PRODUCT BRIEF

AIROC™ CYW55533/2/1 1x1 Low Power Wi-Fi 6/6E SoC

Tri-band/ Dual-band/ Single Band, Wi-Fi 6/6E, 20 MHz Wi-Fi 6 SoC

Infineon AIROC CYW5553x family delivers robust, reliable, and secure wireless connectivity. CYW5553x provides an extended range, extremely low-power, easy-on-boarding , low bill-of-materials (BOM) cost, small form factor and is ideal for printer, wearable, smart home, Industrial automation, and battery-powered applications.

The AIROC™ CYW55533/2/1 are a family of low-power, single-chip devices that support 1x1 single-stream, tri-band (CYW55533), dual-band (CYW55532) and single-band (CYW55531), Wi-Fi 6/6E, IEEE 802.11ax-compliant Wi-Fi MAC/baseband/radio. The device supports up to 1024 QAM MCS11 in 20 MHz channels delivering PHY rates up to 143 Mbps. CYW5553x products provide best-in-class range/coverage 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 HR ER-PPDU, longer guard intervals, long OFDM symbol, and dual-carrier modulation (DCM), with Infineon range improvements which offers more than 20% range coverage compared to Wi-Fi 6 standard features. The USB, SDIO and gSPI interfaces are available for interfacing to an array of A-Class (Linux/Android) and M-Class (RTOS) host processors.

CYW5553x products are designed to address the needs of the Internet of Things (IoT) devices that require minimal power consumption and compact size. It is highly integrated with internal power amplifier (PA), low-noise amplifiers (LNA) and a power management unit (PMU). The total BOM cost is optimized by 4-layer board design and 0.4 mm pitch WLBGA package, operating with an internal 32.768 kHz low- power oscillator (iLPO) is available to save cost or operating with external 32.768 kHz for higher accuracy is available.

CYW5553x includes advanced coexistence for external radios such as LTE, GPS, and Zigbee/Thread via an external interface. It is an ideal companion chip with Infineon or third-party Bluetooth® microcontroller or microprocessors.

The reliable, power-efficient AIROC™ CYW5553x Wi-Fi 6/6E SoC deliver powerful connectivity 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 the development time through a broad array of module vendors.









Key features

Wi-Fi/WLAN features

- Leading transmit power: +24 dBm
- Best in class sensitivity: -101.5 dBm
- Wi-Fi 6 uplink/downlink OFDMA , MU-MIMO, BSS color
- Wi-Fi 6/6E: range improving features: HE ER-PPDU, long guard Intervals, long OFDM symbol, DCM
- Infineon enhanced range boost
- Wi-Fi 6E greenfield spectrum for lower latency
- 11ax target wake time (TWT) bTWT, iTWT
- Antenna diversity
- WPA2/WPA3 Personal/Enterprise
- Supports internal or external LNA/PA and antenna diversity

Wi-Fi softwares features

- Easy Connect (DPP) 3.0
- Wi-Fi Aware 4.0
- Matter over Wi-Fi

Advanced security

- Life cycle and Key management
- firmware encryption and authentication
- Anti-rollback
- FIPS 140-3 Level 1 certification

Interfaces

- WLAN: USB, SDIO 3.0, and GSPI

Coexistence

- Advanced external coexistence
- 2-wire Bluetooth®
- 3-wire (ZigBee, LTE)

Temperature Range

- -40°C to 85°C

Package

- WLBGA

Key benefits

- Best range coverage
- Power efficient
- Easy on-boarding



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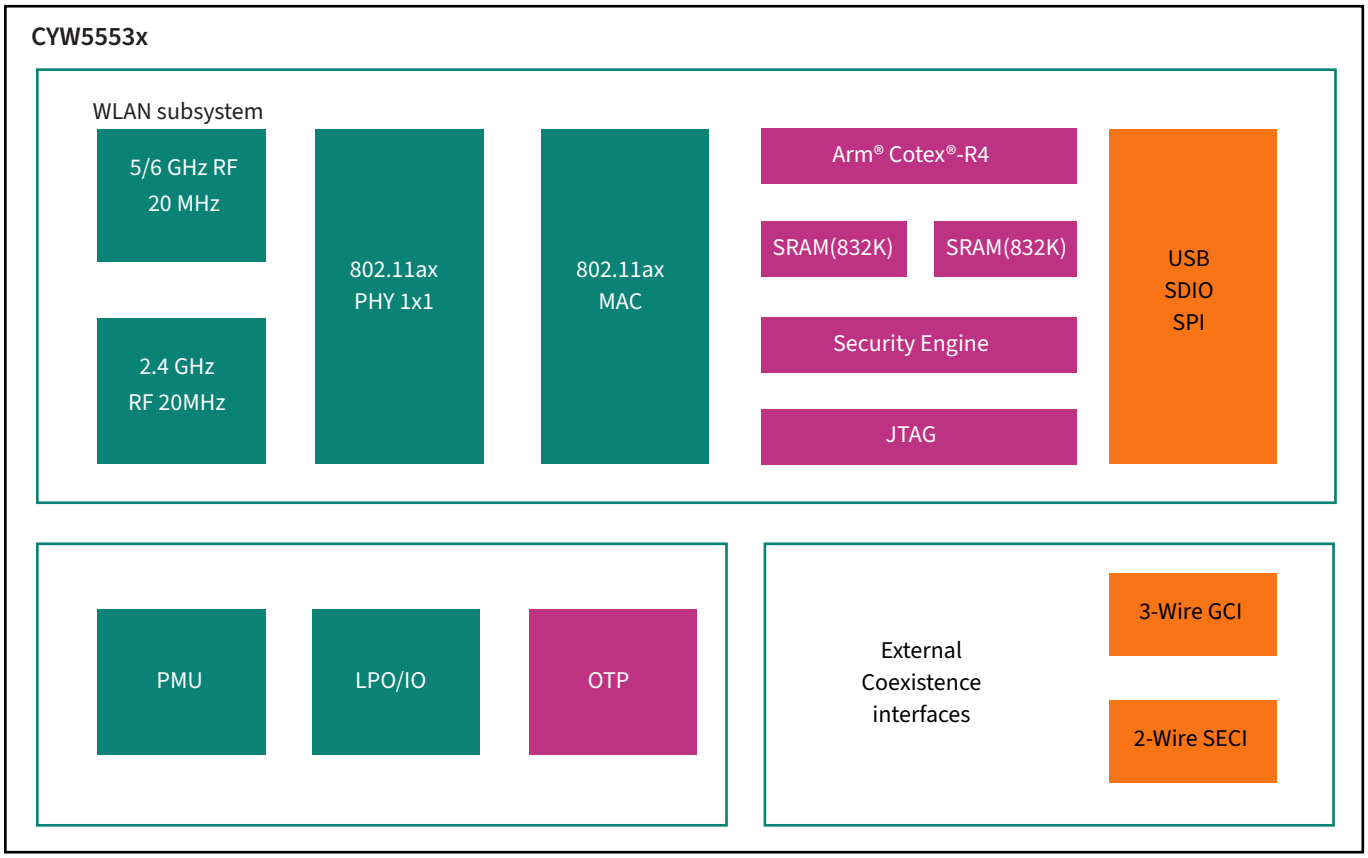
Key applications

Smart home/IoT	Smart home, security cameras, printers, and other IoT
Wearables	Smart watches, fitness bands and so on
Industrial/Medical	Industrial automation, portable medical devices, and so on

Infineon and module partner product summary

Product	Description	Operating temp	Package/dimensions
CYW55533IUBGT	1×1 802.11ax tri-band 2.4/5/6 GHz 20 MHz Wi-Fi SoC, tape and reel	-40°C to 85°C	WLBGA, 0.4mm pitch
CYW55532IUBGT	1×1 802.11ax dual-band 2.4/5 GHz 20 MHz Wi-Fi SoC, tape and reel	-40°C to 85°C	WLBGA, 0.4mm pitch
CYW55531IUBGT	1×1 802.11ax single-band2.4 GHz 20 MHz Wi-Fi SoC, tape and reel	-40°C to 85°C	WLBGA, 0.4mm pitch

CYW5553x Wireless Connectivity Family



For more module options visit here.

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

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