

WIRELESS PERSONAL AUDIO

PUBLIC

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AUGUST 2021



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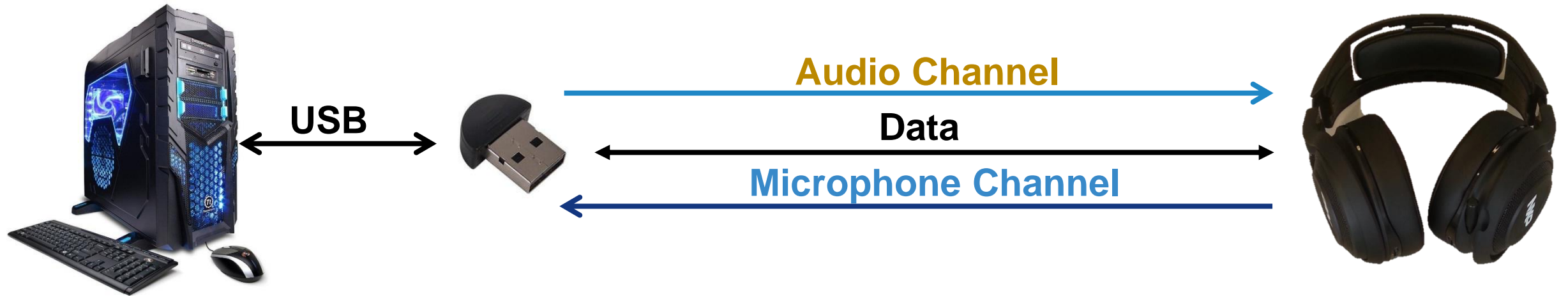
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NXH3670 WIRELESS HEADSET USE CASE

Total power headset 25mW



Data channel

- Up to 16kbps
- Average latency ~7.5ms

Forward audio channel

- Stereo
- SBC HQ codec
- 48kHz, 24 bit
- Latency < 20ms

Microphone channel

- Mono
- G.722 codec
- 16kHz, 16 bit

NXH3670 VALUE PROPOSITION

Applications	Wireless gaming / communication headsets: small form factor communication and consumer gaming headsets with long battery life
Power efficient	Ultra-low active power consumption Average power consumption of <8.5mW for 48kHz audio
Highly integrated	Low external component count enabling miniaturized devices
HiFi Audio	Optimized architecture with DSP and hardware support for robust, high quality audio streaming at <20ms latency
Flexible	Bluetooth Low Energy 4.2 certified. Proprietary low latency audio streaming support



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NXH3670 MAIN FEATURES

Fully integrated 2.4GHz RF Transceiver

- PHY + MAC + Higher network layers
- Supports BLE 1Mbps & 2Mbps mode
- TX output power of -10dBm to +4dBm
- RX sensitivity of
 - -94 dBm in BLE 1Mbps mode
 - -90 dBm in BLE 2Mbps mode
- Supports 16MHz and 32MHz XTAL

Multi-standard PHY and Link Layer

- Bluetooth Low Energy 4.2 certified
- Proprietary isochronous audio streaming protocol

Industry-lowest Power RF Transceiver

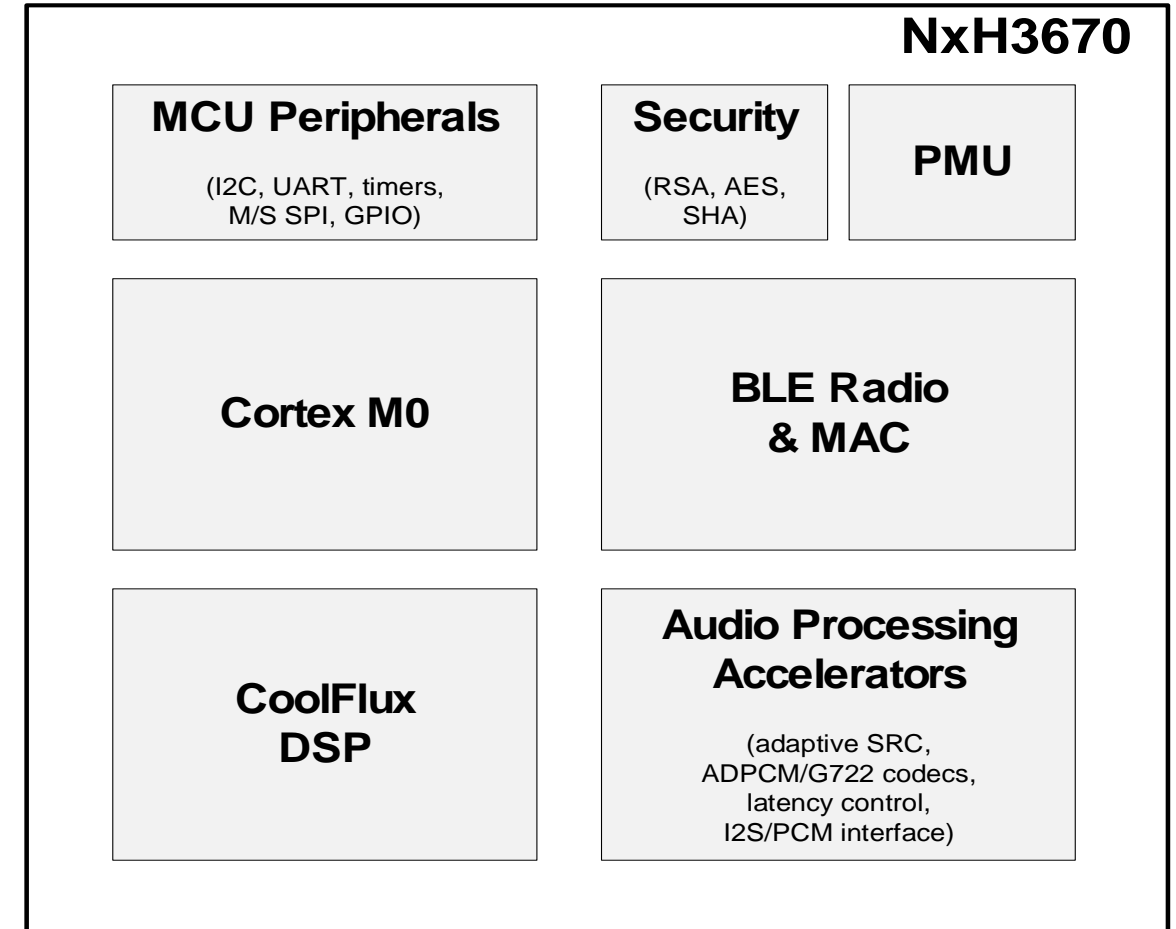
- Continuous RX 4mA @ 1.2V
- Continuous TX (0dBm) 8mA @ 1.2V

Cortex M0 MCU

- Runs host interface, BLE stack and audio profiles
- Host interface: SPI slave

Flexible Audio Path

- Optimized HW-accelerated audio datapath
- Embedded CoolFlux DSP with G722/SBC audio compression codec
- I2S interface to Host and codecs



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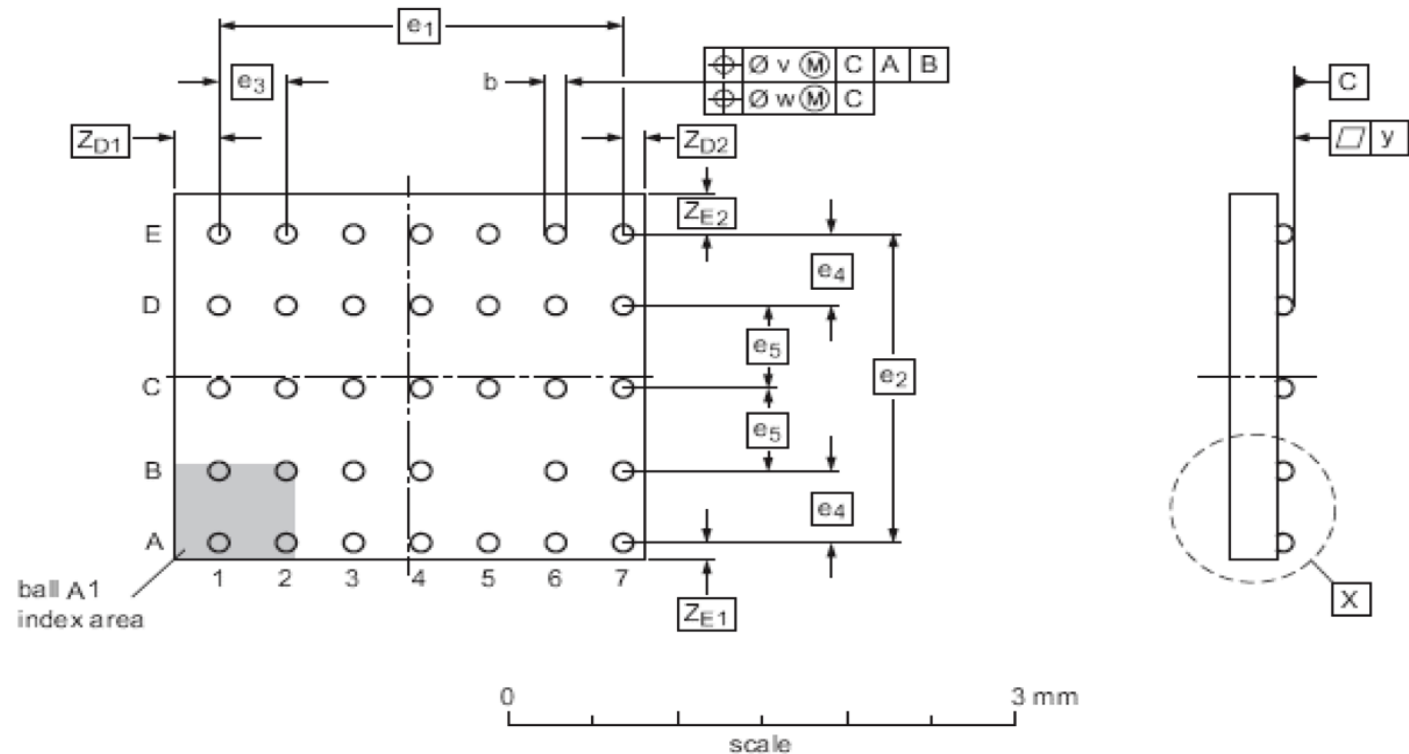
NXH3670 PACKAGE

Highly Integrated

- On-chip supply regulators
- Limited external components

Package

- Configurable IO voltage up to 2.6V
- Bump pitch of 400 μm with ball diameter 130 μm
- 34 bump package: 7 by 5 bump grid
- WLCSP ~ 7.25 mm²

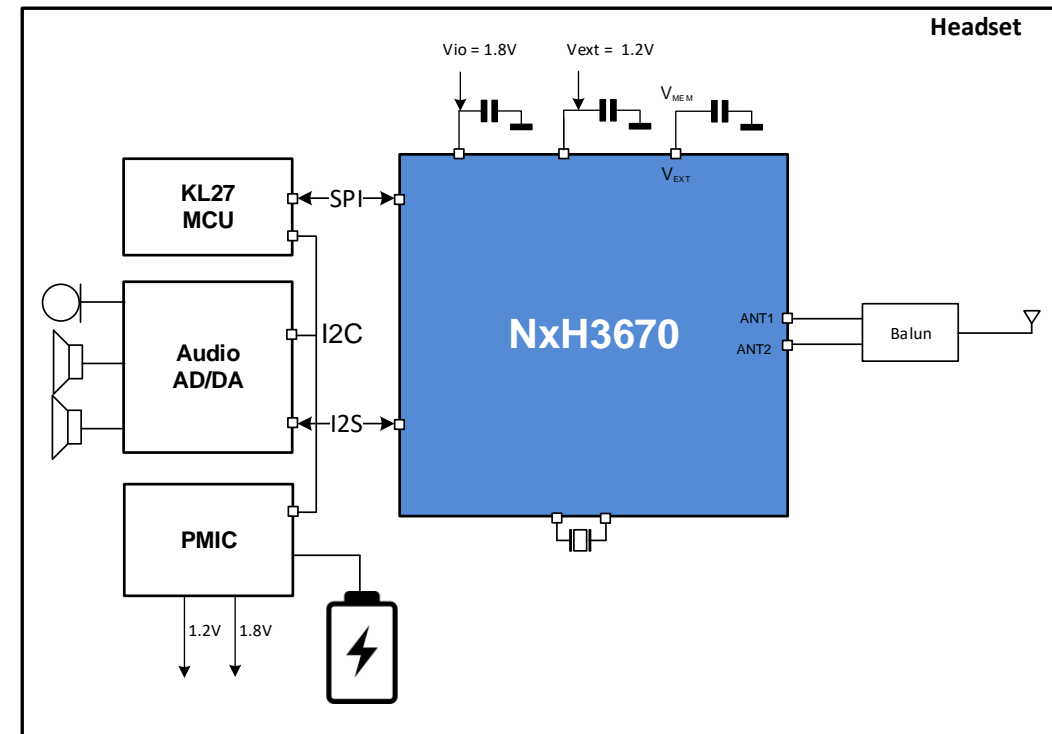
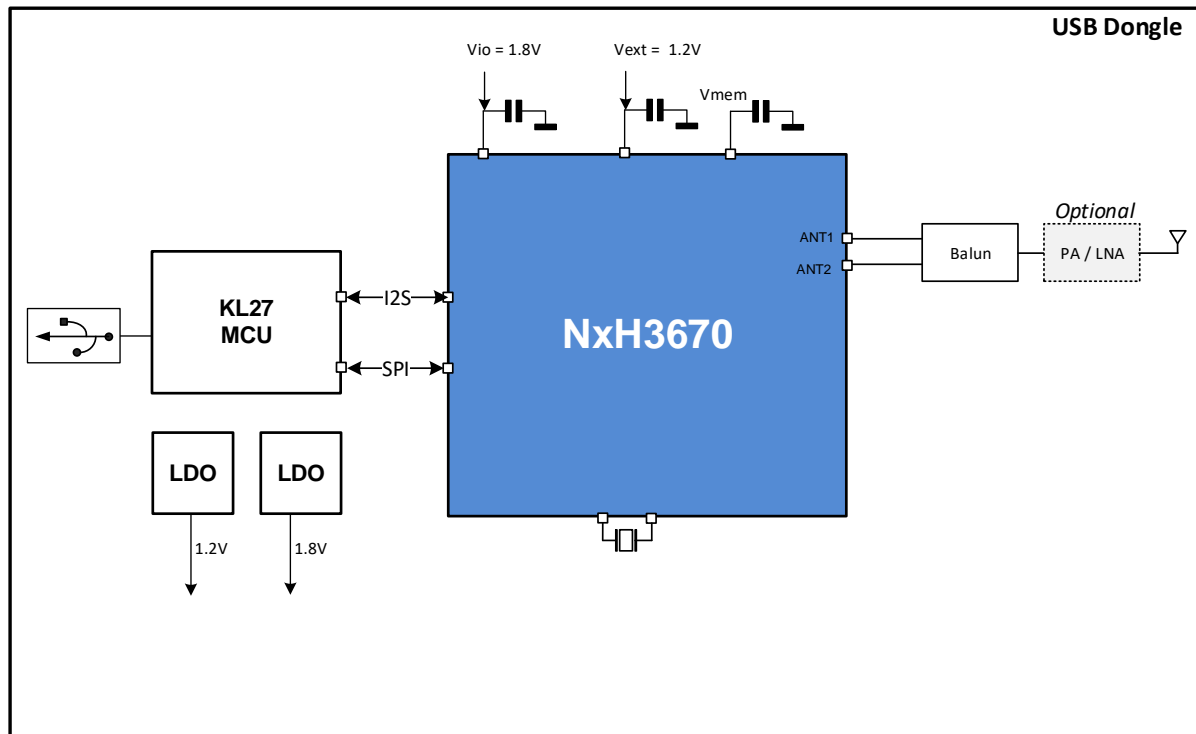


NXH3670 SDK DEVELOPMENT BOARD

- NxH3670 development board
 - Flexible board intended for SW and system development, debug and bring-up
- Main BOM
 - NxH3670
 - KL27 Microcontroller
 - Audio codec
 - Power management
 - Battery
- Full signal observability
- Reconfigurable as both dongle as well as headset

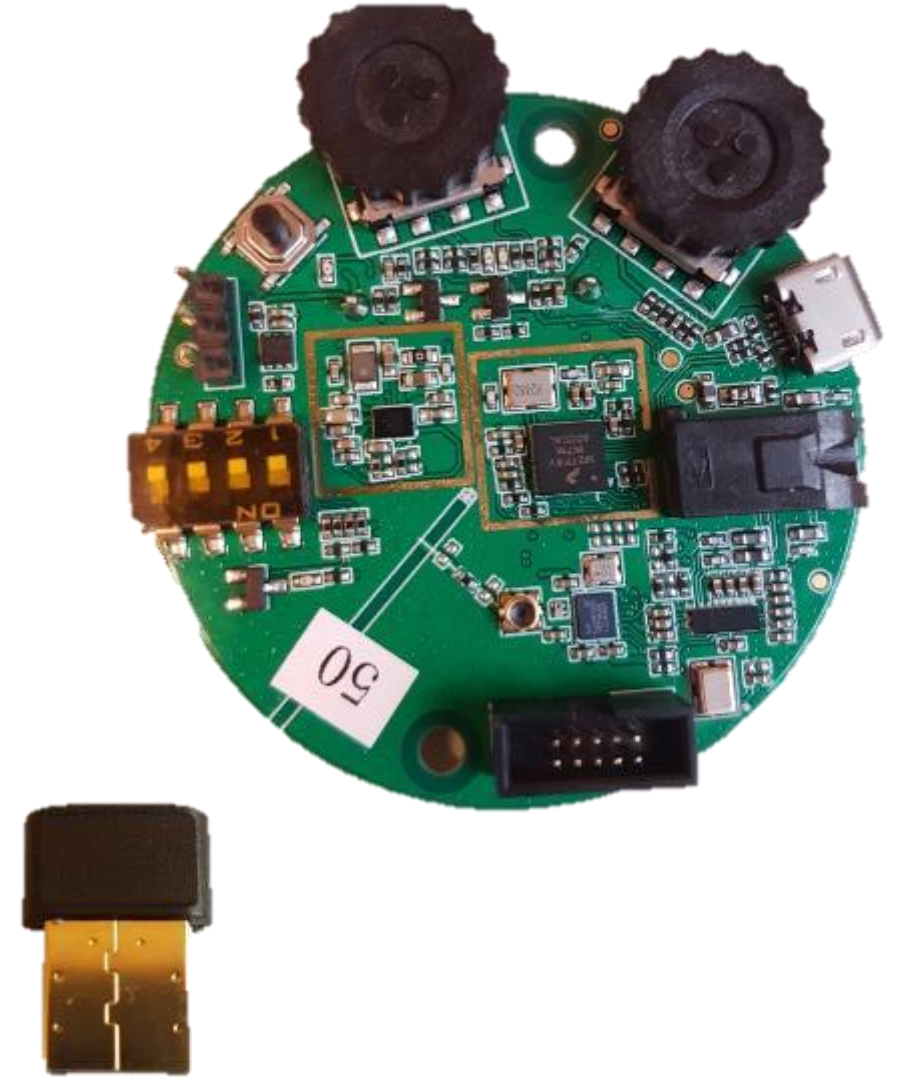


NXH3670 REFERENCE DESIGN — GAMING HEADSET

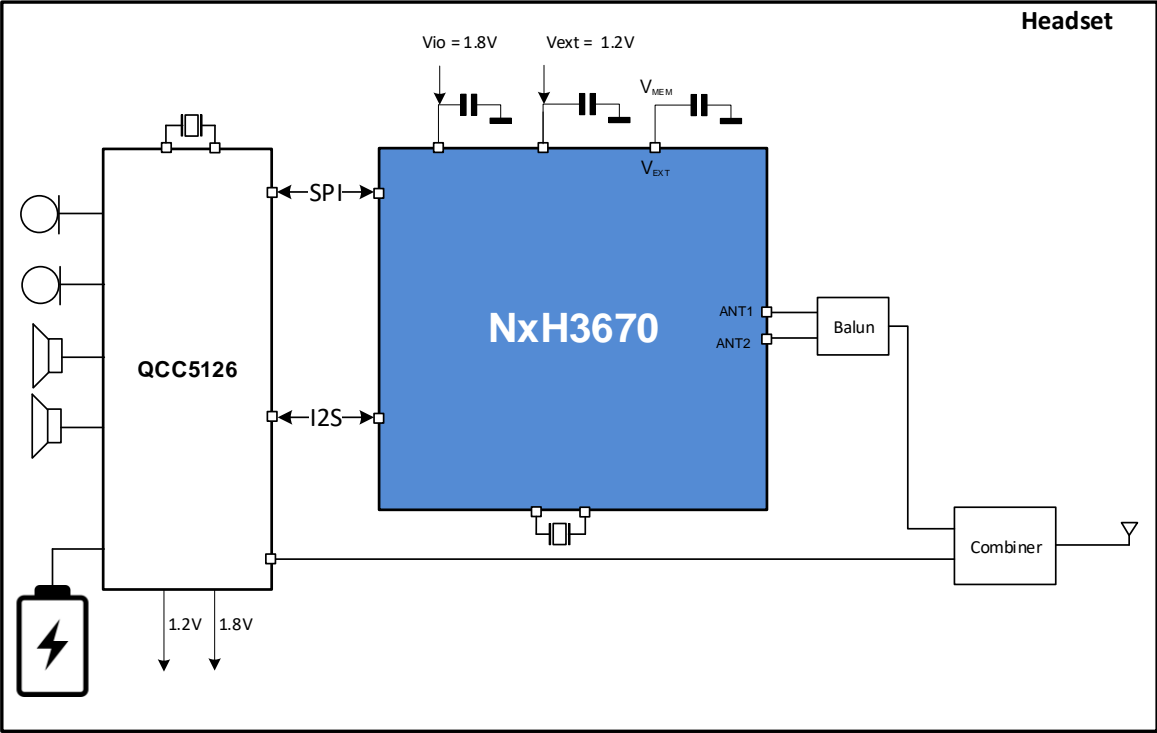
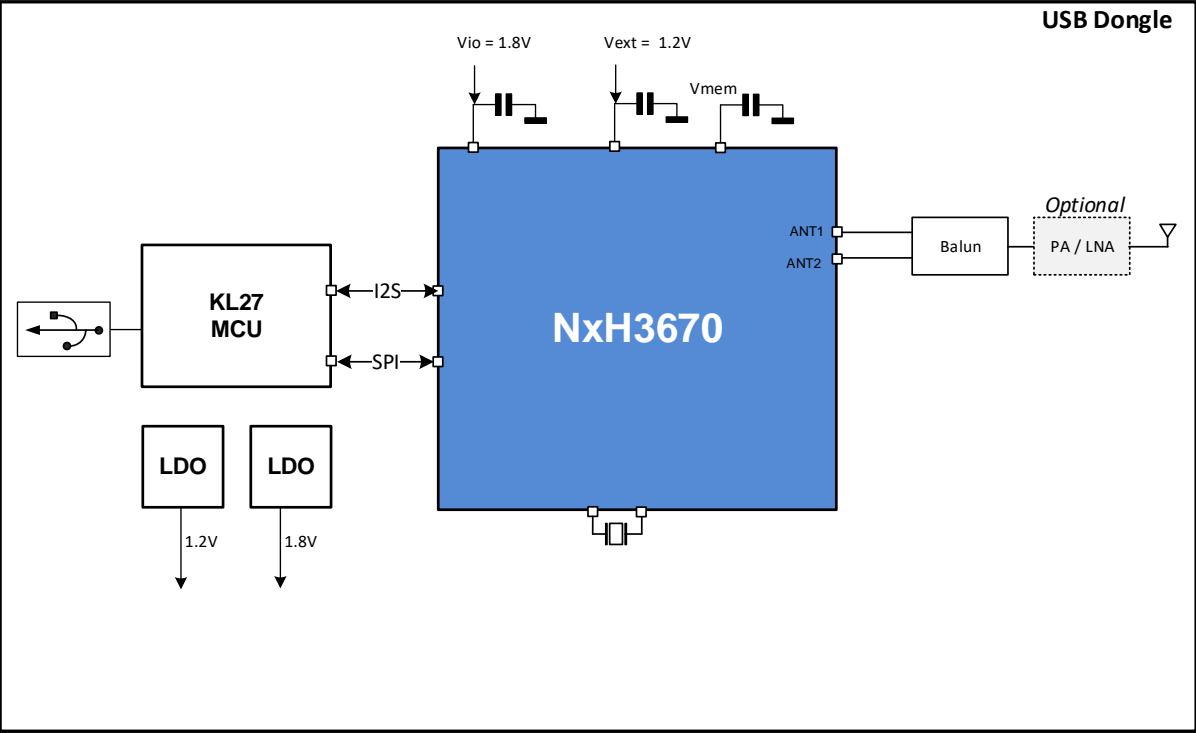


NXH3670 ADK REFERENCE DESIGN

- NxH3670 application development board
 - Contains both dongle as well as headset reference design
 - Form factor reference showing real-life performance of the complete NxH3670 gaming solution
- Dongle
 - NxH3670
 - KL27 MCU
 - Integrated PCB antenna
- Headset
 - NxH3670
 - KL27 MCU
 - Dialog codec
 - Integrated omni-directional PCB antenna
- Fully certified total Gaming Headset solution
 - CE
 - FCC
 - Bluetooth



NXH3670 POC – DUAL MODE GAMING HEADSET



ADDITIONAL WIRELESS APPLICATIONS



Communication Headsets



TV Headsets



Subwoofers



Soundbars



Microphones



Intercoms



NxH3670 for Soundbars

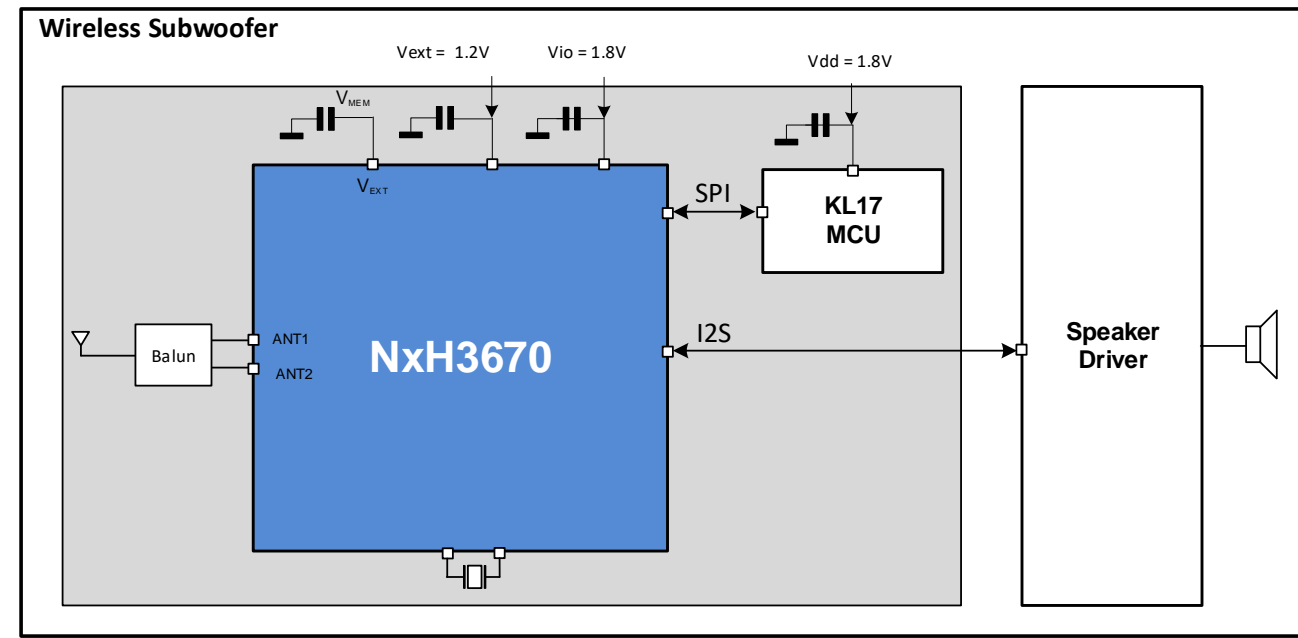
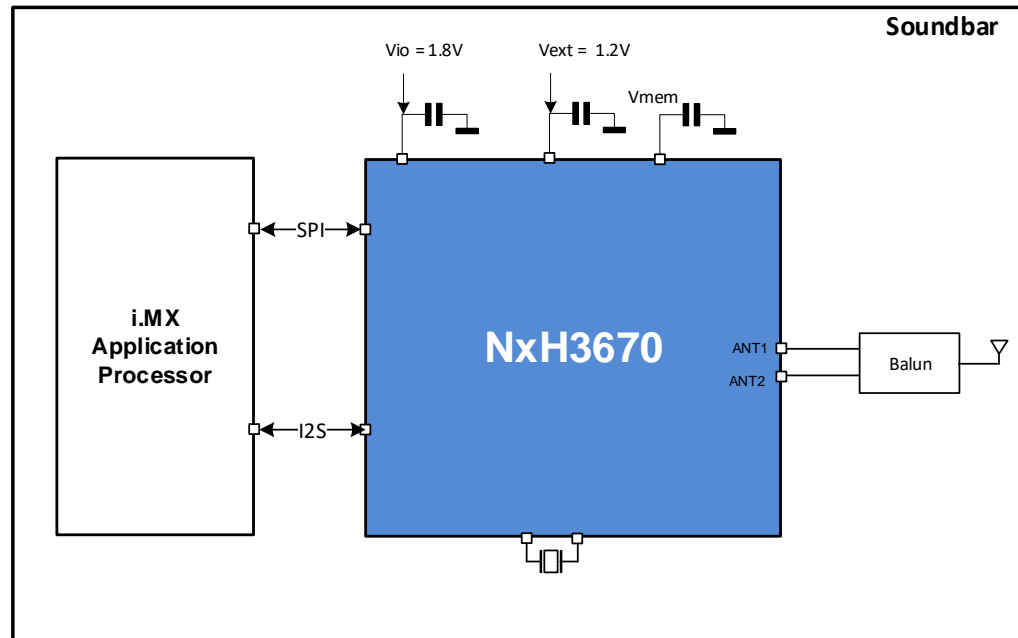
NXH3670 FOR WIRELESS SUBWOOFER / SOUNDBAR

- Soundbars typically use external subwoofer to generate low frequency audio
 - NxH3670 avoids the need to run wires between soundbar and subwoofer!
 - Eases the integration of subwoofer into living room for the end customer.
- NxH3670 perfect application fit
 - Configurable ultra-low latency (15/20/25/30ms)
 - Low BOM and minimum PCB footprint
 - Excellent link range with strong WiFi / Bluetooth coexistence
 - Ease of integration with minimal HW/SW design-in effort
 - Premium sound quality
 - 48kHz, 24bit
 - HQ SBC
 - Support for data communication and OTA upgrades



NXH3670 WIRELESS SUBWOOFER / SOUNDBAR APPLICATION

NXP SOUNDBAR REFERENCE DESIGN

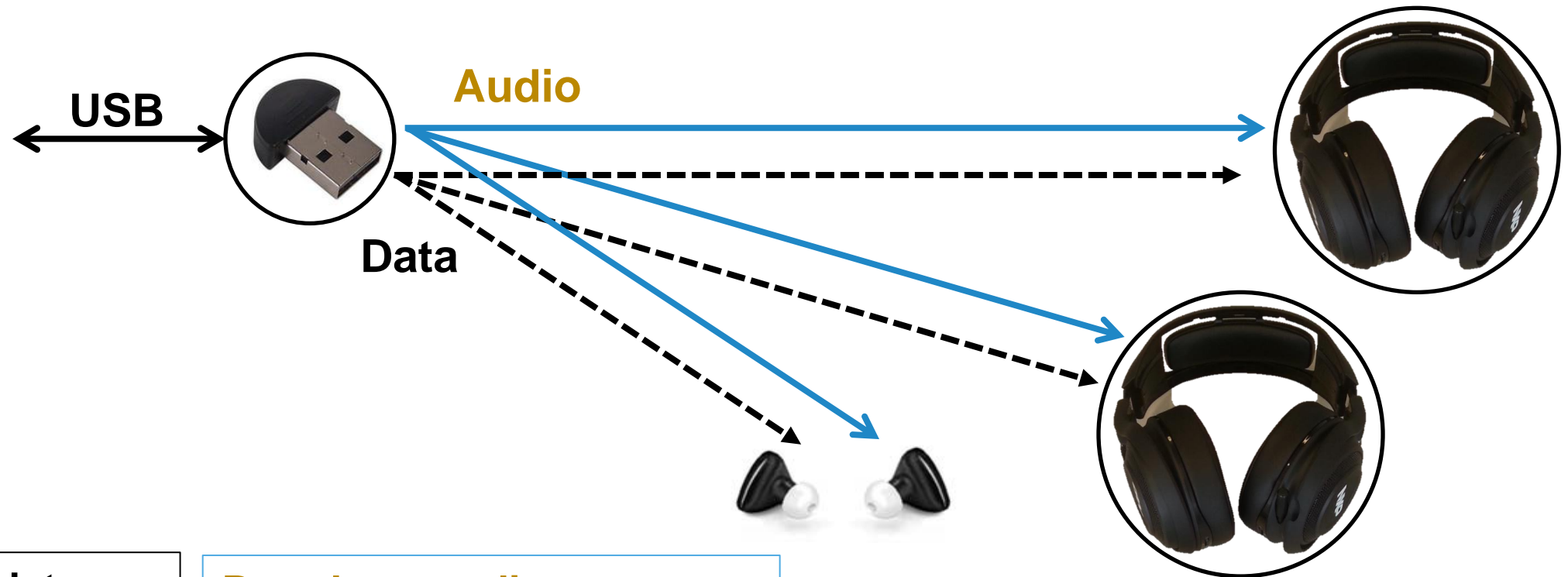


Under development. To be released in Q4 2021.



NxH3670 for Broadcast

NXH3670 BROADCAST OVERVIEW



Broadcast data

- HCI interface

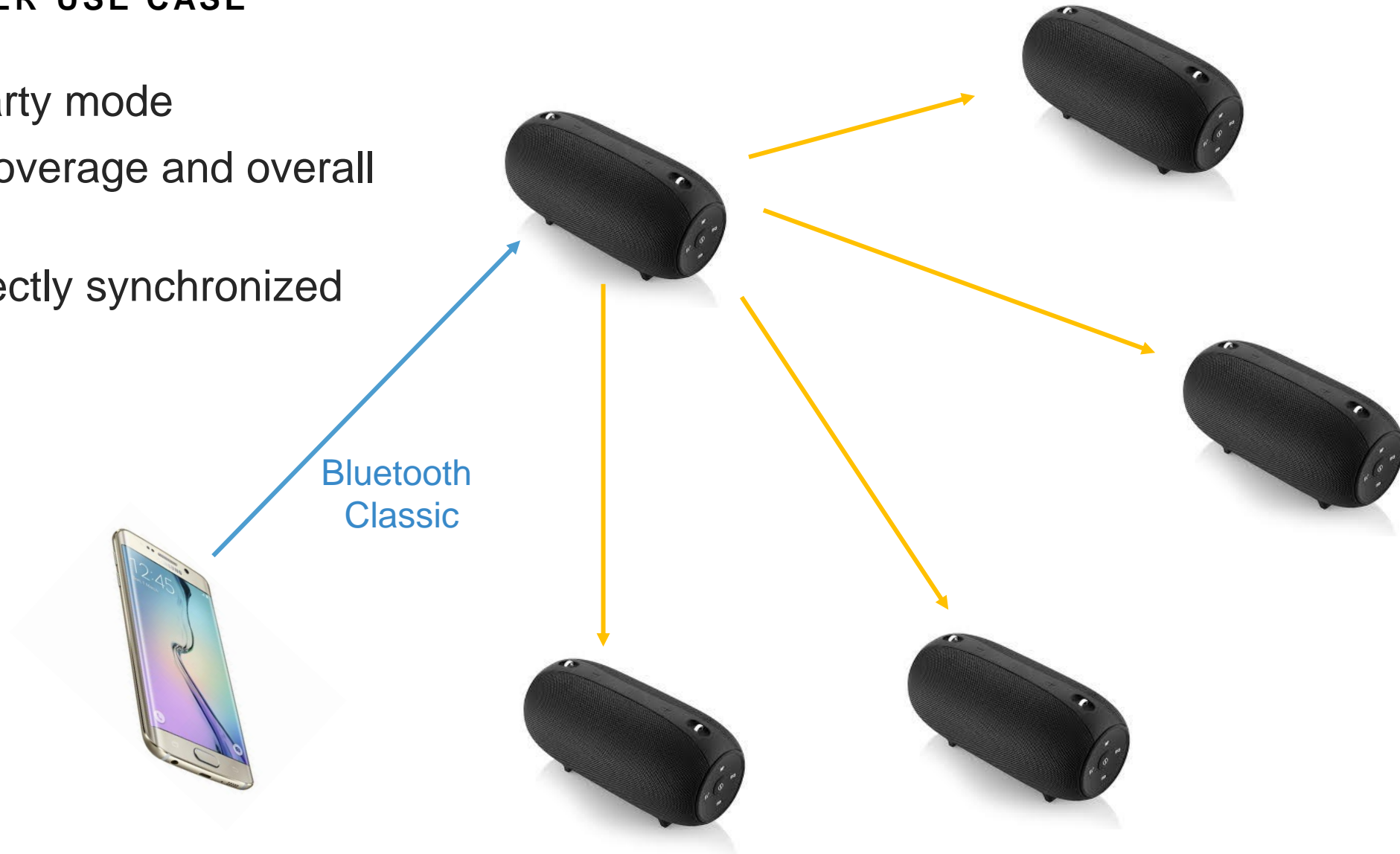
Broadcast audio

- Stereo audio
- SBC HQ audio codec
- 48kHz, 16 bit
- Latency < 20ms

Total power headset 25mW

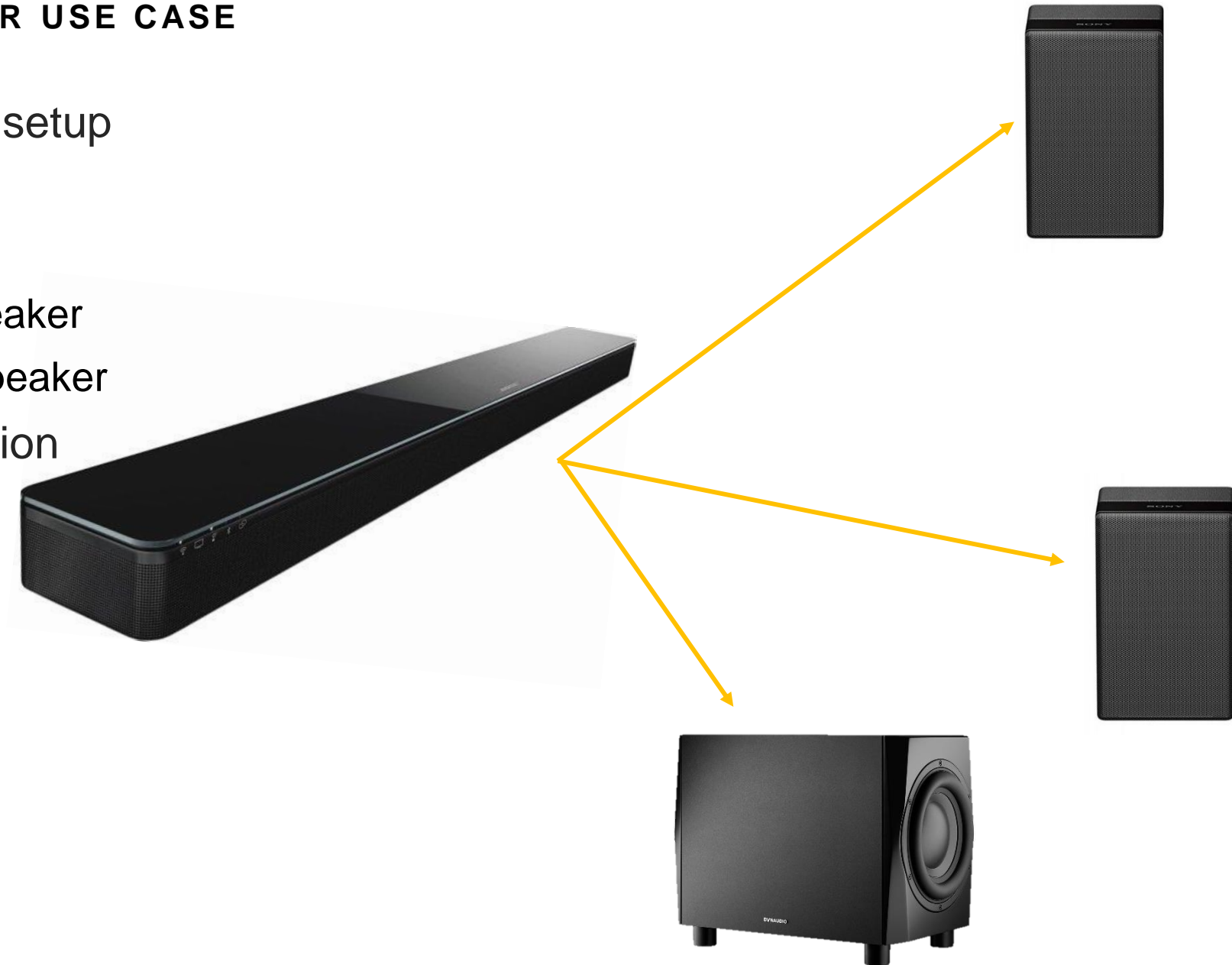
PORTABLE BT SPEAKER USE CASE

- Bluetooth speaker party mode
- Extend audio room coverage and overall audio level
- All BT speakers perfectly synchronized
 - Jitter < +/-20us



EXTENDED SOUNDBAR USE CASE

- Extended Soundbar setup
 - Main soundbar
 - Wireless subwoofer
 - Wireless left rear speaker
 - Wireless right rear speaker
- Perfect synchronization





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