

Qualcomm

# Qualcomm<sup>®</sup> Smart Audio Platform (APQ8009)

**The Qualcomm Smart Audio Platform is designed specifically to help streamline the process for developing smart and networked speakers at a range of price points.**

Many audio manufacturers today are seeing the opportunities presented by the rapidly increasing demand for smart speaker products, however the process of developing a differentiated smart speaker can be complex and challenging - requiring the integration of an array of features and advanced capabilities.

The Qualcomm Smart Audio Platform, based on the APQ8009, is designed to bring together a powerful combination of processing, connectivity options, voice user interfaces and premium audio technologies to help deliver a highly flexible, unique single-vendor smart speaker solution. With our proprietary audio technologies integrated, the platform supports high resolution audio, whole-home networked audio, echo cancellation, beamforming, noise suppression and barge-in wake-word detection.

## Highlights

### Integrated single-vendor platform

Helps to more efficiently scope and design a smart speaker, reduce BOM sources, eliminate the need to develop, integrate and tune complex far-field voice technologies with wake-word detection and beamforming, as well as helping reduce Wi-Fi certification time and cost.



### Superior far-field voice, noise suppression and keyword detection

Supports superior voice performance and reduce voice UI development complexity with our multi-microphone far-field voice and wake-word detection, noise suppression, beamforming and stereo echo cancellation technology, pre-tuned and available with a comprehensive example design.



### Supports multiple premium audio features

Designed to support world-class connectivity and Bluetooth/Wi-Fi coexistence, high definition (24-bit) audio and networked audio, our proprietary technologies including Qualcomm<sup>®</sup> aptX<sup>™</sup> audio and compatibility with our Qualcomm<sup>®</sup> DDFA<sup>™</sup> digital amplifier and leading voice services.



### Comprehensive development kit

Further reduce development time and complexity for richly featured smart speakers using our unique development kit with end-to-end example design. As well as its other components, the kit includes a Wi-Fi certified system-on-module, reference speaker casing with bi-amped, two-way speakers, and a six-microphone array board for high performance far-field voice user interface.



- Smart Speakers
- Networked Speakers

## Features

- Single, flexible platform designed for developing a smart speaker
- Processor with integrated DSP including integrated far-field voice pick up technologies with keyword detection, echo cancellation and beamforming
- Pre-integrates Qualcomm Technologies' proprietary voice interface technologies - keyword detection, multi-mic far-field EC/NS/beamforming, barge-in, VoIP/HFP speech enhancements
- Support for leading voice platforms including Amazon Alexa Voice Services and Microsoft Cortana
- Support for high resolution 24-bit audio, with aptX and aptX HD audio codecs, DDFA Class D amplifiers and powerful audio post-processing
- Qualcomm® AllPlay™ Smart Media Platform
- Multi-room networked audio pre-integrated
- Advanced wireless connectivity options, with Bluetooth/Wi-Fi coexistence solutions
- Comprehensive development kit available with example design and supporting documentation

## Related Products

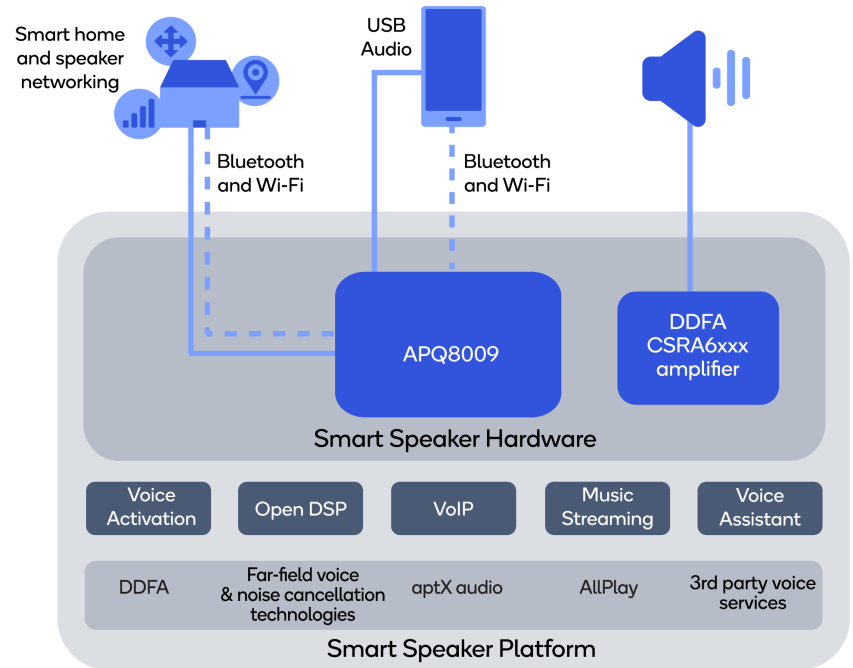
Product	Part Number
Qualcomm Smart Audio Platform Dev Kit with acoustics	DK- SMART-AUDIO-APQ8009-0-A
Qualcomm Smart Audio Platform Dev Kit (without acoustics)	DB- SMART-AUDIO-APQ8009-0-A

For additional Qualcomm product information go to:  
[createpoint.qti.qualcomm.com](http://createpoint.qti.qualcomm.com)

### Product Kit: Speaker

- [APQ8009 Linux Smart Speaker \(Platform\)](#)

## Platform Block Diagram



## Platform Specifications

	Qualcomm Smart Audio Platform
<b>CPU</b>	<b>APQ8009</b> Quad-core Arm A7 32-bit CPU @ up to 1.3 GHz
<b>Wi-Fi</b>	11ac Wi-Fi 2x2 802.11ac MU-MIMO Peak Speed: 364 Mbps
<b>Bluetooth</b>	4.2
<b>Display</b>	720p
<b>DSP</b>	Qualcomm® Hexagon™ 536 DSP
<b>GPU</b>	Qualcomm® Adreno™ 304
<b>Audio</b>	aptX, Multi-mic noise suppression, Beamforming, Echo cancellation, Keyword detection, DDFA
<b>Operating Systems</b>	Linux

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