

Overview

SoCtronics is a customer-focused VLSI design and embedded software service company operating since 2003. The company has operating entities in Hyderabad, India and Santa Clara, California. SoCtronics offers complete spec-to-silicon turnkey solutions that include embedded systems and software/firmware co-development. The company has over 500 employees world-wide and is privately owned and operated.

Audio Processing Subsystem Description

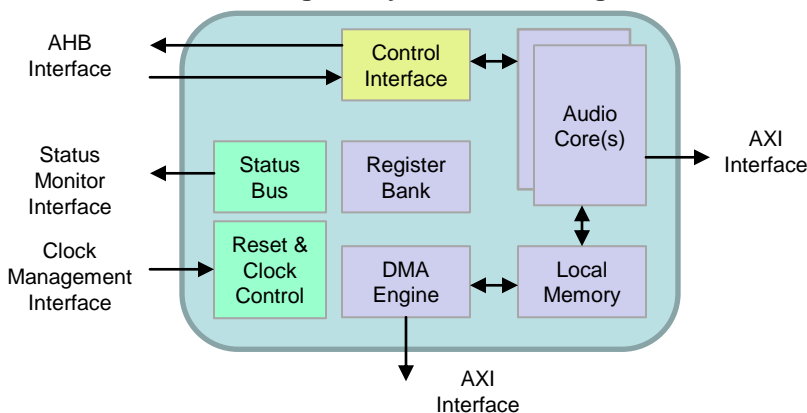
Audio Processing (Sub)System (APS) is a powerful audio engine which can accelerate all audio/speech codec and post-processing algorithms. This can be used as a co-processor to offload audio processing load from the host CPU or can be used as a stand-alone audio player with all its integrated peripheral IP support. It is designed to be highly configurable enabling the system designer to choose his sweet-spot in terms of performance, power and die-size.

APS comes with a well designed and efficient firmware that provides an easy interface to the multimedia middleware in the host CPU to effectively use all the features of the hardware. The firmware includes various well optimized audio and speech codecs and a scheduler to enable multiple instances to these codecs to run in parallel. Incube also has its own implementation of OpenMAX IL layer running on the host CPU that communicates with the APS firmware through a thin IPC layer.

Audio Processing Subsystem Features:

- Supports a wide range of audio & speech codecs and post-processing algorithms.
 - Standards based codecs like MP3, AAC-LC, HE-AAC v2, G.7xx
 - High-definition, multi-channel codecs like Dolby Digital, Dolby Digital Plus, DRA
 - Proprietary formats like WMA, RA
 - Open-source, royalty free codecs like Ogg-Vorbis, Ogg-FLAC, Speex
 - Sample rate converter, mixer, acoustic echo canceller, automatic gain controller
 - Fully programmable IP enabling addition of new algorithms and codecs in future
- Based on low-power cores with architecture and instruction set tailored for handling DSP processing used in audio and speech codecs
- Supports code re-locatability
- Capable of handling simultaneous processing of multiple audio / speech streams
- Local memory to improve the audio processing performance and to achieve deterministic performance largely independent of system memory latencies
- Fine-grained automatic clock gating leading to a very power-efficient design
- Firmware capable of handling complete graphs with minimal dependence on the host software

Audio Processing Subsystem Block Diagram



Configurable Features:

The subsystem provides various configurable options

- Configurable number of audio cores (1-2) based on the audio processing requirements of the system
- Configurable local memory size (8KB to 1MB)
- Configurable bank size for local memory (4KB/8KB/16KB)
- AXI 32-bit or 64-bit system interface for data path
- Configurable number of DMA channels (1-16)
- Configurable size of channel buffer for DMA (2-16)
- Configurable size of response buffer for DMA (2 x #channels – 16 x #channels)

India's Soctronics claims 28-nm design win

Peter Clarke

10/19/2011 8:19 AM EDT

EE Times

SoCtronics Quick Facts

- Started operations in 2003
- Privately owned and operated
- Design centers and sales offices in Santa Clara, California and Hyderabad, India
- 500+ employees world wide

Engagement Models

- Point task and augmentation
- Turnkey with Spec to SOW to Deliverables
- Off-shore Design Center with Experts On Demand benefits
 - Staff and facilities in India
 - Operated by SoCtronics
 - Directed by client

SoCtronics specializes in

- Complex designs with one or more embedded CPUs
- Integrated standard protocol IPs such as PCIe, DDRx, USB, GbE, SATA, etc.
- Multiple embedded memories
- Embedded ADC / DAC
- High speed IOs
- Hardware and software co-development

<http://www.soctronics.com/>

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