Snapdragon

Beyond Bluetooth:

A New Era of Lossless Audio with Qualcomm® XPAN

Introduction

As demand for lossless, high-resolution audio grows, traditional Bluetooth® connectivity is reaching its limits, particularly in range, reliability, and bandwidth. Qualcomm Expanded Personal Area Network Technology (XPAN) introduces a new approach to wireless audio, seamlessly extending high-quality listening beyond the constraints of Bluetooth. The Snapdragon® S7+ Gen 1 Sound Platform has been designed to deliver a next generation sound experience and adds a world-class low power Wi-Fi solution that extends the wireless range and capability of personal audio devices such as earbuds and headphones.

The Snapdragon S7+ Gen 1 Sound Platform enables whole home and building coverage for stunning quality lossless music streaming scalable up to 96kHz. Key elements of the Snapdragon S7+ Gen 1 Sound Platform are world class audio processing, powerful on-device AI processing, micro-power Wi-Fi, and Qualcomm XPAN.

What is Qualcomm XPAN?

Qualcomm XPAN is a connectivity technology designed to allow earbud and headset users to enjoy the highest quality audio as they move around homes and other buildings by seamlessly managing lossless audio streams across Wi-Fi and Bluetooth connections. Qualcomm XPAN leverages Bluetooth profiles and utilizes existing Wi-Fi standards to extend Bluetooth range via a local network connection between client devices, for example earbuds, headsets, and speakers, and a host device such as a phone or laptop.

Qualcomm XPAN is a revolutionary new approach that is integrated into the Snapdragon S7+ Gen 1 sound platform and takes advantage of micro-power Wi-Fi connectivity to extend the effective reach of Bluetooth audio connections. Using Qualcomm XPAN, and data rates of up to 29Mbps over Wi-Fi, earbuds and headsets can deliver up to 24-bit 96kHz lossless music streaming.

Device-to-device streaming using Qualcomm XPAN supports both peer-to-peer and operation via home or office Wi-Fi (see Fig. 1). Initial use cases include cloud connected phones and laptops acting as Qualcomm XPAN hosts streaming audio to earbuds acting as Qualcomm XPAN clients. As the client moves in and out of Bluetooth range Qualcomm XPAN manages the connection to ensure the highest quality lossless audio.

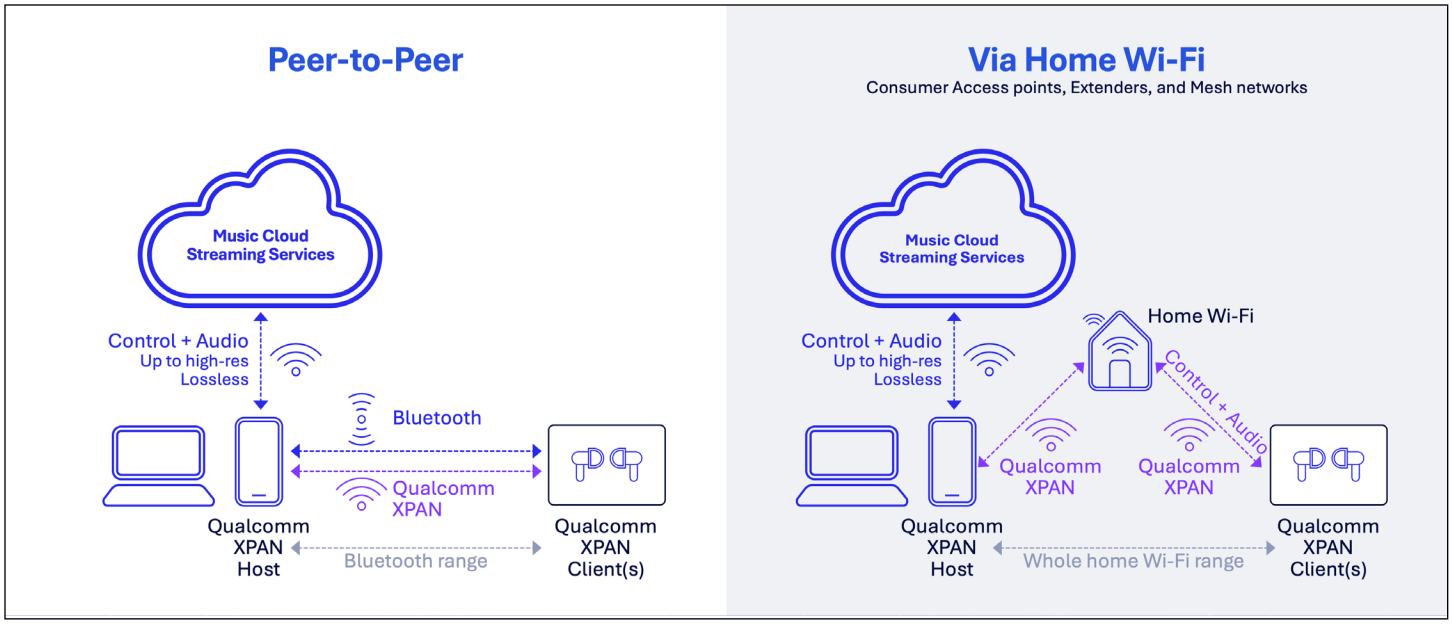


Fig. 1. Device to device streaming using Qualcomm XPAN

Snapdragon S7+ Gen 1 Sound Platform with Qualcomm XPAN

The Snapdragon S7 and S7+ Sound Platforms deliver six times more compute power and almost 100 times more AI power than their predecessors, using an ultra-low power architecture. The combination of Qualcomm® 4th Gen Adaptive Noise Cancellation (ANC) and on-device AI processing helps hearing enhancement technologies to deliver a more seamless audio experience by understanding and adapting to user needs and environment throughout the day. All Snapdragon S7 and S7+ Sound Platforms integrate Hi-Fi grade stereo audio codec, Bluetooth 5.4 connectivity and support lossless audio streaming up to 48kHz using Classic Bluetooth and LE Audio.

The Snapdragon S7+ Gen 1 Sound Platform also integrates Qualcomm XPAN and low power triple band Wi-Fi connectivity supporting 2.4 GHz, 5 GHz and 6 GHz bands. Using Qualcomm XPAN and Wi-Fi connectivity lossless music streaming can be scaled up to 192kHz for earbuds and headsets*. Fig. 2 shows the Qualcomm XPAN Host implementation and low power Qualcomm XPAN client.

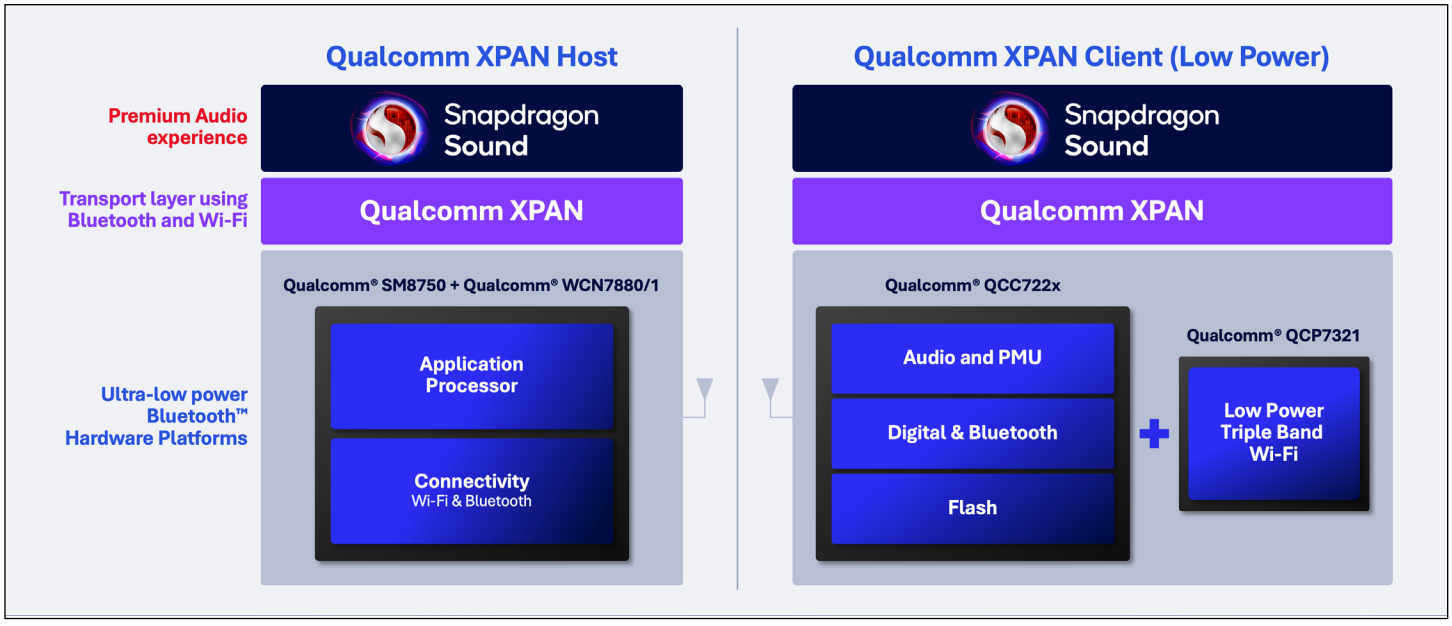
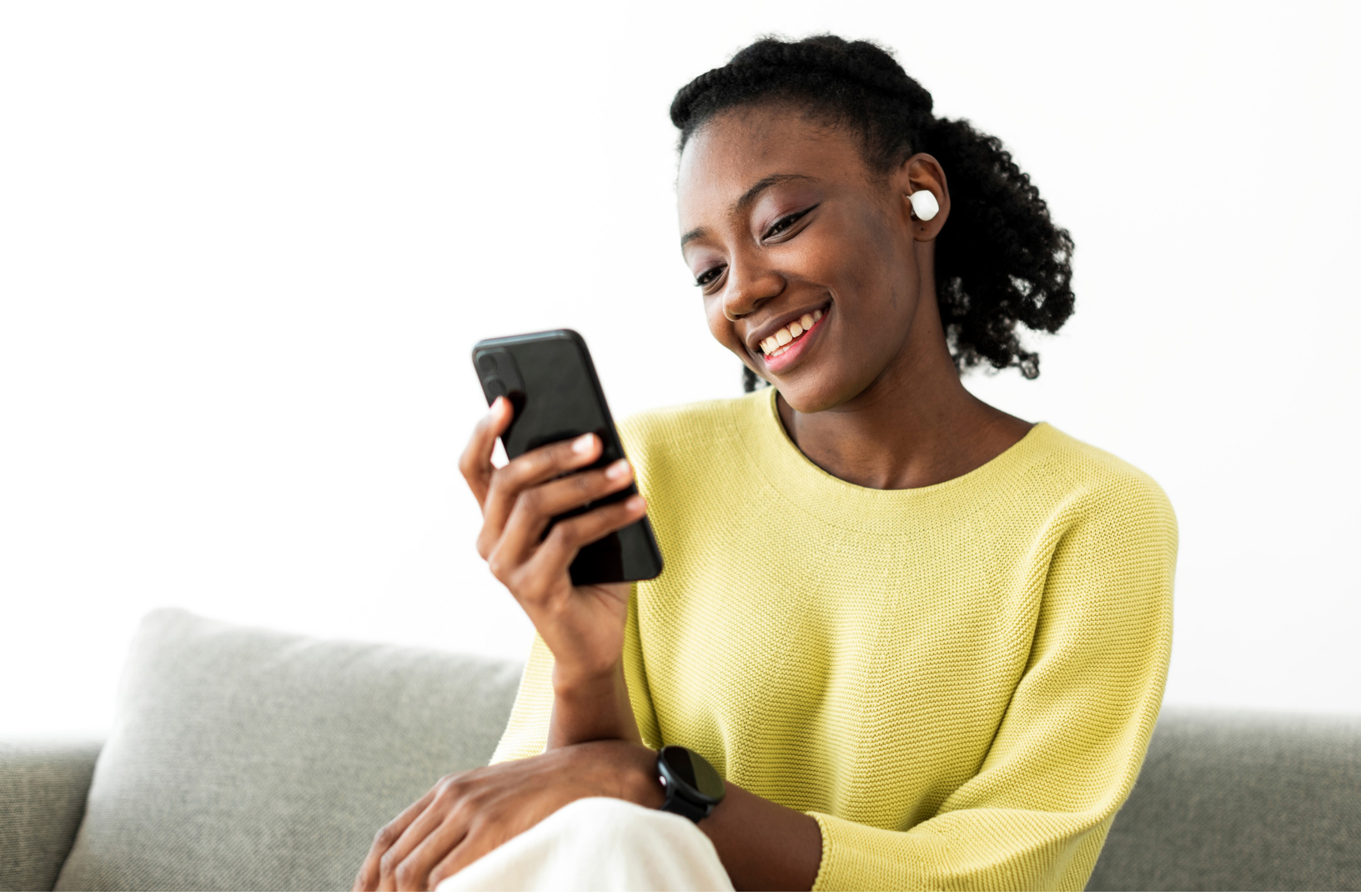


Fig. 2. Snapdragon S7+ Gen 1 Sound Platform

*Future roadmap feature.



Conclusions

The integration of Qualcomm XPAN and micro-power Wi-Fi into the Snapdragon S7+ Gen 1 Sound Platform gives earbud and headset users the freedom to roam around their home or office without taking their phone or laptop with them. Users can hear music like never before with up to 24-bit 96kHz lossless audio** streaming and answer calls without having to rush back to their phones or laptops.

The Snapdragon S7+ Sound Platform builds on rich heritage and ecosystem built up over many years by Qualcomm Technologies and enables a new premium tier of audio performance for earbuds and headsets. The unique combination of world class audio processing, and Bluetooth and Wi-Fi connectivity, together with Qualcomm XPAN and an ultra-low power architecture, is delivering the next level of audio experience for earbud and headset users.

** Currently supported

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Snapdragon Sound

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