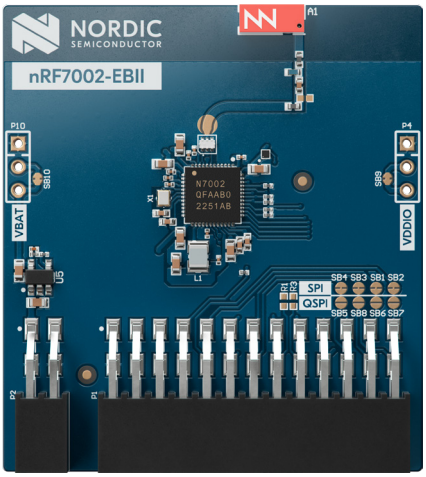
nRF7002 EBII

Expansion Board for adding low-power Wi-Fi 6 capabilities to nRF54 Series Development Kits



The nRF7002 Expansion Board II (nRF7002 EBII) is a plug-in board designed to add advanced Wi-Fi 6 connectivity to Nordic's nRF54 Series Development Kits. It provides everything needed to start developing Wi-Fi applications on the nRF54L platform. The board connects through a dedicated expansion header and uses the DK's nRF54L multiprotocol System-on-Chip (SoC) as the host for the nRF7002 Wi-Fi Companion IC.

With the nRF7002 EBII, developers can leverage Nordic's proven ultra-low-power wireless expertise to build next-generation IoT products. The nRF7002 enables the development of low-power Wi-Fi 6 applications and supports advanced features such as OFDMA, Beamforming, and Target Wake Time (TWT), which are critical for efficient, battery-powered designs.

The board is optimized for seamless integration within Nordic's ecosystem. It supports SPI by default and can be configured for QSPI as the host interface, offering flexibility for high-performance applications. Integrated headers for current consumption measurement and power profiling make nRF7002 EBII an ideal tool for optimizing energy-constrained designs. The onboard dual-band antenna ensures robust connectivity across Wi-Fi bands.

Nordic Semiconductor brings decades of experience in ultra-low-power wireless IoT and silicon design to Wi-Fi technology. Wi-Fi 6 introduces efficiency gains that enable long-life, battery-powered operation, making it a perfect complement to Nordic's Bluetooth® LE and Thread® solutions. The nRF7002 EBII is fully supported in Nordic's nRF Connect SDK, ensuring a streamlined development experience.

With this expansion board, developers can create products that support all wireless protocols used in Matter: Bluetooth LE for commissioning, Thread for low-power mesh networking, and Wi-Fi for high-throughput applications. Matter is a global standard backed by Apple, Amazon, Google, Nordic Semiconductor, Samsung, and hundreds of other companies, driving interoperability in consumer IoT.

The nRF7002 EBII is ideal for applications such as smart home, smart city, industrial sensors, wearables, and machine learning at the edge, empowering developers to build secure, scalable, and energy-efficient IoT solutions.

Key features

- nRF7002 Wi-Fi® Companion IC
- Compatibility with nRF54L Series Development Kits
- Onboard dual-band 2.4/5 GHz antenna
- Board support and example code in nRF Connect SDK

nRF7002 Wi-Fi Companion IC

- Dual-band support: 2.4 GHz and 5 GHz
- Wi-Fi 6 (802.11ax) compliant, backward compatible with 802.11a/b/g/n/ac
- Wi-Fi roles: Station (STA) and SoftAP
- 1 Spatial Stream (SS)
- 20 MHz channel bandwidth
- 64 QAM (MCS7), up to 86 Mbps PHY throughput
- OFDMA (Downlink and Uplink)
- BSS Coloring
- Target Wake Time (TWT) for power efficiency
- Designed for coexistence with Bluetooth LE and 802.15.4
- Coexistence interfaces available for smooth multi-protocol operation
- Fully supported in nRF Connect SDK
- Interfaces: SPI / QSPI for host communication

Applications

- Asset tracking
- Battery-operated Wi-Fi products
- Edge AI (Machine Learning)
- Smart city & smart agriculture
- Smart home applications (i.e. Matter)
- Industrial sensors
- Wearables & medical

Order Information

- nRF7002-EBII - Low-power Wi-Fi 6 evaluation kit with nRF54L series DK compatibility

Compatible Development Kits

- nRF54LM20 DK - Bluetooth LE, Bluetooth mesh, NFC, Thread, Zigbee, Proprietary 2.4 GHz
- nRF54L15 DK - Bluetooth LE, Bluetooth mesh, NFC, Thread, Zigbee, Proprietary 2.4 GHz

For more information please visit: nordicsemi.com/nRF7002EBII