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GLOBAL IP SOLUTIONS

GIPS Voice Quality Enhancement

A comprehensive package for high quality VoIP deployment

The GIPS Voice Quality Enhancement (VQE) module improves the quality of VoIP conversations by removing echo and background noise, and by adjusting speech levels to achieve a consistent and comfortable listening experience. GIPS VQE is the first product designed specifically for VoIP, which combines all of the speech processing components necessary to meet tough quality demands in one comprehensive module. GIPS VQE is also very flexible because it can addresses echo and noise in a variety of settings, including applications, IP phones, gateways and ATA boxes.

By efficiently utilizing and combining the set of field-proven GIPS speech-processing software, Global IP Solutions has created a product that addresses the voice quality issues that exist in both new and traditional telecommunication systems. GIPS VQE can handle both acoustic and network echo, and can suppress background noise even in tough environments, such as mobile devices. The G.167 and G.168 compliant software is easily implemented at end point devices where it can best address various platform artifacts. GIPS VQE is flexible in its interoperability with different speech codecs, and handles both 8 kHz and 16 kHz sampled signals. This flexibility enables usage of high quality audio codecs, such as GIPS iPCM™-wb.

GIPS VQE consists of the following modules:

Module	Description	Application	HW IP Phone	ATA/IAD GW
Acoustic Echo Cancellation (AEC)	Acoustic echo software optimized to eliminate echo caused by acoustic feedback in real-time communications. This highly efficient speech processing software cancels acoustic feedback without audible echo or clipping.	✓	✓	
Acoustic Echo Suppression (AES)	Low complexity software that eliminates echo caused by acoustic feedback in devices in which complexity is an issue, such as PDAs and low cost devices.	✓	✓	
Network Echo Cancellation (NEC-IAD)	An efficient echo cancellation software designed for use in ATA/IAD gateways. NEC-IAD cancels 4-to-2 wire echo conditions. This G.168 compliant solution provides excellent sound quality without audible echo or clipping.			✓
Noise Cancellation (NC)	Removes background noise without affecting voice volume.	✓	✓	✓
Noise Suppression (NS)	Suppresses background noise without distorting voice quality.	✓	✓	✓
Automatic Gain Control (AGC)	Algorithm that automatically adjusts the level of an audio signal to achieve consistent and comfortable audio levels.	✓	✓ [1]	✓ [1]
Voice Activity Detection (VAD)	Detects presence or absence of speech for bandwidth efficient transmission.	✓	✓	✓
Comfort Noise Generation (CNG)	Analyzes background noise to generate a comfort noise signal.	✓	✓	✓
Tuning Wizard	Helps user determine proper parameters for VQE, and alerts user to given levels of echo, background noise, and other speech quality imperfections.	✓		

(1) = Digital AGC only

GIPS Voice Quality Enhancement

Specification	
General	Handles both 8 kHz and 16 kHz sampled signals
	Full duplex support
	Adaptable and configurable to platform of choice[1]
	CPU requirements depending on hardware and operating system
AEC	Adaptive NLP with user configurable aggressiveness
	Adaptive double talk detector
	Automatic tracking of changing environments
	64 ms tail at 8kHz input
	G.167 compliant
AES	Low complexity echo control algorithm
	G.167 compliant
NEC-IAD	Handles up to 32 ms echo tail (configurable)
	Compliant with ITU G.168
	Adaptive comfort noise insertion
NC / NS	Configurable attenuation of background noise
	Automatically adjusts to any type of background noise
AGC	Operates in two modes: digital or a combination of analog and digital
	Automatically adjusts level to a comfortable level
CNG	User configurable level

1) Please contact a GIPS sales representative for a complete list of implementations.