Ultra-Low Power Bluetooth Low Energy Audio Solution with Integrated Flash

NXH3675

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The NXH3675 is Bluetooth® 5.3 LE audio certified and enables Auracast™. The Bluetooth audio chip enables HQ audio and supports multi-stream audio, including broadcast with scan and delegator features for audio sharing. Audio profiles like HA, TMAP and other standard profiles are also supported. It is a highly efficient chip designed to function with minimum power consumption and optimized for ultra-low latency applications.
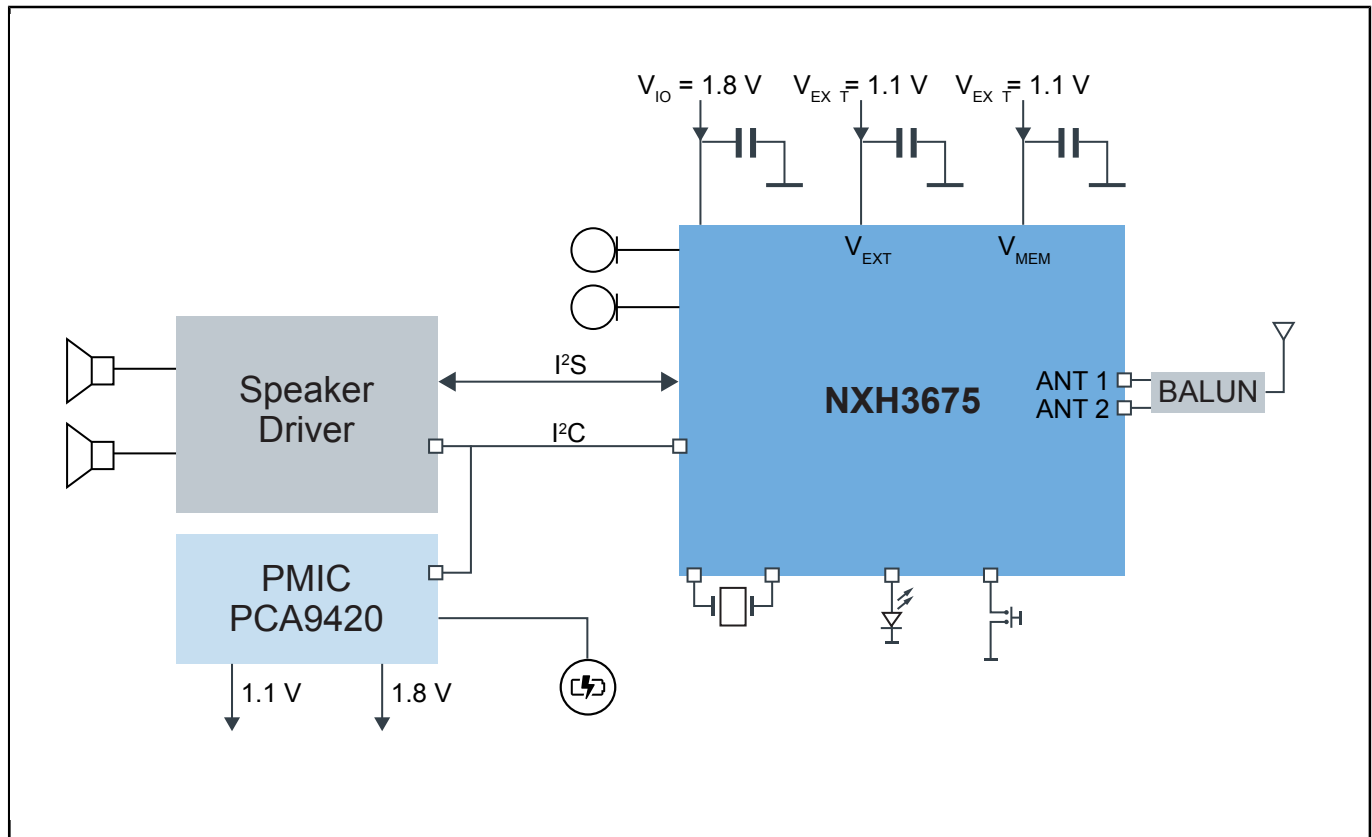
Due to the integrated ultra-low power radio and ultra-low power DSP processing capabilities, the NXH3675 provides exceptionally long battery life and the opportunity to build miniaturized small form-factor products.

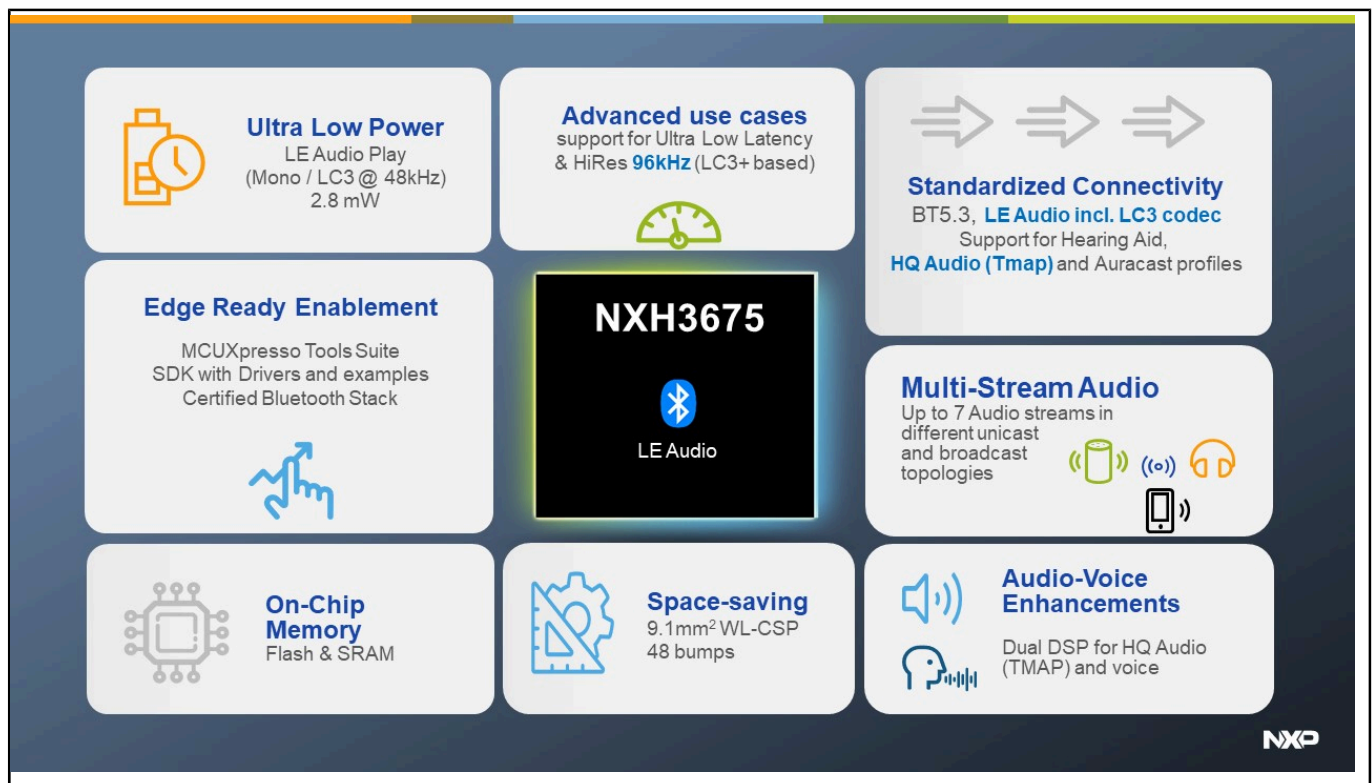The NXH3675 chip integrates the following key functionality:

- LE Audio Certified and enables Auracast in the 2.4 GHz radio band
- An Arm® Cortex®-M0+ for application control and Bluetooth Low Energy host stack
- A dedicated Arm Cortex-M0+ for supporting full-flexible software link-layer protocol up to the HCI level
- A dual CoolFlux® DSP for audio processing of the LC3 and LC3plus audio encoder/decoder as well as audio and voice enhancements such as EQ, compression, gain control and mixing
- A low-power 16 MHz/32 MHz crystal oscillator with integrated tuning caps and automatic frequency selection
- Integrated flash memory enabling autonomous operation or operation with a host MCU
- Multiple interfaces for control, data, debug and test
- Support for multiple digital PDM-based microphones
- Improves battery life with exceptionally low power consumption
- 20 mW power consumption for gaming headsets
- Includes NXP optimized protocol for ultra-low latency
- High integration enabling small application form factor

NXH3675 and enablement (documentation, software and boards) are available for select customers with an approved NDA. For additional information and sample availability, contact support or your local sales representative.

NXH3675 Headset Application Block Diagram

$V_{IO} = 1.8\ V$ $V_{EXT} = 1.1\ V$ $V_{EXT} = 1.1\ V$

V_{EXT} V_{MEM}

I²S

I²C

NXH3675

ANT 1
ANT 2

BALUN

Speaker
Driver

PMIC
PCA9420

1.1 V   1.8 V

NXH3675 Features Block Diagram

Ultra Low Power
LE Audio Play
(Mono / LC3 @ 48kHz)
2.8 mW

Advanced use cases
support for Ultra Low Latency
& HiRes **96kHz** (LC3+ based)

Standardized Connectivity
BT5.3, **LE Audio incl. LC3 codec**
Support for Hearing Aid,
HQ Audio (Tmap) and Auracast profiles

Edge Ready Enablement
MCUXpresso Tools Suite
SDK with Drivers and examples
Certified Bluetooth Stack

NXH3675

LE Audio

Multi-Stream Audio
Up to 7 Audio streams in
different unicast
and broadcast
topologies

**On-Chip
Memory**
Flash & SRAM

Space-saving
9.1mm² WL-CSP
48 bumps

**Audio-Voice
Enhancements**

Dual DSP for HQ Audio
(TMAP) and voice

View additional information for Ultra-Low Power Bluetooth Low Energy Audio Solution with Integrated Flash.

Note: The information on this document is subject to change without notice.

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