Adaptive Digital Technologies, Inc.

ILBC

Internet Low Bit Rate Codec

iLBC is a royalty-free codec for Voice over IP (VoIP) networks. iLBC delivers speech quality better than G.729A and equal to G.729E, while offering significantly better quality over congested networks with packet loss.

iLBC includes the following features

- The only codec ever to be standardized by the IETF
- Royalty-free with speech quality better than G.729A and G.723.1.
- Better packet loss robustness compared to other low-bit rate codecs, including G.729A, G.729E, G.723.1 and G.728
- iLBC supports multiple frame sizes giving increased flexibility to meet the needs of different applications and/or VoIP equipment
- iLBC delivers the same basic quality as G.729E and exceeds G.729E under packet loss conditions

The iLBC algorithm can be used with data frame length of either 20 milliseconds or 30 milliseconds.

PRODUCT DESCRIPTION

iLBC is the first codec ever to be standardized by the IETF (RFC3951 and RFC3952) and is designated by CableLabs as a mandatory component of PacketCable voice-over-cable telephony systems.

Other standard low bit rate codecs make use of dependencies between speech frames, resulting in error proliferation when packets are lost or delayed. In contrast, iLBC encoded speech frames are independent. This unique technology gives iLBC robustness against packet loss and delay.

AVAILABILITY

ADT iLBC is available on the following Platforms: Other configurations are available upon request.

Platform
TI TMS320C674x
TI TMS32064x / C64x+ / C66x
TI TMS320C55x / TI TMS320C54x
Win32 dll
Win32 static lib
I686
ARM Cortex-M4/M7
ARM Cortex-A8/A9/A15

APPLICATIONS

iLBC is an excellent choice for providers/applications with restricted bandwidth requirements. It is suitable for VOIP applications, streaming audio, and messaging.

SPECIFICATIONS

TI TMS320C6000

ILBC C64X & 64X+

CPU UTILIZATION & MEMORY REQUIREMENTS

All Memory usage is given in units of byte.

Function	MIPS @20ms		MIPS @30ms		Program Memory		Data Memory	Per Channel Data Memory
	C64x	C64x+	C64x	C64x+	C64x	C64x+		
Encode	30.3	29.1	37.3	35.8	--		--	688
Decode	8.8	8.1	9.4	8.7	--		--	2032
Encode/Decode	39.1	37.2	46.7	44.5	78.4k	56.7k	3495	2720

ILBC C674X

CPU UTILIZATION & MEMORY REQUIREMENTS

All Memory usage is given in units of byte.

Function	MIPS	Program Memory	Data Memory	Constants	Per Channel Data Memory
Encode	11	--	--	--	688
Decode	3	--	--	--	2032
Encode/Decode	14	74k	4700	6000	2720

TI TMS320C5000

ILBC C55X

CPU UTILIZATION & MEMORY REQUIREMENTS

All Memory usage is given in units of byte.

Codec Mode	MIPS (Peak)	Program Memory	Data Memory	Per-Channel Data
20 ms	11.12	29350	6848	1359
30 ms	12.65	29350	6848	1359

ILBC C55X

CPU UTILIZATION & MEMORY REQUIREMENTS

All Memory usage is given in units of 16 bit word.

Codec Mode	MIPS (Peak)	Program Memory	Data Memory	Per-Channel Data
20 ms	15.65	15446	4560	1357
30 ms	17.95	15446	4560	1357

ARM DEVICES

ILBC CORTEX-A8/A9/A15

CPU UTILIZATION & MEMORY REQUIREMENTS

All Memory usage is given in units of byte.

Function	MIPS @ 20ms frame	MIPS @ 30ms frame	Program Memory	Data Memory	Per Channel Data Memory
Encode	30	36	79768	3156	688
Decode	9	10			2032

ILBC CORTEX-M4/M7

CPU UTILIZATION & MEMORY REQUIREMENTS

All Memory usage is given in units of byte.

Function	MIPS @ 20ms frame	MIPS @ 30ms frame	Program Memory	Data Memory	Per Channel Data Memory
Encode	35	40.5	78448	3156	688
Decode	9.5	10.3			2032

WINDOWS

ILBC WIN 32   (DLL AND STATIC LIB)

CPU UTILIZATION & MEMORY REQUIREMENTS

All Memory usage is given in units of byte.

Function	MIPS @ 20ms frame	MIPS @ 30ms frame	Program Memory	Data Memory	Per Channel Data Memory
Encode	2.2	2.5	44623	6916	832
Decode	0.5	0.6			2032

WINDOWS

ILBC I686

CPU UTILIZATION & MEMORY REQUIREMENTS

All Memory usage is given in units of byte.

Function	MIPS @ 20ms frame	MIPS @ 30ms frame	Program Memory	Data Memory	Per Channel Data Memory
Encode	2.3	2.3	58636	3268	688
Decode	0.7	0.66			2032

FUNCTIONS

ILBCFIX_GIPS_ENCODERINIT():   INITIALIZE AN ILBC ENCODE CHANNEL

ILBCFIX_GIPS_DECODERINIT():   INITIALIZE AN ILBC DECODE CHANNEL

iLBCFIX_GIPS_encode():   *perform iLBC encode*

iLBCFIX_GIPS_decode():   *perform iLBC decode*

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.

Adaptive Digital is a member of the Texas Instruments Developer Network, and ARM Connected Community.

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