

## 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 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**



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## 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	TBD
	Antenna Options	<ul style="list-style-type: none"> <li>On-board MHF4 connector(s) (453-00157, 453-00158, 453-00165, 453-00166)</li> <li>Trace pin for external antennas (453-00155, 453-00156)</li> <li>Integrated chip antenna (453-00180)</li> <li>Combined Wi-Fi and BT antenna RF connections</li> </ul>
	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)
Key Wi-Fi Features	Wi-Fi 6 (802.11ax)	<ul style="list-style-type: none"> <li>20, 40 and 80MHz wide channels, 1024 QAM</li> <li>Integrated PA/LNA</li> <li>Supports OFDMA, TWT, BSS Coloring</li> <li>802.11d/e/h/i/j/k/mc/r/v/w</li> </ul>
Host Interface and Peripherals	Network Interfaces	SDIO 3.0 (Wi-Fi), HS-UART (BT), PCM (BT Audio)
Key Bluetooth Features	Bluetooth Low Energy	<ul style="list-style-type: none"> <li>BDR + EDR + BLE</li> <li>LE 2 Mbps PHY</li> <li>LE Coded (Long range PHY)</li> <li>Adaptive Frequency hopping (AFH)</li> <li>Secure simple pairing (SSP)</li> <li>UART baud rates up to 4 Mbps</li> <li>7 x BT links/16 x BLE links</li> <li>Secure connection (AES128 &amp; ECC256)</li> </ul>
Supply Voltage		3.3 VDC (Supply and 1.8VDC (I/O)
Physical	Dimensions	<ul style="list-style-type: none"> <li>11 mm x 11 mm (SIP) – RF Pin</li> <li>12 mm x 16 mm (M.2 1216 SMT Module) – MHF4 and RF Pin</li> <li>12 mm x 18 mm (1218 SMT Module) – Chip Antenna</li> <li>22 mm x 30 mm (M.2 E-Key Module) – MHF4</li> </ul>
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/RCM/MIC
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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