Ittiam

Acoustic Echo Canceller (AEC)

Release Notes

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Ittiam Systems Confidential	

Ittiam Systems (P) Ltd,
The Consulate, 1 Richmond Road,
Bangalore 560 025, India

Release Description

1. Introduction

Acoustic Echo Cancellation (AEC) is meant to cancel the echo generated during speaker phone operation due to the reverberations of the far end signal in the near end environment where an audio/video IP Phone is operating. Acoustic echo cancellers become important owing to the network delays that are an inherent part of packet based IP networks.

This document captures information about all features supported or not supported in current release of this component.

2. Features supported
- Support for 8/16 kHz sampling frequency
- Does not make assumptions on the amount of echo or the ERL
- Does not introduce any system delay
- Highly optimized for ARM9E core.
- Re-entrant multi channel implementation
- Relocatable tables.
- 'C' callable XDM v1.0 interface.
- Scratch based implementation, which avoids over-loading of stack during run-time.

3. Features not-supported
- None

4. Release Package
As part of this release for this component, followings are being provided:
1. ARM side libraries for Acoustic Echo Canceller (AEC).
2. All header files required for interacting with the component
3. Documents with the API details and resource requirements to facilitate its integration into the customer system
4. Sample application to demonstrate the usage of the component and to test basic functionality.
5. Sample code for AEC demonstrating Echo cancellation operation in a loop.
6. Sample test vectors to help in testing the component
7. Build related files for app, codecs and extensions.

5. Release Information

Acoustic Echo Canceller (AEC)			
Processor	DM365 processor		
Tool chain	ARM Kernel: 2.6.xx ARM tools: arm_v5t_le-gcc (GCC) 4.2.0 (MontaVista 4.2.0-16.0.32.0801914 2008-08-30) XDC version: 3_15 FC version: FC 2.24 DVSDK version: 2_10_01_18 (ce_2_24)		
Version	1.33.4.3		
Release Date	April 7, 2010		
Added Features	First release		
Bug Number	Bug Description	Bug Description	
	None	None	
Known Issues	Bug Number	Bug Description	Work Around
	None	None	None

Table 0-1 Release Details

6. Software Delivery Details

In this section the detail about the folder structure for the release package for the software is given.

Directory	Files	Description
\	Makefile.prod	Makefile to set paths for the tools and package
\packages-production	user.bld	File to set path for the tools and packages
\docs		
\	IST-AEC-ARM9E-DS.pdf	Data Sheet containing detailed info about resource requirement and performance for AEC on ARM9E
\	IST-AEC-CE-UG.pdf	User guide for Acoustic Echo canceller
\packages-production\ittiam\app\aec_app		
\	aec_app.cfg package.bld package.xdc	Package and makefiles for building the ARM side application

\	*.h	AEC related header files
\	*.c	Source files for building the applications
\packages-production\ittiam\codecs\aec		
ce\lib	resource.a470MV	Hardware Resource library
lib_[production/ evaluation]	aec_prod.a	Software library
\	*.* & ce*.*	CE package file to build the partially linked codec library
\packages-production\ittiam\extensions		
\common	*.c, *.h, *.xdc. *.bld	Files for building the stubs and skeletons for AEC
\packages-production\ittiam\app\aec_app\test		
\	farEndSignal.pcm, nearEndSignal.pcm	Far and Near end speech signal
\	residueSignal_ref.pcm, newFarEndSignal_ref.pcm	Reference residual and new far end signal

Table 0-2 Software Organization Details

7. Getting Started

Going thorough the detailed information about the release package, given in the previous section user can decide best how to use it. Here are our recommended steps to use it.

1. Go through the this document, IST-AEC-ARM9E-Release-Notes.pdf for information about this release to know if any new feature is added or if any bug is resolved.
2. Please refer to datasheet doc for resource requirement of this component.
3. To test the component quickly, take the executable aec_app.x470MV from packages-production/ittiam/app/aec_app/test/ after building and place it in a folder in file system of DM365 board. Run the ARM side application with the required test speech files. For details about command line options refer to build procedure doc.
4. Information about the interfaces and their usage can be found in API doc. This can be used to create new sample application.