

Presentation Will
Begin Shortly

4:00

MAY SESSIONS

DATE	TIME	SESSION
THURS, MAY 1 ST	10 AM CT	Exploring Multiprotocol Wireless Techniques
TUES, MAY 13 TH	10 AM CT	Enabling AI/ML at the Edge — With or Without Connectivity

FUTURE DATES

DATE	TIME
JUNE: THURS, JUNE 5 TH & TUES, JUNE 17 TH	10 AM CT

Expand Wi-Fi Development Support with Veda SL917 Module

2025
tech talk
WEBINAR SERIES



Agenda

- 01** Overview of SiWx917
- 02** Introduction of Ezurio
- 03** Veda SL917 Module
- 04** Kit Development Paths
- 05** Canvas Suite and Micropython
- 06** Demo Simplicity Studio and Canvas Studio
- 07** Q&A

SiWx917 Overview



Designed from the ground up for IoT - SiWx917 Wi-Fi 6 SoC



DIFFERENTIATED FEATURES

Ultra-Low Power

- Increases Battery life and Recharging Interval

IoT-Optimized Wireless Performance

- 2.4GHz: Long-range, low-power, effective wall penetration, high-throughput
- Wi-Fi, Bluetooth LE, and Matter in single package

Edge Computing + System Integration

- AI/ML accelerator
- Application MCU and Wireless Processor with Networking off loads
- Rich Peripherals, High GPIO count, and Large Memory

DEVICE SPECIFICATIONS

Wide Range of Memory configurations

- 672kB on-die SRAM with SW configurable split between Cortex-M4 and Network processor
- In-package 8MB Flash/PSRAM, 16MB External Flash/PSRAM, Single-Chip Matter over Wi-Fi Solution

Multiprotocol Co-Existence

- High-performance Wi-Fi 6 and Bluetooth Low Energy 5.4

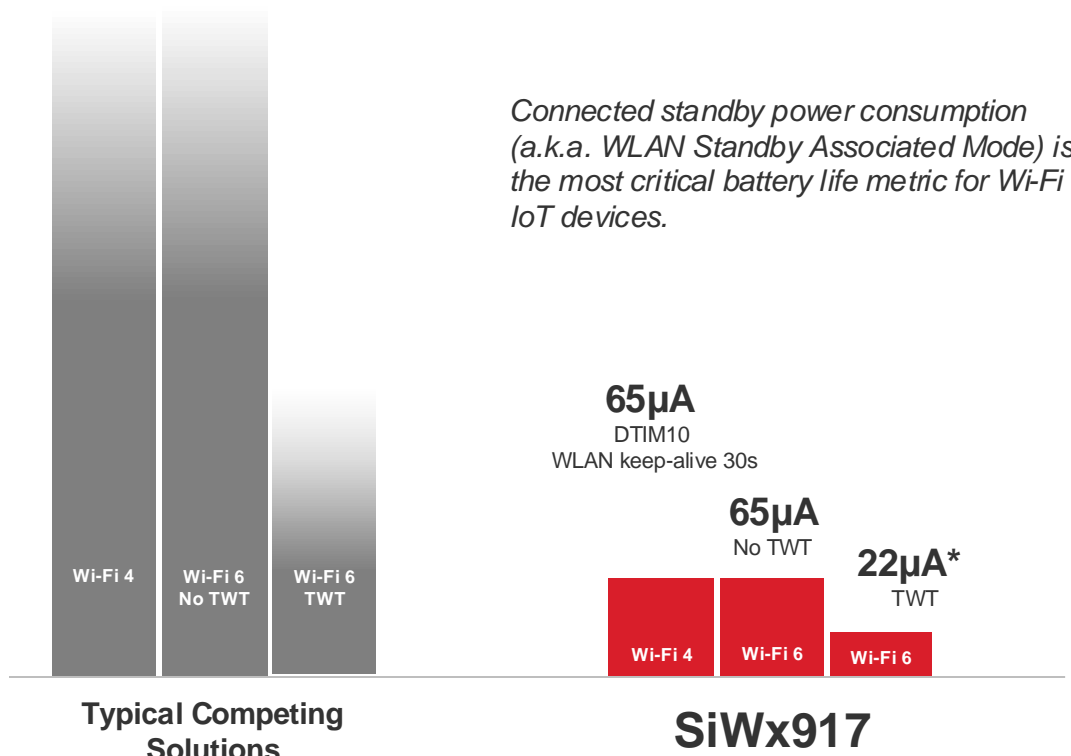
Robust Security

- A High Level of Security for the Device, Wi-Fi Protocol, and Networking

SiWx917: Lowest Wi-Fi Power – Longest IoT Battery Life

Wi-Fi Standby Current Consumption

Hundreds of μA



* Wi-Fi 6 TWT with auto-config feature enabled. TWT Rx latency 60s with 8ms wakeup duration. WLAN keep-alive every 60s. No TCP keepalive. 352kB SRAM retention. Does not include application MCU operation.

SiWx917 SoC Battery Life Estimation

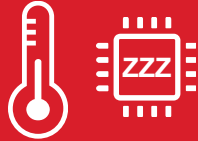


How the SiWx917 SoC battery life of up to 2 years was estimated:

- Associated standby low-power mode
- SiWx917 SoC as TCP client maintains socket connection
- 60 secs TCP keep-alive used.
- WLAN keep-alive 30 secs. 352kB NWP SRAM retention
- TWT Auto Config feature enabled. TWT Rx latency 60 secs with 8ms wakeup duration
- Arm Cortex-M4 in sleep mode (PS4). 320kB SRAM retention
- Measurements are taken in optimal conditions (RF chamber)
- Battery capacity 1000mAh (example AAA rechargeable battery)
- Average current consumption for wireless and application **37 μA at 3.3V**

SiWx917 Ultra-Low-Power Sensor Processing

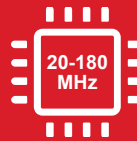
SENSE



Receive & Store Sensor Data in the ULP Mode

- Receive through ULP peripherals
- Store in ULP RAM
- Cortex-M4 sleeps
- PS1 power state is supported for ADC-based sensors, PS2 for other sensors.

COMPUTE



Process Sensor Data in Cortex-M4 High efficiency Mode

- Cortex-M4
- High efficiency computing
 - PS2 at 20MHz (32uA/MHz)
- High-performance computing
 - PS4 at 180MHz (65uA/MHz)
- Dynamic Gear Shifting
- Fast wake-up time

CONNECT



Enter High-performance Mode to Send Data to Cloud

- Maintain Wi-Fi Cloud connection
- Network Wireless Processor maintains TCP connection

BENEFITS

- Minimize Power and Extend Battery Life
- Offload MCU
- Compute Locally at Low-power

SiWx917 - Wide Range of Memory configurations

**672 kB
RAM**

- A large on-die SRAM allows more space to run application and stacks
- Three software-configurable MCU application memory options for sharing the RAM between the wireless sub-system and application:
 - For application: 192, 256 or 320 kB

**8 MB
In-package
Flash or PSRAM**

- A large In-package Flash or PSRAM to accommodate application, OTA, Matter, and code growth
- In-package Flash: 0, 4, or 8 MB
- In-package PSRAM: 0 or 2 MB
- Encrypted XiP

[Learn more about the SiWx917 memory \(App Note\)](#)

**16 MB
External
Flash or PSRAM**

- Supports a Large External Flash or PSRAM for ultimate design flexibility, space, and growth
- External Flash or PSRAM up to 16MB
- Encrypted XiP

Get More Space for Your Application, OTA, Matter, and Future Growth!

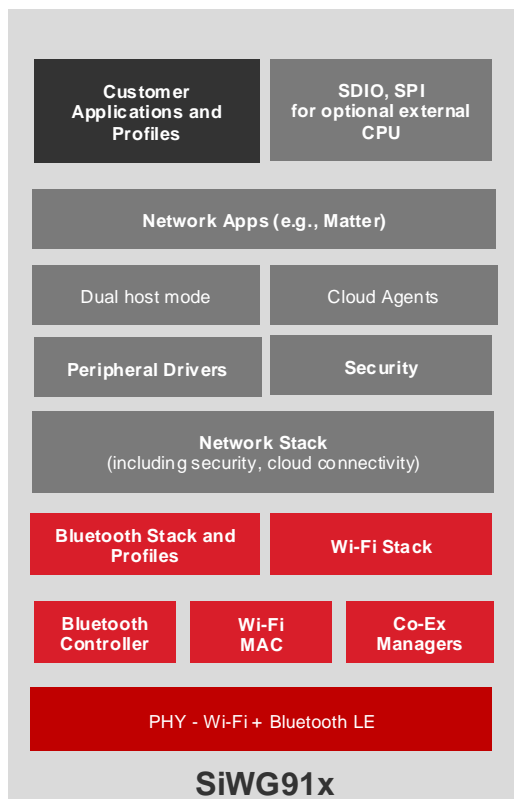
High Level of Security for the Device and Networking

Wi-Fi Protocol & Networking Security	<ul style="list-style-type: none"> WPA2 Personal/Enterprise, WPA3 Personal, TLS 1.3
Secure Boot & Secure OTA	<ul style="list-style-type: none"> Ensures your device runs authenticated code in the boot and when OTA updating to eliminate malware insertion threats Secure Immutable Primary (First Stage) Bootloader in ROM. Authenticates* signatures of all other SW using public keys in Flash. Protocol and Application flash images can be encrypted with separate keys.
True Random Number Generator	<ul style="list-style-type: none"> The TRNG is an IP module based on an unpredictable physical phenomenon, called an entropy source, that is designed to generate non-deterministic data to seed security algorithms.
Secure Key Storage	<ul style="list-style-type: none"> The cryptographic root key created by the PUF does not require key injection and it cannot be copied from one device to the next. This is because it is never stored, but rather it is reconstructed from the device's silicon fingerprint every time it is needed. Since this fingerprint is different for every chip, there is no way for an attacker to copy a key from one device to another.
Debug Lock	<ul style="list-style-type: none"> Debug ports are disabled in HW by default and can be enabled in SW using cryptographically secure host interface commands validated by immutable bootloader
PSA Level 2	<ul style="list-style-type: none"> PSA Level 1 certified and PSA level 2 certifiable
Anti Rollback	<ul style="list-style-type: none"> Firmware downgrade to a lower version is prohibited through OTP to prevent the use of older, potentially vulnerable FW version
Encrypted XiP	<ul style="list-style-type: none"> Execute SW directly from Flash instead of copying it into RAM Images are saved in encrypted format and decrypted using device-specific PUF intrinsic keys while executing. In-line decryption based on-the-fly AES engine (with PUF keys). Multiple protection levels can be set for flash, including unmodifiable. XTS/CTR modes supported.
Secure Zone	<ul style="list-style-type: none"> Secure Zone is a hardware enforced isolation between the NWP core from the Application (CM4) core. NWP protects internal keys (for example, secure boot keys), customer application keys, and certificates residing in the NWP by restricting direct access from the application CM4 core.
Secure Attestation	<ul style="list-style-type: none"> Allows a device to authenticate its identity using a cryptographically signed token and exchange of secret keys
Crypto Accelerators	<ul style="list-style-type: none"> AES-GCM/CMAC/ECB/CBC/CTR mode (Key support of 128,192,256), Chacha-poly, CRC, DES/3DES, DH, ECDH, HMAC, IID, SHA, SHA3

SiWx91x Software Architecture

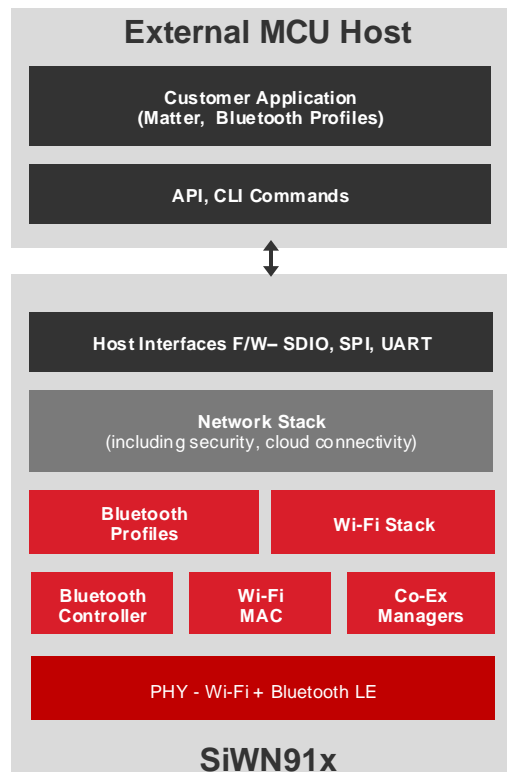
SoC - MCU FOR APPLICATION

- Hostless – No external host needed
- Application, Wireless, and networking stacks run on SiWG91x



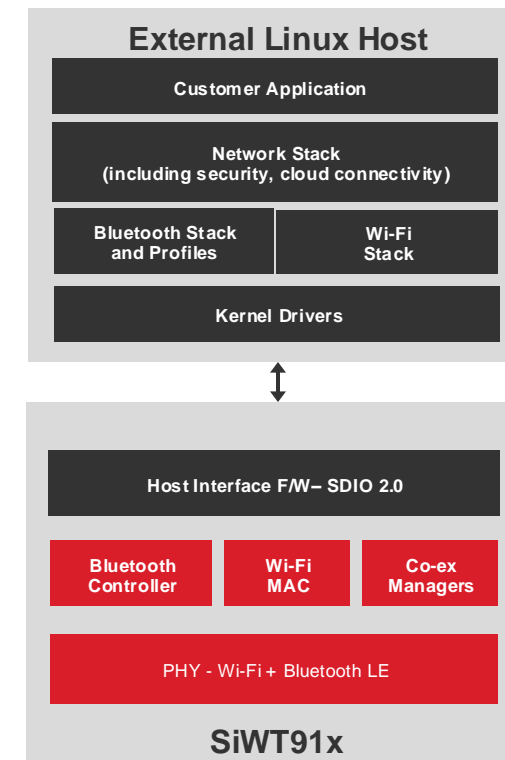
NETWORK Co-PROCESSOR

- Hosted – Network Co-Processor (NCP)
- Host MCU runs RTOS, application code, cloud agent, and Matter
- SiWN91x runs Wi-Fi and Bluetooth radios, wireless and networking stacks



RADIO Co-PROCESSOR

- Hosted - Radio Co-Processor (RCP)
- SiWT91x radio transceiver mode for Wi-Fi and Bluetooth
- Linux host runs wireless, networking, and security stacks



Intro to Ezurio



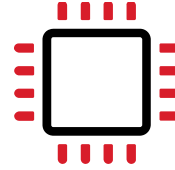
What Sets Us Apart



Personalized Support

We don't send customers to Forums

- Help Desk in Akron Ohio
- **Regional & global FAE team** provides in person support with fast response times
 - North America
 - Europe
 - Taiwan/China



Value Adds (no additional cost)

Software

- **Linux/RTOS Integration:** Ezurio FAEs provide Wi-Fi driver Linux, Android and RTOS integration support into customer MPU/MCU platforms
- **Canvas SW:** Optional Micropython-based development for rapid time to market

Hardware

- **Design and compliance reviews** can identify potential design issues and ensure compliance is maintained
- **Antenna placement assessment** utilizing vector network analyzer to identify locations for best performance



Development & Test Services

Single Partner for all development & test needs

- **In-House EMC lab** & extensive global certification capability
- **Product design** services and custom modules, SBCs, SW/HW, IoT devices and antenna design

Longevity: Ezurio Standard Lifecycle is 10+ Years

Veda™ SL917 Wi-Fi 6 SoC and NCP connected MCU

Industrial temperature, Low Power Single Band Wi-Fi 6



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

SoC Module

- ARM Cortex M4 Processor with FPU subsystem up to 180MHz
- 8MB Integrated Flash
- External PSRAM up to 16MB
- AI/ML Hardware Accelerator (MVP)
- WLAN RF Performance:
 - Tx power up to +17.5 dBm with integrated PA.
 - Rx sensitivity as low as -95dBm
- DC power performance:
 - 19uA/MHz in Low Power mode
 - 65uA/MHz in high power mode
 - 65uA @ 1 second beacon listen interval Standby Associated mode

NCP Module

- ARM Cortex M4 Processor with FPU subsystem up to 180MHz
- 4MB Integrated Flash
- External PSRAM up to 16MB
- WLAN RF Performance:
 - Tx power up to +17.5dBm with integrated PA.
 - Rx sensitivity as low as -95dBm
- DC power performance:
 - 19uA/MHz in Low Power mode
 - 65uA/MHz in high power mode
 - 65uA @ 1 second beacon listen interval Standby Associated mode
- WiSeConnect SDK support
 - STM32, NXP and SiLabs
 - FreeRTOS and Linux
- **Pre-certified Antennas**



SL917 Explorer Board



SL917 Click Integrated Ant



SL917 Click RF Trace/Ext Ant

Veda™ SL917 Wi-Fi 6 SoC – Building Applications On-Module

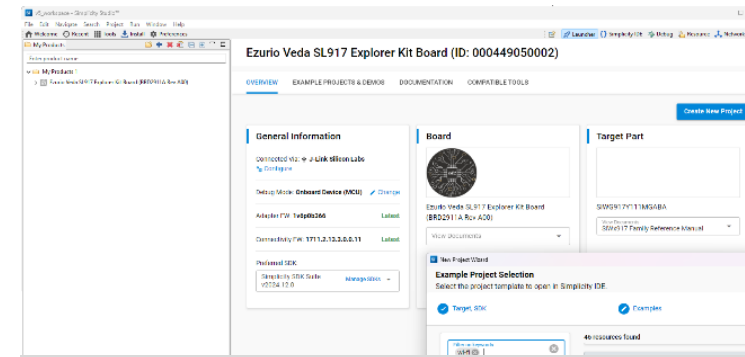
Develop in C with Simplicity Studio and WiSeConnect 3 SDK

- Ezurio's Veda SL917 SoC Explorer board is supported by the Simplicity Studio development environment. Just plug in via USB-C and the built-in J-Link debugger provides everything needed to program and debug.
- Choose a sample project to immediately start working with Wi-Fi 6 and Bluetooth Low Energy applications.
- WiSeConnect SDK sample projects range from simple Wi-Fi provisioning to more complex workflows like connection to cloud platforms (e.g., AWS, Azure) or OTA Firmware Update.
- Ezurio Veda SL917 is 100% compatible with SiLabs hardware and software



Veda SL917 SoC

Develop applications on the embedded application processor using the Simplicity Studio environment. Your all-in-one Wi-Fi 6 & BLE 5.4 solution.





Veda SL917 Explorer board

Development board designed for use with Simplicity Studio. Develop your projects using the Ezurio development board.

Veda™ SL917 NCP Module – Add Wi-Fi 6 + BLE 5.4 to your Microcontroller

Network Co-Processor (NCP) with WiSeConnect SDK

- The portable WiSeConnect SDK can be integrated and configured for your host microcontroller platform's software development environment.
- Get started quickly with the Veda SL917 Click board. The Click board format provides a standard interface for SPI/UART/GPIO connectivity to your hardware. (mikroBUS)
- WiSeConnect SDK porting guides available for
 - STM32 Microcontrollers 
 - NXP Microcontrollers 
- Requires GPIO and SPI or UART interface with CMSIS 2.0 compatible RTOS (e.g., FreeRTOS).



Two Veda SL917 Click boards™ for advanced wireless connectivity with Wi-Fi 6 and Bluetooth LE 5.4



Securely connect industrial IoT devices with Wi-Fi 6 and Bluetooth LE 5.4 using 453-00219 or 453-00221

Veda SL917 Demos

-
- **Simplicity Studio HTTP Server**
 - **Canvas Studio MicroPython Example**





Welcome to Simplicity Studio

Everything you need to develop, research, and configure devices for IoT applications.

Get Started

Select a connected device or search for a product by name to see available documentation, example projects, and demos.

Connected Devices

All Products

Connected Devices

Start

Recent Projects

You haven't created a project yet

Create New Project

Learn and Support



Simplicity Studio User's Guide

The official Simplicity Studio 5 User's Guide

OPEN



Getting Started (Video Series)

Getting started with Simplicity Studio video series

START



Training and Tutorials

Our collection of Simplicity Studio training and tutorial videos

START



Silicon Labs Community

Where users come together to learn, get help, and grow their skills

JOIN



Technical Support

Get technical support directly from Silicon Labs

START



Tips and Tricks

Useful tips and tricks to help you optimize your tools setup

START

Canvas Software Suite





Veda SL917

Access Point Demonstration

Python Application Built With Canvas Software Suite



Veda SL917



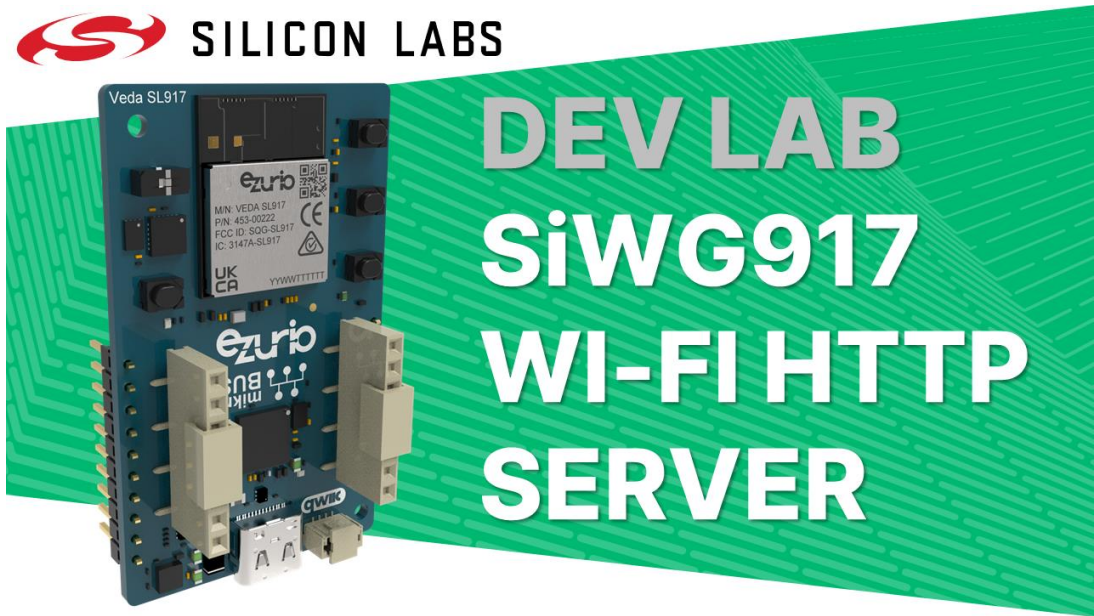
Wrap up...

- Modules and DVK's available
- Access Simplicity Studio/WiseConnect from Silicon Labs website and start developing on the Veda SL917 Explorer board
- Buy a MikroE SL917 Clickboard and start porting the Wiseconnect agent to your favourite MCU
- Download [Canvas](#) from Ezurio website and see how easy it is to build compelling, feature rich applications for the SL917
- Talk to our friendly sales staff

Q&A



Veda SL917 Wi-Fi Workshops Coming Soon



Get Started Today: <https://youtu.be/QvTWgRBgr9o>

- Connect and setup SiWG917 boards in the Simplicity Studio v5 IDE
- Create, build and run the Wi-Fi HTTP Server example application
- Adapt the Wi-Fi HTTP Server application to display button states in a browser
- How to use software APIs to construct Wi-Fi applications for the SiWG917

- Full and Half-Day Workshops kick-off in EMEA
- AMER Locations & Fall Dates TBA

Country	City	Date
Poland	Warsaw	Tuesday, May 20, 2025
Germany	Leipzig	Tuesday, May 27, 2025
Slovenia	Ljubljana	Tuesday, May 27, 2025
Finland	Vantaa	Tuesday, September 2, 2025
UK	Harlow	Tuesday, September 9, 2025
UK	Leeds	Thursday, September 11, 2025
Ireland	Dublin	Tuesday, September 16, 2025
Italy	Milan	Thursday, September 18, 2025
Sweden	Stockholm	Tuesday, September 23, 2025
Sweden	Lund	Wednesday, September 24, 2025
Denmark	Århus	Thursday, September 25, 2025
Czechia	Prague	Thursday, October 2, 2025
France	Paris	November, 2025
France	Rennes	November, 2025
Netherlands	Amsterdam	November, 2025
Germany	Stuttgart	November, 2025
Germany	Dortmund	November, 2025
Italy	Padua	November, 2025



Thank you

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SiWx917 Ultra-Low-Power, High Performance Wi-Fi 6 SoC

Single Stream Wi-Fi 6

- IEEE 802.11 b/g/n/ax 2.4GHz 1x1 20MHz
- 802.11ax OFDMA, DL MU-MIMO, Target Wake Time
- Tx power +19.5 dBm; Rx Sensitivity -97.5 dBm
- Data Rates: 802.11ax MCS0 to MCS7
- Wireless Network Processor up to 160MHz

Ultra-Low Power Consumption

- Wi-Fi 6 Standby Associated Mode: 22µA*
- Wi-Fi 4 Standby Associated Mode: 67µA**
- Deep sleep current ~2.5 µA
- Sleep/Standby current (352kB RAM retention) ~10 µA
- MCU active current: 32 µA/MHz at 20MHz LP mode

Memory

- SRAM 672kB (192/256/320kB for application)
- In-package Flash 0/4/8MB or PSRAM 0/2/8MB
- External Flash or PSRAM support up to 16MB

Bluetooth Low Energy 5.4

- Tx power +19 dBm
- Rx Sensitivity -107 dBm @ 125Kbps
- Data rates: 1, 2 Mbps, LR (125 kbps, 500 kbps)
- Profiles: GAP, GATT, SMP, LE L2CAP

** DTIM10, WLAN keep-alive 30s

* TWT with auto config feature enabled. TWT Rx latency 60s with 8ms wakeup duration. WLAN keep-alive every 60s. 352K SRAM retention.

ARM Cortex® M4 Processor with FPU Subsystem

- Application Core up to 180 MHz 225 DMIPS
- 45 GPIOs
- Highspeed Peripherals: SDIO, UART, (Q)SPI, I2C, I2S, PWM, RTC, and Timers
- Ultra Low Power Peripherals: RTC, BOD, UART, I2C, I2S, GPIO, and Timers
- Analog Peripherals: 12-bit ADC/DAC, Op-Amp, Comparator, and Temp Sensor

Intelligent Power Management

- Integrated DC-DC Converter, LDO, multiple power modes/states, Dynamic Voltage/Frequency scaling (DVFS), Deep sleep with/without SRAM retention

Operating Condition

- Single supply: 3.3 V
- Dual supply: 3.3 V and 1.8 V
- Operating temperature: -40 .. +85 °C

Security

- WPA2 (Personal/Enterprise), WPA3 (Personal), TLS1.3
- Secure Boot/OTA, PUF, TRNG, Secure Key Storage, Debug Lock, Anti Rollback, Encrypted XiP, and Secure Attestation

Software and Protocol Support

- Integrated Wi-Fi stack with Bluetooth LE coexistence and Matter over Wi-Fi
- Offloaded from Cortex-M4: TCP/IP stack with HTTP/S, SSL/TLS1.3, DHCP, MQTT
- Host-less (SoC) and hosted (RCP/NCP) modes

Compact Package Size

- 7 mm x 7 mm x 0.85 mm IC QFN 84
- PCB Module 21x16 LGA 71

Development Environment

- Simplicity Studio

