# NatureDSP iLBC Internet Low Bitrate Codec

## Overview

**NatureDSP iLBC** – is a royalty-free codec for Voice over IP (VoIP) network. IntegrIT iLBC delivers speech quality better than G.729A and equal to G.729E, while offering substantially better quality over congested networks with packet loss. It is designed for narrowband speech and results in a payload bit rate of 13.33 kbps for 30 ms frames and 15.20 kbps for 20 ms frames. The codec enables graceful speech quality degradation in the case of lost frames, which occurs in connection with lost or delayed IP packets.

## Features

- Operates at 13.3 / 15.2 kbps bitrate
- Frame size 30 ms for 13.3kbps, and 20 ms for 15.2kbps
- Voice quality exceeds G.729A and G.723.1
- High robustness to packet loss
- Low delay and high packet loss robustness for low-bit rate codecs
- Start state encoding
- Pitch enhancement
- Packet loss concealment
- 16-bit linear signal input
- C-callable program interface

- True fixed-point implementation
- Multi-channel capable
- demo available for target and PC

## Applications

- VoIP
- Telephony
- Videoconferencing

## Specifications

| Algorithm | MIPS consumption | | |
|---|---|---|---|
| | C64xx | ARM9e | ARM11 |
| Encoder 13.3 | 6,4 | | |
| Decoder 13.3, enhancer off | 1,2 | call | call |
| Decoder 13.3, enhancer on | 2,0 | | |
| Encoder + Decoder 13.3 | 7,6 | | |

## Bit exactness proved by ITE

**IntegrIT iLBC** is delivered with fully automated IntegrIT Testing Environment (ITE) for target platform based on reference vectors set along with extended IntegrIT proprietary vectors and methods.

## Availability

This software component is available in binary/source code written on fully portable C-language for:

- Texas Instruments TMS320C64xx, DaVinci
- ARM9E
- Windows/Windows CE/Linux Object Library
- Porting on other platforms is upon request