

Overview

NatureDSP VoIP Engine – the core component of multichannel telephony and acoustic IP equipment in particular IP telephones, PBX, VoIP gateways, dispatching consoles and similar equipment providing clear voice function over packet channels.

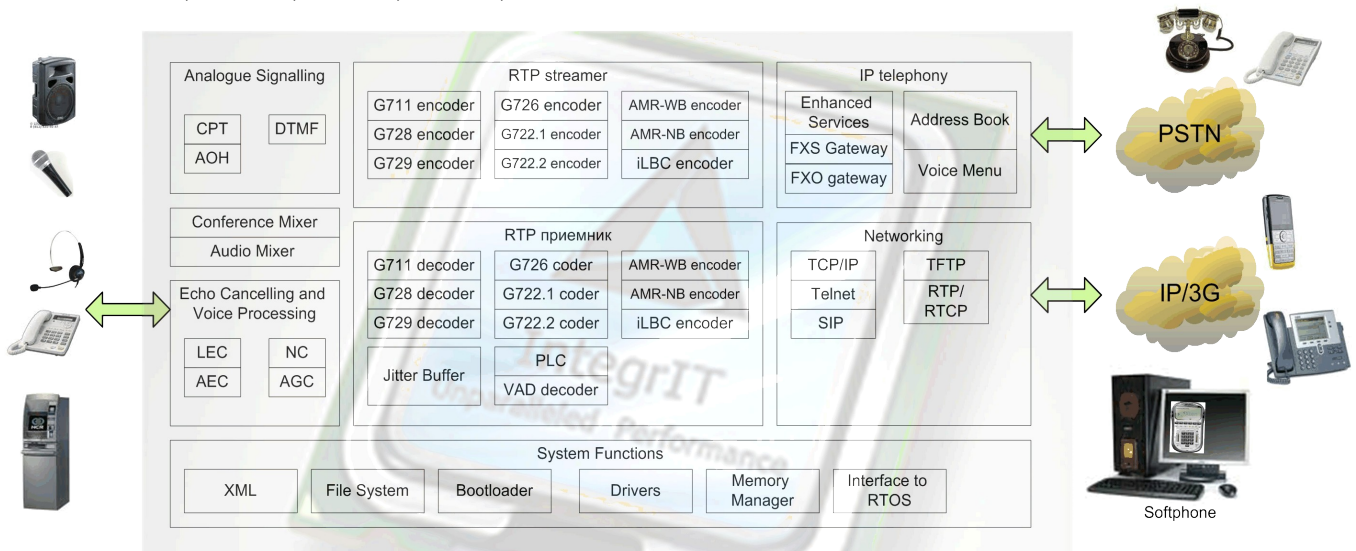
The software configurable NatureDSP VoIP Engine can be customized for various applications, processors and can work in soft real time environment (Windows, Linux) as well as in hard real time environment to minimize delays and provide regular service.

List of supported codecs allows interfacing with well recognized IP equipment and soft phones. Adaptive jitter buffering together with advanced packet loss concealment allow keeping excellent voice quality even in hard conditions with reduced network bandwidth, packets reordering, floating network delays etc. Advanced speech enhancement algorithms, in particular for linear (LEC) and acoustic (AEC) echo canceling and noise suppressing, voice AGC and other provide robust predictable behavior in wide range of channel conditions. Acoustic echo canceler allows to use NatureDSP VoIP Engine in microphone/speaker systems in full duplex hands-free mode.

Built in conferencing with automatic streams transcoding provides every user with features rich multichannel communication without standalone dedicated SIP servers. It is practically important in large scalable mission-critical fail-safe VoIP systems due to elimination of central nodes which would determine reliability of whole system.

RTP stack brings robustness, RTP-attack immunity and system delay minimization. Glue-less integration with SIP stack together with additional enhanced services extend FXS functionality up to the level of advanced IP-PBX and standalone PBX, for example, subscribers grouping and prioritization, calls forwarding, intrusive calls, programmed numbering plans and others. Local XML based address book allows usage of NatureDSP VoIP Engine in systems with no stand alone server minimizing cost of system installation and maintenance.

Unlike to existed VoIP Engines and IP PBX on the market IntegrIT NatureDSP VoIP Engine has cross-platform and very portable organization. It works under general purpose Os (Windows/Linux), and runs on TMS320C64xx, Blackfin, ARM9e, ARM11, Intel Pentium.



Availability

The NatureDSP VoIP Engine is available in binary and 'C' source codes form for the following platforms:

- Texas Instruments TMS320C64xx, DaVinci (DSP-BIOS)
- Marvell Sheeva/KirKwood/Dove, ARM9E, ARM11 (Linux)
- PC: Windows/Linux
- Other platforms and OS are under request

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IntegrIT Design House offers engineering services for software adaptation and customization under Customer's software and hardware and platforms.

Brief specification

- Supported codecs: G.711A/u, G.726, G.723.1, G.729AB, G.728, AMR-NB, AMR-WB, G.722.1, G.722.2, iLBC
- packetizing 10...200msec
- intelligent network jitter compensation and packets cancellation.
- G.729B voice activity detector (VAD) and comfort noise generator (CNG)
- Voice AGC with nonlinear suppressor for better experience on quiet voice
- ITU-T G.168 compatible Linear Echo-canceller (LEC)
- In band DTMF signaling (ITU-T Q.23)
- Caller ID
- Acoustic Echo-canceller (see Crystal Speech data sheet for details)
- Access to Enhanced User Services (see below) via short numbers or Voice Menu
- SIP, RTP, RTCP networking
- Demo version is available for PC or Marvell Kirkwood demo kit

Applications

- Telephony gateways
- IP phones and IP-PBX
- Mic/Speaker and dispatching VoIP systems
- Transcoders and audio/video conferencing servers
- VoIP equipment

Brief list of supported Enhanced User Services

Call Holding	Conferencing (up to 32 channels)	Auto Attendant
Call Waiting	Circular conferencing	Hunt Groups
Call Diversion	Call Pick Up	Restricted Access Groups
Follow Me	Voice Menu	Intrusive Calls
DND	Service Activation Codes	Subscribers Prioritization
NDND	Dialing Plans	
Attended and Blind Call Transferring	Prefixes Translation	

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