nRFgo Development Kit for nRF24LE1

Enabling single chip ultra low power wireless applications

The nRF24LE1 Development Kit comes in three variants, the nRF24LE1-F16Q24-DK for the 24-pin 4x4mm variant, the nRF24LE1-F16Q32-DK for the 32-pin 5x5mm variant, and the nRF24LE1-F16Q48-DK for the 48-pin 7x7mm variant. These kits used in conjunction with the nRFgo Starter Kit enable users to perform evaluation, testing, prototyping, firmware development and debugging on the nRF24LE1.


The kit includes three (3) nRFgo compatible radio modules, two (2) of them with PCB antennas and one (1) with an SMA connector for use with external antennas or in a closed loop set-up. The CD contains a complete Software Development Kit (SDK) as well as documentation.

nRF24LE1 radio module

For the nRFgo Starter Kit

The nRF24LE1 radio modules are designed to be used with the nRFgo Starter Kit (nRF6700).
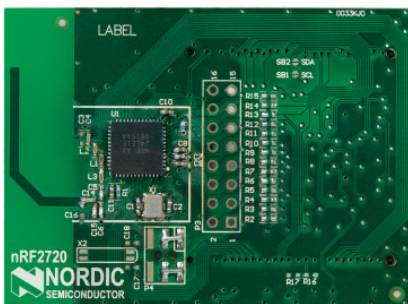
The module integrates all required external circuitry including a 16MHz crystal, matching network and a PCB quarter-wave antenna. The module also includes a 32kHz crystal that can be easily enabled or disabled with jumper settings. All chip I/O pins are made available on the module connector. The SMA module is identical except for the antenna being replaced with an SMA connector.

Software Development Kit

Kick start your firmware development on the nRF24LE1

The SDK contains everything needed to start developing firmware for the nRF24LE1 including Keil µVision IDE (evaluation version), compressive library of Hardware Abstraction Layers (HAL), an RF protocol stack, example applications and the nRFProbe hardware debug solutions. The HAL makes it easy to take advantage of the peripherals included in the nRF24LE1 by providing an easy to use API. Examples of peripherals supported by the HAL are the radio transceiver; SPI; UART; real-time clock; 2-wire, AES accelerator; ADC and the random number generator.

RF Silicon	Software	Reference Design	Development Tools

PRODUCT BRIEF

nRFgo Development Kit for nRF24LE1

nRF24LE1-F16Q24-DK
nRF24LE1-F16Q32-DK
nRF24LE1-F16Q48-DK

KEY FEATURES

- nRFgo compatible development kit for nRF24LE1
- One kit per nRF24LE1 variant; 24-pin 4x4mm, 32-pin 5x5mm and 48-pin 7x7mm
- Compatible with nRFgo Starter Kit (nRF6700)
- Enables evaluation, testing, prototyping, firmware development and debugging on nRF24LE1
- Two nRF24LE1 radio modules with PCB antennas
- One nRF24LE1 radio module with SMA connector for use with external antennas or closed loop set-up
- Five nRF24LE1 samples
- On-board, high accuracy 32kHz crystal. Can be enabled/disabled via jumper setting
- All I/O pins available on module connector
- Direct access to Analog I/O on the module for low noise input/output
- Complete Software Development Kit (SDK)
- Tight integration with Keil µVision
- Comprehensive library of Hardware Abstraction Layers (HAL) including: radio, SPI, AES accelerator, ADC, comparator, real-time clock and more
- Low power RF protocol stack
- Example applications using the HAL and RF protocol stack
- nRFProbe hardware debug solutions for Keil µVision
- Supports single stepping and up to four breakpoints
- Keil I/O modules for 2-wire, comparator, AES accelerator, PWM, ADC, RNG, real-time clocks and watchdog
- Comprehensive documentation

SUMMARY OF BENEFITS

- Used in conjunction with nRFgo Starter Kit a complete solution for evaluation, prototyping and firmware development with nRF24LE1
- Tight integration with Keil µVision
- Comprehensive set of Hardware Abstraction Layers plus example application to kick-start firmware development
- Fully featured nRFProbe hardware debug solution when used with the nRFgo Starter Kit (nRF6700)

Easy access to all chip I/O pins
Application prototyping using nRFgo Starter Kit
With the nRF24LE1 radio module plugged into the nRFgo Motherboard the user gets easy access to all the chip I/O pins via the I/O port headers on the motherboard.
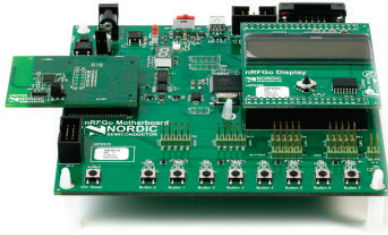
Using patch cables, it is easy to route the I/O pins to the on-board buttons, diodes, or the interface connectors. The chip I/O is also available on the extension board socket so users can use custom extension boards for advanced prototyping.

Direct access to analog I/O
Using high precision analog peripherals on nRF24LE1
The nRF24LE1 contains several high accuracy analog I/O peripherals such as the ADC and the comparator. Using the I/O headers on the nRFgo Motherboard may introduce too much noise and routing length for optimal performance for such peripherals. To solve this, the radio module provides a direct access to the analog I/O on the module itself.
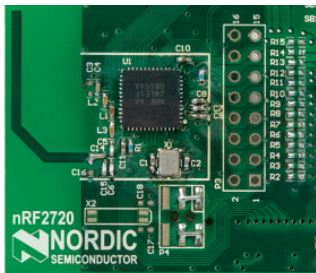
About Nordic Semiconductor ASA
Ultra low power RF silicon solutions
Nordic Semiconductor is fabless semiconductor company specializing in ultra low power (ULP) short-range wireless communication. Nordic is a public company listed on the Norwegian stock exchange.

Nordic provides RF Silicon Solutions for ultra low power wireless including:
- Highly integrated RF silicon
- Sophisticated and flexible development tools
- Application specific communication software
- Complete reference designs

Worldwide office locations
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Trondheim, Norway
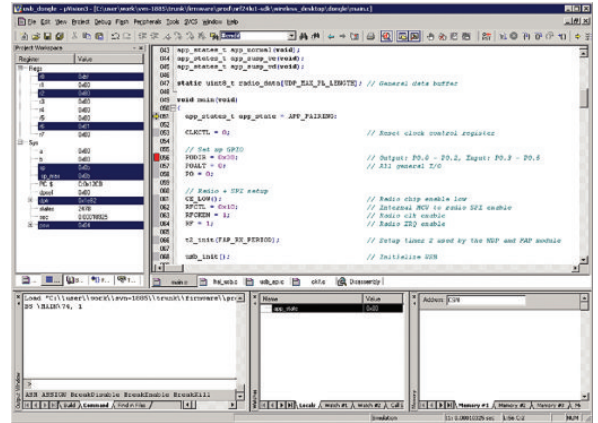**Telephone: +47 72 89 89 00**
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Integrated Development Environment
Code development, programming and debugging
The nRF24LE1 development environment is built around the Keil µVision IDE. All key functions such as flashing and debugging are accessed through the Keil µVision GUI. The kit includes an evaluation version of Keil (4k code size limit).

Hardware debugging using nRFProbe
No dongle required using the nRFgo Starter Kit
nRFProbe is a fully featured hardware debugger solution specifically designed for Nordic Semiconductor radios with embedded microcontrollers. It is fully integrated with Keil, and the nRF24LE1 has extended support with I/O modules for key blocks such as the 2-wire, ADC and comparator. No external dongle is required as the nRFgo motherboard has built-in support for the nRFProbe, enabling it to work over the USB interface between the PC and the motherboard.

Product content
Hardware, Software and Documentation
The following is included in the box:
- Two nRF24LE1 radio modules with PCB antenna
- One nRF24LE1 radio module with SMA connector
- Five nRF24LE1 samples
- Printed Getting Started Guide
- Installation CD with SDK, nRFProbe, evaluation version of Keil and documentation

Ordering information
Ordering code	Description
nRF24LE1-F16Q24-DK	nRFgo compatible Development Kit for nRF24LE1 24-pin 4x4mm variant
nRF24LE1-F16Q32-DK	nRFgo compatible Development Kit for nRF24LE1 32-pin 5x5mm variant
nRF24LE1-F16Q48-DK	nRFgo compatible Development Kit for nRF24LE1 48-pin 7x7mm variant

Related Products
nRF6700	nRFgo Starter Kit (Required to use this development kit)
nRF24LE1	Ultra low power wireless System-on-Chip (SoC) solution
nRF24LU1	Single chip 2.4 GHz transceiver with fullspeed USB, microcontroller and flash memory

Visit **www.nordicsemi.no** for Nordic Semiconductor sales offices and distributors worldwide.