

ITU-T G.721 ADPCM Speech Codec for Analog Devices Blackfin



G.721 ADPCM Speech Codec

ITU-T G.721 specifies an adaptive differential pulse code modulation scheme (ADPCM) for a bitrate of 32kbps. It is part of the G.726 speech codec definition.



The algorithm is widely used in DECT telephony, speech archiving, channel duplication in ISDN systems, intercoms and announcement systems. The algorithm processes A-Law, μ -Law and linear speech samples on a sample-by-sample basis thereby avoiding algorithmic latency known from other speechcoding technologies.

Our implementation of a G.721 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:

For A-Law/ μ -Law samples:

- < 9 MIPS per encoder channel average
- < 10 MIPS per decoder channel average
- < 3 kBytes program memory
- < 2.2 kBytes common data memory
- 49 Bytes data memory (encoder or decoder)
- ITU G.721 compliant

For linear samples:

- 9 MIPS per encoder channel average
- 9 MIPS per decoder channel average
- ~ 2 kBytes program memory
- 118 Bytes common data memory

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 specialising 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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