The Synaptics AS34100 is a Bluetooth® audio system combining the AS33980 AI audio SoC and SYN43016 Bluetooth 5.4 SoC to deliver premium wireless audio at ultra-low power in a compact form factor—ideal for headsets, earbuds, speakers, and microphones. The AS33980 leverages Synaptics' turnkey AI algorithms to deliver voice call quality that exceeds Microsoft® Teams™ version 5 Open Office premium requirements, using advanced environmental noise cancellation (ENC). It also features hybrid AI adaptive ANC for immersive audio, with an integrated NPU and open DSP architecture to enable next-gen designs and customer differentiation.

The SYN43016 is Synaptics' 3rd-gen Bluetooth IC, supporting BT Classic (BR/EDR) and LE audio. Built on an advanced 16nm process with integrated PMU and T/R switch, it enables a compact, low-cost, ultra-low-power solution. With best-in-class radio performance in the crowded 2.4 GHz band and a comprehensive SDK, AS34100 accelerates development and differentiation.

Benefits

- Premium Bluetooth audio with hybrid adaptive ANC
- Extended battery life
- Accelerated time to market
- Certified AI ENC for boomless Microsoft® Teams Open Office v5
- Compact footprint
- Robust, reliable connectivity

Applications

- Headsets and headphones (including gaming and office UC)
- Earbuds and microphones
- Speakers (portable and speakerphones)

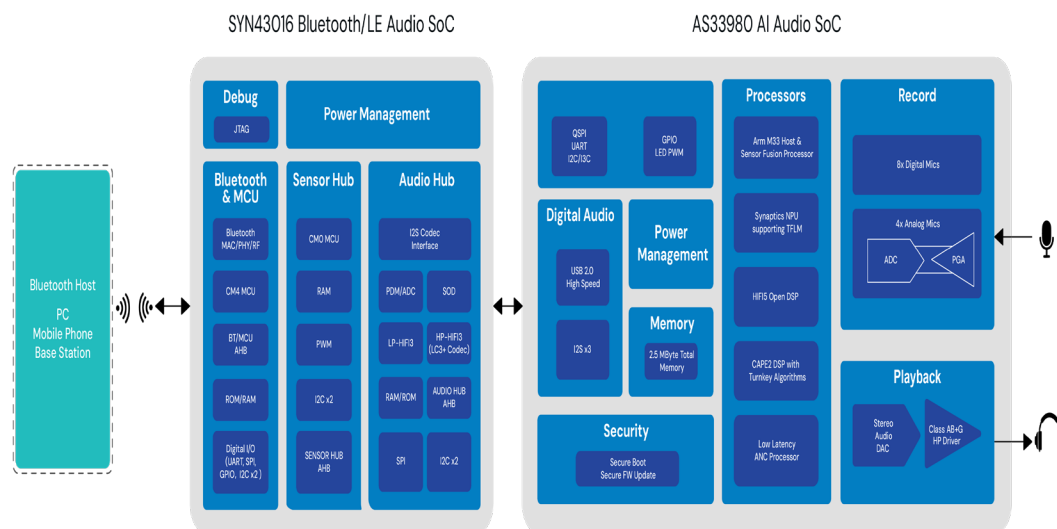SMALL SIZE

ULTRA LOW POWER CONSUMPTION

PREMIUM AUDIO

POWERFUL MACHINE LEARNING

Features

- Bluetooth SoC: Bluetooth 5.4–compliant with integrated PMU, 96 MHz Arm® Cortex®–M4, dual–mode transceiver, and T/R switch. FW loads via SPI flash; interfaces include I2S (audio), I2C (charger/fuel gauge), SPI, 2× I2C, 2× I2S, and 23 GPIOs.
- Audio interfaces: 4× ADCs (106 dB), 8× DMICs, 2× DACs (113 dB), 120 dB SNR, stereo class–AB + G headphone amp.
- Digital interfaces: USB® 2.0 HS, 3× I2S, I3C/ I2C/UART™/SPI/QSPI (master/slave), PWM LED, GPIOs, 10–bit monitor ADC, JTAG.
- Turnkey algorithms: Hybrid ANC, AI ENC, Microsoft Teams v5 Open Office Premium certified.
- Processing: 1.6 GHz audio DSP, 2.5 MB memory, low–latency engine, dual CAPEs, Synaptics NPU, HiFi5™, and 200 MHz Cortex®–M33 MCU for host/sensor fusion.
- SDK: Full Bluetooth stack with customer API for call/media control, battery, and MMI customization.

Synaptics AS34100

Bluetooth Audio Chipset

System Block Diagram