# Wi-Fi 6 with Bluetooth LE 5.4 for Low Power Industrial IOT

**Introducing the new Veda family of connected MCU modules from Ezurio - the Veda SL917, based upon Silicon Labs SiWx917 chipset. The Veda SL917 is a breakthrough low power solution that enables both SoC customizable modules and easy-to-integrate network connected processor (NCP) options.**

Our new Veda SL917 answers the call for next-gen wireless IoT, purpose-built for ultra-low power industrial IoT connectivity requiring Wi-Fi, Bluetooth, Matter and IP networking for secure cloud connectivity. It is ideal for battery operated devices needing extended operating and battery life.

The Veda SL917 includes a low power Wi-Fi 6 plus BLE v5.4 wireless CPU subsystem, combined with an integrated application MCU subsystem, security, peripherals and power management in a small 16 x 21.1 x 2.3 mm SMT package.

When matched with our industry leading services and support, the Veda SL917 is the only Wi-Fi module of its kind, addressing all your embedded Wi-Fi 6 needs.

**Flexible**: The Veda SL917 is offered as an SoC or NCP module allowing you to select the most effective connectivity solution for your application.

**Powerful**: The application subsystem includes an ARM® Cortex® M4 running at 180MHz, ultra-low power sensor hub and an AI/ML accelerator.

**Comprehensive**: Full software support for both SoC and NCP devices. SiLabs Simplicity Studio support for SoC and ported WiSeConnect SDK for STM32, NXP and SiLabs MCUs.

**Secure**: Supports the latest WPA2/3 personal and Enterprise security standards, secure boot, secure zone, XIP, Anti-rollback, Secure Key storage, H/W and S/W accelerators and programmable secure hardware write protection



- **ARM® Cortex® M4 with FPU up to 180MHz**, embedded Flash up to 8MB with embedded PSRAM up to 8MB/external up to 16MB
- Wi-Fi 6 features OFDMA, MU-MIMO, TWT
  - 802.11b/g/n/ax
  - 1x1 MU-MIMO
- 802.11ax STA and SoftAP, 20MHz channels, 20MHz channels (MCS7)
- **BT v5.4** Bluetooth Low Energy support
- **SMT module** 16 x 21.1 x 2.3 mm
- **Trace pin** and **integrated chip antenna** options
- Industrial-temp operating range (-40ºC to +85ºC)
- **Global Certifications** – FCC, ISED, CE, MIC, UKCA, MIC, KCC, NCC, SRRC and BT SIG
- **SoC** and **NCP** configurations
  - **Simplicity Studio™** development environment (SoC version)
  - **WiSeConnect SDK Support** for SiLabs, STM32 and NXP MCUs (NCP version)

# Key Features

### Single Band Wi-Fi 6
2.4GHz spectrum and 802.11ax Wi-Fi, with integrated PA and LNA, adding up to a reliable module for harsh RF conditions.

### Reliable Connectivity
Best-in-class low power operation and sleep for battery applications.

### Software Flexibility and Speed to Market
Develop your own applications for the module using Simplicity Studio or integrate the WiSeConnect SDK onto your MCU platform.

### Industrial Operating Range
Designed to the industrial temperature range of -40ºC to +85ºC for every component utilized.

### Global Approvals
Carries worldwide FCC, ISED, CE, UKCA, RCM, MIC, KCC, NCC, SRRC and Bluetooth SIG approvals.



## Application Areas

**Smart Medical: Body worn, portable/mobile diagnostic and analyzer products.**

**Industrial IoT Sensors, access control, wireless security cameras, HVAC Controllers**

**Smart Home, Health and Fitness, Industrial Wearables, Asset Tracking**

# Specifications

| Category | Feature | Specification |
|---|---|---|
| **Microcontroller** | Core | ARM® Cortex® M4 up to 180MHz (225 DMIPS) |
| | | Integrated FPU, MPU and NVIC |
| | Memory | Dual dedicated QSPI controllers for PSRAM and Flash |
| | | Embedded SRAM up to 672KB (Shared Application & Wireless Processors) |
| | | Integrated Flash up to 8MB, Optional external Flash up to 16MB |
| | | Integrated PSRAM up to 8MB, optional external PSRAM up to 16MB |
| | | IAP (In-Flash Application Programing), ISP (In-System Programming), OTA (Over-the Air) Firmware Upgrade |
| **Peripherals** | Digital | SDIO v2.0, USART, UART, SPI, I2C, I2S, SIO, PWM, QEI, Timers, GPIO (43) |
| | Analog | 12-bit/16-ch, 5Mbps ADC |
| | | 10-bit DAC |
| | | 3 x Op Amp |
| **Wireless Specification** | Wi-Fi | Wi-Fi 6 (802.11 b/g/n/ax), 20MHz channel width |
| | Bluetooth® | v5.4 (BLE) |
| | Frequency | Single-Band 2.4 GHz |
| | Transmit Power | + 17 dBm (maximum) |
| | Antenna Configuration | 1 x 1, shared Wi-Fi/BT |
| | Antenna Options | RF pin<br>On-board chip antenna<br>Shared Wi-Fi and BT antenna RF connections |
| | Raw Data Rates (PHY) | 802.11b: 1, 2, 5.5, 11 Mbps |
| | | 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps |
| | | 802.11n: MCS0-7, 64-QAM, Single stream |
| | | 802.11ax: MCS0-7, 64-QAM, Single stream |
| | Key Features | 20MHz wide channels, 64 QAM<br>Integrated PA/LNA<br>On-board chip antenna and RF trace pin<br>Supports DL/UL OFDMA, DL MU-MIMO, TWT, Multirole/Multichannel (MRMC), DCM, BSS coloring |
| | Embedded Wi-Fi Stack | Wi-Fi STA, Wi-Fi AP and concurrent (STA+AP) modes |
| | | WPA/WPA2/WPA3 personal, WPA/WPA2 Enterprise in STA mode |
| **Connectivity** | Embedded Network Stack | Integrated IPv4/IPv6, TCP, UDP, ICMP, ICMPv6, ARP, DHCP (Client/Server), DHCPv6, DNS Client, SSL3.0/TLS1.3 Client, SNTP. SNI |
| | Applications | HTTP/s Client, HTTP/2 server, MQTT/s Client, AWS Client, Azure Client |
| **Key Bluetooth Features** | Bluetooth Low Energy | LE 2 Mbps PHY<br>LE Long Range (LE-LR)<br>UART baud rates up to 4 Mbps<br>Advertising Extensions |
| | Embedded Stack | GAP, GATT, SMP and LE L2CAP profile support |
| **Development Environment (SOC)** | | Simplicity Studio™ IDE and Debugger Integration |
| | | Code examples for wireless, MCU peripheral, Matter and cloud connectivity |
| | Manufacturing Tools | Simplicity Commander enables provision of MBR programming, secure key management and calibration support for crystal and gain offsets. |
| **WiSeConnect SDK (NCP)** | Features | Simplified DX for Wi-Fi API & Platform API |
| | | Simplify application development on host platform. |
| | Platform Support | Support Silicon Labs EFR hosts Simplicity Studio™, STM32 CUBE IDE and NXP MCUXpresso IDE |
| **Supply Voltage** | | 3.3VDC (Supply) and 1.8VDC (I/O) |
| **Physical** | Dimensions | 16 mm x 21.1 mm x 2.3 mm |
| **Environmental** | Operating Temp Range | -40°C to +85°C |
| **Miscellaneous** | Lead Free | Lead-free and RoHS-compliant |
| | Development Kit | Ezurio Explorer board (SoC), MikroE Click board (NCP) |
| **Regulatory Qualifications** | Approvals | FCC/IC/CE/UKCA/MIC/RCM/KCC/NCC/SRRC (Pending) |
| | Bluetooth SIG | Bluetooth SIG Approval |

**Interested in our Veda™ SL917 Series?**
Visit http://www.ezurio.com/veda-sl917

# Veda SL917 Module Versions

The Veda SL917 module come in two distinct versions: as a SoC (System on Chip) or NCP (Network Connected Processor).
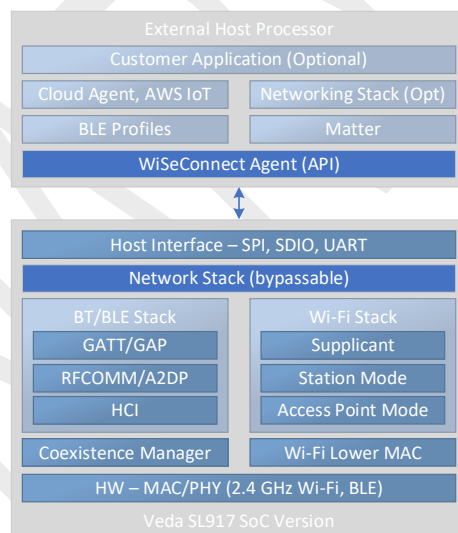
## Veda SL917 SoC

The SoC provides an embedded application processor that you can develop and run your applications on, allowing the module to act as both the communications processor and application core processor for your application. In this configuration there is no requirement for a host processor to use the SL917 SoC in your application. Support for both internal and external memory options allows you to design your system for performance and cost.
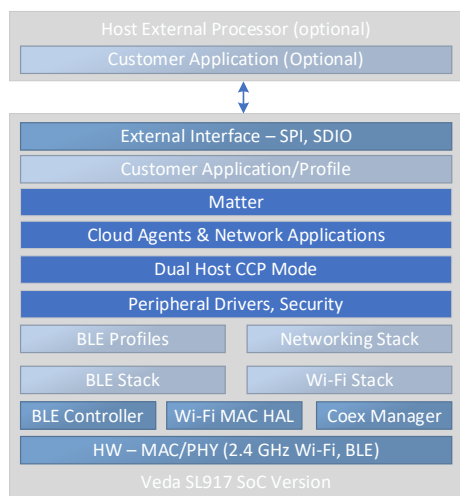
## Veda SL917 NCP

The Network Connected Processor (NCP) version supports embedded IP network, BT and secure connectivity stacks and applications. By running the WiSeConnect agent on a connected host the NCP allows all connectivity functions to be off-loaded and accessed, by the host, through an API. The WiSeConnect SDK provided by Ezurio supports multiple MCU vendors and platform variants.

# Ordering Information

| Part # | Description |
|--------|-------------|
| 453-00219-R | Module, Veda SL917, 4MB Flash, NCP, Trace Pad, Tape and Reel |
| 453-00219-C | Module, Veda SL917, 4MB Flash, NCP, Trace Pad, Cut Tape |
| 453-00220-R | Module, Veda SL917, 8MB Flash, SoC, Trace Pad, Tape and Reel |
| 453-00220-C | Module, Veda SL917, 8MB Flash, SoC, Trace Pad, Cut Tape |
| 453-00221-R | Module, Veda SL917, 4MB Flash, NCP, Integrated Antenna, Tape and Reel |
| 453-00221-C | Module, Veda SL917, 4MB Flash, NCP, Integrated Antenna, Cut Tape |
| 453-00222-R | Module, Veda SL917, 8MB Flash, SoC, Integrated Antenna, Tape and Reel |
| 453-00222-C | Module, Veda SL917, 8MB Flash, SoC, Integrated Antenna, Cut Tape |
| 453-00222-K1 | Development Kit, Module, Veda SL917, 8MB Flash, SoC, Integrated Antenna |

Ezurio's products are subject to standard Terms & Conditions.