nRF52840 Bluetooth 5.0 Evaluation Kit

SKU: 15951
Part Number: NRF52840 Eval Kit
Brand: Waveshare
UPC: 614961953802

Description

nRF52840 Bluetooth 5.0 Evaluation Kit, Arduino / Raspberry Pi Connectivity

Only one NRF52840 module is included in the kit, it should be noted that at least three NRF52840 modules are required for Bluetooth MESH networking.

Overview

NRF52840 Eval Kit is a development/evaluation kit based on nRF52840, features Arduino / Raspberry Pi connectivity, and several common used peripherals.

It supports the new generation Bluetooth 5.0, compared to Bluetooth 4.0, the data rate is twice, up to 2Mbps, the transfer distance is quadruple. Based on the ARM Cortex-M4F architecture, the CPU frequency achieves up to 64MHz. Bluetooth MESH and 2.4GHz radio are also available, that means higher performance, and more suitable applications.

Thanks to the onboard Arduino / Raspberry Pi compatible headers, both Arduino shields and Raspberry Pi HATs can be attached at the same time, make it easy to use more expansion resources.

Features

- Arduino connectivity, supports Arduino shields
- Raspberry Pi connectivity, supports Raspberry Pi HATs
- Integrates CP2102 USB TO UART, for serial debugging
- Onboard several peripherals and interfaces, convenient for study / development
- Comes with development resources and manual (examples for Bluetooth 5.0 / Bluetooth MESH)

What's on Board
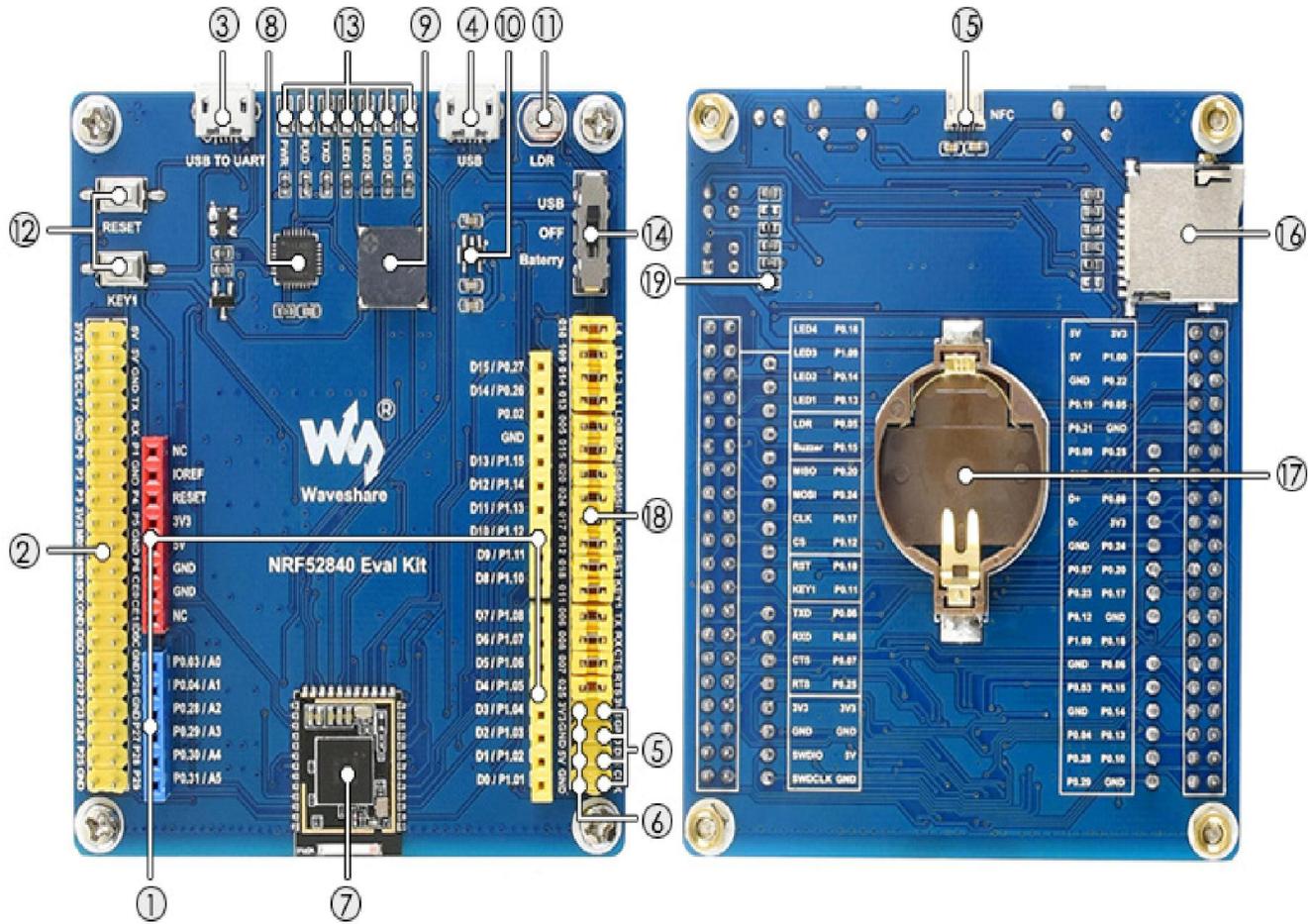
1. **Arduino headers:** for connecting Arduino shields
2. **Raspberry Pi GPIO header:** for connecting Raspberry Pi HATs
3. **USB TO UART interface**
4. **USB port:** the USB port of nRF52840
5. **4PIN SWD debugging interface:** for connecting ARM Debugger to program / debug
6. **3.3V/5V power input/output:** provides power output OR powered from external power supply
7. **Core52840:** nRF52840 core module
8. **CP2102:** USB TO UART converter
9. **Buzzer**
10. **RT9193-33:** 3.3V voltage regulator
11. **Optical sensor**
12. **Keys:** RESET and USER KEY
13. **LEDs**
    PWR: power indicator
    RXD/TXD: nRF52840 UART RX/TX indicator
    LED1~LED4: USER LEDs

14. **Power switch**
    USB: powered from USB connection
    Battery: powered from CR2032 battery
15. **NFC antenna connector**
16. **TF card slot**
17. **CR2032 battery holder**
18. **Jumpers**
    Short the jumpers: connect the onboard peripherals to I/Os in example code
    Open the jumpers: connect to custom I/Os via jumper wires
19. **Current testing pads:** 0Ω resistor is soldered by default, remove the resistor to test current of the board

Core52840 Specifications

- Onboard chip: nRF52840
- Communication distance: 150m (open outdoor), 40m (indoor)
- Data rate: 2Mbps, 1Mbps, 500kbps, 125kbps
- Frequency range: 2.4GHz
- Operating voltage: 2.0V ~ 3.6V (3.0V recommended)
- Operating temperature: -40℃ ~ 85℃
- Storage temperature: -55℃ ~ 125℃
- Dimension: 18mm × 13.5mm
- Antenna: onboard antenna

nRF52840 Features

nRF52840 is an ultra-low power, flexible wireless system on chip (SoC), it is the ideal choice for short range wireless applications such as wearable devices, interactive entertainment devices, etc.

- Bluetooth 5.0, IEEE 802.15.4-2006, multiprotocol 2.4 GHz transceiver
- Compatible with nRF52, nRF51, nRF24L, and nRF24AP series
- ARM Cortex-M4F 32-bit processor (with FPU, 64MHz)
- 1MB flash and 256kB RAM
- 48x GPIOs
- 2x two wire interface (I2C compatible)
- 1x I2S digital audio interface
- 12-bit / 200KSPS ADC
- 1x USB2.0
- 1x QSPI serial (32Mbps)
- 4x SPI main interfaces, 3x SPI slave interfaces
- 2x UART
- 4-ch PWM
- 1x SWD
- Operating voltage: 1.7V~5.5V

Core52840 Applications

- Wearable devices
- Bluetooth intelligent application
- Smart home appliances
- Industrial IoT control
- Interactive entertainment devices