Multi-Core and Multi-Protocol – The Capabilities are Endless

Ezurio's newest edition to their Nordic Semiconductor based Bluetooth LE portfolio, is the most advanced, most secure, and highest performing dual core MCU architecture wireless solution available. The BL5340 series of robust, tiny modules feature the **Nordic nRF5340 SoC**. It directly targets the highest performance with the lowest power budget. Featuring Bluetooth Core 6.0 including Isochronous Channels and LE Audio, the BL5340 supports next generation Bluetooth audio for stereo streaming and broadcast audio.

The dual core **Arm® Cortex M33** microcontrollers enable you to run a low power core focused purely on wireless connectivity, with a second higher performance core targeted for the end application itself. This further extends the multi-protocol capabilities of the product: **Bluetooth LE, 802.15.4 (Thread/Zigbee) and NFC**. It's further enhanced with an ARM CryptoCell-312 including trusted execution, root-of-trust, and secure key storage security features.

The BL5340 series brings out all nRF5340 hardware features and capabilities including **USB access,** up to +3 dBm transmit power, from **1.7V to 5.5V** supply considerations, and **a true industrial operating range of -40 to 105°C.** Complete regulatory certifications enable faster time to market and reduced development risk completes Ezurio's simplification of your next multi-protocol wireless design.

- **Nordic nRF5340** – 7x7 QFN with 48 GPIOs available.
- **Multi-protocol support:** Bluetooth Core 6.0, 802.15.4 (Thread/Zigbee), NFC
- **Dual Cortex M33** microcontroller cores
  - Application processor - 128/64 MHZ M33 – 1 MB Flash/512 KB RAM (Including DSP Instructions)
  - Network processor - 64 MHz M33 – 256 KB Flash/64KB RAM
- **Most configurable interfaces**: - USB, UART, QSPI, SPI, I²S, I²C, PDM, PWM, ADC, GPIO, QDEC, Comparator, Low Power Comparator
- **Additional SoC Hardware Features** like RNG, WDT, temperature sensor, floating point unit, inter-processor communication, debug trace
- **Extended Industrial Temperature Rating** (-40° to +105°C)
- **Antenna choice** – integrated pre-certified **PCB or Trace pad** options
- **Small form factor:** 15 x 10 x 2.2 mm
- **Development choice:** Zephyr RTOS or utilize Nordic nRF Connect SDK
- **Bluetooth LE**: Peripheral/Central, 2 Mbps (high throughput), LE Coded (long range), AoA/AoD, LE Audio/Isochronous Channels, Mesh
- **Advanced Security:** ARM TrustZone®, Root of Trust, ARM CryptoCell-312 & KMU, Access Control Lists, System Protection Unit, Encrypted QSPI
- **Firmware Over the Air (FOTA)** via MCUboot and Zephyr
- **Hostless operation** – Dual Core MCU reduces BOM
- Built on **decades of Nordic experience**: BL600/651/652/653/653µ/654
- **Fully featured development kits** to jump start Bluetooth LE development.

Key Features

Secure, Flexible Dual Core M33 Architecture
Dual cores supporting dedicated application and network processing all with secure trusted execution with Arm TrustZone and CryproCell-312.

Software Flexibility and Speed to Market
Develop with either Zephyr RTOS or the Nordic's nRF Connect SDK. Use our extensive sample apps and out of box demo to speed your development.

True Industrial Operating Range
Designed and certified to the highest industrial temperature range of -40°C to +105°C for every component utilized.

Global Approvals – Make Yourself at Home
Carries FCC, ISED, EU, UKCA, RCM, MIC for Bluetooth & 802.15.4, and Bluetooth SIG approvals.

Personal Support from Design to Manufacture
Our industry-renowned support is passionate about helping you speed your design to market.

Application Areas

Smart Building

Asset Tracking

Secure Medical Peripherals

Industrial Automation

Interested in our BL5340 Series?
Visit www.ezurio.com/BL5340-Series

Specifications

Category	Feature	Specification		
Wireless Specification	Bluetooth®	Core 6.0		
	802.15.4	Thread and Zigbee		
	NFC	Type 2/4 Tags		
	TX Power (radiated – inc. 2dBi antenna gain)	Up to + 5 dBm. Configurable down to -38 dBm		
	Receive Sensitivity	-98.0 dBm (typical @ Bluetooth LE 1 Mbps), -104 dBm (typical @ Bluetooth LE 125 kbps)		
	Link Budget	101.0 dB (@Bluetooth LE 1 Mbps), 107 dB (@Bluetooth LE 125 kbps)		
	Antenna Options	Integrated PCB trace antenna or RF trace pin for external antennas		
	Raw Data Rates (Air)	1 Mbps, 2 Mbps, 500 kbps, 125 kbps		
Host Interface and Peripherals	UART Interface	TX, RX, CTS, RTS. DTR, DSR, DCD, RI (GPIO). Default: 115200, N, 8, 1. Configurable from 1200 bps to 1 Mbps		
	USB Interface	2 pins – USB 2.0 slave, up to 12Mbps		
	Other	Up to 48 multifunction GPIO's that can provide: • Up to 4 UART (4 GPIO pins each) • 8 ADC channels (1 pin each) • Up to 4 I2C (2 GPIO pins each) • Up to 5 SPI Master (4 GPIO pins including CS each) • 1 PDM (2 GPIO pins)	• 1 I2S (5 GPIO pins) • 2 GPIO pins for 32.768 kHz cryst • 2 GPIO pins for NFC • PWM output on 16 pins • QSPI	
Key Bluetooth LE Features	Bluetooth Low Energy	• GATT client/server – Any adopted/custom services • Central/Peripheral roles • Bluetooth mesh • 2M PHY • LE Coded PHY • LE Audio w/ Isochronous streams	• AoA / AoD • LE Advertising Extensions • LE secure connections • Data packet length extensions • LE privacy v1.2 • DTM Firmware (Test Modes)	
Programming Options	Nordic nRF Connect SDK	Software/Support available from Nordic directly https://devzone.nordicsemi.com/		
	Zephyr RTOS	Software/Support available from https://www.zephyrproject.org/		
FW upgrade		Via UART, SWD, or Bluetooth LE – nRF Connect SDK		
		Via UART, SWD, or Bluetooth LE – Zephyr		
Supply Voltage		1.7V – 5.5V		
Power Consumption	Current	Max Peak Radio Current (@ +3 dBm TX) – 5.3 mA (DCDC at 3V)		
		Max Peak Radio Current (@ 0 dBm TX) – 4.1 mA (DCDC at 3V)		
		System ON – 1.3 µA (wake on any event)		
		System OFF – 0.9 µA (wake on reset)		
Physical	Dimensions	15 mm x 10 mm x 2.2 mm		
Environmental	Temp Range	-40°C to +105°C		
Miscellaneous	Lead Free	Lead-free and RoHS-compliant		
	Development Kit	Development board and free software tools		
Development Tools	Utilities	Nordic nRF Connect - Android and iOS applications		
Qualifications	Bluetooth®	Complete Declaration ID		
Regulatory	Approvals	FCC/ISED/EU/UKCA/MIC/RCM - All BL5340 Series are Bluetooth & 802.15.4 certified		

For full specifications on BL5340 modules, please see the appropriate datasheet.

Ordering Information

Part	Description
453-00052R	BL5340 series - Multi-Core/Protocol - Bluetooth® LE + 802.15.4 + NFC Module (Nordic nRF5340) – Integrated antenna (Tape/Reel)
453-00053R	BL5340 series - Multi-Core/Protocol - Bluetooth® LE + 802.15.4 + NFC Module (Nordic nRF5340) – Trace pin (Tape/Reel)
453-00052C	BL5340 series - Multi-Core/Protocol - Bluetooth® LE + 802.15.4 + NFC Module (Nordic nRF5340) – Integrated antenna (Cut Tape)
453-00053C	BL5340 series - Multi-Core/Protocol - Bluetooth® LE + 802.15.4 + NFC Module (Nordic nRF5340) – Trace pin (Cut Tape)
453-00052-K1	Development kit for BL5340 Multi-Core/Protocol - Bluetooth® LE + 802.15.4 + NFC Module (Nordic nRF5340) – Integrated antenna
453-00053-K1	Development kit for BL5340 Multi-Core/Protocol - Bluetooth® LE + 802.15.4 + NFC Module (Nordic nRF5340) - Trace pin (Ext antenna)