

nRF52840 Dongle

Development dongle for Bluetooth 5/Bluetooth mesh/Thread/Zigbee/802.15.4/ANT/2.4GHz



Product Overview

The nRF52840 Dongle is a small, low-cost USB dongle for Bluetooth[®] Low Energy (LE), Bluetooth mesh, Thread, Zigbee, 802.15.4, ANT and 2.4 GHz proprietary applications using the nRF52840 SoC. The dongle is the perfect target hardware for use with nRF Connect for Desktop as it is low-cost but still support all the short range wireless standards used with Nordic devices. The dongle has been designed to be used as a wireless HW device together with nRF Connect for Desktop.

It can also be used to develop code for the nRF52840 SoC mounted on the dongle. Programming is supported through a USB enabled bootloader. Connectors for external debuggers are available.

The dongle is supported by most of the nRF Connect for Desktop apps and will automatically be programmed if needed. It is the number one target for coming nRF Connect apps. In addition, custom applications can be made and downloaded to the dongle. It has a user programmable RGB LED, a green LED, a user programmable button as well as 15 GPIO accessible from castellated solder points along the edge.

Free software development tools, including protocol stacks (SoftDevices) and the nRF5 SDK, are available to download from www.nordicsemi.com

Bluetooth 5 - Longer range, and higher throughput

The nRF52840 SoC is ready to take advantage of the considerable performance improvements for Bluetooth LE with the arrival of the Bluetooth 5 specification. Of greatest importance is the support for longer range (up to x4 compared to Bluetooth 4.x) and doubling of on-air data rate, up to 2 Mbps from 1 Mbps in Bluetooth 4.x

High link budget for in-home applications

The nRF52840 SoC is the ideal solution for smart connected home applications. It supports both Bluetooth 5's long range feature and also 802.15.4 which is already a popular technology for home networking protocols. With a maximum output power of 8 dBm a total link budget of >111 dBm is achievable for achieving robust communications through objects within the home.

KEY FEATURES

- Bluetooth 5 ready multiprotocol radio
 - 2 Mbps
 - Long Range
 - Advertising Extensions
 - Channel Selection Algorithm #2 (CSA #2)
- IEEE 802.15.4 radio support
 - Thread
 - Zigbee
- Arm[®] Cortex[™]-M4 with floating point support
- DSP instruction set
- Arm CryptoCell CC310 cryptographic accelerator
- 15 GPIO available via edge castellation
- USB interface direct to nRF52840 SoC
- Integrated 2.4 GHz PCB antenna
- 1 user-programmable button
- 1 user-programmable RGB LED
- 1 user-programmable LED
- 1.7-5.5 V operation from USB or external

APPLICATIONS

- Advanced wearables
 - Advanced personal fitness devices
 - Connected health
- IoT
 - Connected home sensors and controllers
 - Industrial IoT sensors and controllers
- Interactive entertainment devices
 - Advanced remote controls
 - Gaming controllers
 - Virtual/Augmented Reality applications

Arm CryptoCell 310

The nRF52840 features an on-chip Arm CryptoCell 310 cryptographic hardware accelerator. CryptoCell offers a wide range of ciphers and security features for building solid security into applications from the ground up. Use of CryptoCell also makes associated security operations run faster and uses less processing time and power than equivalent operation carried out in software by the CPU.

Bluetooth 5 data rates	2 Mbs (New)	High throughput
	1 Mbs	Existing Bluetooth LE data rate
	500 kbs (New)	Longer range
	125 kbs (New)	Longest range

OTA-DFU

The nRF52840 SoC is supported by Over-the-Air Device Firmware Upgrade (OTA-DFU). This allows for in the field updates of application and/or protocol stack.

Nordic SoftDevices

Nordic protocol stacks are known as SoftDevices. SoftDevices are pre-compiled binaries without runtime dependencies. They reside in a separate memory location to your application and offer safer, easier, and more secure application development. The nRF52840 SoC is supported by the S140 SoftDevice.

S140 SoftDevice

The S140 SoftDevice supports 20 Bluetooth LE links in concurrent operation operation for all 4 roles (Central/Peripheral/Broadcaster/Observer). The S140 is a Bluetooth 5 qualified stack and as such supports the latest long range and high throughput features introduced in Bluetooth 5.

nRF52840 COMPATIBLE SOFTDEVICES

S140	Feature complete Bluetooth 5 protocol stack for the nRF52840 SoC
S340	Combined Bluetooth 5 and ANT protocol stack for the nRF52840 SoC

RELATED PRODUCTS

nRF52840 DK	Development kit for the nRF52811 and nRF52840 SoCs
nRF52 DK	Development kit for the nRF52810 and nRF52832 SoCs
nRF52840	SoC for Bluetooth 5/Bluetooth mesh/802.15.4/Thread/Zigbee/ANT/2.4 GHz
nRF52832	SoC for Bluetooth 5/Bluetooth mesh/ANT/2.4 GHz
nRF52811	SoC for Bluetooth 5.1/802.15.4/Thread/Zigbee/ANT/2.4 GHz
nRF52810	SoC for Bluetooth 5/ANT/2.4 GHz
nRF5 SDK	Main software development kit for Bluetooth 5, 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

ORDER INFORMATION

nRF52840-Dongle	Development dongle for the nRF52840 SoC
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WORLD WIDE OFFICE LOCATIONS

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For more information
Visit [nordicsemi.com](http://nordicssemi.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.

