

# ITU-T G.723.1 Low bit-rate Speech Codec for Analog Devices Blackfin



## G.723.1 Speech Codec

G.723.1 is a dual rate speech coder standard from the 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 video conferencing applications and is part of the H.324 family of standards.

## Features:

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 or simulated on PC platforms.

The algorithm was implemented to be independent of the hardware interface, i.e. 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:

- 40 MIPS per encoder channel average
- 3 MIPS per decoder channel average
- 30 kBytes program memory
- 19 kBytes data memory
- 1472 Bytes data memory/encoder channel
- 489 Bytes data memory/decoder channel
- ITU G.723.1 compliant for all bit rates



## Support

- Demo for BF533-EZLite available under NDA
- Fully documented separate libraries for encoder and decoder
- Customization/Integration support available
- Code portable to other platforms (DSP, non-DSP)

## Ingenieurbüro Bayer DSP Solutions

Ingenieurbüro Bayer DSP Solutions was founded more than a decade ago by Andreas Bayer, a first hour DSP specialist.

Originally specializing in the telecommunication field, the company has grown its DSP expertise to provide comprehensive services around Digital Signal Processing applications by using DSP chips from Analog Devices, Texas Instruments, NEC, Freescale and other renowned DSP vendors.

Our goal is to provide comprehensive coverage of all Digital Signal Processing topics, including hardware design, FPGA design, DSP algorithms, software integration, tools and complete products.

Today we support many DSP families including Texas Instruments C54x, C55x, C3x, C6x, Analog Devices ADSP218x, SHARC and Blackfin, Motorola DSP56K as well as DSPs from other vendors.

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