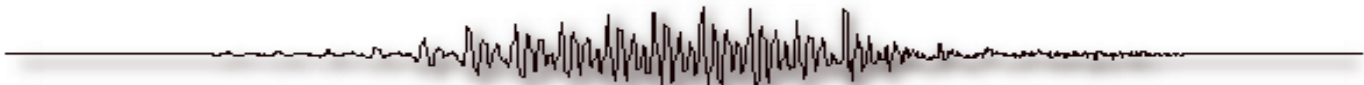




MELPe Vocoder - Software Suite for TI's TMS320c64xx & C64+ DSP & OMAP.

Real-Time Implementation of the MELPe U.S. and NATO standard vocoder (MIL-STD-3005, NATO STANAG 4591)



Compandent's MELPe suite is a multi-channel multi-thread real-time implementation of the 600/1200/2400 bps MELPe vocoder, U.S. and NATO standard vocoder (MIL-STD-3005, STANAG 4591), running on Texas Instruments' TMS320c64xx or c64+ DSP or OMAP. The suite is versatile, easy and convenient to operate and integrate. Compandent MELPe suite provides complete state-of-the art low-rate voice communications.

Background

MELPe- Enhance Mixed-Excitation Linear Predictive (MELP) vocoder, known as military standard MIL-STD-3005 and NATO STANAG 4591, is a triple-rate low rate coder that operates at rates of 600, 1200 and 2400 bps. At 2400 bps, its quality surpasses that of the old MELP vocoder. The Compandent's MELPe vocoder suite includes also compressed bit-stream transcoding between the two rates, and optional Noise Pre-Processor (NPP).

Operation

Compandent Inc. has participated in the research, development and implementation of the Enhanced

Mixed-Excitation Linear Predictive (MELPe) vocoder sponsored by NSA. Compandent provides support as well as software and hardware related to the MELPe vocoder. Compandent is the only company that has participated in the MELPe R&D, and provides related products and support.

Compandent has been supporting and improving the MELPe real-time implementation. Compandent has ported MELPe to various DSPs by Texas Instruments such as TMS320c64xx, TMS320c55xx, TMS320c54xx, and OMAP.

Available features:

The MELPe software suite includes the following features:

- Multi-channel and multi-thread,
- POSIX compliant,
- C-callable functions
- Optional components available (customer can select desired combination):
 - MELPe at 2400 bps - high rate encoder and/or decoder
 - MELPe at 1200 bps - low rate encoder and/or decoder
 - MELPe at 600 bps - very low rate encoder and/or decoder
 - compressed bit-stream transcoding

between the rates

- noise pre-processor - for reducing background noise
- postfilter - for quality enhancement of the reproduced speech
- Example of main C program that initializes and runs the MELPe vocoder functions
- "Packetized-Network-Ready" - to maintain high quality even in severe FER conditions
- Operation mode can be switched on the fly (no need to reload the program to the DSP)
- Channels and threads can be switched on the fly (no need to reload the program to the DSP)
- Easy and fast Test Vectors running and verification setup
- Comprehensive and detailed documentation that allows for smooth and easy integration
- Compandent support and service
- Very low-cost (\$400-\$500) complete DSP development board and tools (CCS) on which Compandent's MELPe may run.
- Comprehensive and spectacular Real-Time demo, using DIP-switch control and LEDs indicators

Please note: Compandent owns **intellectual property** (IP) in the official (standard) MELPe implementation, and any of its derivatives. Any party intending to develop products based on MELPe should contact Compandent as well as other IP holders regarding licensing.

- TMS320c54xx, TMS320c55xx, TMS320c64xx, OMAP and Code Composer Studio (CCS) are trademarks of Texas Instruments, Inc

Compandent Inc., Speech, and Audio Compression Technologies
 1055 Tisha Court Santa Barbara, CA 93111 USA
 Tel: +1 (805) 681-1216 Fax: +1 (425) 790-0949
www.Compandent.com

