

Wi-Fi 6 with Bluetooth 5.4 for Next Generation NXP based IoT

Introducing the latest of the Sona™ Wi-Fi 6 product line from Ezurio, the NX611, based upon NXP's leading **IW611** Wi-Fi 6 chipset. A truly robust industrial IoT module: one that's rugged, small, globally certified, has reliable connectivity, and is easy to integrate.

Our new Sona™ NX611 answers the call for next-gen wireless IoT. The Sona™ NX611 is purpose-built for industrial IoT connectivity with access to SDIO and HS-UART host interfaces, industrial operating temp range, latest generation Wi-Fi and BT combined with a small form factor SIP, pluggable M.2 2230 type E card and SMT M.2 packaging.

When matched with our industry leading services and support, the Sona NX611 is a unique solution for your medical or industrial application.

- **Compatible:** Tested with NXP family of CPUs and Ezurio's Linux Backports.
- **Reliable:** Integrated PA (Power Amplifier) and LNA (Low Noise Amplifier) with **1x1** antenna for reliable connectivity in harsh RF environments.
- **Robust:** Rich feature-set including 802.11ax Wi-Fi 6 and Dual-Mode BT v5.4. **Industrial operating temperature range**, and options for solder-down module are suitable for industrial rugged applications.
- **Secure:** Supports the latest WPA2/WPA3 Enterprise security standards.



- Antenna: 1x1 **Wi-Fi 6** (802.11ax), x1 **Bluetooth 5.4**
- Support for 2.4 and 5GHz (UNII-1 – 3)
- 802.11ax STA mode and Soft AP mode
- **Bluetooth 5.4** Bluetooth Low Energy (BLE), Integrated **Wi-Fi and Bluetooth coexistence** for seamless connectivity
- High Speed host interface: SDIO 3.0 (Wi-Fi), HS-UART (BT)
- Industrial Temperature Rating (-40° to +85 °C)
- **SIP package with ultra-small footprint:** 11mm x 11mm
- **Multiple module options:**
 - M.2 2230 Key E Plug-in module (MHF)
 - M.2 1216 SMT module (MHF)
 - 1218 SMT Module (Chip Antenna)
 - M.2 2230 Plug-in Module
- **Rugged Design** – solder down form factor options
- **Global Certifications** – FCC, IC, CE, UKCA, RCM, BT SIG
- **Linux and Android support** by Ezurio Connectivity Stack

Key Features



Dual-Band Wi-Fi 6 1x1

2.4/5 GHz spectrum availability for flexibility and higher performance.

Reliable Connectivity

802.11ax Wi-Fi with integrated PA and LNA combined add up to a reliable module for harsh RF conditions.

Software Flexibility and Speed to Market

Open-Source software and Linux Backports ensures compatibility with a wide variety of Linux kernels and latest security standards. With Android 12/13/14 support.

Industrial Operating Range

Designed to the industrial temperature range of -40°C to +85°C for every component utilized.

Global Approvals

Carries FCC, IC, CE, UKCA, RCM and Bluetooth SIG approvals. Capability to support worldwide regulatory certification.



Application Areas



Medical Devices (Infusion pumps, HD Imaging, Vitals Monitoring, Gateways, Beds, blood analyzers)



Industrial IoT Connectivity (Printers, gateways, EV chargers, Thermostats, cameras, Solar Inverters)



Rugged Handheld Devices and terminals

Specifications

Category	Feature	Specification
Wireless Specification	Wi-Fi	Wi-Fi 6 (802.11 a/b/g/n/ac/ax)
	Bluetooth®	v5.4 (BDR + EDR + BLE)
	Frequency	Dual-Band 2.4 GHz & 5 GHz
	Transmit Power	Up to +21 dBm (Wi-Fi) Up to +19 dBm (Bluetooth LE and BDR 1,2,3) Up to +10 dBm (Bluetooth EDR)
	Antenna Options	- On-board MHF4 connector(s) (453-00157, 453-00158, 453-00165, 453-00166) - Trace pin for external antennas (453-00155, 453-00156) - Integrated chip antenna (453-00180) - Combined Wi-Fi and BT antenna RF connections
Key Wi-Fi Features	Raw Data Rates (PHY)	2.4 GHz: Up to 287 Mbps, 1024-QAM, 1x1 MCS7) 5 GHz: Up to 600 Mbps, 1024-QAM, 1x1 (MCS11)
	Wi-Fi 6 (802.11ax)	20, 40 and 80MHz wide channels, 1024 QAM - Integrated PA/LNA - Supports OFDMA, TWT, BSS Coloring 802.11d/e/h/i/j/k/mc/r/v/w
Host Interface and Peripherals	Network Interfaces	SDIO 3.0 (Wi-Fi), HS-UART (BT), PCM (BT Audio)
Key Bluetooth Features	Bluetooth Low Energy	- BDR + EDR + BLE - LE 2 Mbps PHY - LE Coded (Long range PHY) - Adaptive Frequency hopping (AFH) - Secure simple pairing (SSP) - UART baud rates up to 4 Mbps 7 x BT links/16 x BLE links - Secure connection (AES128 & ECC256)
Supply Voltage		3.3 VDC (Supply and 1.8VDC (I/O)
Physical	Dimensions	11 mm x 11 mm (SIP) – RF Pin 12 mm x 16 mm (M.2 1216 SMT Module) – MHF4 and RF Pin 12 mm x 18 mm (1218 SMT Module) – Chip Antenna 22 mm x 30 mm (M.2 E-Key Module) – MHF4
Environmental	Operating Temp Range	-40°C to +85°C
Miscellaneous	Lead Free	Lead-free and RoHS-compliant
	Development Kit	Development board, accessories, and evaluation software
Regulatory	Approvals	FCC/IC/CE/UKCA/MIC/RCM
Qualifications	Bluetooth SIG	Bluetooth SIG Approval

For full specifications on the Sona NX611 modules, please see the appropriate datasheet.

Ordering Information

Part	Description
453-00156R	Module, Sona NX611, 1 x RF Trace, SIP, Tape and Reel
453-00156C	Module, Sona NX611, 1 x RF Trace, SIP, Cut Tape
453-00155R	Module, Sona NX611, 2 x RF Trace, SIP, Tape and Reel
453-00155C	Module, Sona NX611, 2 x RF Trace, SIP, Cut Tape
453-00158R	Module, Sona NX611, M.2 1216, 1 x MHF4, Tape and Reel
453-00158C	Module, Sona NX611, M.2 1216, 1 x MHF4, Cut Tape
453-00157R	Module, Sona NX611, M.2 1216, 2 x MHF4, Tape and Reel
453-00157C	Module, Sona NX611, M.2 1216, 2 x MHF4, Cut Tape
453-00180R	Module, Sona NX611, 1218, Chip Antenna, Tape and Reel
453-00180C	Module, Sona NX611, 1218, Chip Antenna, Cut Tape
453-00166	Module, Sona NX611, M.2 2230, 1 x MHF4, Tray
453-00165	Module, Sona NX611, M.2 2230, 2 x MHF4, Tray
453-00156-K1	DVK, Sona NX611, 1 x RF Trace, SIP, 1 x MHF4
453-00155-K1	DVK, Sona NX611, 2 x RF Trace, SIP, 2 x MHF4
453-00166-K1	DVK, Sona NX611, 1216/2230, 1 x MHF
453-00165-K1	DVK, Sona NX611, 1216/2230, 2 x MHF
453-00180-K1	DVK, Sona NX611, 1218, Chip Antenna

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