



# Encore's DTMF Generation & Detection

## Processor

TMS320C54x Series.

## Technology

Dual Tone Multi Frequency (DTMF) signalling is widely used in telephony. DTMF signals consist of two sinusoidal signals, one sinusoid from the high frequencies (1209, 1336, 1477 and 1633Hz) and the other from low frequencies (697, 770, 852 and 941Hz). Four frequencies from each group gives a total of 16 combinations, and are represented for digits 0 to 9, A to D, \* and #.

The function of the DTMF generator is to generate the corresponding DTMF signal for a given digit, where as the DTMF detector identifies the digit from the given signal samples.

## Features

- Fully compatible with the ITU-T Q.23 and Q.24 (AT&T) standards.
- Texas Instruments eXpressDSP™ compatible software architecture.
- DTMF generation function can be called for every digit.
- Frame based design for DTMF detection. Current frame is designed as 80 samples (10msec). The return data will indicate the status of the process.
- Multi-channel capability.
- Flexible interface with 'C' callability, with a single archive file for all functions.
- Relocatable program and data spaces. Static (state) and scratch data memory are dynamically relocatable. Program and table data spaces can be fragmented.
- The code is interruptible and full re-entrant. It can be used in systems with multi threaded software architecture.

## Performance

### Resource Requirements

(Internal Code Version 2.1, CCS Version 1.2)

### Memory (KWords)

Program Memory	Data Memory		
	Tables	Static/Channel	Scratch
1.53	0.110	0.109	Nil

## MIPS

MIPS measurements are taken on **TMS320C5410** based target platform, with all memory requirements placed internal, with following memory configuration.

Program Memory		SARAM
Data Memory	Tables	SARAM
	Static	DARAM
	Scratch	DARAM

	Maximum	Average
DTMF Generation	0.13	0.13
DTMF Detection	1.60	0.82
Full Duplex	<b>1.73</b>	0.95

## Availability

Now.

For further information please visit our web site, <http://www.ncoretech.com> or email to: [ip@ncoretech.com](mailto:ip@ncoretech.com) or contact:

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