

DEDICATED NARROWBAND VOICE PROCESSOR FOR HANDS-FREE COMMUNICATION



The Microsemi® ZL38005 is a dedicated fully featured narrowband voice processor for hands-free communication systems, including speakerphone and home automation applications. The voice processing firmware integrates the Microsemi voice processor with 16-bit dual-channel narrowband ADC/DACs, on-chip memory and multiple interfaces. Specific Firmware loads customize the solution for various applications.

Designed for cost-efficient hands-free applications, the voice processing solution improves voice quality, minimizes background noise and reduces system complexity. Unlike most competing devices, the ZL38005 platform provides high performance full-duplex operation.

Integrated ZL38005 Platform for Hands-Free Communication Systems

- Dual-channel ADCs/DACs with input/output sampling of 8 KHz
- PCM port supports TDM (ST-BUS, GCI, or McBSP framing), SSI modes, I2S
- 11 general purpose input/output (GPIO) pins
- Full-duplex operation
- Boot loadable for future Microsemi software upgrades

Integrated ZLS38501 Firmware Features

- One channel AEC, one channel LEC up to 256 ms shared
- Cancels echo with a signal to echo ratio of up to 15 dB
- Advanced noise reduction (up to 20 dB)
- Controllerless mode

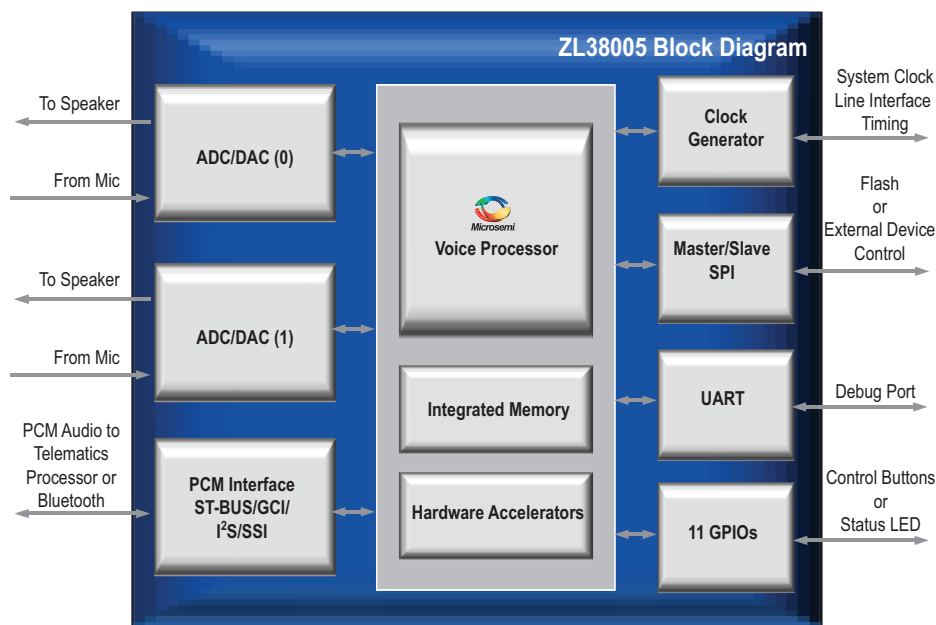
Optional ZLS38503 Answering Machine Firmware

- Voice recording and playback
- DTMF receiver
- Tone generator
- Call progress tone detection
- Easy file management

Customer Support

The ZL38005 voice processor platform is supported by evaluation boards, an auto tuner board, reference designs, a full firmware package, and the Microsemi network of in-house field application and design engineers.

ZL38005 Block Diagram



Hands-Free Applications

- Speakerphones
- Home automation
- Intercom and security systems

ZL38005

Simplifying Hands-Free Communication Systems

The Microsemi voice processing technology integrates industry-leading features and dedicated firmware to deliver high-quality hands-free voice performance while reducing system design complexity.

Hands-free communications equipment must support high-quality voice in severe noise conditions. For example, speakerphone designers must compensate for vibration created by plastic enclosures, echo, and double-talk. As illustrated below, the ZL38005 chip simplifies design and delivers voice quality improvements in hands-free communication systems.

In complex noise environments the Microsemi voice processing solution cancels echo, and maintains a constant background noise.

The chip delivers excellent performance in double-talk situations. While most solutions deliver only half-duplex operation, the ZLS38501 algorithm is able to continuously converge and track changes in the echo path to support full-duplex operation during double-talk situations.

The platform includes narrowband ADC/DACs with input/output sampling of 8 KHz. The ZLS38501 firmware supports AEC and LEC with programmable echo tail up to 256 ms and noise reduction up to 20 dB.

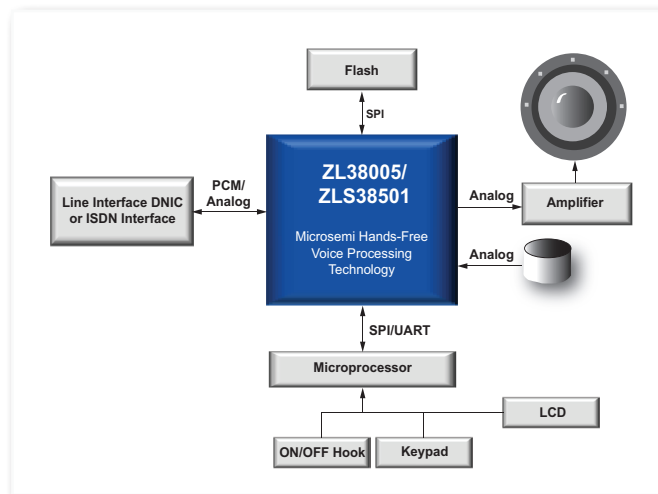


Figure 1: Speakerphone Application

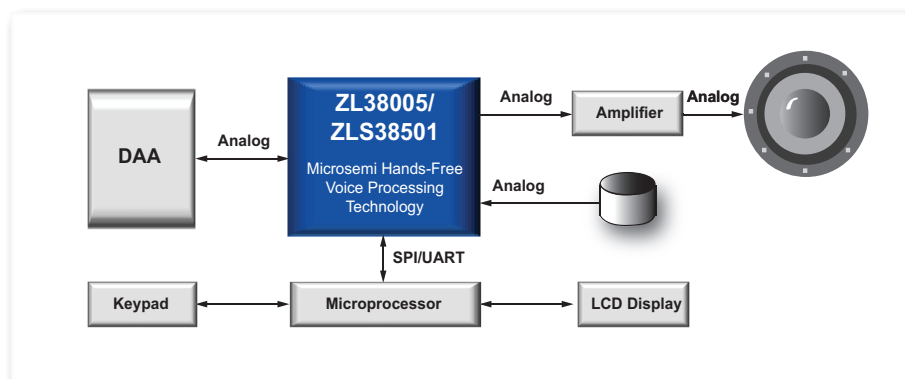


Figure 2: Home Automation Application



Microsemi Corporate Headquarters
One Enterprise, Aliso Viejo CA 92656 USA
Within the USA: +1 (949) 380-6100
Sales: +1 (949) 380-6136
Fax: +1 (949) 215-4996

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