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 chips, 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.
## Technical Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tr>
<td>USB streaming engine</td>
<td>XMOS XVF3000 - Multicore USB audio processor with embedded DSP</td>
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</table>
| 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  
  - Omnidirectional 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

- J4.1 – GND
- J4.2 – 3.3V
- J4.3 – GND
- J4.4 – 3.3V
- J4.5 – N/A
- J4.6 – UART_TX
- J4.7 – UART_RX
- J4.8 – XMOS_RST
- J4.9 – I2C_SDATA
- J4.10 – I2C_SCLK
- J4.11 – N/A
- J4.12 – N/A

Features and specifications are subject to change without prior notice.