



xCORE VocalFusion™ Speaker

FAR-FIELD VOICE CAPTURE FOR VOICE ENABLED SMART SPEAKERS



VOCALFUSION SPEAKER FEATURES

- **XVF3100/3000 processor**
 - Programmable voice processor for far-field handsfree communication
 - 4 microphone adaptive beamformer supporting linear and circular arrays
 - Full duplex AEC with barge-in support (up to 50dB att.)
 - Noise suppression (up to 15dB att.)
 - Speaker independent keyword trigger detection (XVF3100 only)
 - 128-pin TQFP package 0.4mm pitch
- **Host interface options**
 - High speed USB2.0 compliant device
 - Multichannel USB Audio Class 1.0
 - 16kHz or 48kHz sample rate
 - Optional I2S interface
 - 16kHz or 48kHz sample rate
 - With I2C for control
- **Audio output options**
 - I2S output to DAC, 16kHz or 48kHz PCM
- **System control options**
 - Industry's most flexible GPIO
 - Extensive general purpose libraries

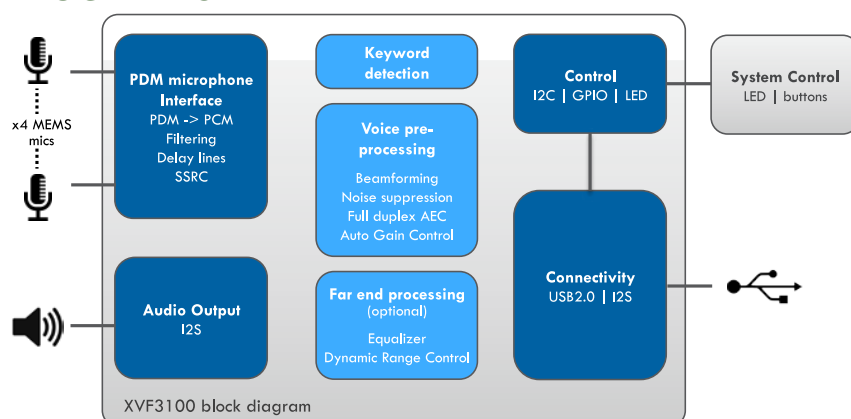
xCORE VocalFusion™ Speaker provides far field voice capture and processing (including beamforming, echo cancellation and noise suppression) combined with Sensory TrulyHandsfree™ technology and XMOS' flexible IO to deliver superior handsfree voice interface solutions for home and conferencing applications.

Based on the XVF3000 series of voice processors, VocalFusion Speaker offers direct interfacing to four PDM (Pulse Density Modulation) microphones in either linear or circular arrays and can be easily integrated with applications processor or host PC via either USB for data and control or a combination of I2S and I2C.

Voice sources are isolated from unwanted noise using advance DSP techniques including adaptive beamforming, full-duplex echo cancellation and noise suppression. Keyword trigger detection, delivered by Sensory, enables users to activate devices simply by speaking instead of having to physically touch the device. Making VocalFusion Speaker the ideal voice interface solution for smart speaker applications.

Getting started with the XVF3000 series 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 SPEAKER DEVELOPMENT KITS

Features

- Processor board with XVF3100
- Choice of circular or linear arrays with x4 PDM MEMS microphones
 - Circular – 90mm diameter
 - Linear – 350mm long with 100mm inter-mic spacing
- USB device (micro-B) for easy interfacing to PC
 - Optional I2S interface
- 3.5mm headphone jack
- xTAG interface for JTAG debug



DEVELOPING WITH XVF3000 PROCESSORS

The xTIMEcomposer™ tool suite provides everything you need to write, debug and test applications for XVF3000. A rich set of optimisation parameters are available to ensure that the best results are achieved for the individual acoustics of the end 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 <http://www.xmos.com/tools>.

ORDERING INFORMATION

For a list of XMOS distributors, please visit www.xmos.com/support/distributors.

Part number	Contents
XK-VF3100-C43	xCORE VOCAL FUSION base board, 90mm circular microphone array, xTAG debugger, USB cable x2, ribbon cable
XK-VF3100-L100	xCORE VOCAL FUSION base board, 350mm linear microphone array, xTAG debugger, USB cable x2, ribbon cable