bluetooth mesh development, while nRF5 SDK for Thread and Zigbee or nRF Connect SDK can be used for Thread and Zigbee development.

KEY FEATURES

- Bluetooth 5.2 multiprotocol radio
  - 2 Mbps
  - Long Range
  - Advertising Extensions
  - Channel Selection Algorithm #2 (CSA #2)
  - Bluetooth mesh
  - Direction Finding
- IEEE 802.15.4 radio support
  - Thread
  - Zigbee
- Arm® Cortex™-M4 with FPU
- Arduino Rev3 compatible connector for use with 3rd party shields
- All I/Os and interfaces available via connectors
- Segger J-Link OB programming/debugging supported
- Support for programming/debugging of external boards
- USB interface direct to nRF52833 SoC
- USB interface to power and program/debug
- Integrated 2.4 GHz PCB antenna
- Connector for external NFC antenna (included)
- SWF connector for direct RF measurements
- Pins for power consumption measurements
- 4 × user-programmable buttons
- 4 × user-programmable LEDs
- CR2032 coin-cell battery holder
- 1.7-5.5 V supplied from battery, USB or external VDD

APPLICATIONS

- Professional lighting
- Asset tracking
- Wayfinding
- Multiprotocol devices
- Mesh networks
- Advanced wearables
- Smart home
- HID/Gaming/VR
- Toys
- Sports and fitness

The nRF52833 SoC

The ultra-low power nRF52833 is a multiprotocol SoC with a Bluetooth Direction Finding capable radio, qualified for operation at an extended temperature range of -40°C to 105°C. It supports Bluetooth 5.2, Bluetooth mesh, 802.15.4, Thread, Zigbee, and proprietary 2.4 GHz protocols.

The nRF52833 is the 5th addition to the industry leading nRF52 Series SoC family and includes higher end features such as a Full-speed 12 Mbps USB 2.0, High-speed 32 MHz SPI, and +8dBm output power. It is built around a 64 MHz Arm Cortex-M4 with FPU and has 512 KB flash and 128 KB RAM memory available for higher value applications. It includes analog and digital interfaces such as NFC-A, ADC, UART/SPI/TWI, PWM, I2S and PDM, and has a 1.7 V to 5.5 V supply voltage range, which enables powering the device from rechargeable batteries or over USB. The two-stage LDO regulator and a DC-DC converter, together with the automated power management system help deliver low power numbers even in more advanced applications.

The extended temperature range up to 105°C, a generous amount of memory, and dynamic concurrent multiprotocol support ensures the nRF52833 is an ideal device for a wide range of commercial and industrial Bluetooth Low Energy, mesh and Thread applications, including professional lighting and asset tracking. A 1:4 RAM to Flash ratio and +8dBm output power make the nRF52833 suitable for advanced wearables or smart home applications where robust coverage is important.

nRF52833 DK COMPATIBLE SOFTDEVICES

S113	Memory-optimized Peripheral-only Bluetooth Low Energy protocol stack for the nRF52805, nRF52810, nRF52811, nRF52820, nRF52832, nRF52833 and nRF52840 SoCs.
S140	Feature-rich Central and Peripheral Bluetooth Low Energy protocol stack for the nRF52811, nRF52820, nRF52833 and nRF52840 SoCs.

RELATED PRODUCTS

nRF52833	SoC for Bluetooth Low Energy/Bluetooth mesh/802.15.4/Thread/Zigbee/2.4 GHz
nRF52820	SoC for Bluetooth Low Energy/Bluetooth mesh/802.15.4/Thread/Zigbee/2.4 GHz
nRF52840	SoC for Bluetooth Low Energy/Bluetooth mesh/802.15.4/Thread/Zigbee/ANT/2.4 GHz
nRF52832	SoC for Bluetooth Low Energy/Bluetooth mesh/ANT/2.4 GHz
nRF52811	SoC for Bluetooth Low Energy/802.15.4/Thread/Zigbee/ANT/2.4 GHz
nRF52810	SoC for Bluetooth Low Energy/ANT/2.4 GHz
nRF5 SDK	Main software development kit for Bluetooth Low Energy, ANT and 802.15.4
nRF5 SDK for Mesh	Software development kit for Bluetooth mesh
nRF5 SDK for Thread and Zigbee	Software development kit for Thread and Zigbee
nRF Connect SDK	Software development kit for Bluetooth Low Energy, Bluetooth mesh, Thread and Zigbee

ORDER INFORMATION

nRF52833-DK	Development Kit for the nRF52820 and nRF52833 SoCs

WORLD WIDE OFFICE LOCATIONS

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For more information
Visit **nordicsemi.com** for the complete product specification about this and any other wireless ULP products.

About Nordic Semiconductor
Nordic Semiconductor is a fabless semiconductor company specializing in ULP short-range wireless communication. Nordic is a public company listed on the Norwegian stock exchange.

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