Marvell HomeKit Accessory Protocol SDK

For 88MW300/302 ARM Cortex-M4F MCU and 1x1 802.11bgn SoC

PRODUCT OVERVIEW

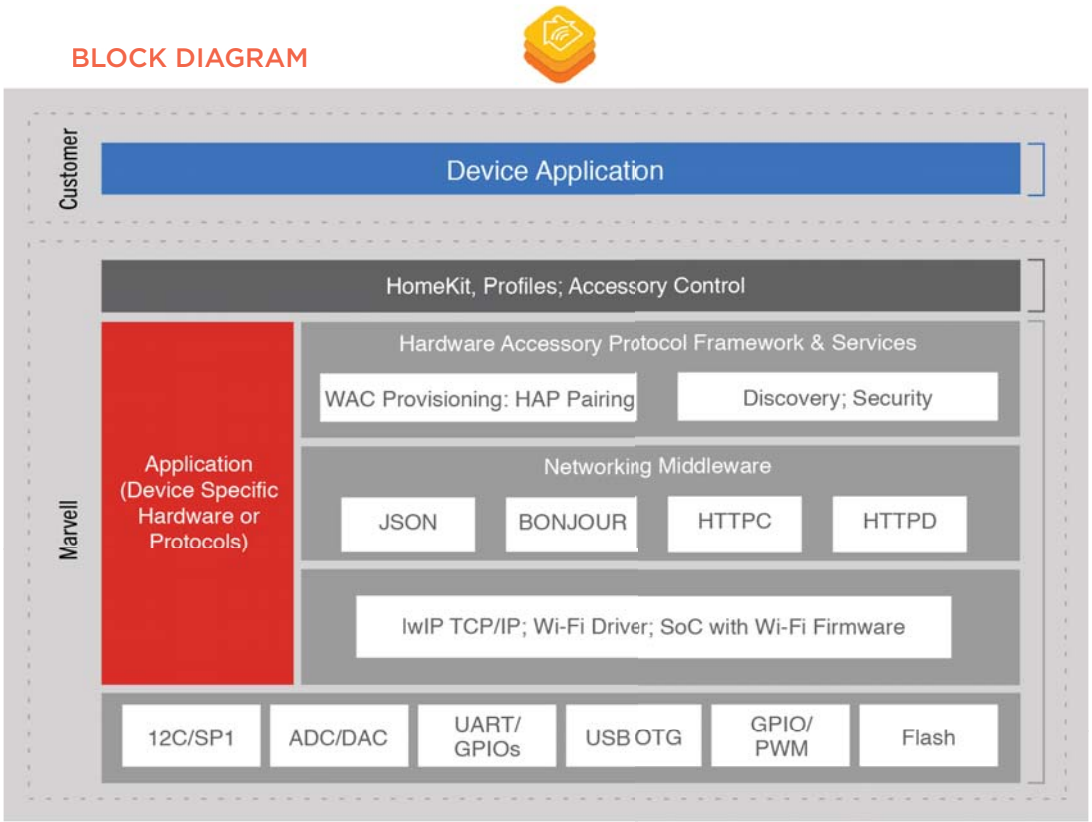
The Marvell® HomeKit SDK is built on top of the industry-leading Marvell EZ-Connect™ Software SDK and greatly simplifies the development of HomeKit accessories. Marvell's latest HAP SDK 2.0.r2+ is certified for Apple's HomeKit Specification R9 and iCloud implementation. OEM customers using Marvell's SDK save the cost and months of development and testing effort.

Along with enabling several new behaviors such as humidity sensors, the Marvell HAP-SDK has ensured that security is at the core of its hardware, software and cloud connectivity. It starts with OTP, secure boot, encrypted key store onboard and extends to TLS through the use of mbedTLS and secure cloud communications.

These features are enabled by the 88MW300 SoC, which provides a full array of peripheral interfaces including SSP/SPI/I2S (3x), UART (3x), I2C (2x), General Purpose Timers and PWM, ADC, DAC, Analog Comparator, and GPIOs. It also includes a hardware cryptographic engine, RTC and Watchdog Timer. The 88MW302 includes a high speed USB On-The-Go (OTG) interface to enable USB audio, video and other applications.

A complete set of digital and analog interfaces enable direct interfacing for I/O avoiding the need for external chips. The application CPU can be used to support custom application development avoiding the need for an external microcontroller or application processor. (http://www.marvell.com/microcontrollers/88MW300/302/)

BLOCK DIAGRAM



KEY FEATURES AND BENEFITS

FEATURES	BENEFITS
Processor	• 32-bit ARM Cortex-M4F running at 200 MHz
Security	• Secure boot • OTP • Encrypted signed firmware image support • Secure key store • Authentic OEM firmware • TLS support using mbedTLS / TLS certificate • Secure over the air (OTA) firmware updates and peer device authentication • WiFi provisioning • Secure cloud communications • JSON/HTTP APIs (with security)
Management I/O	• 3x I2S, 3x SPI master/slave, 3x I2C master/slave, 3x UART, 1x USB HS OTG 2.0, 1x QSPI, Up to 50 GPIOs, 2x wake-up pins
Memory	• 128KB ROM, 512KB RAM
Flash Controller	• Supports QSPI Flash devices up to 16MB • Memory-mapped access to QSPI Flash devices • 32KB SRAM Flash Cache for eXecute In Place (XIP) firmware
Analog	• 2-step ADC with integrated PGA and configurable resolution/ speed • 12-bit/2 MHz sample(s) for fast conversion • 16-bit/16 kHz samples with voice quality • 8 single channel or 4 differential channels • 2-channel or 1 differential channel DAC, 10-bit/500 ksps • 2 Analog Comparators with programmable speed/current • On-die/off-chip temperature sensing and battery monitor
WLAN Encryption	• WEP 128-bit encryption w/ hardware TKIP (WPA) • AES-CCMP 802.11i security (WPA2), CRC • Enhanced AES engine performance • AES-Cipher based message authentication code (CMAC) 802.11w security standard
Package	• 88MW300 – 68-pin QFN, 8x8 mm (35 GPIOs, 2 GPTs) • 8MW302 – 88-pin QFN, 10x10 mm (50 GPIOs, 4 GPTs)
Temperature	• Extended: -30 to 85°C , Industrial: -40 to 85°C

TARGET APPLICATIONS

- Connected home accessories
- Smart appliances
- Enterprise and industrial Automation
- General Purpose Embedded Controller

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