

NEVA

BT 5.4 + ZB/Thread + NFC-A Module (with BLE Direction finding)

Description

NEVA is a highly integrated ultra-low-power standalone certified full featured Bluetooth 5.4 (Bluetooth Low Energy) module. This small form-factor module reduces the system cost and gives design flexibility to the user by combining a high-performance ARM Cortex-M4, 512KB flash, 128KB RAM, Bluetooth 5.4, 802.15.4 Thread and Zigbee, NFC-A wireless hardware with integrated antenna and needed crystals. This fine-tuned stand-alone RF module is designed to deliver high performance, long range, and reliable wireless operation and at ultra-low power which is critical for many Internet of Things (IoT) applications.

NEVA module is based on Nordic Semiconductor nRF52833 SoC. This globally certified module reduces user's development cost and time to market with integrated wireless stacks, network stack, and application APIs and all the advanced security features. This module comes with a highly efficient development environment for ease of application development in various IoT verticals like Wearables, Home automation, Industrial IoT and smart medical.



Footprint: 10 mm x 15 mm x 1.6 mm

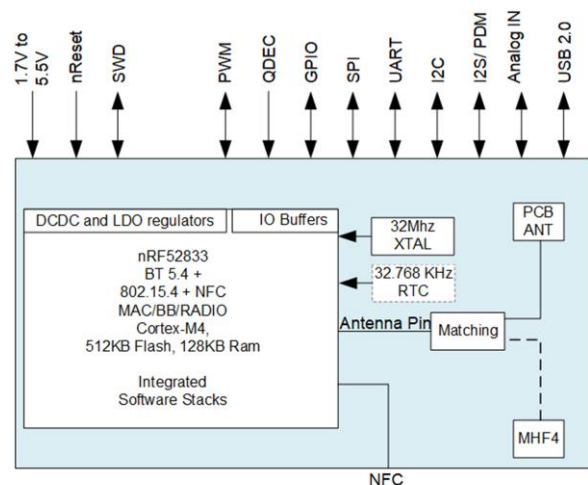
Applications

- ❖ Direction finding
- ❖ Personal fitness devices
- ❖ Wearables for wireless payment
- ❖ Connected health
- ❖ Virtual/Augmented reality applications
- ❖ Smart home sensors and controllers
- ❖ Industrial IoT sensors and controllers
- ❖ Gaming controllers
- ❖ Asset trackers and Locationing devices

Features

- ❖ Full featured Bluetooth Low Energy 5.4 (BLE)
- ❖ Angle of Arrival and Angle of Departure direction finding
- ❖ Supports advanced mesh networking protocols – Certified software stacks for Bluetooth Mesh, Thread and Zigbee
- ❖ Powerful Open CPU: 32bit, 64 MHz ARM Cortex-M4 CPU with FPU and has 512 KB flash with cache and 128 KB RAM that stands enough for customer's high-end applications
- ❖ Highly optimized hardware for ultra-low power consumption with excellent performance
- ❖ Support for secure boot, BLE secure connections and privacy
- ❖ AES 128-bit encryption
- ❖ Over the air device firmware upgrade (OTA DFU)
- ❖ Generic GATT client and server APIs
- ❖ Nordic SDK with examples and comprehensive documentation covers all the features supported by the module. SDKs are available for BLE, Bluetooth Mesh, Thread, Zigbee and Home Kit
- ❖ NFC Tag A support
- ❖ 3.3V or 5V power supply with integrated switching regulator
- ❖ Industrial Temperature grade -40°C to 105°C

Block Diagram



Wireless Protocols	Bluetooth 5.4, Thread, Zigbee, NFC
Frequency	2.402 – 2.480 GHz
On-air Data rates	BLE - 2 Mbps, 1 Mbps, 500 kbps, 125 kbps 802.15.4 – 250 kbps NFC - 106 kbps
Security Features	128-bit AES HW accelerator, Secure boot ready and all security features of BLE spec
Antenna options	PCB Trace Antenna or MHF4 connector
Operating modes	BLE, BLE Mesh, Zigbee, Thread, BLE + Zigbee, BLE + Thread
Programmable output power	-20 dBm to +8 dBm
Receive Sensitivity	BLE: -103 dBm at 125 kbps -99 dBm at 500 kbps -96 dBm at 1 Mbps -92 dBm at 2 Mbps 802.15.4: -100 dBm at 250 kbps
Current consumption	450nA – Deep sleep mode 1.5µA – System standby mode 4.8mA – TX at 0 dBm output power
NFC	NFC-A (Type 2) Tag with wake-on field - “Touch to pair” support
GPIO	39 configurable
Range	> 1400 meters
Power supply and operating voltage range	Integrated DC-DC and LDO for supporting 1.7v to 5.5v
Temperature	-40°C to 105°C
Humidity	5-90% non-condensing
Package	10 mm x 15 mm x 1.6 mm (including shield), 0.5 mm pitch

Interfaces and peripherals

- ❖ 2 x UART
- ❖ Up-to 4 x SPI master/ 3x SPI slave
- ❖ 2 x I2C master/slave
- ❖ 1 x I2S
- ❖ 1 x PWM
- ❖ 1 x Quadrature decoder
- ❖ 1 x PDM
- ❖ 12-bit, 8 x ADC channels
- ❖ 32-bit timers x 5, RTC x 3
- ❖ 20 channel programmable peripheral interface
- ❖ 1 x USB

Certifications and approvals

- ❖ Module certifications: FCC, IC, CE, TELEC
- ❖ Bluetooth qualification: v5.4 (Low Energy)

NEVA module	I530M0L8-I2LT (PCB Antenna, Tray packing)
	I530M0L8-I2LR (PCB Antenna, Tape/Reel packing)
	I531M0L8-I3LT (MHF4 connector, Tray packing)
	I531M0L8-I3LR (MHF4 connector, Tape/Reel packing)
NEVA DVK	I530M0L8-2DVK (PCB Antenna)
	I531M0L8-3DVK (MHF4 connector)

Development Kit

DVK comes with the following major features:

- ❖ On board Segger JLink interface
- ❖ Arduino Uno Revision 3 shield compatible connector
- ❖ Access to all I/O and interfaces via edge connectors and user programmable Buttons and LEDs

Additional Information

For the latest collaterals, please visit <http://www.ivativ.com>