**Fact Sheet**

**MELPe Vocoder - Software Suite for Windows, Linux, Unix, Mac OS, iOS, Android, GHS, ARM, etc.**
Real-Time Implementation of the MELPe U.S. and NATO standard vocoder (MIL-STD-3005, NATO STANAG 4591)

Comandent'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 any platform and operating such as Windows, Linux, Unix, and Mac OS, iOS, Android, ARM, GHS, etc. The suite is versatile, easy and convenient to operate and integrate. Comandent 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 Comandent's MELPe vocoder suite includes also compressed bit-stream transcoding between the two rates, and optional Noise Pre-Processor (NPP).

**Operation**

Comandent Inc. has participated in the research, development and implementation of the Enhanced Mixed-Excitation Linear Predictive (MELPe) vocoder sponsored by NSA. Comandent provides support as well as software and hardware related to the MELPe vocoder. Comandent is the only company that both participated in the MELPe R&D, and also provides related products, services, and support.

Comandent has been supporting and improving the MELPe real-time implementation. Comandent has ported MELPe to various platforms and operating systems such as Windows, Linux, Unix, and Mac OS, iOS, Android, ARM. For example Table 1 lists the real-time consumption of Comandent’s MELPe package running on 3.4 GHz P4 processor under Windows OS.

**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
- Comprehensive and detailed documentation that allows for smooth and easy integration
- Comandent support and service

<table>
<thead>
<tr>
<th>MELPe Components</th>
<th>Rate</th>
<th>1200 bps</th>
<th>2400 bps</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPP + Encoder</td>
<td></td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Decoder + PF</td>
<td></td>
<td>2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Table 1 The real-time consumption of Comandent’s MELPe package running on 3.4 GHz P4 processor

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

Windows, Mac OS & iOS and UNIX are registered trademarks of Microsoft corporation, Apple computer Inc. & The Open Group, respectively.

Comandent Inc., Speech, and Audio Compression Technologies
26666 Birch Hill Way  Los Altos Hills, CA 94022 USA
Tel: +1 (650) 241-9231  Fax: +1 (425) 790-0949
www.Comandent.com

(C) Copyright 2005-14, Comandent Inc., All Rights Reserved