SPIRIT CORP
DSP Software Source
www.spiritDSP.com/CST

- Direct Interface With PCM 8-kHz Sampled Data. Both Sample-by-Sample and Block-Based Processing Supported
- VAD Adapts to Various Background Ambient or Line Noise
- Classifies the Voice Activity as "Early" or "Sustained" According to Specified Parameters
- AGC Adjusts the Voice Level to a User-Specified Level Within a Specified Adaptation Time. Can be Controlled by VAD

- Adaption Time, Hangover Period, and Thresholds are Adjustable
- VAD Generates LPS Coefficients Describing a Noise Spectrum Envelope. CNG Accepts Those Coefficients and Recreates to Noise With a Similar Spectrum
- eXpressDSP-Compliant Algorithm. Code is Reentrant, Supports Multithreading and Dynamic Memory Allocation
- Can be Easily Ported to any Platform

description

The Voice Activity Detection (VAD) algorithm analyzes voice activity to detect silence intervals. During silence VAD sends silence descriptors to the Comfort Noise Generator (CNG) module that generates comfort noise. VAD and CNG algorithm can be effectively used with vocoders and echo cancellers as well as with other applications where it is important to reduce the transmitted bit rate and save processing resources during the silence intervals of speech.

The Automatic Gain Control (AGC) algorithm automatically adjusts the signal to a user specified output target level within a specified time. Both the target level and adaption time are adjustable within a wide range of values. AGC can be used with echo cancellers to automatically control the output of the echo canceller. In this case it is necessary to control AGC with the help of VAD to avoid adaptation during silence intervals.

VAD, AGC, and CNG algorithms can be provided as separate objects and/or as an integrated piece of code.

resource requirements

ALGORITHM	PEAK MIPS	PROGRAM MEMORY (WORDS)	CONSTANT MEMORY (WORDS)	DYNAMIC MEMORY (WORDS)
VAD	1.14	2300	167	372
AGC	0.36	440	33	16
CNG	1.66	346	26	27

availability

The SPIRIT VAD, AGC, and CNG available in four forms:

- eXpressDSP-compliant object code for TMS320C54x
- Fully functional eXpressDSP evaluation object at extremely low price
- Portable C code
- Assembly code

The algorithm is supplied with test environment and integration example code.

Detailed product annotation and user guide documents describing testing procedures, interface and integration of this product, as well as PC-based and DSP-based (TI TMS320VC5406 EVM and TMS320VC5402 DSK) demos are available for evaluation upon request. To get additional information on CST software, go to www.spiritdsp.com/CST.

Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

TEXAS INSTRUMENTS

IMPORTANT NOTICE