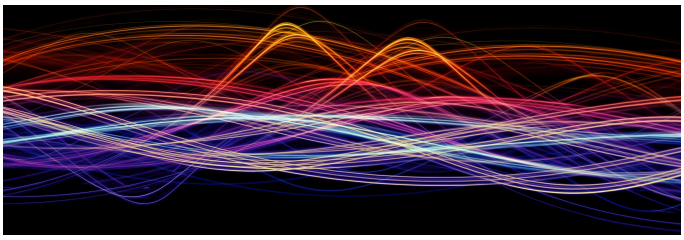


AEV13MZ Far Field Voice Development Platform

Aaware, Inc.

Acoustically Aware™

Product Brief

Platform Overview

The Aaware far field voice development platform provides a complete single-chip voice and sound capture solution focused on applications where strong interfering sources and high ambient noise are present.

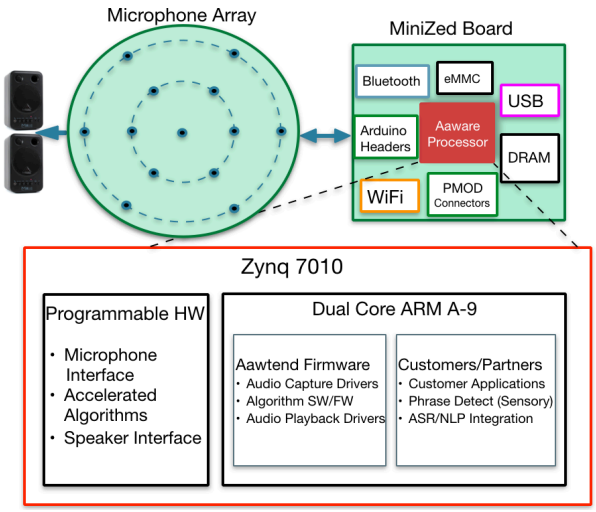
The Aaware sound capture algorithms include source localization, proprietary spatial/spectral/temporal source separation, and noise suppression to deliver low distortion audio of acoustic sources in the sound field. Up to a 16 microphone array, including non-uniform 1D and 2D arrays, in end-fire or broad-side configurations, are supported. 1D and 2D source localization is supported depending on array choice. The Aaware sound capture algorithms are accelerated in FPGA hardware optimizing performance, software footprint, cost, and power.

The AEV13MZ platform leverages up to 13-microphones with integrated Sensory multi-wake word for robust voice assistant applications in the presence of strong direct or ambient noise with low distortion, allowing for better integration with third party speech and natural language technologies. The Aaware technology is always on, captures the speaker as they move, and cancels multiple noise sources without needing the reference audio, making it a very flexible fit for any product that anticipates strong interfering noise sources.

Key Features & Benefits

- Complete source localization, separation, and far-field voice multi-wake word detection for voice assistant applications
- Interference cancellation of nearby sources without a reference
- Low distortion separation for supporting multiple 3rd party speech recognition and natural language processing
- Flexible microphone support of 1D/2D non-uniform arrays
- Source localization detects direction
- Optional multi-channel AEC available
- Integrated multi-wake word detection (*Sensory) Default: “Alexa”, “OK Google”
- Single-chip solution with Dual ARM-A9 cores, 512MB Memory, 8GB eMMC, Ubuntu Linux, WiFi, and Bluetooth

Platform Block Diagram



The Aaware platform uses a single-chip solution integrating the Aaware source separation algorithms and a dual-core ARM-A9 applications processor with embedded Ubuntu Linux. Voice application developers can immediately start developing voice applications based on wake word audio and/or noise/interference suppressed audio coming from a defined direction. A standard Ubuntu Linux environment provides familiar development tools from broadly available repositories.

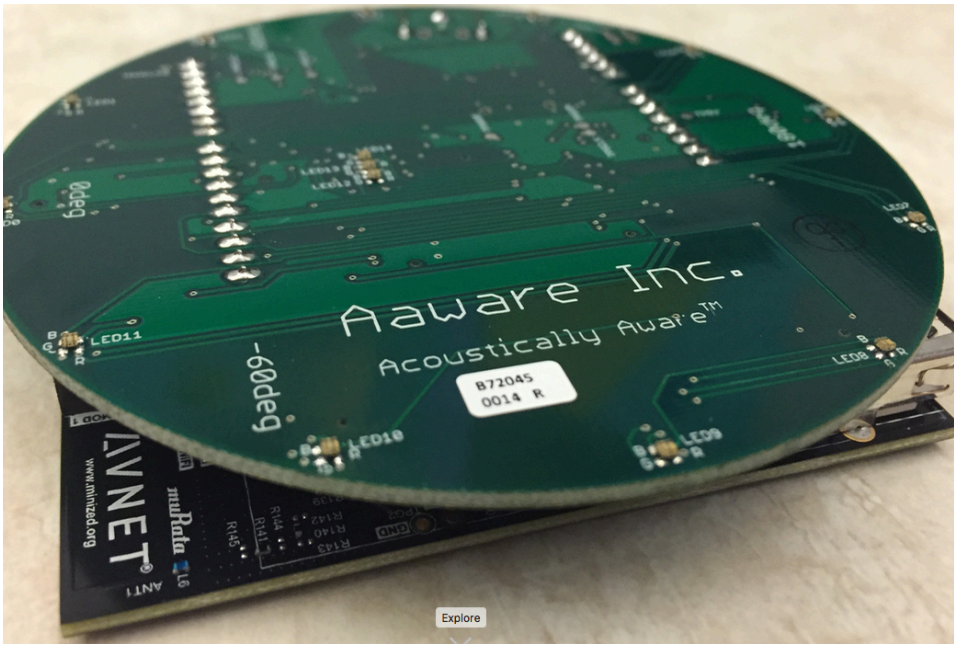
Aaware sound capture algorithms can be customized for different 1D/2D non-uniform arrays to match your product's physical constraints, and also fixed spatial zones where target sounds and interferences are known and stationary. Acoustic Echo Cancellation (AEC) is also available. Please contact your Aaware representative for more information.

The AEV13MZ far field development platform is ready to use out of the box, with a Linux ALSA based audio interface, making it immediately software ready.

AEV13MZ Platform Specifications

**MiniZed Processor Board Specs	
Processor	Dual-Core **667MHz** ARM Cortex-A9
FPGA Fabric	**430k** programmable gates
Memory	**512MB** of LP DDR3L RAM
Wireless	Bluetooth 4.1 BLE - WiFi 2.4GHz 802.11b/g/n
Flash	128MB QSPI Flash + 8GB eMMC
Power & Console	microUSB 2.0

*** ST Micro Microphone Specs		
Parameter	Conditions	Typical
Supply Current	Clock=2.4 MHz, V_{DD}=1.8 V, T=25 °C	650µA
Sensitivity	1 Pa, @ 1 kHz	-26 dBFS
Signal to Noise	A-weighted @ 1 kHz, 1 Pa	62.6 dB
Harmonic Distortion	100 dB SPL (50 Hz - 4 kHz)	<1% THD+N
Acoustic Overload		120 dB SPL



www.aaware.com
info@aaware.com

20 S. Santa Cruz Ave, Suit 300
Los Gatos, CA 95030