CYPRESS

CYW43903:WICED™ IEEE 802.11 b/g/n SoC with an Embedded Applications Processor

PRODUCT OVERVIEW

OVERVIEW

The Cypress CYW43903 embedded wireless system-on-a-chip (SoC) is uniquely suited for Internet of Things (IoT) applications. It supports all rates defined in IEEE 802.11 b/g/n specifications.

The device includes an ARM® Cortex™-based applications processor, a single-stream IEEE 802.11n MAC/baseband/radio, a power amplifier (PA), and a receive low-noise amplifier (LNA). It also supports antenna diversity for improved RF performance in difficult environments.

Using advanced design techniques and process technology to reduce active and idle power, the device is designed for embedded applications that require minimal power consumption and a compact size.

The device includes a power management unit (PMU) for simplifying system power topology and, for battery-powered applications, allows for direct battery operation while maximizing battery life.

HIGHLIGHTS

- WICED™ SDK v3.6 ready
- 1x1 11n SB/iPA for wireless microcontroller units (MCUs)
- IEEE 802.11 b/g/n specifications
- Robust WiFi module that includes SISO 802.11 b/g/n (2.4 GHz) and integrated PA, LNA, TR-switch
- Core processor: Cortex CR4 @ 60 MHz and 1 MB RAM/640 KB ROM
- External memory interface: Quad-SPI Flash
- Always-on power management block
- Standard I/O: SDIO 3.0 master/device, dedicated UART, I²C, SPI, GPIO 17

APPLICATION PROCESSOR FEATURES

- ARM® Cortex®-R4 32-bit RISC processor
- 1 MB of on-chip SRAM for code and data
- An on-chip cryptography core
- 640 KB of ROM containing WICED SDK components such as RTOS and TCP/IP stack
- 17 supported GPIOs
- Q-SPI serial flash interface to support up to 40 Mbps of peak transfer
- Support for UART (3), SPI or CSC master, and CSC-only interfaces. Cypress Serial Control (CSC) is an I²C-compatible interface

GENERAL FEATURES

- Supports battery voltage range from 3.0V to 4.8V with an internal switching regulator
- Programmable dynamic power management
- 6 KB OTP memory for storing board parameters
- 151-ball WLBGA (4.91 mm x 5.85 mm, 0.4 mm pitch)

CYW43903	
✓	HID devices
✓	Automotive
✓	Appliances

KEY IEEE 801.11X FEATURES

- IEEE 802.11n compliant
- Single-stream spatial multiplexing to 150 Mbps
- Supports 20 MHz channels with optional SGI
- Full IEEE 802.11 b/g legacy compatibility with enhanced performance
- TX and RX low-density parity check (LDPC) support for improved range and power efficiency
- On-chip power and low-noise amplifiers
- An internal fractional nPLL allows support for a wide range of reference clock frequencies
- Integrated ARM Cortex-R4 processor with tightly coupled memory for complete WLAN subsystem functionality, minimizing the need to wake up the applications processor for standard WLAN functions
- Software architecture supported by standard WICED SDK allows easy migration from existing discrete MCU designs and to future devices
- Security support:
  - WPA and WPA2 (Personal) support for powerful encryption and authentication
  - AES and TKIP in hardware for faster data encryption
  - Wi-Fi® Protected Setup and Wi-Fi Easy-Setup
- Worldwide regulatory support: Global products supported with worldwide design approval

WICED™ by CYPRESS®

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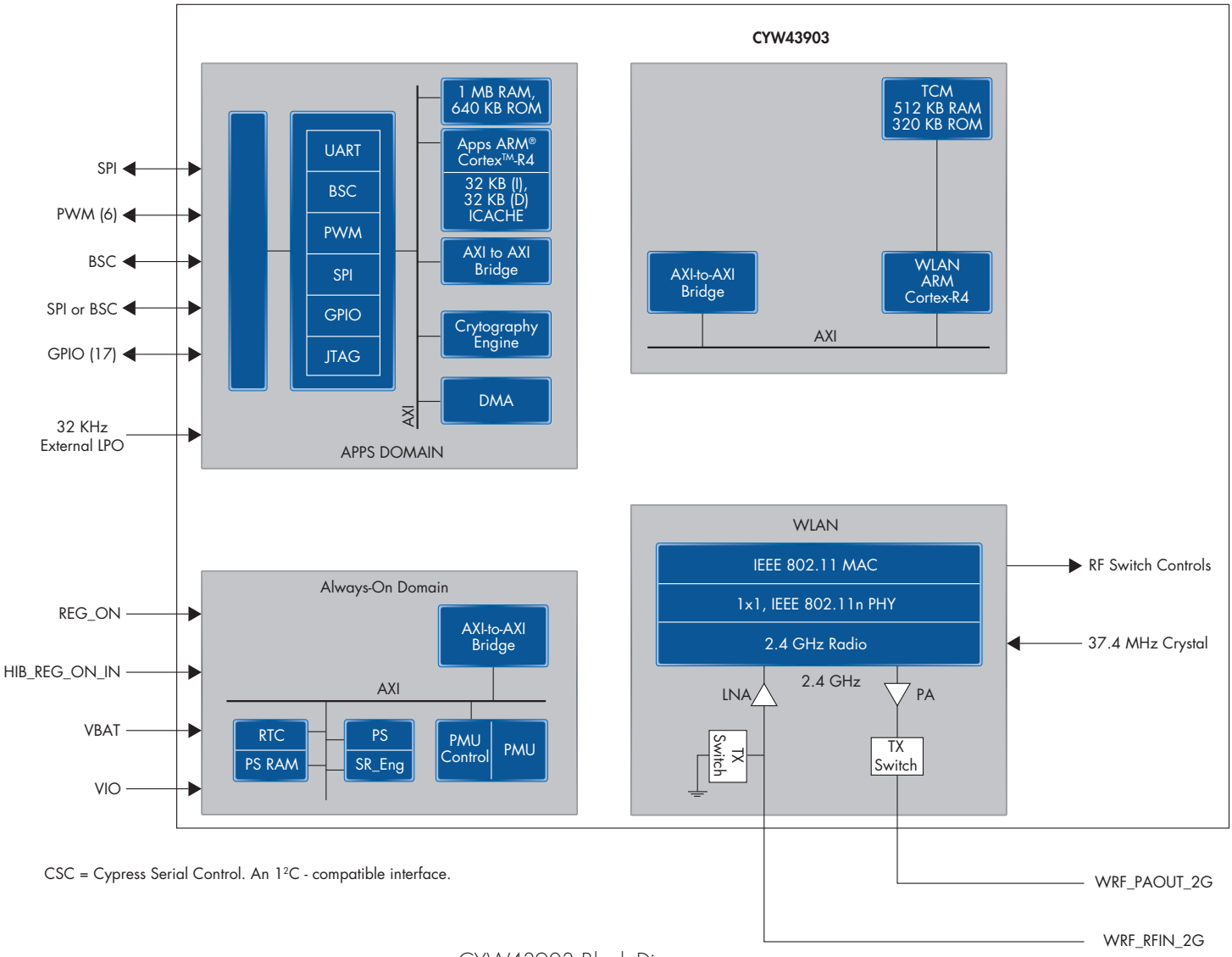

CYW43903 Block Diagram

Part number	ORDERING INFORMATION
CYW43903KUBG	151 bump WLBGA (4.91 mm x 5.85 mm, 0.4 mm pitch)

ORDERING INFORMATION

Contact your local Cypress Representative

For additional information on WICED modules currently in production, go to:

https://community.cypress.com/community/wiced-wifi

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002-14827 Rev*A

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