Features
- Multichannel USB mic array
- Onboard DSP for beamforming/ noise reduction / echo cancellation / de-reverb

Technical
- XMOS XVF3000 series
- USB 2.0 audio streaming
- Knowles SPH1668LM4H MEMS (7)
- Flexible I2S in/out
- PDM to I2S conversion on header
- Stackable add-on board
- 12 x RGB led

OS compatibility
- UAC2.0 with Windows ASIO driver
- OSx, Linux Alsa 2.0 compatible
- RPi step by step application notes

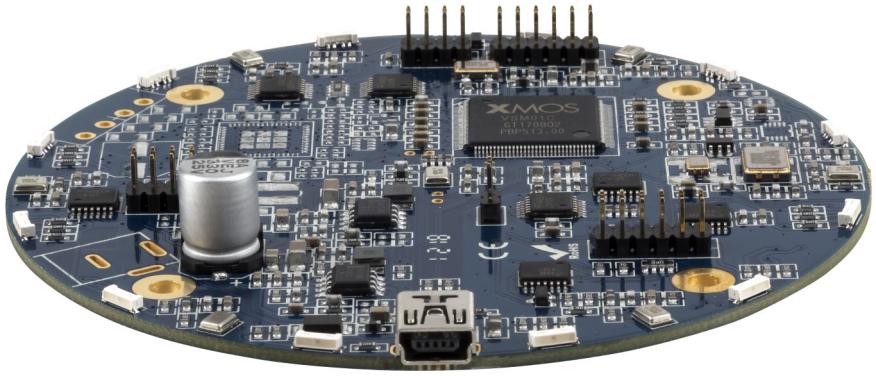
Power
- USB Bus powered
- DC power input option

Applications
- Voice activated projects
- Far field microphone application
- DIY mic array for Alexa/Cortana..
- Recording/conferencing
- Robotics/IoT/Smart home..

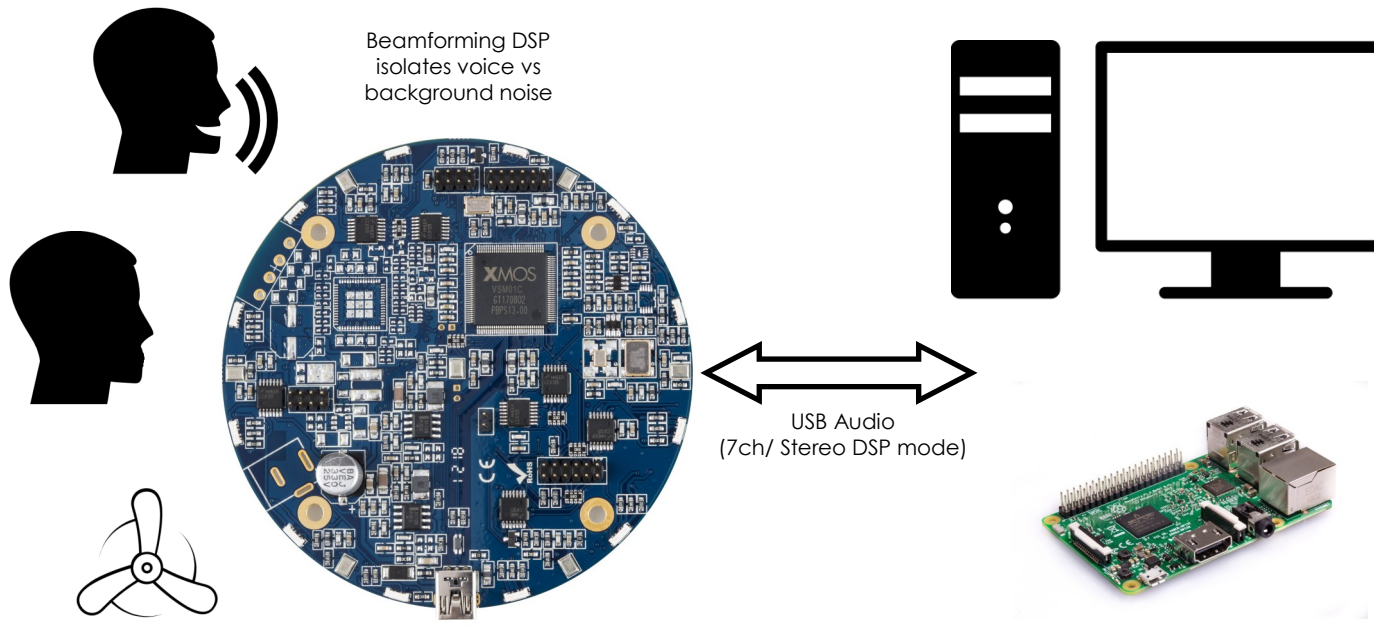
The **UMA-8** is a high-performance yet low cost multichannel USB microphone array built around XMOS multicore technology. Seven high-performance MEMS microphones are configured in a circular arrangement to provide high-quality voice capture for a wide range of applications.

Leveraging the onboard DSP processing from XMOS latest vocal fusion chip-sets, the **UMA-8** supports voice algorithms including beamforming, noise reduction, acoustic echo cancellation and de-reverb. The UMA-8 is a fully compliant UAC2 audio interface with driverless support for Mac/Linux and ASIO drivers for Windows.

From DIYers to OEM, this pocket-size platform is engineered for flexibility in firmware, software and hardware.



SYSTEM DIAGRAM



TECHNICAL SPECIFICATIONS

Item	Description
USB streaming engine	XMOS XVF3000 - Multicore USB audio processor with embedded DSP
USB audio capabilities	USB audio recording in 2 possible modes depending on firmware: - 8-channel mode (7 x MEMS installed + 1 x spare PDM port in the center) - Stereo recording with DSP processing enabled USB audio playback: Mono Audio on I2S out (e.g. external amplifier/DAC board.)
DSP processing (prebuilt firmware)	• Beamforming with configurable beam width (up to 20dB attenuation) • Perceptual acoustic echo cancellation (up to 80dB attenuation) • Noise suppression (up to 20dB attenuation) • De-reverb (up to 20dB attenuation) • Manual mode for control of beam forming
UAC2.0 drivers	Driverless interface for Mac OS X v10.6.4 and up Thesycon Windows ASIO driver (All versions) Linux Alsa 2.0 compliant
Resolution / Sample rate	24bit @ 11/16/32/44.1/48 kHz
I2S port	Output port for PDM to I2S conversion (upcoming firmware update required)
MEMS microphones	7 x Knowles SPH1668LM4H with low noise buffer and high performance modulator • Low distortion: 1.6% @ 120 dB SPL • High SNR: 65 dB and flat frequency response • RF shielded against mobile interference • Ominidirectional pick-up pattern
LED	12 x RGB LED / Bottom mounted - Circular light guide included
Expansion connector	2 x 12-pin, 2 mm pitch expansion connector for connectivity to hardware. XMOS JTAG connector for custom code.
Power supply	USB powered
Dimensions (diameter) mm	90 mm diameter / 20mm height with LED ring, 14mm height without LED ring

MECHANICAL DRAWINGS

J3 / Audio data & clocks

J3.1 - I2S_OUT_0	J3.2 - I2S_IN_0
J3.3 - I2S_OUT_1	J3.4 - I2S_IN_1
J3.5 - I2S_OUT_2	J3.6 - I2S_IN_2
J3.7 - I2S_OUT_3	J3.8 - I2S_OUT_4
J3.9 - MCLK	J3.10 - I2S_BCLK
J3.11 - GND	J3.12 - I2S_LRCLK

J4 / XMOS JTAG connector

J2.1 - GND	J2.2 - 3.3V
J2.3 - GND	J2.4 - 3.3V
J2.5 - N/A	J2.6 - UART_TX
J2.7 - UART_RX	J2.8 - XMOS_RST
J2.9 - I2C_SDATA	J2.10 - I2C_SCLK
J2.11 - N/A	J2.12 - N/A