



## VocalFusion XVF3500

FAR-FIELD VOICE CAPTURE FRONT-END FOR SMART TVs AND SOUNDBARS



### XVF3500 KEY FEATURES

- **Programmable voice processor with stereo-AEC**
  - 4-ch digital microphone interface
  - Voice DSP processing
    - Full duplex stereo Acoustic Echo Cancellation (AEC) with barge-in and programmable AEC latency
    - Adaptive beamformer for linear arrays
    - Dereverberation, Noise suppression, Automatic Gain Control
    - Direction of arrival (DOA) indication
- **Audio interface**
  - Inter-IC Sound (I2S) audio interface, 48kHz sample rate
  - High speed USB2.0 compliant device, 48kHz sample rate
    - Multichannel USB Audio Class 1.0
- **Audio output**
  - I2S output to DAC, up to 48kHz PCM
- **System control options**
  - Inter-Integrated Circuit (I<sup>2</sup>C) serial control interface
  - USB control interface
- 167 ball FBGA package 0.5mm pitch

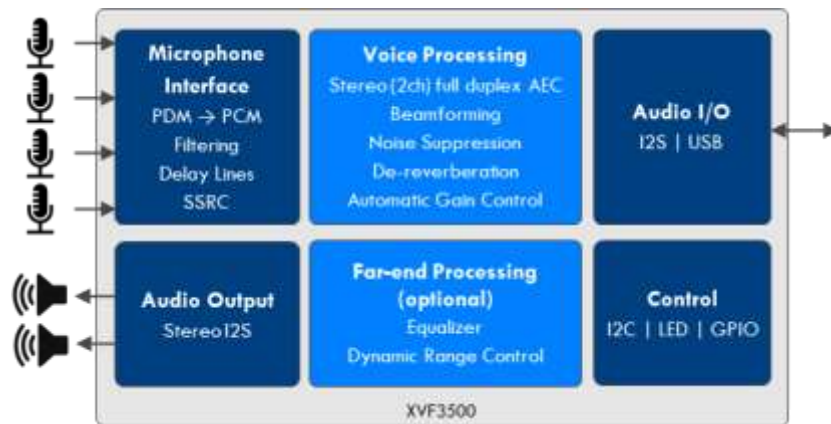
The VocalFusion™ XVF3500 processor offers developers of smart TVs, soundbars and set-top boxes a high performance far-field voice capture front-end solution to prototype and deploy “across the room” voice-controlled products.

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 XVF3500 achieves this using full-duplex stereo Acoustic Echo Cancellation (AEC) in combination with an adaptive beamformer and noise suppression to locate the desired speech source and effectively isolate voice commands from the hi-fi quality stereo audio the device is playing while suppressing background noise and room echoes.

With direct interfacing to a linear array of four PDM (Pulse Density Modulation) microphones and a choice of USB or I2S audio interfaces for connecting to the system processor, the XVF3500 is an ideal platform for developers who want to integrate a voice-interface into “edge-of-room” devices such as smart panels and soundbars.

Getting started with the XVF3500 couldn't be easier with application specific evaluation boards supported by a range of tools to customize, debug and test your application.

## FUNCTIONAL BLOCK DIAGRAM



## VOCAL FUSION STEREO DEV KIT

### Features

- XVF3500 processor base board
- Linear microphone array
  - 100mm long, 33.33mm inter-mic spacing
  - 4x Infineon IM69D130 MEMS microphones
- Micro-USB connector for USB2.0 device connectivity (and power)
- Headers for I2S audio and I2C control connectivity
- Stereo DAC with integrated headphone amplifier
- 4 configurable user input buttons and 13 user controlled LEDs
- xTAG interface for JTAG debug



## DEVELOPING WITH XVF3500 PROCESSORS

The xTIMEcomposer™ tool suite provides everything you need to write, debug and test applications for the XVF3500. A rich set of optimisation parameters are available to ensure that the best results are achieved for the individual acoustics of the final product. These parameters include adjustment to noise attenuation and gain control as well as numerous optimisations for echo cancellation.

For more information and to download xTIMEcomposer go to [www.xmos.com/tools](http://www.xmos.com/tools).

## ORDERING INFORMATION

For a list of XMOS distributors, please visit <https://www.xmos.com/contact/distributors>.

Part number	Description
XVF3500-FB167-C	VocalFusion XVF3500 voice processor
XK-VF3500-L33	VocalFusion Stereo Dev Kit Contents: XVF3500 base board, 100mm linear microphone array, xTAG debugger, USB cable x2, ribbon cable

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