

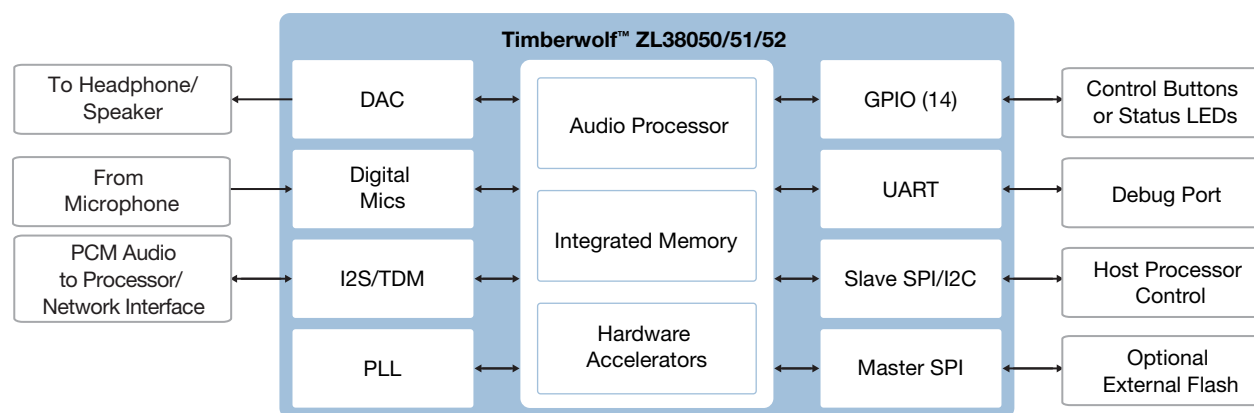
Microsemi Timberwolf™ Audio Processor

HD Voice Audio for IP Camera

New High-performance Audio Processors Enable the Streamlined Development of IP Camera for HD Voice Capabilities

Designed for High Definition (HD) Voice 2 way audio in IP Camera, Microsemi's new audio processors ZL38050, ZL38051, and ZL38052 feature the company's innovative AcuEdge™ acoustic technology,

which is a set of highly-complex and integrated algorithms that allow the user to extract intelligible information from the audio environment from which they are communicating.



ZL38050/51/52 Block Diagram

Audio Processor for IP Camera

Microsemi's AcuEdge Technology integrates industry leading features and dedicated firmware to deliver high-quality hands-free voice performance while reducing system design complexity.

In complex noisy environments, Microsemi's AcuEdge Technology cancels echo and reduces ambient noise. While most solutions deliver only half-duplex operation, Microsemi's proprietary algorithm is able to converge and track changes in the echo path to support full-duplex operation.

DVR, NVR, or security camera users have difficulty trying to monitor a large number of video feeds for certain incidents, crimes, or events. By adding audio to the surveillance camera, it will enable security personal at the control room to make

judgment calls on security concerns. Microsemi AcuEdge Technology will provide audio enhancement to allow more accurate monitoring. The ZL38051 audio processor adds audio enhancement functions such as far field microphone, sound location, and beam forming capabilities.

The ZL38052 audio processor increases the functionality by enabling surveillance of smoke detectors (T3), carbon monoxide detectors (T4) and provide glass break detection.

Getting Started

Use the following resources to explore:

- Microsemi AcuEdge™ Technology
 - ZL38050 IP Camera Audio Processor
 - ZL38051 Advanced IP Camera Audio Processor
 - ZL38052 Advanced IP Camera with Sound Classifier Audio Processor

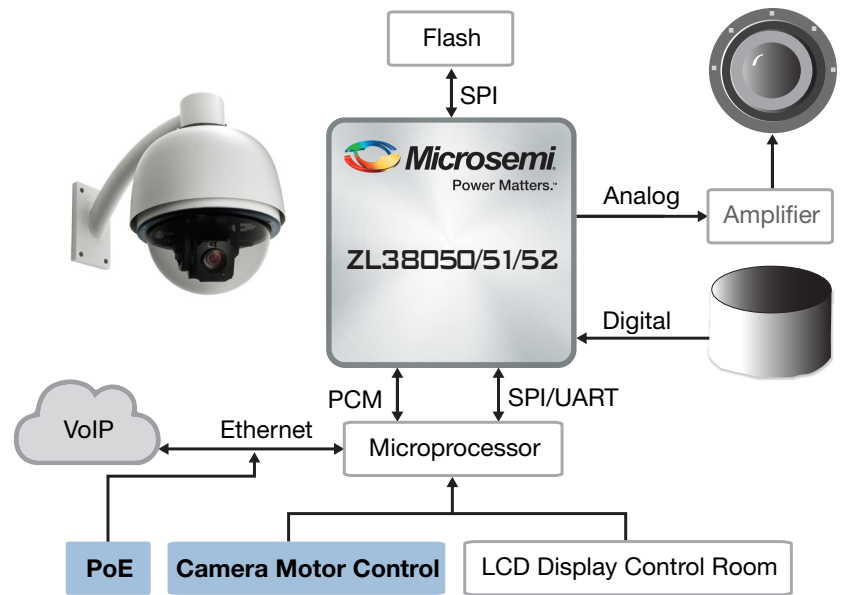
- MiTuner™ Automatic Tuning Kit
 - MiTuner™ Information
 - MiTuner™ GUI Software Guide
 - ZLS38508 MiTuner™ GUI

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Features and Benefits

- Full duplex AEC (Narrowband and Wideband)
- Mid field audio pick up to 3 meters (ZL38050)
- Far field audio pick up to 10 meters (ZL38051)
- Sound location estimation (ZL38051)
- Beam forming for effective noise attenuation (ZL38051)
- Long tail echo cancellation (up to 256 ms)
- Advanced Noise Reduction to reduces background noise from the near-end speech signal
- Equalizer
- Howling cancellation: prevents oscillation in echo canceller audio path
- Smoke/CO alarms detection (ZL38052)
- Glass break detection (ZL38052)



IP Camera Block Diagram

Microsemi Auto Tuning Tool (ZLE38470)

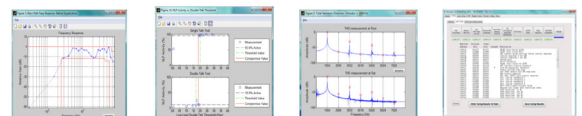
Microsemi's MiTuner™ Kit eases the system tuning complexity and speed up design cycle for quick development. MiTuner™ kit provides hardware, software and support for the automatic tuning of Timberwolf family of audio processors.

Calibration



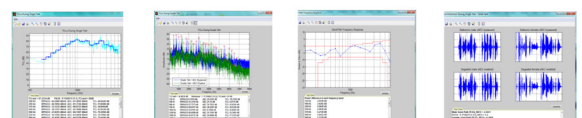
Tuning Results provides good starting point for subjective tuning

Tuning



Results based off TIA920/P.1100

Testing



Microsemi Corporate Headquarters
 One Enterprise, Aliso Viejo, CA 92656 USA
 Within the USA: +1 (800) 713-4113
 Outside the USA: +1 (949) 380-6100
 Sales: +1 (949) 380-6136
 Fax: +1 (949) 215-4996
 email: sales.support@microsemi.com
 www.microsemi.com

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