

Next Generation IEEE 802.11 abgn/ac/ax Plus Bluetooth PCIe Combo Module

SX-PCEAX



Wi-Fi 6E: Turbocharged Wi-Fi for Medical & Industrial Applications

Product Overview

The Silex's SX-PCEAX is one of the industry's first Wi-Fi 6E modules. This Wi-Fi 6E module extends the benefits that Wi-Fi 6 already provides in the 2.4 and 5 GHz bands to 6 GHz and helps increase overall capacity and performance. SX-PCEAX is a tri-band IEEE 802.11 abgn/ac/ax WLAN module plus Bluetooth 5.2 BR/EDR/LE combo module based on Qualcomm's QCA2066 SoC. As the number of Wi-Fi devices in use worldwide continues to proliferate, making the available spectrum more congested, this Wi-Fi 6E module will be ideal for future-proofing your devices in these dense environments.

Benefits

Wi-Fi 6E

Adds the 6GHz spectrum. Devices can operate in the 6 GHz band providing:

- Six times more capacity than 2.5 and 5 GHz bands
- Seven superwide 160 MHz channels
- Lower latency, less congestion

Wi-Fi 6E brings Wi-Fi® into 6 GHz	
Features	Benefits
 More, contiguous spectrum	 Gigabit speeds
 Wider channels	 Extremely low latency
 Less interference	 High capacity

Multi-User Multiple Input Multiple Output (MU-MIMO)

Allows more downlink data to be transferred at once and enables an access point to concurrently transmit data to a larger number of devices.

160 MHz channels

Increases bandwidth to deliver greater performance with low latency.

Target Wake Time (TWT)

Significantly improves battery life in Wi-Fi devices, such as Internet of Things (IoT) devices.

1024 Quadrature Amplitude Modulation Mode

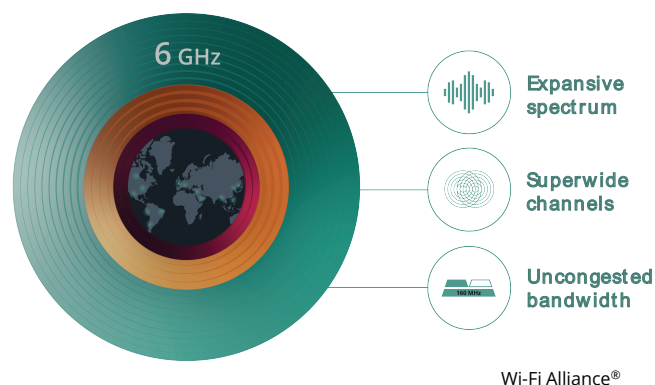
1024-QAM increases throughput in Wi-Fi devices by encoding more data in the same amount of spectrum.

Transmit Beamforming

Enables higher data rates at a given range resulting in greater network capacity.

Orthogonal Frequency Division Multiple Access

OFDMA effectively shares channels to increase network efficiency and lower latency for both uplink and downlink traffic in high demand and dense environments.



The Appeal of Wi-Fi in 6 GHz

- Better capacity, coverage, and performance
- Optimized for congested environments: robust performance even with high numbers of devices
- Power consumption tailored for IoT devices
- Wi-Fi 6E devices extend into 6 GHz

SX-PCEAX Key Features

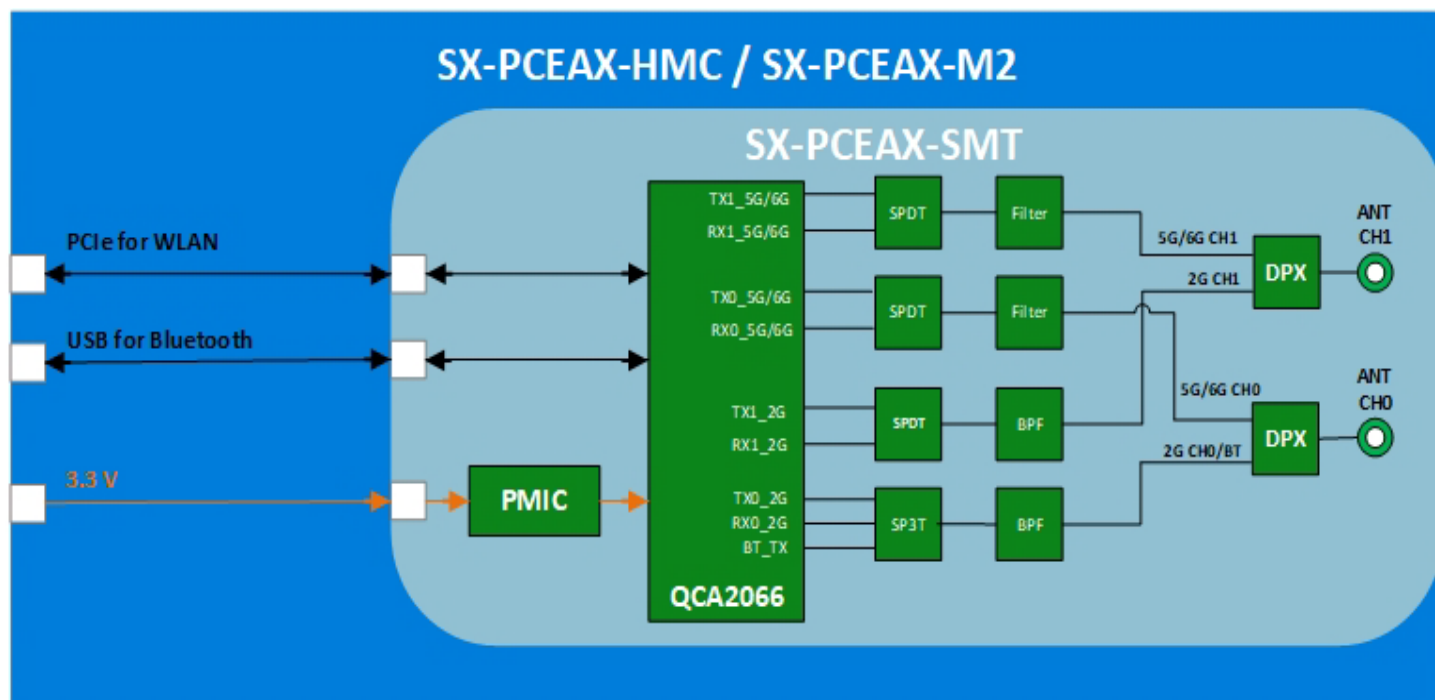
- Complies with IEEE 802.11ax
- **5 GHz, 6GHz:** Support 20/40/80/160 MHz bandwidth mode
2.4 GHz: Support 20/40 MHz bandwidth mode
- 2 spatial data stream system (2T2R)
- Bluetooth 5.2 BR/EDR/LE compatible (Backward compatible)
- Security: OPEN, WPA2-PSK(AES), WPA3-OWE, WPA3-SAE
- Manufacturing tools for configuration test
- Diagnostic and DUT test tools for indoor and outdoor test
- Modular Certifications for North America

PCIe Wi-Fi6 Module

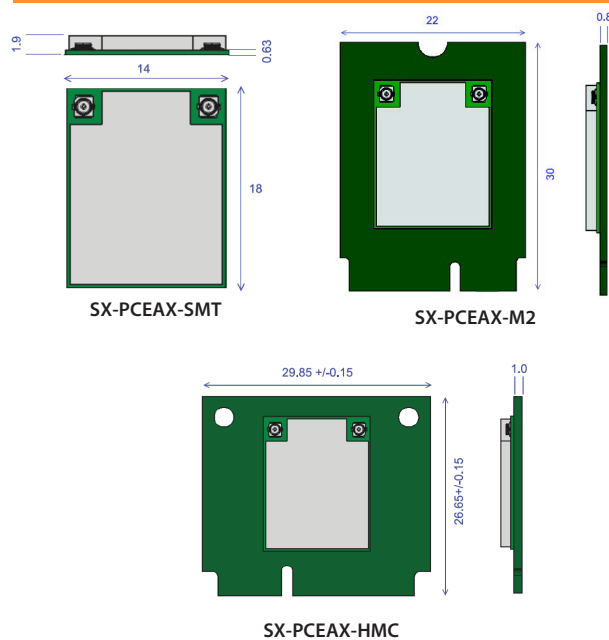
Next Generation IEEE 802.11ax + BT Combo Module

SX-PCEAX

Block Diagram



Mechanical Specifications



Product Specifications

Model	SX-PCEAX-SMT (M.2 LGA Type 1418) SX-PCEAX-HMC (Mini PCIe Card Half Size) SX-PCEAX-M2 (M.2 Card Type 2230-S3-E)
Chipset	QCA2066
Host Interface	WLAN : PCIe 3.0 Bluetooth: USB1.1
WLAN Specification	IEEE 802.11a/b/g/n/ac/ax (2x2)
BT Specifications	Bluetooth v5.2 (BR/EDR/HS/LE Compliant)
Antenna Connector	MHF4 connector x 2
Operating Voltage	Main Power : 3.3 V $\pm$ 5%
Power Consumption (WLAN)	[2.4 GHz]: Tx 860mA, Rx 270mA [5 GHz]: Tx 1110mA, Rx 350mA [6 GHz]: Tx 1150mA, Rx 350mA
Operating Environment	Temperature: -20 ~ 65 °C Humidity : +5 ~ 85% RH (No Condensation)
Storage Environment	Temperature: +5 ~ 85 °C Humidity : 20 ~ 60% RH (No Condensation)
Dimensions	SX-PCEAX-SMT: 14.0mm x 18.0mm x 1.9mm SX-PCEAX-HMC: 29.85mm x 26.65mm x 2.9mm SX-PCEAX-M2: 22.0mm x 30.0mm x 2.7mm
Driver Support	Linux, Windows 10/11/loT
Modular Certifications	TELEC/FCC/IC/CE

Evaluation Kit

SX-PCEAX-HMC is a mini PCIe half mini card designed to allow easy evaluation of the radio using Boundary Device's Nitrogen8M based on NXP's i.MX8M processor. We provide a Linux OS evaluation image which includes Silex's reference reference driver, supplicant and tools to test the radio.

sillex technology is a registered trademark of sillex technology, Inc. Other product or brand names may be registered trademarks of their respective owners. Technical information and specifications are subject to change without notice. © 2021 sillex technology, Inc. All rights reserved.



sillex global sales & support locations

US Office
sillex technology america, Inc.
+1-657-218-5199
www.sillextechnology.com
sales@sillexamerica.com

Europe Office
sillex technology europe, GmbH
+49-2154-88967-0
Germany toll free 0800-7453938
www.sillextechnology.com
sales@sillexeurope.com

China
sillex technology beijing, Inc.
+86-10-8497-1430
www.sillex.com.cn
contact@sillex.com.cn

Corporate Headquarters
sillex technology, Inc.
+81-774-98-3781
www.sillex.jp
support@sillex.jp

