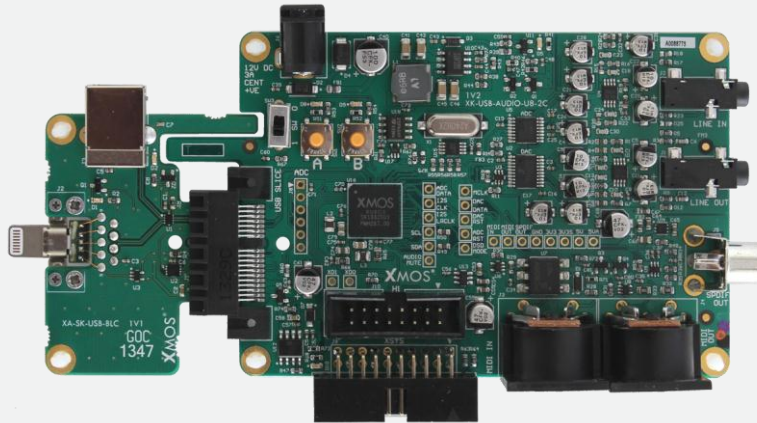




## USB MULTI-FUNCTION AUDIO PLATFORM (Apple Host Mode)

Stereo USB Audio Class 2 development platform for PC, Mac, iOS, Android



### FEATURES

- **USB audio hardware development and software reference platform**
  - Stereo analog input and output
  - MIDI input and output
- **USB compliant device**
  - High-Speed USB device
  - Optional Full-Speed fall-back
  - USB Audio Class 2.0 device
  - Optional Audio Class 1.0 fall-back
  - Self-powered with Apple charging
- **Bit perfect USB audio transfer**
  - Asynchronous Isochronous from host
  - Adaptive Isochronous to host
  - PCM  $\leq$ 384kHz at 16, 24 or 32bits
  - Native DSD64 and DSD128
  - DoP64 and DoP128
  - Local crystal low-jitter audio clocking
- **Multiple OS support**
  - Windows
  - Mac OS X
  - Apple iOS (Apple Host Mode)
  - Android
- **Royalty free software stack**
  - Provided as source code

The USB Multi-Function Audio (MFA) Platform is a complete development hardware and reference software platform ideal for stereo, high-resolution USB audio applications, such as Apple audio docks.

The MFA hardware is based around the XS1-U6 multicore microcontroller; an XMOS xCORE-USB™ device with an integrated High Speed USB 2.0 PHY and 6 logical cores delivering 500MIPS of deterministic and responsive processing power.

Exploiting the flexible programmability of the xCORE™ architecture, the MFA platform supports multiple USB audio streaming formats (PCM, DSD & DoP) at the high sampling rates (PCM up to 384kHz, DSD up to x128) and bit depths (PCM up to 32bits) demanded by the audiophile market.

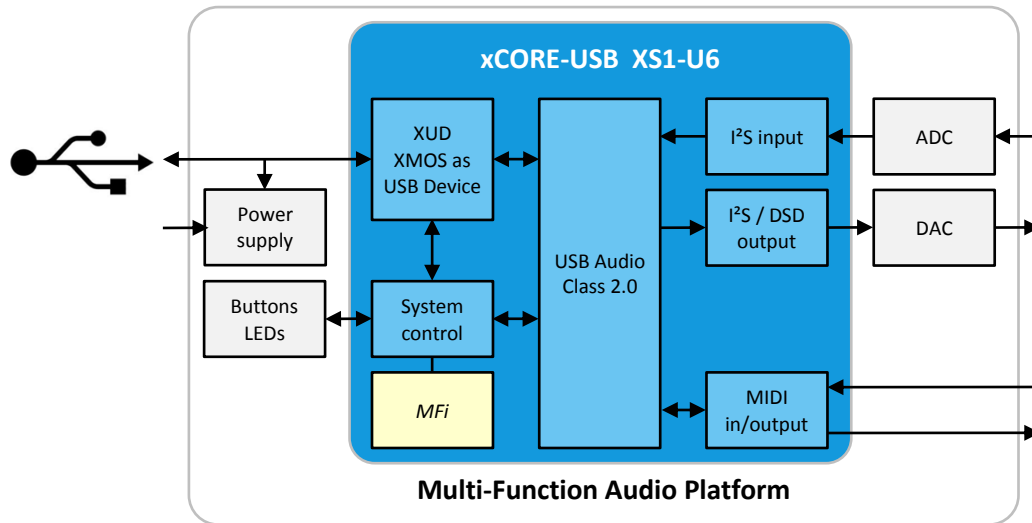
The guaranteed Hardware-Response™ times of xCORE technology always ensure low latency (round trip as low as 3ms), bit perfect audio streaming to and from the USB host.

Delivered as source code, the reference software provides a fully featured production ready solution, including support for: Full- and High-Speed USB operation, USB Audio Class 2.0 & 1.0, MIDI, HID & DFU classes and Apple Host Mode operation.

The XMOS xTIMEcomposer™ Studio development suite and tools then allow for quick and easy software development and customisation to add customer specific, product differentiating features.



# USB MULTI-FUNCTION AUDIO PLATFORM (Apple Host Mode) BLOCK DIAGRAM



	Feature	Benefit
	High-speed USB 2.0 device Apple Lightning and USB-B connector	Plug-and-play operation Apple device charging
	USB Audio Class 2.0 compliant	Driverless operation with Mac OS X <sup>4</sup> , iOS <sup>5</sup> and Android <sup>6</sup> Multiple driver vendors for Windows <sup>7</sup>
	PCM up to 384kHz <sup>1</sup> 32bits <sup>2</sup> DSD up to x128 DoP (DSD over PCM) up to x128 <sup>3</sup>	High resolution stereo audio playback
	Local clocking Asynchronous USB audio transfer	Low jitter, high quality audio capture and playback
	Powered by xCORE-USB multicore microcontroller	Flexible, deterministic and responsive processing power Low audio USB round trip latency (<3ms achievable)
	Flexible hardware & software platform	Predefined feature set reference software Easily customisable to meet specific product requirements
	Source code reference software Integrated development tools suite	Rapid development and code reuse Royalty-free deployment Fast time to market

1, 2, 3: The MFA reference software supports PCM audio up to 384kHz at 16, 24 or 32bits. The MFA hardware (DAC) supports 24bit PCM audio at up to 192kHz. Support for 384kHz PCM, 32bit PCM and DoP128 is therefore disabled in the reference software by default.

4: Mac OS X v10.6.4 and later provides native USB Audio Class 2.0 support.

5: Apple iOS support only available to Apple MFi licensees.

6: Requires that Android device is USB host with USB Audio Class support. Tested against: Samsung Galaxy S3, S4, Note, Sony Xperia Z1, HTC One.

7: USB Audio Class 2.0 support under Windows requires a 3<sup>rd</sup> party driver.

## ORDERING INFORMATION

Part number	Contents
XK-USB-AUDIO-U8-2C-BLC	MFA core board: XP-USB-AUDIO-U8-2C USB B / Lightning slice: XA-SK-USB-BLC xTAG debugger: XA-XTAG2 12V PSU, USB cable

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This is a preliminary product brief, contents are subject to change.

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