ZLK38AVS Microsemi AcuEdge™ Development Kit for Amazon AVS
Preliminary Product Brief

Microsemi's AcuEdge™ ZLK38AVS development kit for Amazon AVS features Microsemi's ZL38063 Timberwolf audio processor. The ZL38063 provides a number of audio enhancements to improve trigger word detection and to enhance Amazon's AVS detection and accuracy. Additionally, the ZL38063 expands the functionality by including 2-way voice communication that provides exceptional speaker phone quality. The kit is designed to help developers quickly and easily prototype and demonstrate high quality voice recognition interfaces. The ZL38063 provides audio enhancements that perform both noise reduction and barge-in processing. The noise reduction allows speech recognition in noisy, real-world condition. Barge-in allows users to interrupt their Alexa device when playing audio.

The ZLK38AVS supports a two microphone configuration for both 180° and 360° audio pick-up. The kit is designed to recognize the Alexa wake word and deliver audio-enhanced speech requests for cloud processing in adverse audio environments.

The ZLK38AVS development kit for Amazon AVS reduces engineering time and costs associated with developing a noise-robust, voice-enabled device.

The ZLK38AVS development kit is compatible with the Amazon AVS application for the Raspberry Pi (RPi).

Highlights

- High-quality stereo acoustic echo canceller for barge-in and full duplex audio
- Fully configurable and scalable solution delivering a two microphone configuration for both 180° and 360° audio pick-up
- Enhanced beam forming technology to enhance audio pick-up in adverse conditions, in presence of noise and outside sound sources
- 2-way full duplex voice communication
- Turnkey designs available as well as all appropriate drivers and documentation, along with worldwide support

Applications

Voice-enabled applications such as:

- Home Gateway/Controller
- Speaker/Sound Bar
- TV/Set-Top Box

To learn more about Microsemi and its development kit, visit:
https://www.microsemi.com/products/audio-processing/audio-processing-partners

To learn more about Amazon Alexa Voice Service and access the Amazon AVS API reference guide, visit:
https://developer.amazon.com/alexa-voice-service/

Kit Contents

Microsemi AcuEdge™ development kit for Amazon AVS includes the following:

- ZLE38AVS evaluation board
- Pillar (Plastics)
- Assembly hardware
- Documentation

To make a fully assembled smart speaker demo the following additional components are required (not included in the ZLK380AVS kit)

- Raspberry Pi 3 board
- 2A or greater Micro-USB power supply for the Raspberry Pi 3
- SD memory card for Raspberry Pi
- JBL Clip speaker

Fully Assembled Smart Speaker

ZLK38AVS Development Kit Specifications

Physical Characteristics

Dimensions	70 mm × 66 mm
Operating temperature	−40° C to 85° C

External Interfaces

Raspberry Pi 3 Header	P2: • I²S port • SPI • 8 GPIO
Audio Header	JMMA1: • Digital microphones • Analog out • 3 GPIO
SPI Flash Devices	U2: Optional SPI flash component used to store ZL38063 firmware
USB	J3: Optional USB power and debug port
Debug Headers	JAIB2/2: Auto tuning headers
Digital Microphone Headers	JM1–4: Optional header for off-board microphones

Audio Characteristics

Digital Microphones	4 on-board digital microphones (AKU441): Supports a 2 microphone configuration for 180° and 360° audio pick-up
Analog Output	J1: 2 × 2.65 Low cost class D audio amplifier (NCP2820)

Connectors

Stereo 3.5 mm male-to-male audio cable	P1: Audio output
Micro-USB cable	J3: Optional USB power and debug port

Ordering Information

Distributor	URL	Part Number	Description
Arrow Electronics	www.arrow.com	ZLK38AVS	Development Kit, for Amazon AVS
Future Electronics	www.futureelectronics.com	ZLK38AVS	Development Kit, for Amazon AVS

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