G.726 ADPCM Voice Coder

Virata

Software Technology Profile

September 2001

KEY FEATURES

- **Compresses 8 kHz codec or linear voice data to 16, 24, 32, and 40 kbps**
- **Complies with G.726 coding standard; verified with the G.726 test vector to guarantee inter-operability with other G.726 coders**
- **Toll quality at 24 kbps or higher**

Description

Virata's G.726 ADPCM voice coder algorithm module implements the ITU-T G.726 voice coder standard. It compresses codec or linear data to 16, 24, 32, and 40 kbps code using an ADPCM algorithm.

Designed to the vCore interface, the G.726 voice coder module easily integrates with other vCore modules, runs in real-time concurrently with other vCore modules, and handles any number of voice ports assigned to the DSP. Like all of Virata's algorithm modules, the G.726 voice coders consists of robust software that is rigorously tested.

System Considerations

The vCore architecture places minimal constraints on the underlying hardware and can accommodate a wide variety of systems. No specific TMS320 peripheral devices are required. The host, voice data input and output, memory allocation, and module to module communication interfaces must conform to vCore as described in the vCore Software Interface Specification.

Processor Resources Required

TMS320C54x

- Program Size
  linear: 1.8 words
  PCM: 3.6 words
- Per-Channel Memory:
  58 words for both linear or PCM
- Processor Loading
  Linear encode: 4.1 MIPS
  Linear decode: 3.7 MIPS
  PCM encode: 4.1 MIPS
  PCM decode: 4.5 MIPS

Algorithm Verification

Virata's G.726 algorithm module is validated through the following suite of tests:

- ITU G.726 test vectors - includes test sequences of voice data and other test signals under consideration
- Numerical stability tests with tones and extreme values
- Numerical Code error test with stationary and non-stationary errors
- Numerical Mean Opinion Scores (MOS) test according to ITU-T P.80 specification for Absolute Category Rating
- Numerical vCore interface validation — Virata's G.726 module is integrated with other vCore modules and tested in real-time

G726ADPCMVCODER_A0901v19

For more information, please contact us:

E-mail: info@virata.com
Web site: www.virata.com

VIRATA, USA
Corporate Headquarters
2700 San Tomas Expressway
Santa Clara, CA 95051
USA
Tel. 408-566-1000
Fax 408-566-1194

VIRATA, UK
230 Cambridge Science Park
Milton Road
Cambridge CB4 0WB
United Kingdom
Tel. +44-1223-707400
Fax +44-1223-707447

VIRATA, Taiwan
17F-2 No.77 Hsin Tai Wu Road
Sec. 1
Hsichih, Taipei County
Taiwan
Tel. +886-2-2698-3500
Fax +886-2-2698-3566

VIRATA, Israel
11 Shenkar Street
Herzelia Pituach 46725
Israel
Tel. +972-9-9717-400
Fax +972-9-9717-444