silex technology When it **Absolutely Must** Connect

REGISTERED PARTNER NXP

Dual-band Wi-Fi 6 plus Bluetooth® Combo SDIO Module

SX-SDMAX-2530S

Low Power Wireless LAN Module Powered by NXP's IW611

Overview

The SX-SDMAX is a Wi-Fi 6 (IEEE 802.11a/b/g/n/ac/ax) plus Bluetooth® v5.3 that supports SDIO as its host interface. Powered by NXP's highly integrated IW611 chipset, the Wi-Fi 6 module delivers higher throughput, better network efficiency, lower latency, and improved range over previous-generation Wi-Fi standards. The module supports SDIO as its host interface, which is a popular choice for many battery-operated device applications, as it provides the perfect balance between performance and power consumption. In addition, by supporting a wide temperature range, it is a wireless LAN module that is ideal for wireless compatibility with a wide range of products, from industrial equipment to small devices.

Efficient, Faster, & Lower Latency with Wi-Fi 6

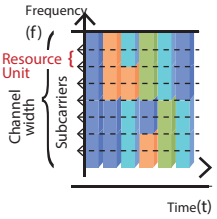
The latest Wi-Fi 6 technology introduces features such as OFDMA, 1024QAM, and Target Wake Time (TWT) bringing higher throughput, better network efficiency, lower latency, and improved range over previous-generation Wi-Fi standards.
The SX-SDMAX with its SDIO host interface combines all the benefits of Wi-Fi 6 while optimizing power consumption to deliver unmatched Wi-Fi performance with improved battery life, making it an ideal solution for many battery-operated embedded devices.

Wi-Fi 6 Features

① Efficiency

MU-MIMO OFDMA

Improved efficiency and stability in dense networks. Wi-Fi 6 delivers data reliably with low latency even in congested radio wave environments.



② Power Saving

TWT Multiple BSS

Wi-Fi 6 has introduced new features like Target Wake Time which allows devices to negotiate when and how frequently they will wake up to send or receive data. This Wi-Fi 6/6E feature increases device sleep time and greatly improves battery life. It also incorporates a mechanism for avoiding collisions between packets and for efficiently avoiding radio wave interference for efficient communication.

SX-SDMAX Features

- PHY data rate up to 600Mbps (at 5GHz/80MHz/MSC11)
- Single stream, 1x1
- Powered by NXP's IW611 chipset
- Host interface: Wireless LAN SDIO3.0 compatible, Bluetooth® UART
- 80MHz band mode (5GHz)
- High density modulation mode (1024 QAM)
- Bluetooth® v5.3 Class1 compatible
- RoHS compliant
- Modular certifications(Planned) : Japan, USA, Canada, Europe, UK

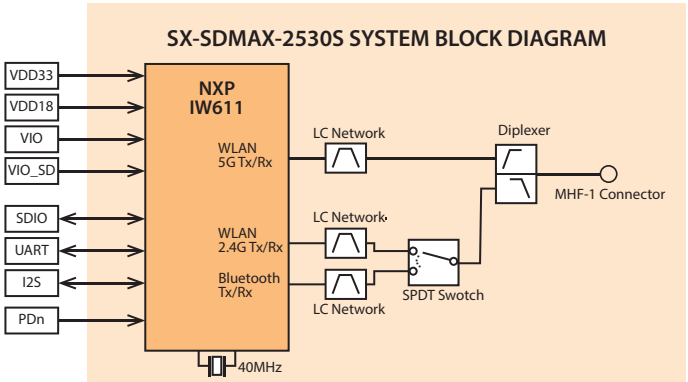
Applications

Ideal for many battery operated medical devices, mobile printers, Hand held POS and terminals, barcode scanners, IoT Applications etc.

Specifications

Product Name	SX-SDMAX-2530S				
Chipset	NXP IW611				
Host Interface	WLAN : SDIO3.0 Bluetooth® : UART				
Wi-Fi Standard	IEEE 802.11a/b/g/n/ac/ax (1x1)				
Bluetooth®	Bluetooth® v5.3 (BR/EDR/LE Compliant)				
Antenna Connector	MHF Connector :1				
Operating Voltage	Main Power Supply : 3.3V + 1.8V IO Power Supply : 1.8V or 3.3V				
Current Consumption (Peak Value)	Voltage	VDD18		VDD33	
		Tx	Rx	Tx	Rx
	Wi-Fi:2.4GHz	190mA	130mA	200mA	10mA
	Wi-Fi:5GHz	260mA	150mA	240mA	10mA
	Bluetooth®	150mA	80mA	20mA	10mA
Operating Environment	Temperature : -40 ~ 85℃ Humidity : 95% RH or less (Without Condensation)				
Storage Environment	Temperature : -40 ~ 85℃ Humidity : 95% RH or less (Without Condensation)				
Size	17.0×18.0×2.65mm				
Weight	1.7g				
Package Type	44-pins Land Grid Array (Direct Solder)				

Block Diagram



Dual-band Wi-Fi 6 plus Bluetooth® Combo SDIO Module

SX-SDMAX-2530S

Product Lineup

SX-SDMAX-2530S
(44pins Direct Solder Pads)

SX-SDCAX-2530
(Micro SD Card Type)

Model	Form Factor	MoQ	Packaging
SX-SDMAX-2530S	Surface Mount	500	Reel
SX-SDMAX-2530S-SP	Surface Mount	1	Reel
SX-SDCAX-2530	Micro SD Card	1	Individual Box ※ Antenna Included

Wireless Driver ※1

【WLAN】

- Linux
  - Station, Access Point Mode
  - WPA™/WPA2™/WPA3™ Authentication
  - IEEE 802.1X(TLS, TTLS, PEAP, LEAP, FAST)
  - WPS2.0 Support※2
  - Wi-Fi Direct® Support※2

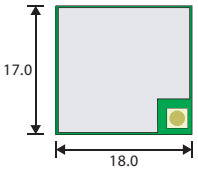
【Bluetooth®】

- In order to support the Bluetooth® v5.3 standard, it is necessary to combine a stack and profile that support the Bluetooth® v5.3 standard.
  Please contact our sales representative for compatible Bluetooth® stacks and profiles.

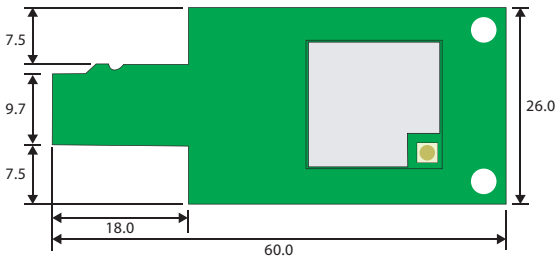
※1 : Please contact our sales representative for details of compatible drivers.
※2 : When using, it is necessary to obtain Wi-Fi Alliance certification separately.

Mechanical Drawing

SX-SDMAX-2530S



SX-SDCAX-2530



Evaluation

Although the NXP i.MX BSP will already include Wi-Fi drivers for SX-SDMAX to enable plug-n-play evaluation, Silex also provides a separate evaluation Linux OS image which not only includes Silex's optimized driver but also board data files, and other Linux test tools ideal for evaluation.

What you will need?

- SX-SDCAX-2530
- NXP i.MX8M Evaluation Kit
  (MCIMX8M-EVKB)

Other useful tools inluded in Silex image :

- Wireless LAN management command - iw
- Throughput test - iperf
- Station/AP function - hostapd, wpa_supplicant
- DHCP - udhcpd、udhcpc

To get started:

1. **Purchase SX-SDCAX-2530-SP**
   Includes antenna
2. **Execute Evaluation License Agreement on website.**
3. **Download evaluation image via link provided in an email.**
4. **Procure other equipment necessary for evaluation. It includes NXP i.MX8M Evaluation Kit**
5. **Begin evaluation.**
   Steps included in Startup Guide.

【SX-SDMAX Product Page】
https://www.silextechnology.com/connectivity-solutions/embedded-wireless/sx-sdmax

ISO 9001 JQA-2667
ISO 14001 JQA-EM3813

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