SYN4375 Dual-Band Wi-Fi™ + Bluetooth™ Combo SoC with RSDB

Product Brief

The Synaptics SYN4375 system on chip (SoC) combines a dual-band (2.4 GHz, 5 GHz) Wi-Fi 2×2 MAC/baseband/radio with integrated Bluetooth 5.3 to reduce the space, cost, power, complexity, and time to market of wirelessly enabled IoT devices.

Features

- Supports Wi-Fi 2.4/5 GHz with best CMOS RF, including integrated power amplifiers (PAs) and low-noise amplifiers (LNAs) (external PA and LNA optional) with highest transmit (Tx) power level and receive (Rx) sensitivity; capable of 1024 QAM over 10 meters.
- IEEE 802.11ax compliant with legacy support for 802.11a/b/g/n/ac.
- Supports real-time simultaneous dual-band (RSDB) operation at 2.4 and 5 GHz.
- 20/40/80 MHz channels for the main (Main) 2x2 Wi-Fi core (1024-QAM modulation), and 20/40 MHz channels for the auxiliary (Aux) 2x2 Wi-Fi core (256-QAM modulation).
- 2x2 Wi-Fi antenna array.
- Zero wait dynamic frequency selection (DFS); background channel availability check (CAC) scan for immediate switch to candidate DFS channel.
- Supports three antennas with one dedicated to Bluetooth and two to Wi-Fi.
- 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 5GHz bands simultaneously with up to 1200 Mbps throughput.
- RSDB allows the 2.4 GHz and 5 GHz radios to connect and stream multimedia content at the same time for optimum performance and more robust connectivity.
- 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.
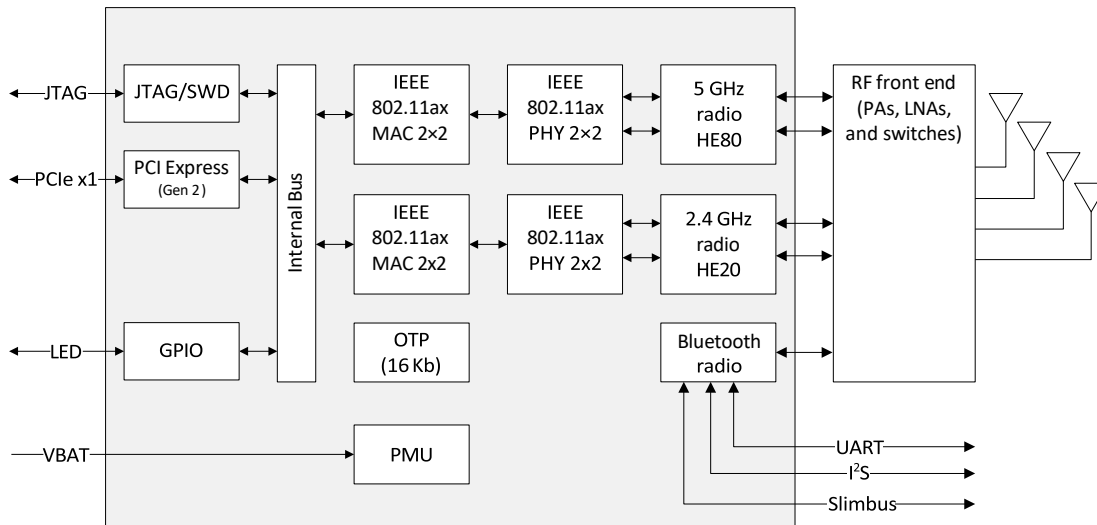- Seamless interoperability across multiple heterogeneous wireless networks.

Applications

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

System Block Diagram

Trademarks

Notice