Adaptive Digital Technologies, Inc.

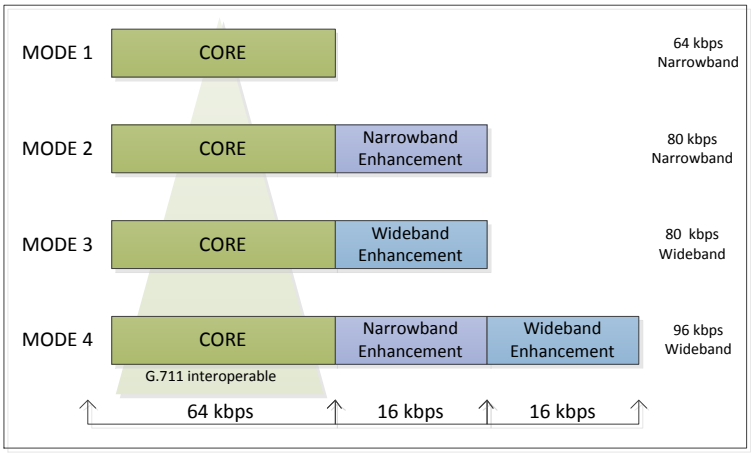
G.711.1

Wideband embedded extension for G.711 Pulse Code Modulation

G.711.1 is a scalable coder which has been standardized by ITU-T for wideband telephony and voice over IP applications.

G.711.1 includes the following features:

- Coding rate 64, 80, 96 kbps
- Frame rate 5 ms
- Sampling rate 8/16 kHz
- Robust against packet loss
- Supports both mu-law and a-law
- The encoder and decoder meet all ITU G.711.1 compliance and interoperability requirements



AVAILABILITY

Adaptive Digital's G.711.1 is available on the following Platform(s): Other configurations are available upon request.

Product	Platform
ADT_G.711.1	TI TMS320C55x

PRODUCT DESCRIPTION

The G.711.1 wideband extension adds noise feedback and a lower-band enhancement layer, as well as a high band encoding layer. *The main feature of this extension is to give wideband scalability to ITU-T G.711*, the most widely deployed speech codec.* It aims to achieve high-quality speech services over broadband networks, particularly for IP phone and multi-point speech conferencing, while enabling a seamless interoperability with conventional terminals and systems equipped only with G.711.

G.711.1 achieves this interoperability with legacy narrowband terminals and equipment through an embedded, layered architecture. Operating at a 16-kHz sampling rate, G.711.1 produces three bitstreams in three layers. The core layer, operating at 64 kbps, is bitstream interoperable with G.711. Two other layers enhance the fidelity of the output to the original signal. The first one enhances the lower-band part of the signal in a 16-kbps bitstream, and the second encodes the higher-band, that is, wideband, part (4000–7000 Hz) in a second 16-kbps bitstream. The core layer is always delivered, and either one or both of the upper layers can also be delivered, resulting in four possible modes of the G.711.1 codec, as shown in the figure above.

SPECIFICATIONS

TI TMS320C5000 – C55X

CPU UTILIZATION

Bit Rate	64 kbps	80 kbps	80 kbps	96 kbps
Sampling Rate	8000 hz	8000 hz	16000 hz	16000 hz
MODE	0	1	2	3
Encode	2.8	3.8	12.3	13.3
Decode	2.4	4.3	5.1	6.9

All Memory usage is given in units of byte.

Function	Program Memory	Data Memory	Tables	Per Channel Data Memory
Encode	24000	2172	5294	203
Decode				254

*G.711 is an ITU-T standard for audio companding. It is primarily used in telephony. The standard was released for usage in 1972. Its formal name is *Pulse code modulation (PCM) of voice frequencies*

FUNCTION APIs

```
G711_1_ADT_Encoder_Init (EncoderChannelStates)

G711_1_ADT_Decoder_Init (DecoderChannelStates)

G711_1_ADT_Encoder (EncoderChannelStates, InputSpeech, CompressedOutput)

G711_1_ADT_Decoder (DecodeChannelStates, CompressedPackets, output,
FrameEraseFl
```

Deliverables

The deliverable items are platform dependent. In general, there is one library. (Sometimes multiple variants of the library are included in the deliverables.) There are also header files, some of which are specific to the product and others are common across many of Adaptive Digital's products. Also included in the deliverables is product documentation, which includes a users guide and usually includes release notes and a data sheet. Sample/test code may be included as well.

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