

# BlueX Microelectronics Co. Ltd

**IoT SoC Vendor**

**2018.09.04**

- Company : BlueX Microelectronics Co. Ltd
- Description : Ultra Low Power Wearable and IOT Wireless SoC IC Vendor
- Founded Date : September 2015
- Headquarter : Heifei, China
- Offices : Shanghai, Shenzhen and Hsinchu
- CEO : Hongyu Li
  - Former President in Alto Semiconductor, VP in Ascentool, Chief RF Design in MTK USA, VP in UBEC and RFIC Design Leader in NXP.
- Team Capability :
  - > 20 years experience in RF/Analog/Digital IC Design
  - Designed wireless transceivers on: ZigBee, WLAN, Bluetooth, Ku-band Satellite, GPS, CDMA, CDMA 2000, TDMA, WCDMA, GSM, WiMax, UWB. Accumulated shipping record : 3 billion.
  - WiFi transceiver IP was licensed to the 1<sup>st</sup> generation WiFi product of MTK.
  - WiFi IC was rebranded to Qualcomm/Atheros.
  - ZigBee IC was rebranded to Microchip, Renesas/NEC and MegaChips.
- Existing Product :
  - Ultra Low Power BLE 5.0 SoC
  - Extreme small die size for BLE 5.0 SoC

- ❑ Technology and cost advantage
  - Founding team has been working on the same technology for 15 years, far ahead of competitions
  
- ❑ Subthreshold design
  - CMOS Subthreshold design is the fundamental of all low power circuit design. BlueX adopts subthreshold design and have mass production experience with TSMC's process and modeling.
  - Shipping product now
  
- ❑ Advanced Transceiver and Baseband Architecture
  - BlueX has developed a cutting edge technology that can reduce both the area and power of RF transceiver design
  
- ❑ Integrated Power Management Design in SoC
  - High efficiency DC/DC Converter

## RF01 : Bluetooth BLE 5.0 SoC

- ❑ RF Transceiver, Baseband, MAC, ARM M0+ MCU, 12bits ADC, 208KB SRAM, 30 GPIO, Buck DC/DC Converter, Charger and Touch are integrated.
- ❑ **Ultra Low Power** : 4.2mA RX current @ 4.3V  
4.4mA TX current @ 4.3V  
1mA Idle current with MCU
- ❑ TSMC CMOS 40nm ULP process
- ❑ **Low Cost** : The Smallest Die Size in the IoT market.
- ❑ Mass Production in 2018 Q2.



# BLE 5.0 SoC Comparison

Company	BlueX	Dialog	Nordic	Ti	ST Micro
Part Number	RF01	DA14586	nRF52840	CC2640R2F	BlueNRG-2
Standard	BLE 5.0	BLE 5.0 ??	BLE 5.0	BLE 5.0	BLE 4.2
Data Rate	2M / 1M bps	1M bps	2M / 1M / 0.5M / 125K bps	2M / 1M / 0.5M / 125K bps	1M bps
MCU	32-bit ARM Cortex-M0+	32-bit ARM Cortex-M0	32-bit ARM Cortex-M4	32-bit ARM Cortex-M3	32-bit ARM Cortex-M0
RX Sensitivity	-93 dBm @ 1M bps	-93 dBm @ 1M bps	-95 dBm @ 1M bps	-97 dBm @ 1M bps	-88 dBm @ 1M bps
RX Current	4.2 mA @ 4.3V 5.1 mA @ 3.3V	6 mA @ 3V	4.8 mA @ 3V	6.1 mA @ 3V	7.7 mA @ 3V
TX Output Power	7, 3, 0, -20 dBm	0, -20 dBm	8 ~ -20 dBm	5, 0 dBm	Max 8 dBm
TX Current	4.4 mA @ 0 dBm, 4.3V 5.4 mA @ 0 dBm, 3.3V	5.2 mA @ 0 dBm, 3V	6.4 mA @ 0 dBm, 3V	6.1 mA @ 0 dBm, 3V	8.3 mA @ -2 dBm, 3V
Sleep Current *no clock	2.5 uA	1 uA	1.3 uA	1.1 uA	1 uA
Package	FOCLP 52 / QFN-40L	QFN-40L	AQFN-73L	QFN-48	QFN-32L/48L, WLCSP34
Operation Voltage	4.3V ~ 1.8V	3.6V ~ 2.3V	5.5V ~ 1.7V	3.8 ~ 1.8V	3.6V ~ 1.7V
Operating Temp.	125°C ~ -40°C	85°C ~ -40°C	125°C ~ -40°C	125°C ~ -40°C	105°C ~ -40°C
Retention SRAM	208 KB	96 KB	256 KB	28 KB	24 KB
Flash	1 MB	1 MB	1 MB	128 KB	256 KB
GPIO	30 / 10	24	48	31	14, 15 or 26
Interface	UART / SPI / I <sup>2</sup> C	UART / SPI / I <sup>2</sup> C	UART / SPI / I <sup>2</sup> C	UART / SPI / I <sup>2</sup> C	UART / SPI / I <sup>2</sup> C
ADC	6 channels, 12-bit ADC	4 channels, 10-bit ADC	8 channels, 12-bit ADC	8 channels, 12-bit ADC	10-bit ADC
3.0V / 1.8V LDO	Yes	No	Yes	No	No
Charger	Yes	No	No	No	No
Touch	Yes	No	No	No	No

