

IW416: Introducing Wi-Fi 4 dual-band and Bluetooth combo solution



The IW416 is a highly integrated cost-effective connectivity solution with Wi-Fi 4 and Bluetooth 5.2 support. It features 1x1 SISO Wi-Fi operation across both the 2.4 GHz and 5 GHz bands, achieving a peak PHY data rate of 150 Mbps. The IW416 supports advanced Bluetooth 5.2 capabilities, including Low Energy (LE), LE Long Range, LE 2 Mbps, and Periodic Advertising Sync Transfer (PAST).

With integrated transmit (Tx) PAs, receive (Rx) LNAs and Tx/Rx switches for the Wi-Fi and Bluetooth radios, the IW416 simplifies design allowing quick integration of either dual or single-antenna operation. The dual-antenna configuration enables seamless simultaneous operation of Wi-Fi and Bluetooth. In a single-antenna setup, simultaneous 5 GHz Wi-Fi and Bluetooth operation is supported. For the 2.4 GHz band, the single-antenna configuration allows arbitrated transmit and receive functionality between Wi-Fi and Bluetooth.

Additionally, it supports external radio coexistence. WCI-2 and PTA external coexistence interfaces are used for the coexistence with an external radio.

Available in both HVQFN and WLCSP packages, the IW416 supports an SDIO host interface for the Wi-Fi radio and a UART host interface for Bluetooth.

Feature overview

Wi-Fi 4

- Support 802.11a/b/g/n
- Dual band: 2.4 GHz and 5 GHz
- Single stream 802.11n with 20 MHz and 40 MHz channels
- Up to MCS7 data rates (150 Mbit/s)
- Dynamic Rapid Channel Switching (DRCS) for simultaneous operation in 2.4 GHz and 5 GHz bands
- IEEE 802.15.2 packet traffic arbiter (PTA) coexistence interface to coexist with 802.15.4 and other external radios
- Security: WPA3, WPA2, WPA2-WPA mixed mode
- SDIO host interface

Bluetooth

- Bluetooth 5.2 support
- Long range – 4x coverage
- 2 Mbit/s data rate – 2x faster
- Improved advertisement – capacity enables more IoT services
- I²S and PCM interfaces
- AES security
- UART host interface

Coexistence

- Advanced Wi-Fi and Bluetooth co-existence hardware
- External interface provides support for external radio co-existence

Available in HVQFN and WLCSP package

Operating temperature range

- 0 to 70°C
- -40 to 85°C

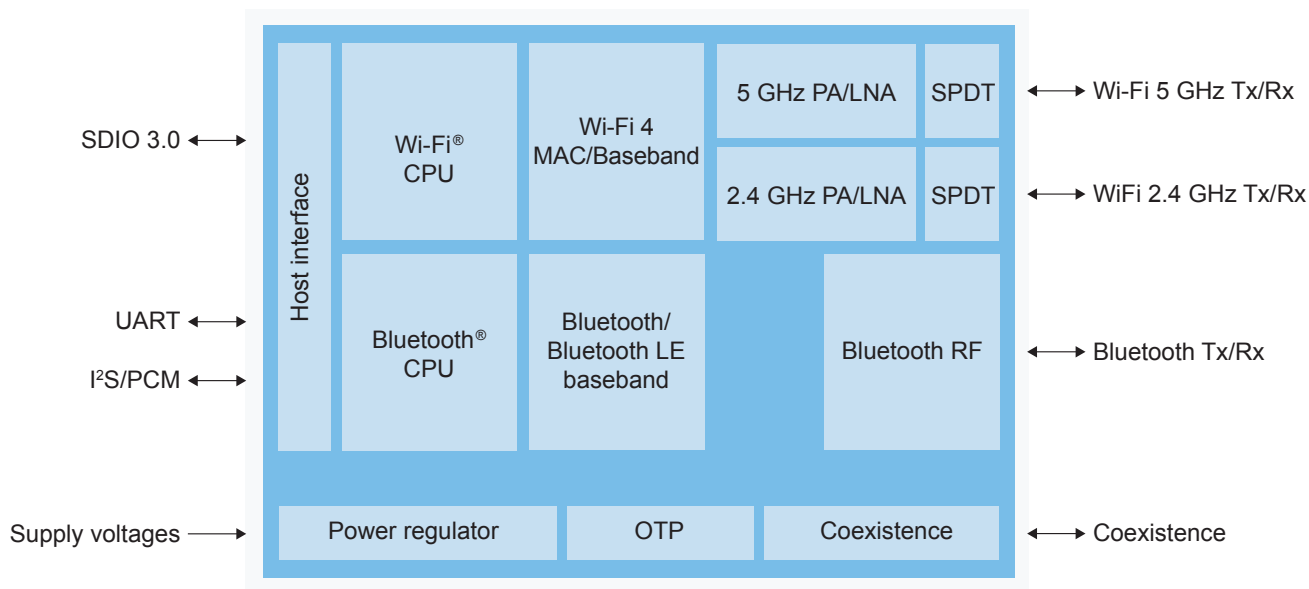
Modules

Wireless modules based on the NXP IW416 are offered by leading module manufacturers.

Target applications

- Industrial
- Smart Homes
- Smart City
- Healthcare and medical devices

IW416 block diagram



NXP technology



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