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 On-board chip antenna 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 Integrated PA/LNA On-board chip antenna and RF trace pin 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 LE Long Range (LE-LR) UART baud rates up to 4 Mbps 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).
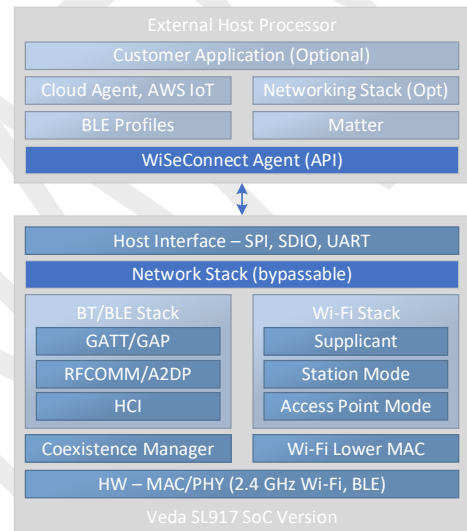
Veda SL917 SoC

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.
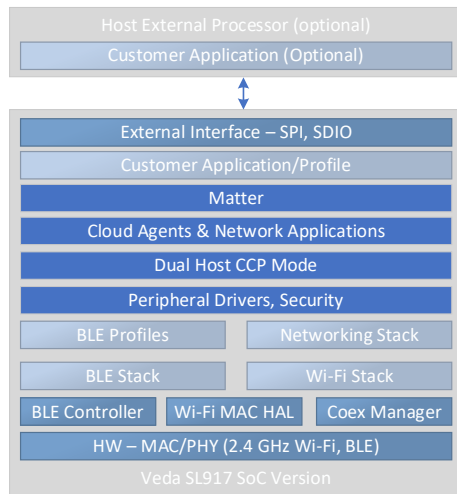
Veda SL917 NCP

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

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