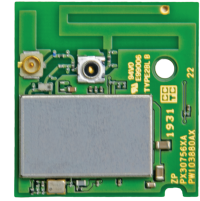# IEEE 802.11 a/b/g/n/ac Plus Bluetooth USB Combo Module

SX-USBAC

Based on Qualcomm's QCA9377-7 chip featuring Wave-2 MU-MIMO

Product Overview

The Silex SX-USBAC is dual-band IEEE 802.11 a/b/g/n/ac WLAN USB module plus Bluetooth 5.0 BR/EDR/LE combo module. It is based on Qualcomm's QCA9377-7 System-on-Chip. It supports 1x1 (Rx Diversity with Wi-Fi/BT co-existence) MU-MIMO technology and delivers reliable wireless PHY data rate up to 433Mbps to shorten transmission time significantly with higher speed. It's the ideal choice for USB wireless embedded systems that demand robust link quality and maximum throughput at range. SX-USBAC comes in multiple form factors to fit various platforms and size requirements.

Features

- Powered by QCA9377-7 Chip by Qualcomm
- Dual Band Support for both 2.4GHz / 5GHz
- 1x1 Wave-2 MU-MIMO
- PHY Data Rate up to 433 Mbps
- Bluetooth v5.0
- Host Interface
  - WLAN : USB 2.0
  - Bluetooth : USB 1.1
- RoHS Compliant
- Modular Certifications for North America, Europe and Japan

Wireless Driver

WLAN

Reference Platform: NXP's i.MX6 SoloX board
Operating System: Linux
Feature Highlights:
- **Station Mode,** Access Point Mode, P2P Mode
- Rx Diversity
- Roaming
- Power Save and Wake on wireless
- **WPA / WPA2 / WPA3** AES Encryption
- **IEEE 802.1x (EAP-TLS, EAP-TTLS, EAP-PEAP)**
- **WPS2.0**
- **Wi-Fi Direct**

Bluetooth

Bluetooth v5.0 BR/EDR/LE
Profiles Supported and Tested by Silex:
- Audio / Video (HSP, HFP, A2DP, AVRCP)
- Keyboard / Mouse (HID)
- Serial Port (SPP)
- File Transfer (FTP)
- Personal Area Network (PAN)
- BLE General Attribute (GATT)

Embedded Applications

Applications include medical devices, security systems, 3D printer, video streaming, PoS, digital signs, gaming machine, medical equipment, industrial tablet PC's, handheld devices, thin client devices, and many more.
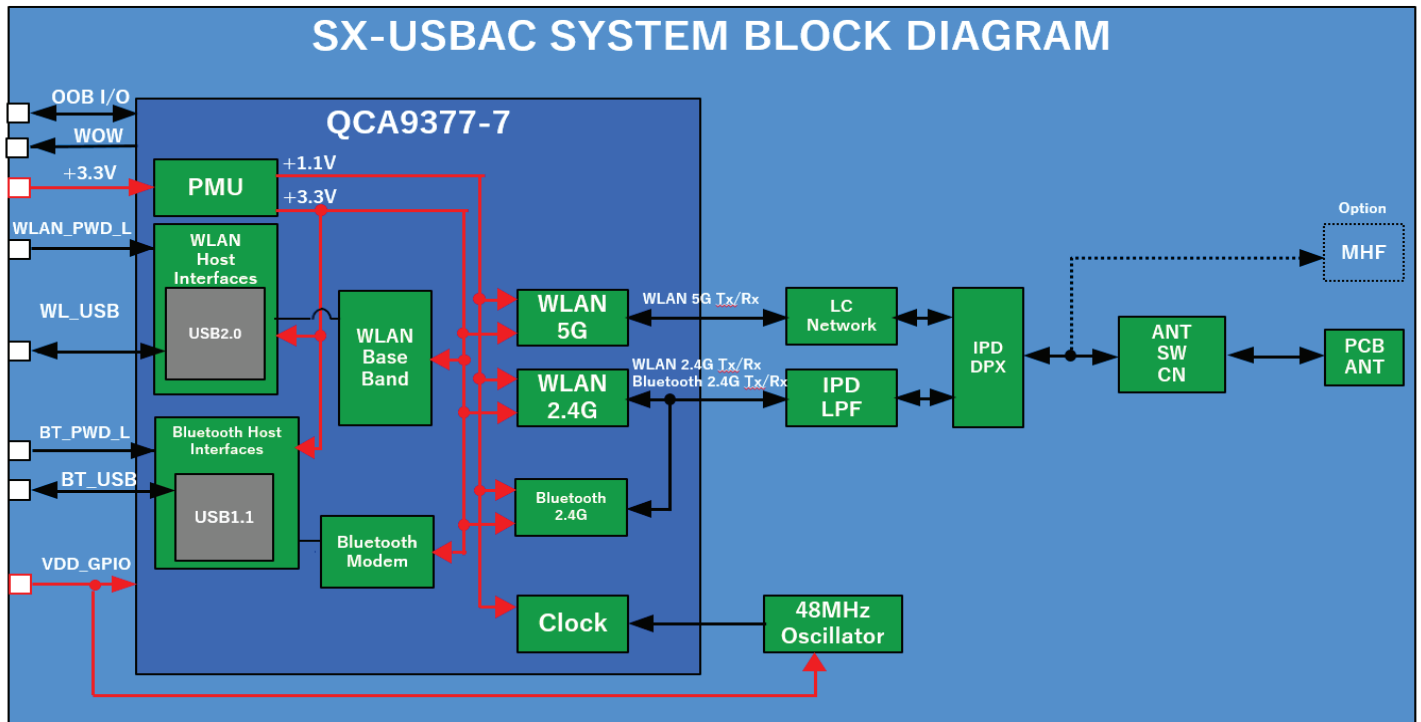
Product Specifications

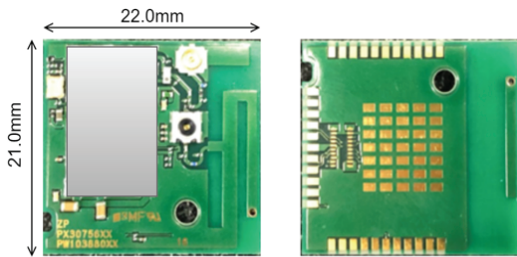|	
Model	SX-USBAC
Chipset	QCA9377-7
Host Interface	WLAN : USB2.0 Bluetooth: USB1.1
WLAN Specification	IEEE 802.11a/b/g/n/ac (1x1)
BT Specifications	Bluetooth v5.0 (BR/EDR/HS/LE Compliant)
Antenna Connector	On-board antenna MHF1 convert connector x 1
Operating Voltage	Main Power : 3.3 V ± 5%
Power Consumption (WLAN)	[2.4 GHz] Tx. Max 400 mA, Rx. Max 110 mA [5 GHz] Tx. Max 570 mA, Rx. Max 140 mA
Operating Environment	Temperature: -20 ~ 85 ℃ Humidity : 15 ~ 95% RH (No Condensation)
Storage Environment	Temperature: -40 ~ 95 ℃ Humidity : 5 ~ 95% RH (No Condensation)
Dimensions	22.0mm x 21.0mm x 2.75mm
Weight	1.20g
Modular Certifications	TELEC/FCC/IC/CE

Product SKU's

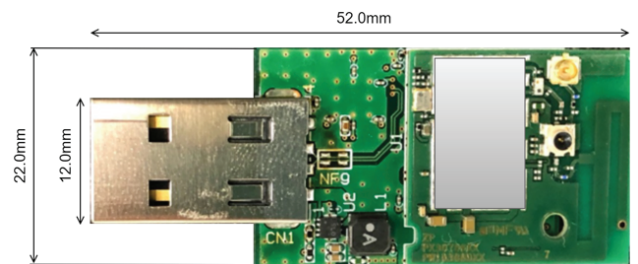| Part Number	Type	MOQ	Notes
SX-USBAC-SMT	Surface Mount	500 pcs/reel	- On-Board Antenna x1
SX-USBAC-SMT(EA)	Surface Mount	500 pcs/reel	- MHF1 Connector x 1 (External Antenna)
SX-USBAC-TAC	USB Connector Type A	100 pcs/tray	- On-Board Antenna x1 - MHF1 Connector x 1 (External Antenna)
SX-USBAC-SMT(EA)-SP	Surface Mount (Sample Pack)	10 pcs/tape	- MHF1 Connector x 1 (External Antenna)
SX-USBAC-TAC-SP	USB Type A (Sample Pack)	1 pcs/pack	- SX-USBAC-TAC x1 - AA258 (MHF1) x 1

USB Wireless Module
IEEE 802.11ac Plus Bluetooth USB Combo Module   SX-USBAC

Block Diagram

SX-USBAC SYSTEM BLOCK DIAGRAM

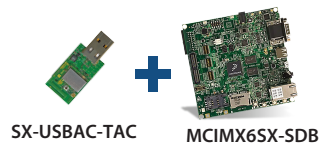## Mechanical Specifications

SX-USBAC-SMT

SX-USBAC-TAC

Evaluation Kit

SX-USBAC-TAC is a USB TypeA connector card designed to allow easy evaluation of the radio using the NXP i.MX6 SoloX board.
We provide a Linux OS evaluation image which includes Silex's reference radio driver, supplicant and tools to test the radio.

Begin evaluation by following the 3 steps below.

SX-USBAC-TAC   **MCIMX6SX-SDB**

① Purchase the required hardware
- SX-USBAC-TAC-SP / i.MX6 SoloX EVK

② Download the OS image for evaluation
- Available via silex website

③ Setup envirnment and begin evaluation
- Instructions in User Guide (available on website)

Other 802.11ac Solutions

SDIO WLAN Module
SX-SDMAC / SD-SDCAC

- Single Stream, 1x1
- SDIO3.0
- Bluetooth v5.0 BR/EDR/LE
- Industrial Temperature (-40 to 85 ℃)
- Multiple Form Factors & Antenna Options

PCIe WLAN Module
SX-PCEAC2

- 2T2R, 2x2
- Half Mini PCIe Card, M.2 LGA Type 1216 Module
- Bluetooth v5.0 BR/EDR/LE
- Extended Temperature (-20 to 70 ℃)

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