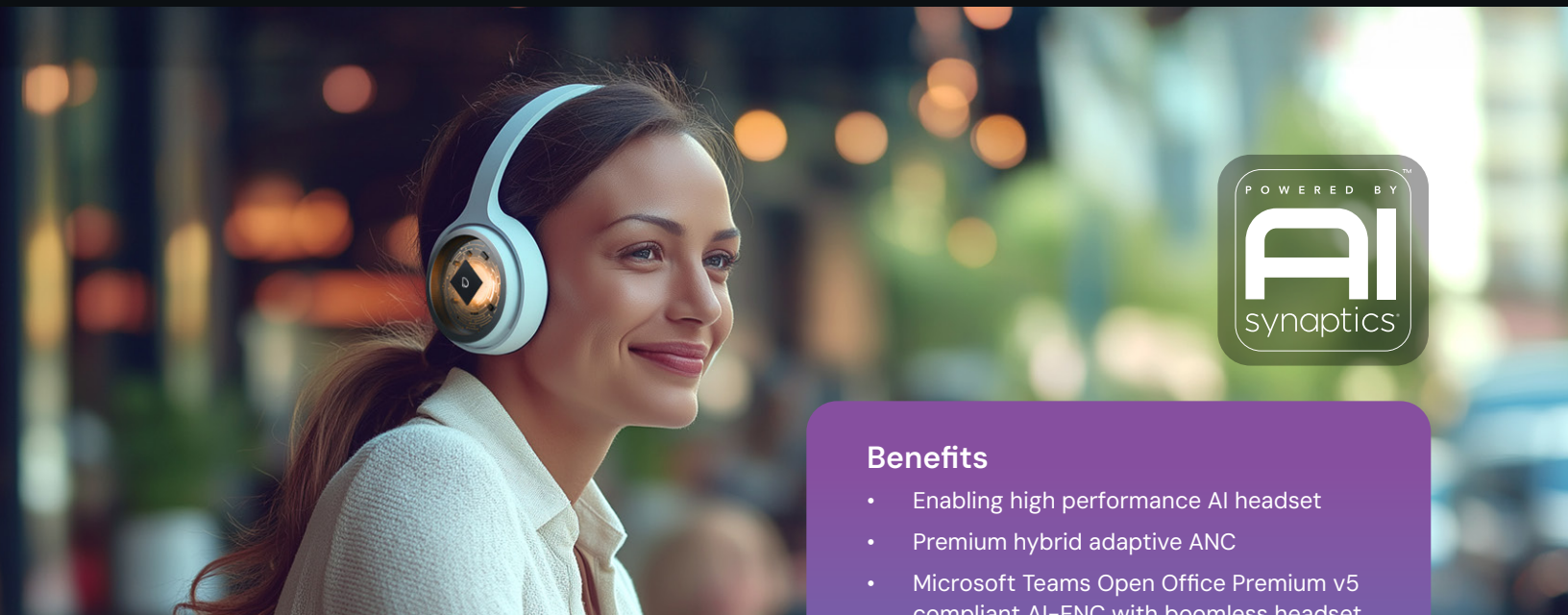




The Synaptics AS33980 is an advanced AI audio SoC leveraging years of audio expertise, designed to enable the industry's highest performance AI headsets at ultra-low power consumption. Synaptics AI turnkey algorithms enable a superior voice call experience designed to exceed Microsoft® Teams™ version 5 Open Office headset premium requirements using AI-enhanced environmental noise cancellation (ENC). The AS33980 augments the immersive experience of the user by including hybrid AI adaptive active noise cancellation (ANC). The integrated Synaptics neural processor unit (NPU) and open DSP architecture allows for the next generation of AI software solutions with both turnkey algorithms and tools for customer differentiation.

Benefits

- Enabling high performance AI headset
- Premium hybrid adaptive ANC
- Microsoft Teams Open Office Premium v5 compliant AI-ENC with boomless headset
- Open SDK for customer and 3rd-party customization
- Ultra-low power consumption
- Ultra-small PCB footprint (WLCSP Package)
- Up to 192 kHz sample rate for record and playback

Applications

- ANC headsets, office UC headsets, and gaming headsets
- TWS earbuds
- Speakerphones
- Bluetooth speakers
- USB microphones



PREMIUM AUDIO



SMALL SIZE



ULTRA-LOW POWER CONSUMPTION



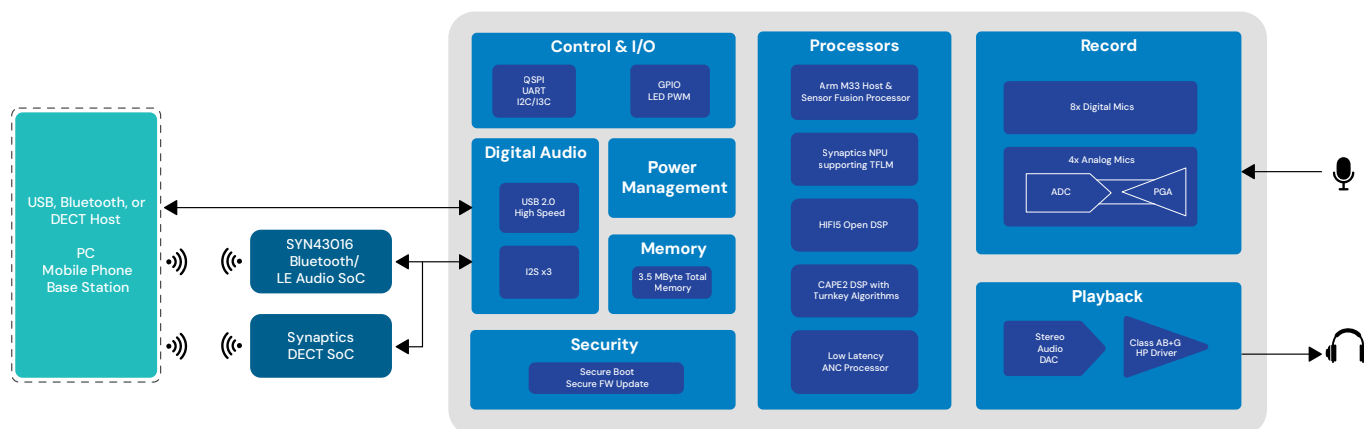
POWERFUL MACHINE LEARNING

Features

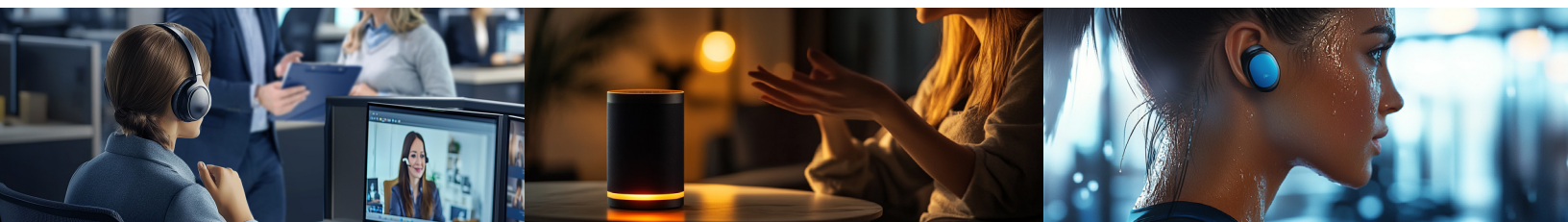
- **Audio interfaces:** 4x ADCs with 106 dB dynamic range, 8x DMICs, 2x DAC with 113 dB dynamic range, 120 dB SNR, Stereo class-AB + G headphone amplifier, 10-bit monitor ADC, 3.0V microphone bias
- **Digital Interfaces:** USB 2.0 High Speed, 3x I2S, I3C master/slave, I2C master/slave with clock stretching, 3x UART, 2x SPI master/slave, QSPI master/slave, PWM LED, GPIOs, JTAG
- **Advanced Turnkey Algorithms:** Hybrid active noise cancellation (ANC), Microsoft Teams v5 Open Office Premium headset, AI-enhanced ENC for voice communications
- **Processing:** 1.75 GHz audio DSP processing capability, 3.5 MB total memory, Low-latency engine (LLE) for ANC, Dual CAPE processing cores for audio, Synaptics NPU for AI processing, HiFi5 core for third-party algorithms, One 250-MHz Arm Cortex M33 MCU core for host processing, sensor fusion

Synaptics AS33980

AI Audio SoC



System Block Diagram



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