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New Voice Echo Canceller Combats High Noise - ZL38065

The ZL™38065 is a highly integrated VEC (voice echo canceller) that optimizes call quality in a wide range of low-density wireless and telephony equipment. The off-the-shelf device supports 32 voice channels, and cancels echo tails of 64 milliseconds or 128 ms.

The VEC chip utilizes a patented NLP (non-linear processing) technology that outperforms competing devices in the presence of intense background noises. These features help ensure carrier-grade voice connections and improve subjective voice quality by removing echoes, clicks, and hisses caused by the user environment, network conditions and round-trip delays in speech signals.

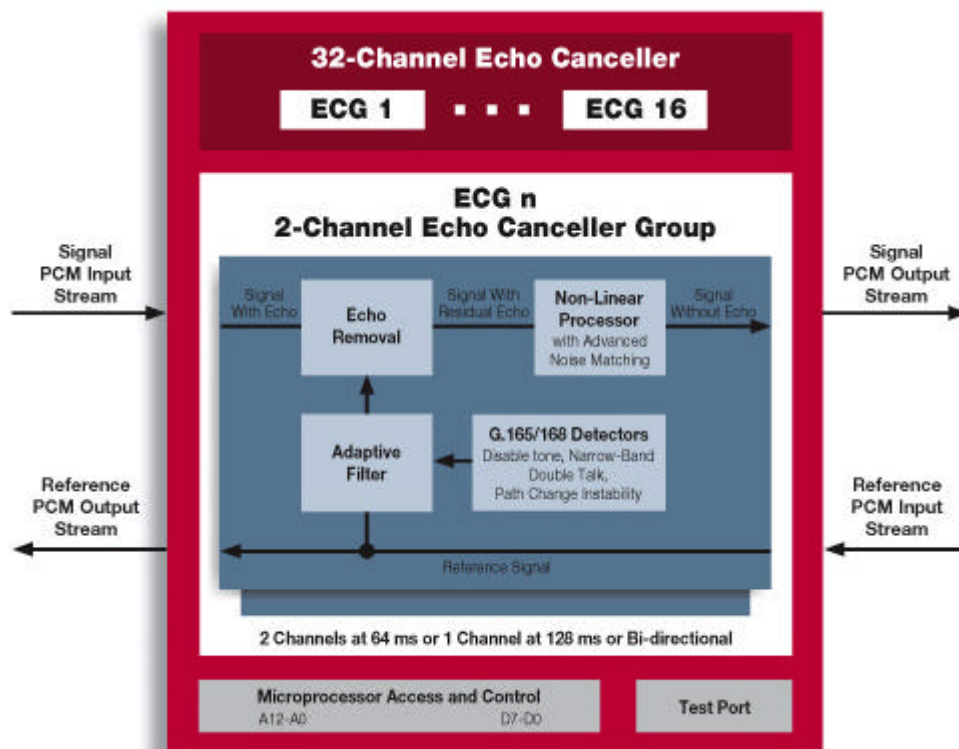
The device uses an efficient architecture that reduces board space and development resource requirements.

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Applications

- Wireless local loop base stations & controllers (PHS/DECT)
- Voice/telephony gateways and digital PBX systems
- Integrated access devices

Highest Voice Quality with Advanced Noise Matching

- NLP with adaptive suppression threshold and spectrally matched comfort noise injection removes residual echo and minimizes switching effects
- Full band convergence allows multiple echo reflection cancellation
- Fast re-convergence on echo path changes

- Fully programmable convergence speeds per-channel improves performance during double-talk
- Adjustable signal gain/loss improves ERL performance and flexibility for system gains
- Protection against narrowband signal divergence in high echo environments or in the presence of DTMF or other tones

Flexibility and Ease-of-Use

- Configurable to allow simultaneous operation of dual channel ECG (echo canceller group) at 64 ms, bidirectional 64 ms or 128 ms
- Each ECG offers parallel DSP processing without resource sharing limitations
- Low-power operation (4.6 mW per channel) with independent powerdown mode
- Compatible pin-outs simplify system upgrades

Standards Compliant

- ITU-T G.168 (2000), G.168 (2002) and ITU-T G.165
- Fax/modem G.164 2100 Hz Tone Disable
- Streamlines AT&T equipment certifications

Customer Support

The ZL38065 VEC is supported by Zarlink's network of in-house field application and design engineers. Evaluation boards with full design and applications documentation are available.

IP-PBX

The ZL38065 VEC improves voice quality in low-density networking equipment, such IP-PBXs, where the convergence of voice and data traffic on a packet network causes processing delays that emphasize echo. In addition, excessive background noise introduced when equipment is operating in a high-noise environment, such as an industrial setting or airport terminal, will impact call quality.

The diagram below illustrates the ZL38065 VEC deployed in an IP-PBX using a centralized TDM/TSI switching architecture to simultaneously route over 500 voice calls between a local packet network to other PBXs and the PSTN.

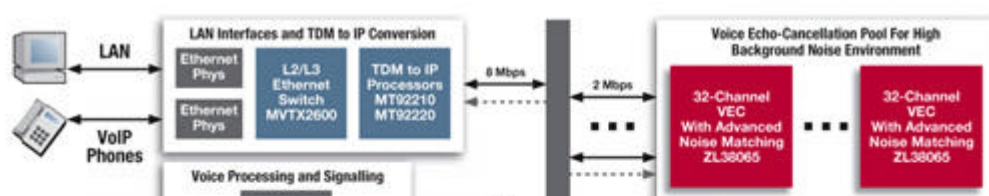
The VEC's patented software algorithm injects spectrally matched "comfort noise" onto the line that is adjusted to match caller background noise and eliminate noise gating when echoes are cancelled. In comparison, less effective noise matching results in annoying background noise on the line that sounds "choppy" to users.

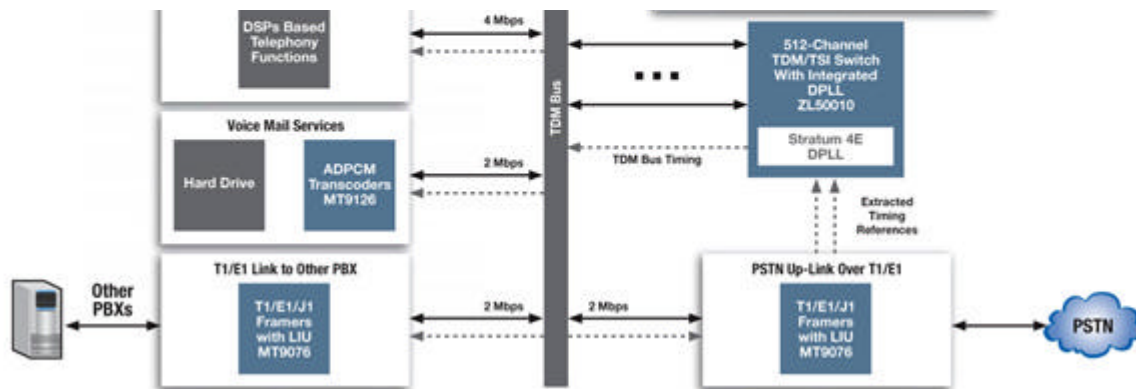
The device also improves performance during double-talk conditions. Zarlink's algorithm adjusts to a slow convergence speed once double-talk is detected. The convergence speed can be slowed by as much as 128 times that of the fast convergence mode to dramatically improve stability.

The low-density ZL38065 VEC can be configured to offer 32 channels of echo cancellation at 64 ms, 16 channels at 128 ms, or other combinations of channel density and echo delay.

The ZL38065 consumes only 4.68 mW of power per-channel. Individual blocks can be turned off when not all channels are in use to further reduce power consumption.

IP-PBX Application Diagram





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