ITU-T G.722 Wide-Band ADPCM Audio Codec for Analog Devices Blackfin

BAYER DSP Solutions

G.722 Wide-Band Speech Codec

The G.722 recommendation describes the characteristics of an audio (50 to 7000 Hz) coding system which may be used for a variety of higher quality speech applications. The coding system uses sub-band adaptive differential pulse code modulation (SB-ADPCM) within a bitrate of 64 kbit/s. The system has three basic modes of operation corresponding to the bitrates used for 7 kHz audio coding: 64, 56 and 48 kbit/s. The latter two modes allow an auxiliary data channel of 8 and 16 kbit/s respectively to be provided within 64 kbit/s by making use of bits from the lower sub-band.

Some of the applications for which this codec is suitable:

- Videoconferencing and IP telephony.
- Streaming audio, announcement systems, intercoms
- Archival and messaging

Our implementation of G.722 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:

- < 9 MIPS per encoder channel average
- < 8 MIPS per decoder channel average
- 4 kBytes program memory
- 1.6 kBytes data memory
- 212 Bytes data memory/encoder channel
- 212 Bytes data memory/decoder channel
- ITU G.722 compliant for all bitrates
- Statistical Recovery Timing (SRT)

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.

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

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