NOISE REDUCTION G3

Noise Cancellation: Includes single frequency and siren suppression

PRODUCT DESCRIPTION

The objective of noise reduction algorithms is to improve one or more perceptual aspects of noisy speech, most notably, quality and clarity. If it were always the same, background noise would be relatively easy to eliminate. Since background noise can originate from varying sources at varying degrees of intensity, noise reduction is a challenge. The sound generated from a fan or HVAC unit, the rumble of auto and air traffic, and blaring radios all have different characteristics. A good Noise Reduction algorithm needs to be able to reduce a wide variety of noises without degradation in speech quality.

Adaptive Digital's third generation Noise Reduction algorithm analyses the speech signal for three distinct types of degradation noise, tone, and siren.

In a situation where white **noise** is present in conjunction with speech, the noise reduction algorithm can achieve up to 12 dB of signal to noise ratio improvement without significant degradation to the desired speech signal.

In a situation where a **single frequency tone** is present in conjunction with speech, the noise reduction algorithm can reduce the undesired tone 30 dB or more without significant degradation to the desired speech signal.

In a situation where a **siren** is present in conjunction with speech, the noise reduction algorithm can reduce the undesired siren by up to 20 dB or more without significant degradation to the desired speech.

FEATURES

- Functions are C-callable
- Multiple channel operation
- Parameters are user configurable
- Reduces background noise whether or not speech is present thereby increasing the signal-to-noise ratio.
- Reduces amplitude of tonal signals whether or not speech is present.
- Reduces amplitude of most siren signals with moving tonal content.

AVAILABILITY

ADT Noise Reduction is available today on the TMS320™ DSP Family
C55x™DSP, & C64x™DSP, C64x+™DSP, C674x™DSP Generations

SPECIFICATIONS

CPU Utilization*

	C64x		C64x+		C674x		C55x	
Sampling Rate (Hz)	Peak MIPS	Average MIPS	Peak MIPS	Average MIPS	Peak MIPS	Average MIPS	Peak MIPS	Average MIPS
8000	30	15	30	15	30	15	90	45

Please Note: MIPS

*C6000 MIPS were characterized on with all program and data residing in external RAM, but with cache enabled.

The peak MIPS are double compared to the average MIPS due to the fixed internal processing frame size, which is 64 samples. If the users frame size is not equal to an integral multiple of 64 samples, the number of internal frames processed will not be consistent. For example, if the user's frame size is 96, the algorithm will run one internal frame the first time it is called, and save 32 samples in a FIFO since there aren't enough samples yet to run an internal frame. The second time the algorithm is called with 96 more samples, there will be 128 samples to process. The algorithm will therefore run two internal frames, consuming twice the MIPS as it did during the first frame – hence a doubling of MIPS.

If the user can operate at a frame size of 64 or an integral multiple of 64, the peak MIPS will be equal to the average MIPS listed in the table.

Memory Utilization

All Memory usage is given in units of byte.

Processor	Program	Data	Constants	Per Channel	Common	Scratch
C64x	22272	389	355	11228	2068	1544
C64x+	20416	389	382	11228	2068	1544
C674x	22336	389	355	11228	2068	1544
C55x	8095	0	446	11228	2068	1544

Last update: 06/03/2010

FUNCTIONS

API function call summary

`NCAN_ADT_config( . . .)`	Configures Noise Canceller
`NCAN_ADT_init( . . .)`	Initiates a channel of Noise Cancellation
`NCAN_ADT_cancel( . . . )`	Executes Noise Cancellation

CONTACT INFORMATION

Web: www.adaptivedigital.com
Email: information@adaptivedigital.com
Tel: 610.825.0182
Toll Free: 1.800.340.2066
Fax: 610.825.7616
Address: 525 Plymouth Road, Suite 316, Plymouth Woods
Plymouth Meeting, PA 19462

Kane Computing Ltd
7 Theatre Court, London Road,
Northwich, Cheshire, CW9 5HB, UK.
Tel: +44(0)1606 351006
Fax: +44(0)1606 351007/8
Email: sales@kanecomputing.com
Web: www.kanecomputing.co.uk