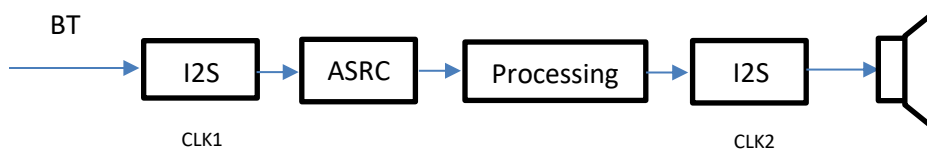


Asynchronous Sample Rate Converter

Full-featured sample rate converter for ARM processors. The library is optimized for Cortex-M4, -M7, and Cortex-A processors. The library converts between standard sample rates (8, 16, 32, 44.1, and 48 kHz) and supports asynchronous operation. The library is ideal for streaming products where content and playback are on different clock domains. Common uses are for synchronizing Bluetooth or USB audio streams with a fixed DAC output rate.



The primary features of the library are:

- 16-bit or 32-bit fixed-point data types and arithmetic.
- High precision. THD+N can be as low as -140 dB.
- Linear or cubic interpolation.
- Optimized for mono, stereo, or multichannel streams.
- Integrated jitter buffer with control loop.
- C reference code and examples provided.

The library comes with a wide variety of coefficient sets which allow you to fine tune the processing and tradeoff quality (THD) and processing load. Linear interpolation reduces CPU load but has slightly higher THD when compared to cubic interpolation.

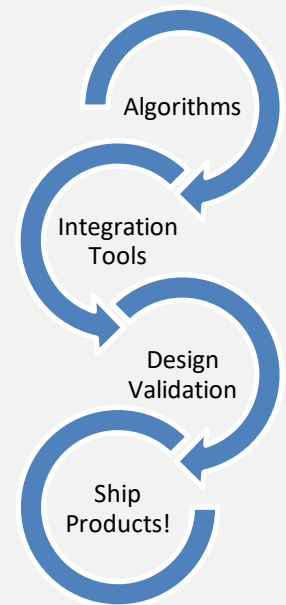
The library has a simple-to-use API and is designed to be used in multithreaded environments. Typically, there are separate threads for the input audio (e.g., USB) and the output audio (e.g., DAC). The library supports multiple simultaneous instances allowing you to convert multiple audio streams.

Key Features

- Exceptional performance
- Easily integrated
- Highly optimized
- For ARM processors

Benefits

- Get to market quickly
- Proven low-risk solution
- Low cost software only – does not require specialized hardware



Contact

DSP Concepts, Inc.
3235 Kifer Road, Suite 100
Santa Clara, CA 95051

www.dspconcepts.com
info@dspconcepts.com
+1 (408) 747-5200

The table below shows the audio performance of the library for a variety of input and output sample rates. The columns labeled “THD+N” indicate the measured audio performance. “THD+N” refers to total harmonic distortion plus noise measured in dB. The table values for 100 Hz, 1 kHz, and the maximum value over all frequencies. The table also shows the measured CPU load for mono and stereo processing.

Sample Rate		THD+N (dB)			Cortex-M4 (MHz)		Cortex-M7 (MHz)		Cortex-A53 (MHz)	
Input	Output	100 Hz	1 kHz	Max	1 Chan	2 Chan	1 Chan	2 Chan	1 Chan	2 Chan
16000	16000	-105.5	-107.5	-95.6	10.0	12.9	5.7	7.7	9.9	12.4
16000	32000	-102.1	-102.3	-94.9	20.1	25.8	11.3	16.6	19.8	24.7
16000	44100	-99.3	-100	-93.5	28.4	36.2	16.0	23.4	26.7	33.8
16000	48000	-100.4	-100.9	-93.9	29.9	38.6	16.6	24.7	28.8	36.6
32000	16000	-112.1	-111	-107	17.7	22.8	10.0	14.4	18.8	22.5
32000	32000	-103.8	-107.8	-97.1	20.3	25.7	11.3	16.6	21.2	30.6
32000	44100	-99	-99.6	-94.1	28.4	36.1	16.1	23.5	26.6	33.7
32000	48000	-100.2	-100.5	-94.7	30.3	39.0	17.7	24.7	30.1	38.5
44100	16000	-104.5	-102.7	-101.7	24.6	31.7	16.0	22.0	22.3	28.7
44100	32000	-103.2	-98.6	-98.1	27.2	34.8	17.0	23.8	25.1	32.2
44100	44100	-105.2	-105	-99.2	28.0	35.7	15.6	22.9	27.2	34.2
44100	48000	-99	-98.9	-95.4	30.7	40.0	17.6	25.7	29.2	37.1
48000	16000	-124	-123.1	-116.4	26.2	34.2	14.9	21.2	24.6	31.9
48000	32000	-104.5	-100	-95.9	29.1	37.3	16.5	23.7	28.6	35.1
48000	44100	-101.5	-101.3	-99.1	31.9	40.6	18.7	26.6	29.3	37.6
48000	48000	-105.8	-106.2	-98.6	30.3	38.6	16.8	25.0	32.9	41.9