

# Improving everyday life for the hearing impaired



NXP has helped to shape the hearing aid market for the past two decades, supplying silicon for more than a third of the hearing aids currently on sale. The [NXH2004](#) is changing the game in terms of audio quality, features and processing.

## A new world of possibilities

The NXH2004 is one of the NXP wireless connectivity solutions for hearing health. Building on the success of previous generation solutions, it features Bluetooth® LE Audio and [Auracast™](#) broadcast audio, and enables advanced audio sharing as well as enhanced clarity, all contributing to a better quality of life for the hearing impaired.

Individuals wearing hearing health devices enabled by the NXH2004 will be able to enjoy enhanced audio from up to five different sources for the very first time, thanks to Bluetooth LE Audio. This opens up an exciting new world of possibilities, not only for those with hearing difficulties themselves, but also for their families, housemates or caregivers.

## Seamless connectivity for hearing impaired

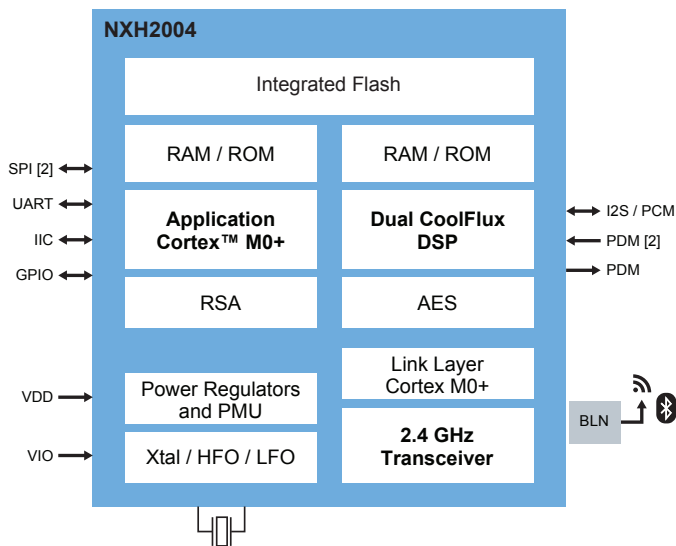
Wearers can stream audio directly from their laptops while also having a conversation on their mobile phone, for example, with both devices actively connected by the NXH2004. Such functionality

enables individuals to stream music or audio from their mobile phones and TVs simultaneously, being able to enjoy additional clarity without increased volumes impacting other family members. Multiple channel support even extends to streaming audio between the earbuds themselves, enabling excellent hearing enhancements.

Along with being NXP's first hearing health solution to incorporate Bluetooth LE Audio, the NXH2004 is also NXP's first device to offer Auracast broadcast audio, providing life-changing opportunities when it comes to wider accessibility.

The broadcast technology adopted in classrooms, conference rooms and other locations, is providing hearing support in situations where it can be particularly difficult to hear. The NXH2004's Bluetooth LE Audio functionality means that searching for Auracast broadcasts and connecting to them is as simple as joining a WiFi network.

## NXH2004 block diagram



### Seamless connectivity

The NXH2004's connectivity extends further, supporting MFI (Made for iPhone) and ASHA (Audio Streaming for Hearing Aids), along with Bluetooth's [Hearing Access Profile 1.0](#).

MFI enables NXH2004 wearers to stream audio to hearing aids from their iPhone, iPad and other Apple devices. ASHA provides similar hearing aid streaming solutions for those using Android devices.

Hearing Access Profile, meanwhile, defines the requirements for Bluetooth devices necessary for interoperability within the hearing aid ecosystem. It also specifies behaviors related to audio streaming and remote control of the hearing aid using the Bluetooth framework; and the NXH2004 is fully compliant.

Future applications for NXP's latest audio SoC are equally transformative, with the potential to use the chip alongside applications like hearing glasses, with interfaces to support health and wellness tracking applications.

### A fully-featured solution in an incredibly small package

The NXH2004 features a miniaturized form factor, measuring in at just 9.1 mm<sup>2</sup>. Despite the size, it's packed with technology. The SoC includes two Arm® Cortex® M0+ cores and dual Audio DSP processors to handle multiple channel support quickly and efficiently, with no audio distortion.

With 640 kB Flash, 160 kB RAM, and 128 kB ROM onboard, the NXH2004 delivers incredibly low latency. At 20 ms, the NXH2004 delivers virtually lag-free audio processing. The 2.4 GHz radio transceiver also features low power consumption, contributing to a solution that requires only 1.2 V to operate, with additional run time possible via Zn-Air battery support.

It's as an all-round package that the NXH2004 really excels. The combination of an ultra-small design, matched with high-quality audio and the potential for multiple audio streams, makes NXP's recent wireless connectivity solution for hearing health a solution that can genuinely transform lives.



Seamless connectivity for hearing impaired

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