

# CYPRESS CYW20819 ULTRA-LOW POWER BLUETOOTH® 5 MCU

Wireless MCU for Mesh, audio, fitness, remote controls, and many other IoT and Human Interface Device applications



## OVERVIEW

The Cypress CYW20819 is a best-in-class Bluetooth 5 single-chip solution targeted at Bluetooth Mesh, audio, voice, wearables, mice, keyboards, gaming consoles, remote controls, home automation, and a wide range of other Internet of Things (IoT) applications. The CYW20819 fully implements the Bluetooth Mesh 1.0 specification, and employs the highest level of integration to eliminate external components, allowing device makers to reduce product footprints and optimize costs.

The CYW20819 integrates Ultra-Low Power (ULP) BLE along with the capability to add audio functionality to enhance the user experience for wearables and trackers. It also provides best-in-class receiver sensitivity for both BLE and EDR. Using advanced design techniques and process technology to reduce active and idle power, the CYW20819 also addresses the needs of a diverse class of low power Bluetooth 5-enabled devices that require minimal power consumption and compact size.

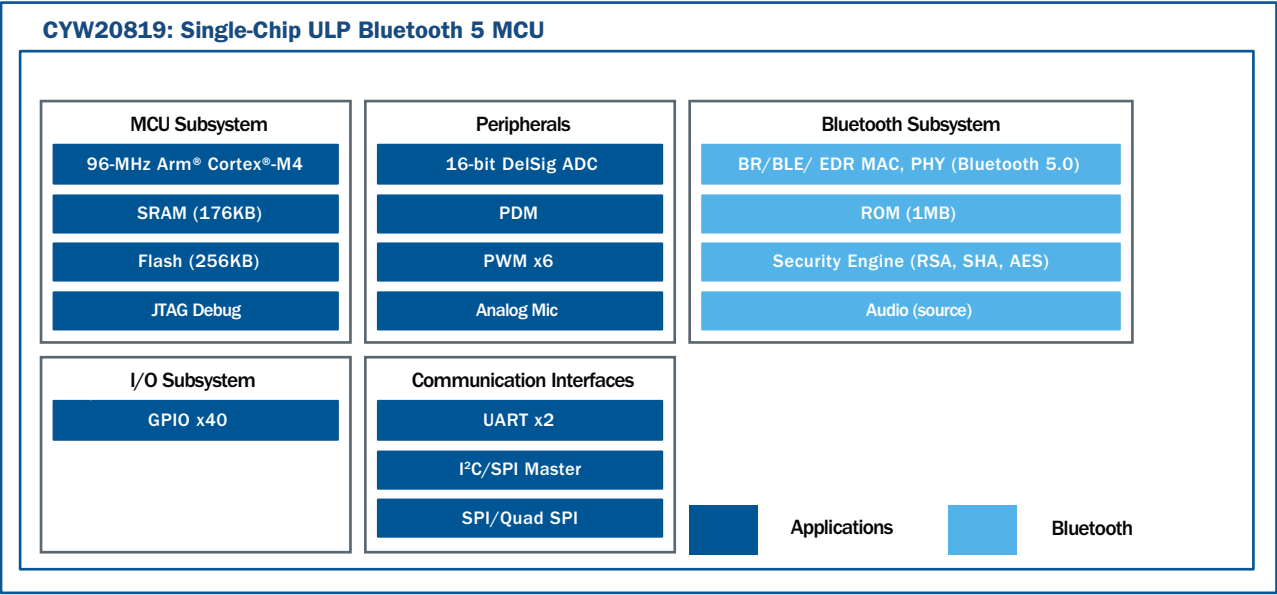
## KEY BLUETOOTH FEATURES

- 2.4 GHz Bluetooth 5 MAC/baseband/radio with ULP EDR support
- Complies with Bluetooth Core Specification Version 5.0 with provisions for supporting future specifications
- Bluetooth Mesh 1.0 qualified
- Supports extended Synchronous Connections (eSCO), for enhanced voice quality by allowing for retransmission of dropped packets
- Adaptive Frequency Hopping (AFH) for reducing radio frequency interference
- Supports both fully embedded standalone mode and hosted option to pair with external hosts via HCI
- Supports multiple, simultaneous Advanced Audio Distribution Profile (A2DP) sources for stereo sound
- Concurrent support for Bluetooth Classic audio and BLE
- Fully certified Bluetooth 5 stack embedded in the on-chip ROM reduces integration complexity and offers up to 256 KB of on-chip Flash for user applications

## KEY SOC FEATURES

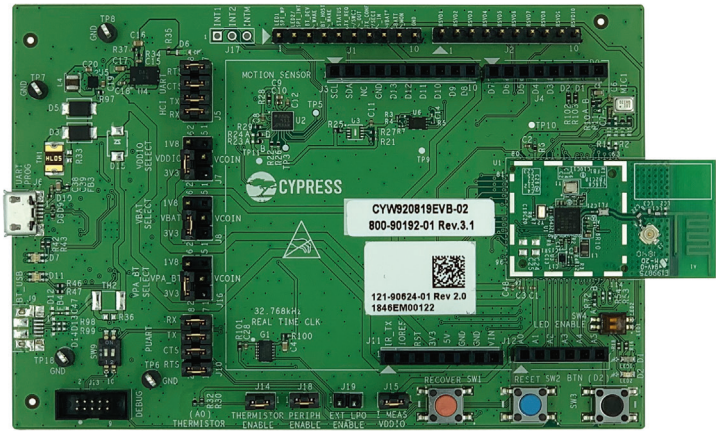
- Integrated Arm® Cortex® -M4 up to 96 MHz
- 256 KB Flash, 176 KB SRAM and 1 MB ROM
- On-chip buck regulator reduces power consumption for both classic and low-energy Bluetooth
- Complete remote control and HID peripheral I/O: UARTx2, ADC/PWMs/ Key-scan, I2Cx2, SPIx2 (one dual/quad SPI), quadrature decoder, analog microphone interface, and up to 40 GPIOs
- AES128 (hardware accelerated) and RSA2048 bit encryption
- Capability to lock down on-chip flash for security
- Bluetooth LE Tx power up to +4 dBm
- Operating temperature support up to 85°C and extended temperature support on multiple packages

CYW20819 BLOCK DIAGRAM



GETTING STARTED WITH CYW20819

- Buy the CYW920819EVB-02 evaluation kit
- Register on the Cypress Developer Community [community.cypress.com](http://community.cypress.com)
- Download and install the ModusToolbox™ software IDE from [www.cypress.com/modustoolbox](http://www.cypress.com/modustoolbox)
- Download the CYW920819EVB-02 kit user guide, available at [www.cypress.com/CYW920819EVB-02](http://www.cypress.com/CYW920819EVB-02) which includes step-by-step instructions on how to create and test your CYW20819 application
- Buy fully-certified module for easy production design integration



ORDERING INFORMATION

Part Number	Dimensions	Ambient Operating Temperature
CYW20819A1KFB1G	6.5 mm x 6.5 mm 112-ball FBGA	-30°C to 85°C
CYW20819A1KFBG	4.5 mm x 4.5 mm 62-ball FBGA	-30°C to 85°C
CYBT-213043-02 (module)	12.0 mm x 16.6 mm x 1.7 mm 35-pad SMT	-30°C to 85°C



GET STARTED NOW

To understand how you can transform your design experience, please visit us online at [cypress.com/ble](http://cypress.com/ble)

Cypress Semiconductor Corporation

198 Champion Court, San Jose CA 95134  
phone +1 408.943.2600 fax +1 408.943.6848  
toll free +1 800.858.1810 (U.S. only) Press “1” to reach your local sales representative

