

# ITU-T G.723.1 Low bit-rate Speech Codec for Texas Instruments C5000



## 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 C5x platforms and is compliant with TMS320 DSP Algorithm Standard (XDAIS).

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
- 23 kBytes program memory
- 19 kBytes data memory
- 1552 Bytes data memory/encoder channel
- 496 Bytes data memory/decoder channel
- ITU G.723.1 compliant for all bit rates
- XDAIS compliant

## Support

- Demo for C54/C55 DSK available under NDA
- Fully documented separate libraries for encoder and decoder
- XDAIS validated code
- 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.

Ingenieurbüro Bayer DSP Solutions is a registered and active Third Party of Analog Devices, Texas Instruments and other silicon vendors.



Ingenieurbüro Bayer DSP Solutions  
Andreas R. Bayer  
Vohwinkelallee 8  
40229 Düsseldorf / Germany  
Phone: +49-211-210 81 20  
Fax: +49-211-210 81 76  
Email: [solutions@dsp-bayer.net](mailto:solutions@dsp-bayer.net)  
Web: <http://www.dsp-bayer.net>