

DEDICATED VOICE PROCESSOR FOR HANDS-FREE COMMUNICATION **ZL38004 & ZLS38502**

PRODUCT PREVIEW

Zarlink's ZL38004 dedicated voice processor is a fully featured platform for hands-free communication systems, including car kits and speakerphones. The platform integrates Zarlink's voice processor, 16-bit dual-channel codec, on-board memory and multiple interfaces with Zarlink's firmware.

The ZLS38502 firmware pack for hands-free car kits and speakerphones deliver measurable voice quality improvements. The echo tail cancellation capability is programmable up to 256 ms to cancel echo in a variety of environments, including mid- to large-size offices and vehicles.

Unlike most competing devices, the ZL38004 voice processor platform provides high performance full-duplex operation. The platform incorporates an advanced algorithm that allows convergence in double-talk situations.

Integrated Platform (ZL38004) for Hands-Free Communication Systems

- ➔ 100 MHz (200 MIPs) Zarlink voice processor
- ➔ Dual Δ/Σ ADCs with input buffer gain selection programmable to 8/16 kHz sampling
- ➔ Dual Δ/Σ DACs with output sampling of 8/16 kHz
- ➔ Stereo bypass mode provides 44.1/48 kHz sampling for DAC
- ➔ PCM port supports TDM (ST BUS, GCI or McBSP framing), SSI modes
- ➔ Dual function inter-IC sound (I2S) or secondary TDM port
- ➔ Separate slave (micro controller) and master (flash) SPI ports
- ➔ 11 GPIO (general purpose input/output) pins

Integrated Firmware (ZLS38502) Features

- ➔ Supports AEC and LEC
- ➔ Programmable echo tail up to 256 ms
- ➔ Controllerless mode
- ➔ Programmable sidetone
- ➔ Cancels echo with up to 10 dB echo return
- ➔ Advanced noise reduction (up to 30 dB)

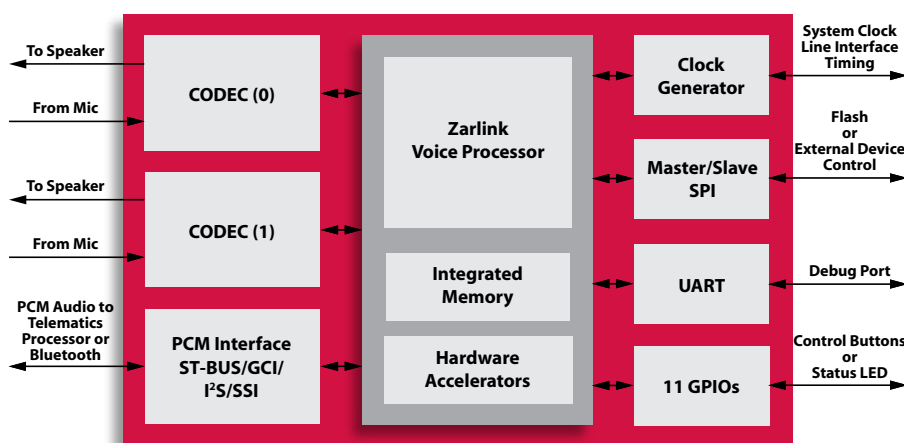
Optional Answering Machine Firmware (ZLS38503)

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

Customer Support

The ZL38004 voice processor platform is supported by evaluation boards, reference designs, a full firmware package and Zarlink's network of in-house field application and design engineers.

ZL38004 Block Diagram



Applications

- ➔ Hands-free car kits
- ➔ Conference phones and videoconference units
- ➔ Intercom and security systems
- ➔ Speakerphones

DEDICATED VOICE PROCESSOR ZL38004 & ZLS38502 FOR HANDS-FREE COMMUNICATION

APPLICATION

Hands-Free Communication Systems

Demand for higher quality hands-free communication is growing. Government legislation is requiring drivers to install hands-free car kits if they want to communicate inside a moving vehicle. Hands-free technology is also a key element in speakerphones and videoconference units, as well as voice-enabled security, door entry, elevator and restaurant drive-thru intercom systems.

The ZL38004 voice processing platform is a highly integrated solution that helps manufacturers reduce cost and speed design time. The platform integrates a 16-bit dual-channel codec with Zarlink's voice processor and firmware.

Hands-free communication systems must typically operate in locations such as cars and meeting rooms where echo and background noise degrade voice quality.

The platform's firmware delivers excellent performance in double-talk situations. While most solutions deliver only half-duplex operation, the ZLS38502 firmware is able to continuously converge and track changes in the echo path to support full-duplex operation during double-talk situations.

Illustrated below, the ZL38004 chip with ZLS38502 firmware simplifies design and delivers measurable voice quality performance improvements in hands-free car kits and speakerphones. The system can cancel up to 256 ms echo tail, maintain a constant background noise and converge during double-talk situations. The algorithms can reduce noise of up to 30 dB.

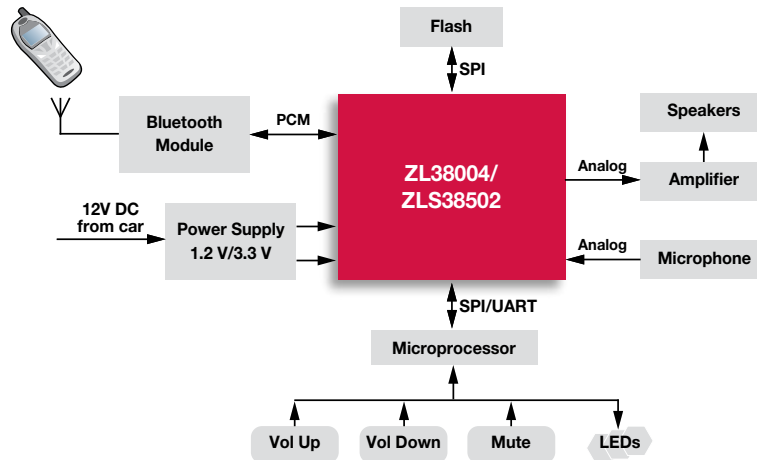


Figure 1 Hands-free Car Kit Application

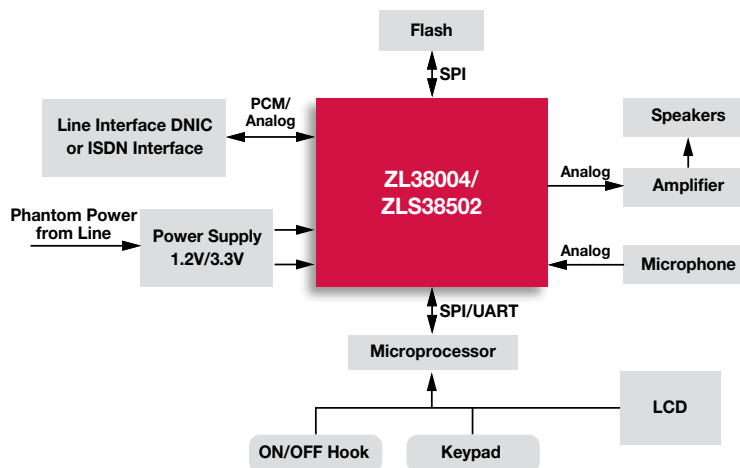


Figure 2 Speakerphone Application

Information relating to products and services furnished herein by Zarlink Semiconductor Inc. or its subsidiaries is believed to be reliable. The products, their specifications, services and other information appearing in this publication are subject to change by Zarlink without notice.

ZARLINK, ZL, ZLE and the Zarlink logo are trademarks of Zarlink Semiconductor Inc. AdvancedTCA is a trademark of PCI Industrial Computer Manufacturers Group.

© 2011, Zarlink Semiconductor Inc. All Rights Reserved. Publication Number 11ZS009