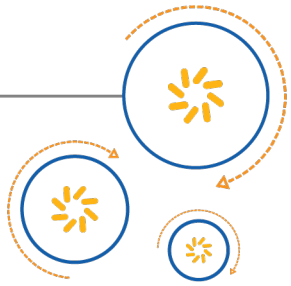
Qualcomm Technologies International, Ltd.



Audio Sink Application Project Resources

User Guide

80-CT449-1 Rev. AF

October 27, 2017

Qualcomm Technologies International, Ltd. (formerly known as Cambridge Silicon Radio Limited) is a company registered in England and Wales with a registered office at: Churchill House, Cambridge Business Park, Cowley Road, Cambridge, CB4 0WZ, United Kingdom.
Registered Number: 3665875 | VAT number: GB787433096

Revision history

Revision	Date	Description
1	JUN 2015	Original publication of this document. Alternative document number CS-00332640-UG.
2	SEP 2016	Updated for ADK 4.1
3	APR 2017	Updated CapSense to Capacitive Sensor
4	APR 2017	Updated for ADK 4.2
AE	OCT 2017	Added to the Content Management System. DRN updated to use Agile number. No change to the technical content.
AF	OCT 2017	Minor editorial correction.

Contents

Tables

Figures

1 Audio Sink application - overview

The Audio Sink application provided in the QTIL ADK can be used to configure product applications for:

- Headsets
- Speakers
- Soundbars

This document describes additional resources provided for the Audio Sink application.

NOTE For additional information see the *Audio Sink Application User Guide* and *Audio Sink Application Configuration User Guide*.

2 ADK example products

The Audio Sink application consists of software features that can be included or excluded from a project.

Some of these features are mutually exclusive and cannot be included simultaneously. For this reason, and to simplify end product development, the ADK provides three projects that have the core configurations for specific types of devices, see Table 2-1.

These projects are designed to incorporate unique feature sets that provide the core functionality for end products of each type.

Table 2-1 Audio Sink application example products

Example Product	Description
Headset	Provides an example feature set for a Bluetooth enabled headset
Speaker	Provides an example feature set for a Bluetooth enabled portable speaker
Soundbar	Provides an example feature set for a Bluetooth enabled soundbar

2.1 ADK project and configuration files

The requirements for each product, are different. For this reason, a unique set of project and configuration files are required for each product.

The following topics describe the project and configuration files required for each product:

ADK project files

ADK application configuration files

2.1.1 ADK project files

The feature set for each end product is defined by a number of project files, see Table 2-2.

Table 2-2 Files required for each end product

File Name	File Extension	Description
<PRODUCT>	`xiw`	xIDE Workspace for the product(1)
<PRODUCT>	`xip`	xIDE VM Project (an Audio Sink application project)
<PRODUCT>	`mak`	Project `make` file

Table 2-2 Files required for each end product (cont.)

File Name	File Extension	Description
<PRODUCT>_vmprops	xml	Defines all available properties that can be updated for the project
(1) The xIDE workspace should only contain one VM project but may contain multiple DSP projects to meet the requirements of the product.		

2.1.2 ADK application configuration files

Any particular product must be configured to ensure the device behaves according to the end product's requirements. Therefore, each product requires a unique configuration.

The **<ADK>\apps\sink\module_configurations** directory holds xml configuration files for various modules of ADK sink application, each of these module configuration file holds the default application configuration for the respective module.

Audio prompts

All the QTIL example end product project configurations support audio prompts. The audio prompts for each product can be found in:

<ADK>\apps\sink\<PRODUCT>_prompts

When a project is built, the audio prompts in this directory are copied to the device file system automatically by the project `makefile` when the project is built.

NOTE If prompts are modified, the prompt files must be copied to this directory to ensure they are included in the build.

2.2 ADK Headset application

The example Headset project defines a feature set designed to meet the requirements of a gaming based headset, which also contains music and hands-free functionality.

Figure 2-1 shows an example of the device topology possible using this configuration.

Figure 2-1 Headset topology

2.2.1 ADK Headset application product features

The default features of the headset product are:

1. Automatic audio source selection
2. Stereo audio playback
3. Voice prompts for headset
4. Multi-point and three way calling
5. AVRCP
6. PBAP
7. MAP
8. GAIA
9. ShareMe
10. Bluetooth low energyb technology battery service
11. FastStream Low Latency backchannel

2.3 ADK Speaker application

The example Speaker project defines a feature set designed to meet the requirements of either a TrueWireless or Broadcast Audio speaker.

2.3.1 TrueWireless speaker

Figure 2-2 shows an example of the device topology possible using this configuration.

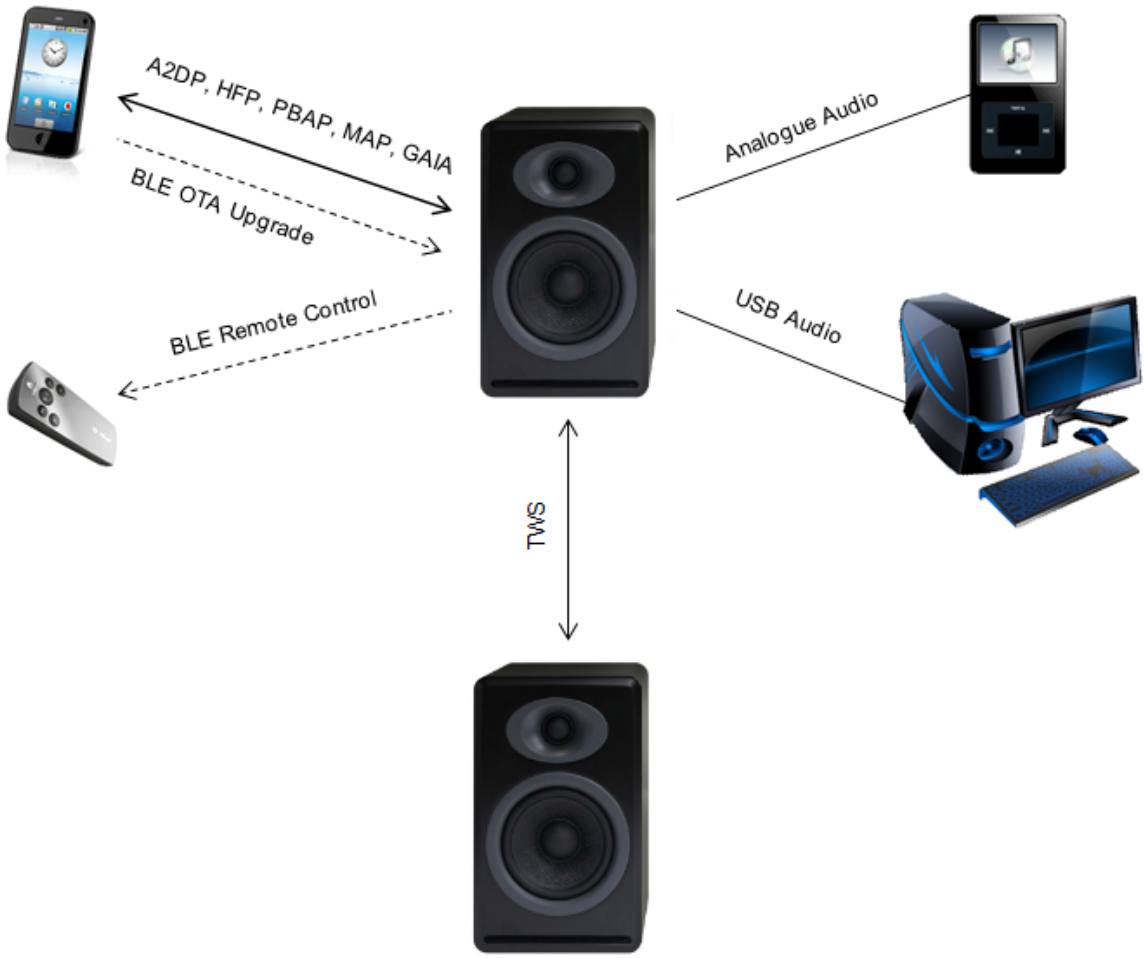


Figure 2-2 Speaker topology

2.3.2 Broadcast Audio speaker

When the speaker is built with Broadcast Audio enabled it supports two additional modes of operation into the speaker which can be dynamically switched by the user:

- Broadcaster Mode: The device supports multiple audio sources and renders audio over CSB stream. It does not support hands-free functionality.
- Receiver Mode: The device only receives audio from an associated broadcaster over CSB stream. No other functionality is supported in this mode.

See the *Audio Sink Application Broadcast User Guide* for further information.

Figure 2-3 shows an example of the device topology possible using Broadcast Audio.

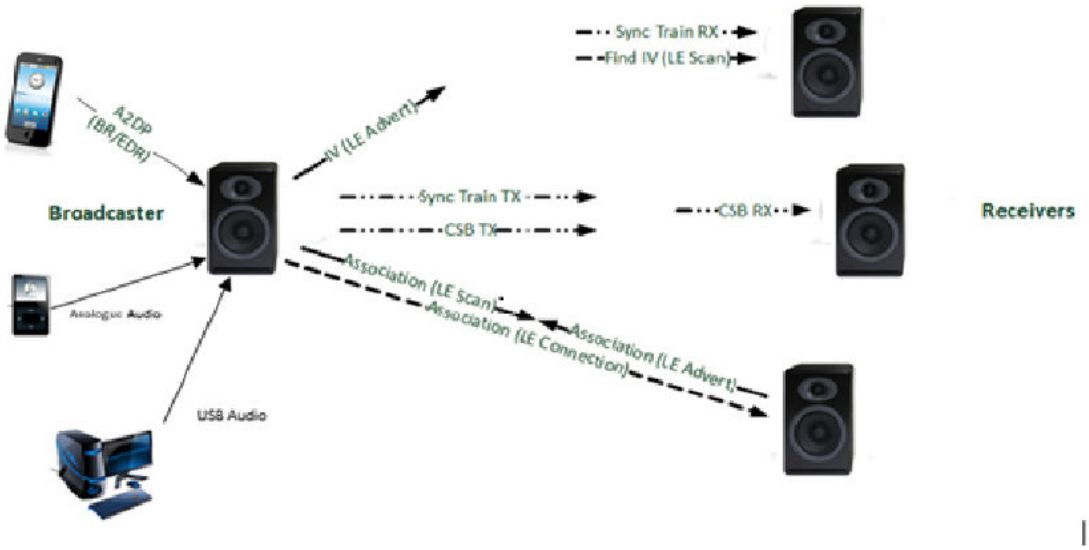


Figure 2-3 Broadcast Audio topology

2.3.3 ADK Speaker application product features

The default features of the speaker product are:

1. Automatic audio source selection
2. Multi-point and three way calling
3. Voice Prompts for Speaker
4. AVRCP
5. PBAP
6. MAP
7. GAIA
8. Bluetooth low energy technology Battery Service

9. USB Audio
10. Wired Audio
11. TWS peer connection
12. Bluetooth low energyb technology Remote Control

2.3.4 ADK Speaker application TWS DSP projects

To run the Speaker TWS project, the DSP projects included in the speaker workspace must be modified to ensure the DSP code supports the TWS features. This can be done as follows:

1. Right-click the DSP project in the workspace and select the **Set as Active Project** option:

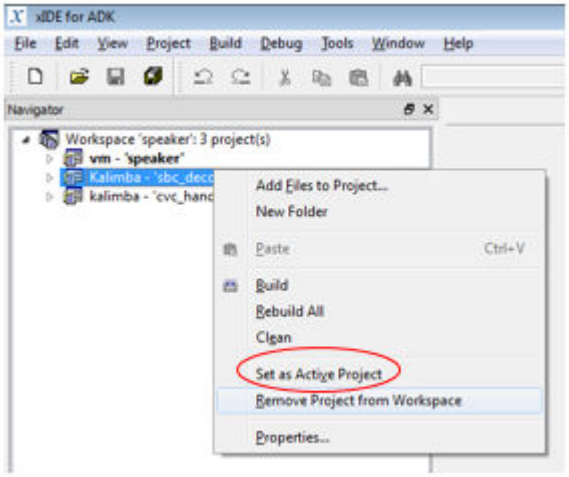


Figure 2-4 Setting the DSP project as the active project

2. Right-click the DSP project in the workspace and select the **Properties…** option:

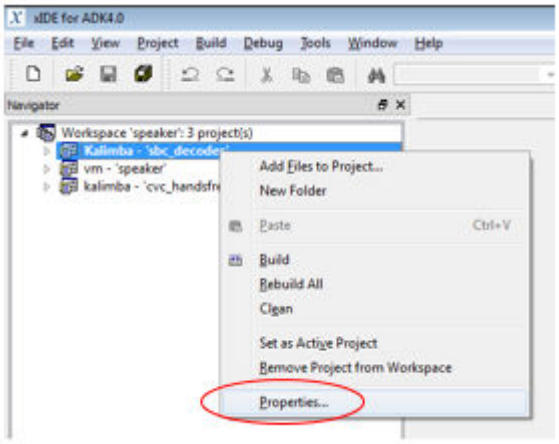


Figure 2-5 Modifying the DSP Project Properties

3. Using the **Configuration** field dropdown select the required TWS configuration:

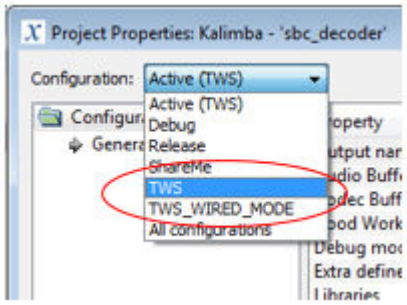


Figure 2-6 Setting the project configuration to TWS

NOTE (1) **TWS_WIRED_MODE** supports relaying all audio sources including wired input.

(2) **TWS** supports relaying all audio sources except wired input.

2.4 ADK Soundbar application

The example Soundbar project defines a feature set designed to meet the requirements of a soundbar. The device supports multiple audio sources, a wireless subwoofer and an LCD display.

The figure below shows an example of the device topology possible using this configuration.

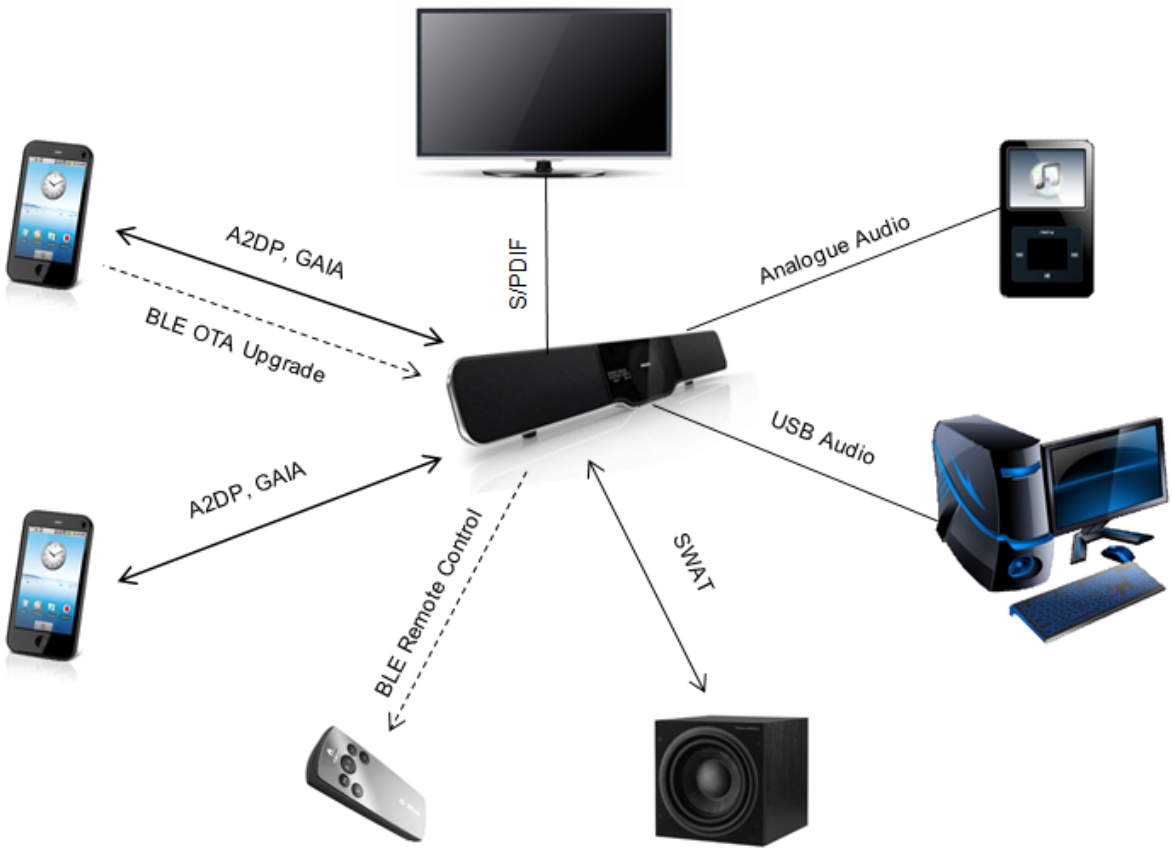


Figure 2-7 Soundbar topology

2.4.1 ADK Soundbar application product features

The default features of the Soundbar product are:

1. Manual audio source selection
2. Voice Prompts for Soundbar
3. AVRCP
4. GAIA
5. Bluetooth low energy technology Remote Control
6. USB Audio
7. Display
8. Capacitive Sensor Inputs
9. Wireless Sub-Woofer

Document references

Document	Reference
Audio Sink Application User Guide	80-CT439-1/CS-00236868-UG

Terms and definitions

Term	Definition
ADK	Audio Development Kit
AVRCP	Audio/Video Remote Control Profile
Bluetooth	Set of technologies providing audio and data transfer over short-range radio connections
DSP	Digital Signal Processor
GAIA	Generic Application Interface Architecture
MAP	Message Access Profile
PBAP	Phonebook Access Profile
QTIL	Qualcomm Technologies International, Ltd.
TWS	TrueWireless Stereo
USB	Universal Serial Bus
VM	Virtual Machine
xIDE	QTIL Integral Development Environment