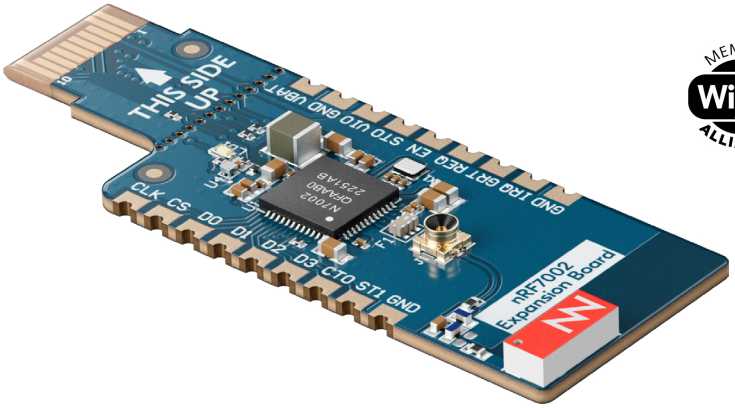
nRF7002 Expansion Board

Plug-in board for adding low-power Wi-Fi 6 capabilities to the Nordic Thingy:53



Overview

The nRF7002 Expansion Board is a plug-in board for adding Wi-Fi 6 connectivity to a Nordic Thingy:53. It contains everything needed to get started developing Wi-Fi applications on the Thingy:53. The board connects with a PCB edge connector to the Thingy:53's expansion slot and uses the Thingy's nRF5340 multiprotocol System-on-Chip (SoC) as a host device for the nRF7002 Wi-Fi Companion IC. With a firmware upgrade, the Thingy:53 will be able to communicate with Edge Impulse Studio directly over Wi-Fi.

The nRF7002 supports the development of low-power Wi-Fi 6 applications and enables Thingy:53 to use Wi-Fi 6 features like OFDMA, Beamforming, and Target Wake Time.

The nRF7002 Expansion Board can also be used for easy prototyping with other Nordic host devices, with castellations for all pins on the nRF7002 and perforations along the neck of the Thingy:53 specific connector, making it possible to break off.

To communicate with the Thingy:53's internal nRF5340 SoC, the nRF7002 Expansion Board uses SPI, and a 3-wire coexistence interface to allow seamless coexistence with other protocols like Bluetooth Low Energy or Thread. The nRF7002 Expansion Board is integrated and supported in Nordic's nRF Connect SDK.

The nRF7002 companion IC is the first device in Nordic's portfolio of unique Wi-Fi products that will combine seamlessly with Nordic's existing ultra-low power technologies. Nordic brings its decades of ultra-low-power wireless IoT and silicon design expertise to Wi-Fi. Wi-Fi 6 brings added benefits to IoT applications, including further efficiency gains supporting long-life, battery-powered Wi-Fi operation.

With this Wi-Fi 6 expansion board, the Nordic Thingy:53 supports all wireless protocols used in Matter: Bluetooth LE for commissioning, Thread for low-power mesh, and Wi-Fi for high-throughput. Matter is a standard championed by Apple, Amazon, Google, Nordic Semiconductor, Samsung, and hundreds of other companies in consumer IoT.

Key features

- nRF7002 Wi-Fi Companion IC
- Thingy:53 Plug-in form factor
- Castellations for all pins on nRF7002
- Antenna for 2.4 and 5 GHz
- Board support and samples in nRF Connect SDK
- SWF port for RF measurement

nRF7002 Wi-Fi Companion IC

- 2.4 GHz and 5 GHz dual-band
- Low-power and secure Wi-Fi for the IoT
- Ideal coexistence with Bluetooth LE
- Supported in nRF Connect SDK
- Target Wake Time (TWT)
- SPI / QSPI
- Wi-Fi 6 Station (STA)
- Complies with 802.11a/b/g/n/ac/ax
- 1 Spatial Stream (SS)
- 20 MHz channel bandwidth
- 64 QAM (MCS7), 86 Mbps PHY throughput
- OFDMA (Downlink and Uplink)
- BSS coloring
- Co-existence interfaces

Applications

- Asset tracking
- Battery operated Wi-Fi products
- Machine Learning (ML)
- Matter prototyping
- Smart city & smart agriculture
- Smart home
- Industrial sensors
- Wearables & medical

Order Information

nRF7002-EB	Thingy:53 Wi-Fi Expansion Board

For more information please visit: **nordicsemi.com/nRF7002EB**

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