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# xCORE VocalFusion™ 4-Mic Kit for Amazon AVS

FAR-FIELD VOICE CAPTURE FRONT END FOR AMAZON AVS ENABLED PRODUCTS



## KEY FEATURES

- **XVF3000 processor**
  - Programmable multicore voice processor for far-field voice capture applications
  - Integrated Voice DSP processing includes:
    - 4-microphone adaptive beamformer
    - Full-duplex Acoustic Echo Cancellation (AEC) with barge-in support
    - Dereverberation, noise suppression, Automatic Gain Control (AGC)
  - 4-mic digital microphone interface
  - Inter-IC Sound (I<sup>2</sup>S) audio interfaces
  - Inter-Integrated Circuit (I<sup>2</sup>C) serial control interface
  - High speed USB2.0 compliant device
    - Multi-channel USB Audio Class 1.0
  - Integrated 2048KB flash
  - 128-pin TQFP package 0.4mm pitch
- **XVF3000 processor baseboard**
  - XVF3000 voice processor
  - Low jitter audio clock source
  - DAC with headphone amplifier
  - USB bus powered
- **Linear microphone array card**
  - 4x PDM MEMS microphones
  - 33.33mm inter-mic spacing

The xCORE VocalFusion 4-Mic Kit for Amazon AVS enables developers of smart home products to evaluate and prototype far-field voice interfaces using the Amazon Alexa Voice Service.

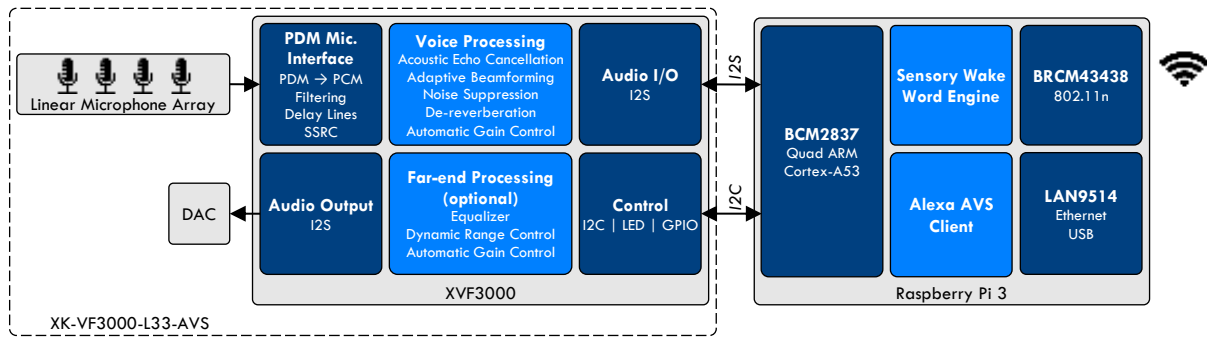
Built around XMOS' XVF3000 voice processor, the VocalFusion 4-Mic Kit for Amazon AVS provides embedded far-field voice capture and processing. With direct interfacing to a linear array of four digital microphones, the VocalFusion 4-Mic Kit for Amazon AVS (together with a Raspberry Pi) is an ideal platform for developers who want to integrate Alexa into smart panels, kitchen equipment, and other commercial and industrial electronics.

Enabling voice control of devices located several meters from the user requires addressing the challenges of distance, isolation, noise and directivity, whilst also enhancing the clarity of the captured voice. The XVF3000 achieves this using an adaptive beamformer in combination with full-duplex echo cancellation and noise suppression to locate the desired speech source and effectively isolate voice commands from any audio the device is playing while suppressing background noise and room echoes.

Getting started with xCORE VocalFusion 4-Mic Kit for Amazon AVS couldn't be easier, find out how at [www.xmos.com/vocalfusion-avs](http://www.xmos.com/vocalfusion-avs).



## FUNCTIONAL BLOCK DIAGRAM



## VOCAL FUSION 4-MIC KIT FOR AMAZON AVS

### Features

- XVF3000 processor base board
- Linear microphone array
  - 4x Infineon IM69D130 MEMS microphones
  - 100mm long, 33.33mm inter-mic spacing
- Raspberry Pi header  
I<sup>2</sup>S audio and I<sup>2</sup>C control connectivity
- Micro-USB connector for power  
(and optional USB2.0 device connectivity)
- Low jitter, audio quality clock
- DAC with integrated headphone amplifier
- 4 configurable user input buttons
- 13 user controlled LEDs



## ORDERING INFORMATION

For a list of XMOS distributors, please visit [www.xmos.com/support/distributors](http://www.xmos.com/support/distributors).

Part number	Description
XK-VF3000-L33-AVS	<b>xCORE VocalFusion 4-Mic Kit for Amazon AVS</b> <b>Contents:</b> XVF3000 base board, 100mm linear microphone array, mounting kit, xTAG debugger, USB cable x2, ribbon cable

Note: Other components required for evaluation are: a Raspberry Pi 3 (RPI 3) and USB power supply (minimum 2A), microSD card (minimum 16GB), USB keyboard and mouse, monitor, internet connection and a powered loudspeaker.

## FURTHER INFORMATION

To learn more about XMOS and the xCORE VocalFusion 4-Mic Kit for Amazon AVS, please visit [www.xmos.com/vocalfusion-avs](http://www.xmos.com/vocalfusion-avs).

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