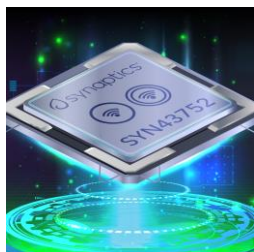# SYN43752 Dual-Band Wi-Fi™ + Bluetooth™ Combo SoC

Product Brief

The Synaptics SYN43752 system on chip (SoC) combines a dual-band (2.4 GHz, 5 GHz) Wi-Fi 2×2 MAC/baseband/radio with Bluetooth 5.3 to reduce the space, cost, power, complexity, and time to market of IoT devices that demand robust and interoperable wireless connectivity.

Features

- Supports Wi-Fi 2.4/5 with best CMOS RF, including integrated PAs and LNAs (external PA and LNA optional) with highest transmit (Tx) power level and receive (Rx) sensitivity; capable of 1024QAM over 10 meters.
- IEEE 802.11ax compliant with support for IEEE 802.11a/b/g/n.
- 2×2 antenna arrangement for Wi-Fi and supports third antenna for Bluetooth.
- Integrated Bluetooth 5.3 with support for Bluetooth Low Energy (BLE).
- Internal Bluetooth PA supports two modes: Normal Output Power Mode (14 dBm) and High Output Power Mode (20 dBm).
- Synaptics Smart Co-Ex for best-in-class coexistence of Wi-Fi and Bluetooth radios in the 2.4 GHz band.
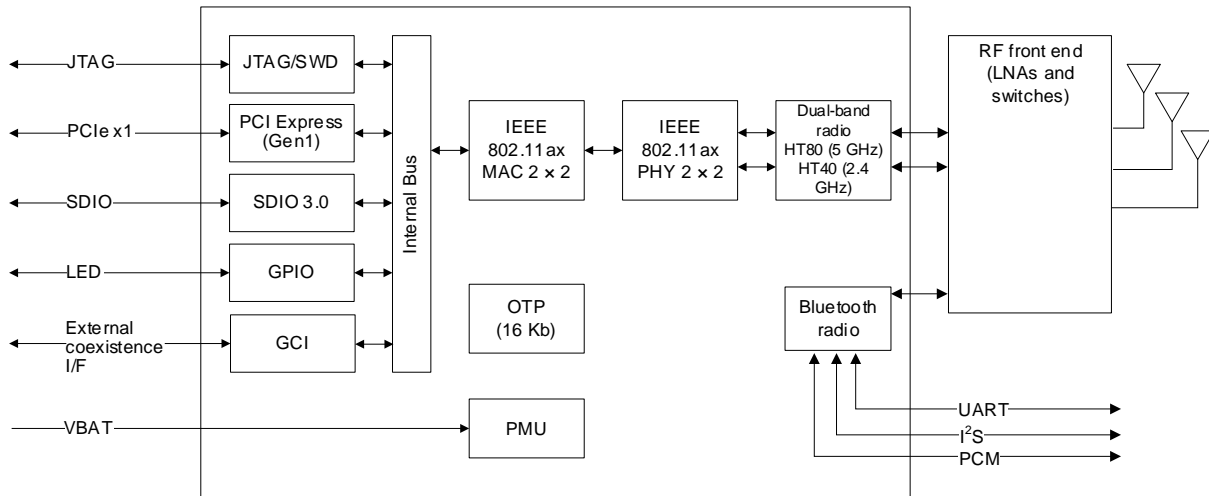
Benefits

- High integration reduces footprint, cost, power, complexity, and time to market.
- Operates in 2.4 GHz and 5 GHz bands simultaneously with up to 1200 Mbps throughput.
- Allows multiple concurrent Bluetooth connections and audio streams.
- Advanced Wi-Fi/Bluetooth radio co-existence capability for high quality of service (QoS) and robust connections.
- Secure
- Seamless interoperability across multiple heterogeneous wireless networks.

Applications

- Multimedia streaming for the smart home
- Automotive in-cabin entertainment
- Personal area networks
- Security systems
- Smart factories/Industry 4.0

System Block Diagram

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