PRODUCT BRIEF

AIROC™ CYW55913/2/1 Connected MCU with Wi-Fi & Bluetooth® Low Energy 5.4

Low-power 192 MHz Arm® Cortex®- M33, 1 x 1, 2.4/5/6 GHz, Wi-Fi 6/6E, Bluetooth® Low Energy 5.4

Infineon delivers market-proven AIROC™ Wi-Fi and Bluetooth® system on chip connected MCUs and combos with robust, reliable, and secure wireless connectivity. Infineon is an industry leader in Wi-Fi for the IoT with over 1 billion wireless devices in the field, over the last 20 years, making AIROC™ the most deployed wireless IP supporting, IoT, smart home, wearables and IoT.

The AIROC™ CYW55913/2/1 are a family of low-power, single-chip connected MCUs that support 1x1 single-stream, tri-band (CYW55913), dual-band (CYW55912) and single-band (CYW55911), Wi-Fi 6/6E, IEEE 802.11ax-compliant, supporting up to 1024 QAM (MCS11) in 20 MHz channels and Bluetooth® Low Energy 5.4. The devices support a 192 MHz Arm® Cortex®-M33 processor with Arm® Trustzone CC312, and include 768 KB of SRAM, with a QSPI interface for expanding flash and PSRAM with eXecute-in-place (XIP) and on-the-fly (OTF) encryption and decryption. The MCU supports up to 47 GPIOs supporting multiple SDIO, I^2C, SPI, UART, TCPWM, TDM/I^2S, PDM, GPIOs, and 7-channel, 12-bit ADC. The devices are intended to be the primary MCU in the system, or to offload a host processor from Wi-Fi and networking functions in IoT, smart home, and Industrial applications.

CYW55913/2/1 provide best in class Wi-Fi range by delivering up to +24 dBm of transmit power, and sensitivity down to -101.5 dBm, while supporting Wi-Fi 6/6E range improving features such as HE ER-PPDU, longer guard intervals, long OFDM symbol and dual-carrier modulation (DCM), with Infineon range improvements for legacy rates (11ac/n/b/g). Dual-band (CYW55912) and tri-band (CYW55913) options expand band coverage to less congested 5 GHz and greenfield 6 GHz bands, from increasingly congested 2.4 GHz bands improving on-boarding and access to the cloud.

CYW55913/2/1 feature a Bluetooth® Low Energy 5.4, supporting LE long-range with advertising code selection, LE 2 Mbps, LE 1 Mbps, isochronous channels and periodic advertising extensions. The devices integrate three power amplifiers delivering +19/+13/+4d Bm offering best-efficiency at each power level. Increasingly popular Bluetooth® LE long range delivers an industry leading range through -111.5 dBm LE long range sensitivity, paired with on-chip high-power power amplifier (PA).

The reliable, high-performance , low-power AIROC™ CYW55913/2/1 Wi-Fi and Bluetooth® LE Connected MCUs deliver powerful Wi-Fi capabilities that go beyond the Wi-Fi 6/6E standard for congested networks in IoT, smart home, and wearable applications and get you to market faster by speeding up development time through a broad array of module vendors.

For more information go to CYW55913, CYW55912, CYW55911

Key features

MCU features

- 192 MHz Arm® Cortex®- M33
- Security PSA L2 with Arm® Trustzone CC312
- QSPI for FLASH/PSRAM with XIP and OTF encryption and decryption
- Up to 47 GPIOs: SDIO, I^2C, SPI, UART, TCPWM, TDM/I^2S, PDM, ADC
- Embedded RTOS, Linux Host Driver and AT command set support

Wi-Fi/WLAN features

- Leading transmit power: +24 dBm
- Best in class sensitivity: -101.5 dBm
- Wi-Fi 6/6E and Infineon range improving features for 11ac/n/g/b
- Wi-Fi 6E greenfield spectrum for lower latency and improved range
- 11ax target wake time (TWT)
- WPA2/WPA3 (Personal/Enterprise)
- External FEM support and antenna diversity option for improved range
- Matter over Wi-Fi

Bluetooth® features

- Bluetooth® LE 5.4
- Embedded or hosted AIROC™ Stack
- LE long range, LE 2M, LE 1M, ADV extensions, isochronous channels
- Three output power paths optimized for best efficiency: +19/+13/+4 dBm
- 111.5 dBm LE LR sensitivity
- Supports shared or dedicated Bluetooth® antenna for optimized coexistence with Wi-Fi and 802.15.4

Key benefits

- High-performance, low-power, flexible MCU with long range and reliable Wi-Fi 6/6E and Bluetooth® LE 5.4 to easily enable IoT applications

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PRODUCT BRIEF

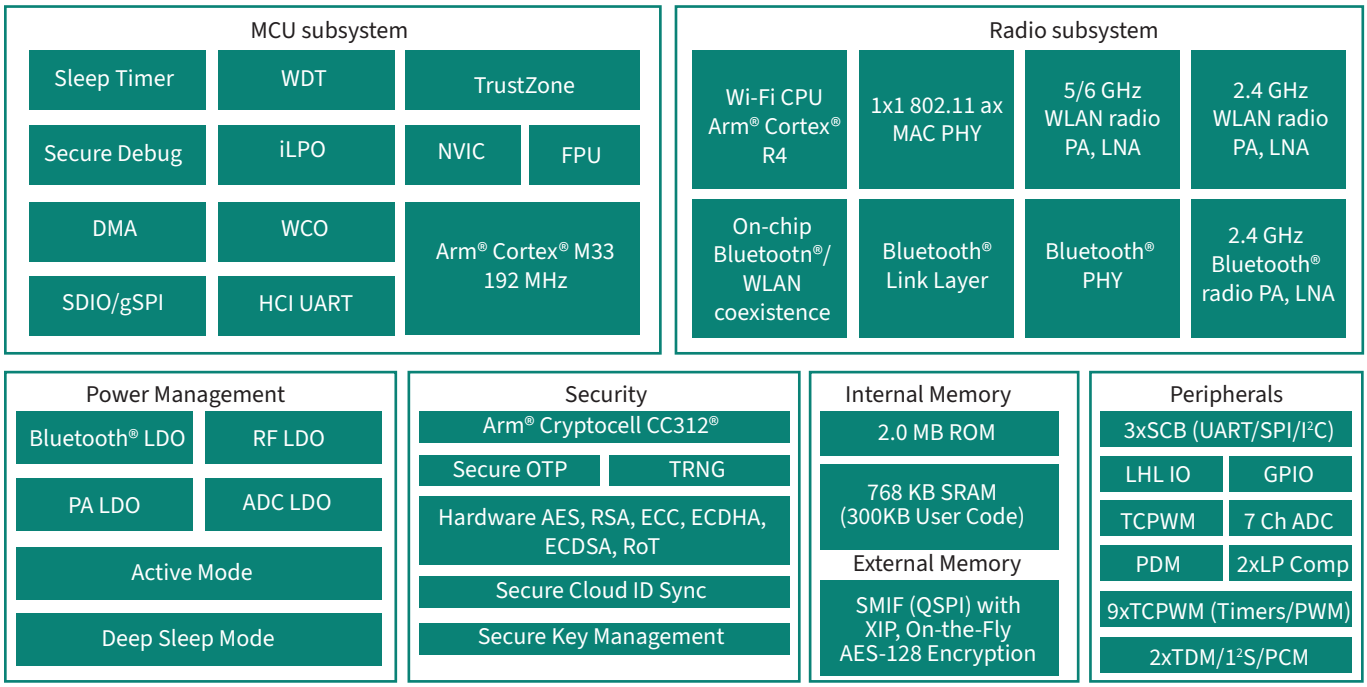
Key applications

Smart home/IoT	Smart home, IP cameras, door locks, thermostats, garage doors, appliances, printers, gateways, speakers, gaming, battery powered devices
Wearables	Smart watches, fitness bands
Industrial/Medical	Automated meter readers, payment systems, water heaters, boilers, inverters, HVAC, CPAP Machines

Infineon and module partner product summary

Product	Description	Operating temp	Package/ dimensions
CYW55913IUBGT	1×1 802.11ax 2.4/5/6 GHz and Bluetooth® Low-Energy Connected MCU	-40°C to 85°C	WLBGA
CYW55912IUBGT	1×1 802.11ax 2.4/5 GHz and Bluetooth® Low-Energy Connected MCU	-40°C to 85°C	WLBGA
CYW55911IUBGT	1×1 802.11ax 2.4 GHz and Bluetooth® Low-Energy Connected MCU	-40°C to 85°C	WLBGA
AW-CU642	AzureWave CYW55912 Module with antenna	-40°C to 85°C	16x25 mm LGA
AW-CU640	AzureWave CYW55913 Module with antenna	-40°C to 85°C	16x25 mm LGA
WM-CYW-65U	USI CYW55913 Module	-40°C to 85°C	8.6x8.1 mm molding SIP

CYW55913



For more module options visit here.

Support in the Infineon Developer Community with online direct access to application support engineers.

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