



## Encore's QCELP13

### Processor

TMS320C64xx Series.

### Technology

Qualcomm Code Excited Linear Prediction (QCELP) 13-kbps voice coder is the North American speech service option standard for wideband spread spectrum digital communication systems TIA-IS733. The coder supports four basic rates namely 13.3, 6.2, 2.7 and 1 kbps respectively. The vocoder works on the principle of CELP but differs from the traditional CELP in that it dynamically adjusts the encoded rate based on speech signal energy, background noise and other speech characteristics.

The coder works on a frame of 160 speech samples (20 msec), and a look ahead of 60 samples (7.5 msec) is required. So the algorithmic delay for the coder is 27.5 msec.

### Features

- Fully compliant with the following TIA/EIA standards.
  - IS-733 High Rate Speech Service Option 17 for Wideband Spread Spectrum Communication Systems, November 1997.
  - IS-733-2 High Rate Speech Service Option 17 for Wideband Spread Spectrum Communication Systems-Addendum, April 2001.
  - IS-736A Recommended Minimum Performance Standard for the High Rate Speech Option 17 for Wideband Spread Spectrum Communication Systems, September 1999.
  - IS-889 Minimum Performance Specification for Text Telephone Signal Detector and Text Telephone Signal Regenerator. September 2002.
- Texas Instruments eXpressDSP™ compatible software architecture.
- Reduce Rate Mode Level can be changed at run time.
- Supports TTY/TDD extension.
- Full duplex multi-channel capability.
- Flexible interface with 'C' callability, with a single archive file for all functions.
- Built-in scratch memory management to avoid run-time overloading of system stack memory.
- Relocatable program and data spaces. Static (state),scratch data spaces and table data spaces are dynamically relocatable. Program space can be fragmented.
- The code is interruptible and re-entrant. It can be used in systems with multi threaded software architecture.
- Available in both little endian and big endian formats.
- Works for both default frame size and 10 msec frame size.

## Performance

### Resource Requirements

(Internal Code Version 0.1, CCS Version 2.12.01)

### Memory (KBytes)

Program Memory	Data Memory		
	Tables	Static/Channel	Scratch
89.41	5.6	5.86	2.7

### MCPS

MCPS measurements on **TMS320C6416 TEB** with **all program,data and stack in L2 Memory**.

	Maximum
Encoder (RRM Level = 4)	8.02
Decoder	1.80
Full duplex	9.82

### Availability

Now

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

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