

ITU-T G.723.1 Speech Codec for Blackfin DSP



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G.723.1 is a dual rate speech coder standard from International Telecommunication Union–Telecommunication standardization sector (ITU-T), for compressing the toll quality speech (8000 samples/second).

Typical applications of this speech coder are in telephony over packet networks, like Voice-over-Internet-Protocol (VoIP). This speech coder is also used for coding the speech component in the video conferencing applications and is a part of the H.324 family of standards.

This codec supports two bit rates, 5.3 and 6.3 kbps. Both bit rates share the same short-term analysis techniques for processing the speech. For long-term analysis of speech, the algorithms used are different. For 5.3 Kbps coder, Algebraic Code Excited Linear Prediction (ACELP) principles are used where as in 6.3 kbps coder, Multi Pulse-Maximum Likelihood Quantization (MP-MLQ) techniques are used.

Our implementation of a G.723.1 is available for Blackfin platforms and can be demonstrated on BF533-EZLite.

The algorithm was implemented to be independent of the hardware interface, ie. the user specifies input and output channels and must handle buffers in his framework.

The algorithm is fully re-entrant and can easily be integrated in a “C”-environment.

Specifications:

- I ~25MIPS / encoder channel
- I ~ 4MIPS / decoder channel
- I MIPS optimized code available on request
- I ~ 14.5KWords prog / 9.5 KWords data memory, 736Words/encoder,207Words/decoderchannel
- I Runs on all Blackfin devices
- I Separate Encoder and Decoder Libraries

Support

Available under NDA as a compiled library
Customization/Integration support available
Code portable to other platforms (DSP, non-DSP)
Demo for BF533-EZLite on request

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