SX-SDPAN
802.11a/b/g/n SiP for Mobile Applications

Highly Integrated Dual Band 802.11n plus Advanced Bluetooth 4.0 Solution

The Silex SX-SDPAN (Qualcomm Atheros AR6233) is a third-generation Wireless LAN solution, featuring dual-band 802.11n plus Bluetooth. Based on the game-changing AR6003 Wireless LAN chip, the SX-SDPAN brings 802.11n throughput, range and power efficiency to portable devices including patient monitors, printers, handheld terminals and more.

The SX-SDPAN integrates all WLAN and Bluetooth functionality in a single package to support a low-cost PCB layout implementation. 5 GHz WLAN is supported with an external Front End Module (FEM). Shared and dual antenna configurations can be implemented with a minimum number of external RF components.

Benefits:

- High RBOM integration enables design flexibility and lowest cost
- Smallest foot print for space constrained devices
- Ultra low power consumption for extended battery life
- Supports 40 MHz channels at 5 GHz allowing for highest throughput for bandwidth intensive applications

Solution Highlights:

The SX-SDPAN incorporates all the features and performance of the award winning Qualcomm Atheros ROCm® AR6003 solution, including:

- Single-stream 802.11n for faster downloads, longer range, and lower power consumption
- Bluetooth 3.0+HS and 4.0 Low Energy
- High level of RF integration enables direct antenna connection through separate 2.4 GHz WLAN and Bluetooth antenna ports
- Flexible dual-band solution with 5 GHz front end module (FEM); shared and dual antenna configurations supported
- Highest level of on-chip integration using CMOS technology
  - Radio/MAC/Baseband
  - Patented Qualcomm Atheros Efficient Power Amplifier (EPA™) for high transmitter output power
  - Integrated power management unit
- Qualcomm Atheros Universal Wireless Cooperation for enhanced Wi-Fi/Bluetooth Coexistence

Features:

- IEEE 802.11a/b/g/n 2.4/5 GHz
- Bluetooth 3.0+HS and 4.0 Low Energy
- Integrated CMOS Efficient Power Amplifier (EPA™), LNA
- Adaptive radio biasing for low-power or high-performance modes
- Industry-leading receive sensitivity
- No external EEPROM required for RF calibration
- Integrated RISC processor
- Support for industry standard QoS schemes (802.11e, WMM, WMM-PS)
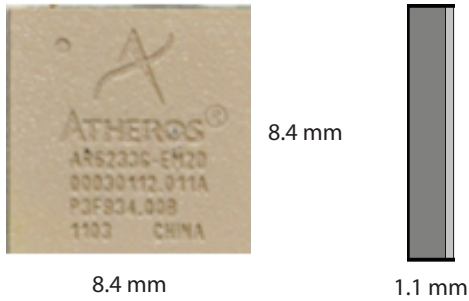- Hardware accelerated security, including WAPI (China)

Target Applications:

The SX-SDPAN is ideal for any high volume portable device where there is a requirement to achieve the lowest BOM cost or smallest foot print. Implementation of a System-in-Package solution is recommended for companies that have RF hardware expertise. Software driver and supplicant development is also generally required.
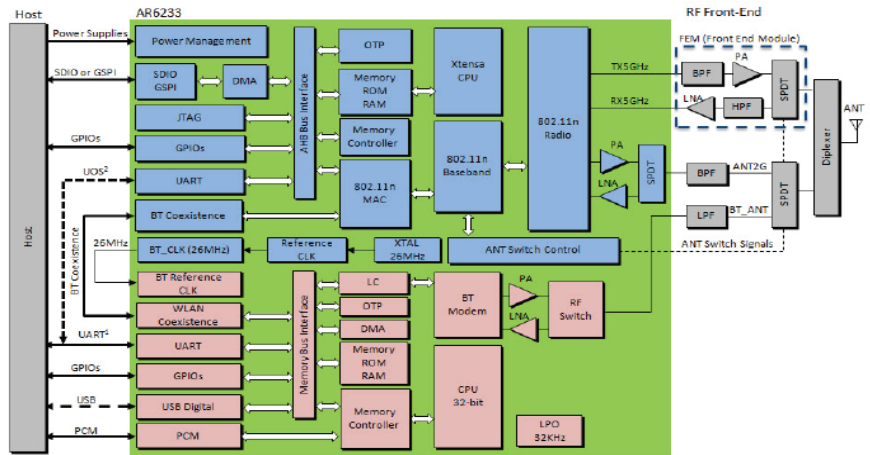
Specifications:

Product Name	SX-SDPAN-2830BT
Chipset	Qualcomm Atheros AR6233
Operating Voltage	VDD 3.3V, AVDD 1.8v
Dimensions	8.4 x 8.4 x 1.1 mm LGA package with 650um pitch pads
Bluetooth Specifications	BT3.0+HS, BT4.0, Class 1.5
Storage Temperature	-45 to +125 degrees C
Operating Temperature	-20 to +85 degrees C

Dimensions and Architecture

8.4 mm

8.4 mm

1.1 mm

Physical Specifications 8.4 x 8.4 x 1.1 mm LGA Package

General Specifications

On-Chip Functionality:	Single-chip MAC/BB/RF/PA/LNA
Frequency Band:	2.4 GHz / 5 GHz
Network Standard:	802.11a, 802.11b, 802.11g, 802.11n
Modulation Modes:	CCK and OFDM with BPSK, QPSK, 16 QAM, 64 QAM
Hardware Encryption:	WEP, WPA/WPA2, (AES and TKIP), WAPI
Quality of Service (QoS):	WMM, WMM-PS, 802.11e

Interfaces

Communications:	SDIO 2.0, GSPI
Physical Specifications:	8.4 mm x 8.4 mm LGA Package

802.11n (PHY Layer) Throughput at different Modulations

Mode	MCS	Modulation	Data Rate (Mbps)			
			20MHz (2.4GHz and 5MHz)		40MHz (5GHz only)	
			FGI	HGI	FGI	HGI
IEEE 802.11n	0	BPSK	6.5	7.2	13.5	15.0
	1	QPSK	13.0	14.4	27.0	30.0
	2	QPSK	19.5	21.7	40.5	45.0
	3	16-QAM	26.0	29.9	54.0	60.0
	4	16-QAM	39.0	43.3	81.0	90.0
	5	64-QAM	52.0	57.8	108.0	120.0
	6	64-QAM	58.5	65.0	121.5	135.0
	7	64-QAM	65.0	72.2	135.0	150.0

Driver Support

Reference Drivers:

- Linux
- Android
- Windows Embedded Compact 7
- QNX Neutrino
- Green Hills Intergrity
- Mentor Graphics Nucleus

Ordering Information

SX-SDPAN-2830BT:	Bulk Packaged, Tape / Reel
SX-SDPAN-2830BT-SP:	10 Unit Sample Pack
SX-6K3-EVK-DB:	AR6003 Dual Band Evaluation Kit

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