Microsemi

Product Selector Guide

HANDS-FREE VOICE PROCESSOR

→ Microsemi® hands-free voice processing solutions integrate industry leading enhanced features, including wideband and narrow-band ADC/DACs, on-chip memory, and application-specific firmware, to improve voice quality, minimize background noise, and reduce system complexity and cost. The selector guide outlines the hardware and firmware features for Hands-Free Car Kit, Video Conference, Intercom, Home Automation, and IP Phone system applications.

Hardware	ZL38012	ZL38005	ZL38004
Dual ADC/DAC	•	•	•
Narrowband processing	•	•	•
Wideband processing			•
Audio band DAC			•
Internal programmable microphone amplifier	•	•	•
Microphone buffer		•	•
Dual PCM port (TDM, I2S)		•	•
Single PCM port (TDM, I2S)	•		
GPIOs	5	11	11
Control ports (SPI, UART)	•	•	•
Field upgradeable	•	•	•

Firmware	ZLS38507	ZLS38501	ZLS38502
AEC/LEC	•	•	•
Non-linear AEC	•	•	•
Maximum echo tail	256ms	256ms	128ms/256ms
Psycho acoustic noise reduction	•	•	•
EQ	16 band	16 band	16/22 bands
Tone Generator		•	•
A-law/Mu-law/Linear PCM	•	•	•
User Gain control	•	•	•
NLP with Comfort noise injection	•	•	•
Anti howling	•	•	•
AGC	•	•	•
G.169 ALC	•	•	•
Mute	•	•	•
Controller less mode	•	•	•
Side tone injection	•	•	•
Dynamic range compression	•	•	•
Secondary channel bypass		•	•
Stereo bypass			•
Broadcast mode		•	•
Mixing mode		•	•
Monitoring mode		•	•
Half-Duplex mode	•	•	•

Optional Answering Machine Firmware (ZLS38503)			
Voice prompting/messaging		•	•
DTMF Receiver		•	•
Tone Generator		•	•
Call program tone detection		•	•
Easy file management		•	•

Applications			
Hands-free car kits	•		
Video conferencing			•
Intercom and security systems	•	•	
Home automation	•	•	
IP phones (narrowband)		•	
IP phones (wideband)			•
Wideband residential phone			•

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Simplifying Hands-Free Communication Systems

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 Microsemi voice processing solution simplifies design and and delivers voice quality improvements in hands-free communication systems.

In complex noise environments, such as car kits and conference rooms, the Microsemi voice processing solution cancels echo, maintains a constant background noise and converges during double-talk situations.

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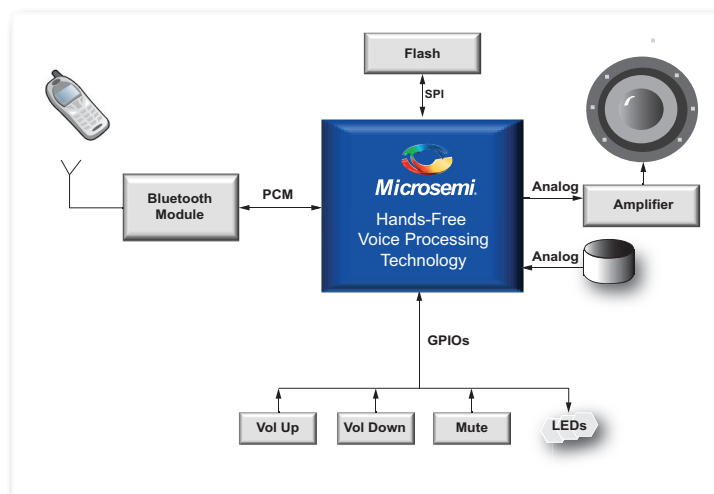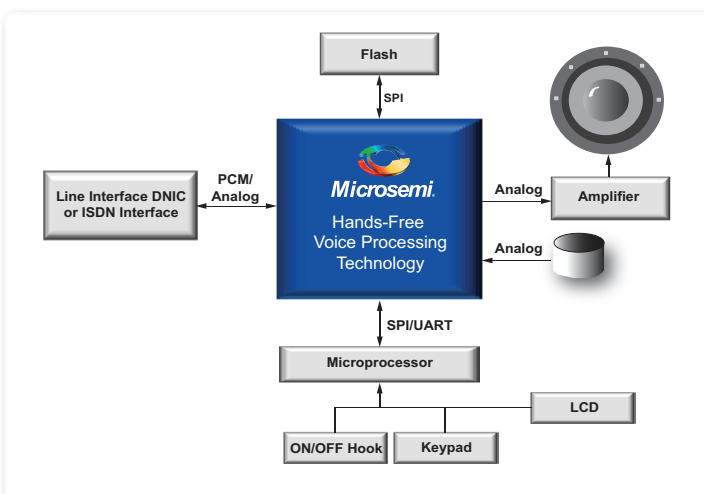

Figure 1: Hands-free Car Kits Application

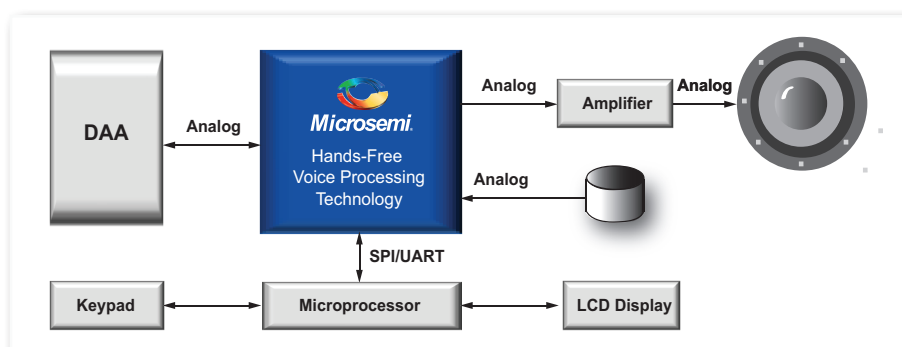**Figure 2:** Speakerphone Application

Figure 3: Home Automation Application

Microsemi Corporation (NASDAQ: MSCC) offers a comprehensive portfolio of semiconductor solutions for: aerospace, defense and security; enterprise and communications; and industrial and alternative energy markets. Products include high-performance, high-reliability analog and RF devices, mixed signal and RF integrated circuits, customizable SoCs, FPGAs, and complete subsystems. Microsemi is headquartered in Aliso Viejo, Calif. Learn more at www.microsemi.com.