



Digico UB MADI

This little box achieves what, up until only earlier this year, was regarded as the impossible. ROB JAMES encounters a real life USB to MADI interface.

In a world where an endless feature list seems to be a prerequisite for the marketing department it is refreshing to discover a device which, on the surface at least, is stunningly simple. Digico, well known for its digital consoles, has released the UB MADI — a USB to MADI (or coaxial AES) convertor that is probably the simplest device I've looked at in ages. Location recording and playback is a growth industry. For people who need to record more than a few tracks, direct outs from a console, for example, a laptop with a suitable audio interface is one possible answer. Laptops are now more than powerful enough to run mainstream DAW and sequencer software with lots of channels and a decent number of plug-ins. Hard drive capacity is still increasing and, despite problems due to the floods in Thailand, they are becoming cheaper. The question is, just how far can the envelope be pushed? The possibility of using a laptop as a 48-track recorder with just a small and simple bus-powered interface and a couple of cables is an enticing proposition. Of course, audio data storage is an issue but there are quite a few viable options now available for that — a second internal hard drive or an external drive connected via USB 2 or 3, Firewire or eSATA or, in the Mac world only for the moment, Thunderbolt.

Despite the current trend for audio over IP Ethernet and other network connections there is still a lot to be said for simple point-to-point in mission critical applications. Although a single, conventional AES3 link can carry two channels, the multicore cables required to transport high channel counts are unwieldy, fragile and expensive. MADI offers an excellent alternative. The MADI digital interface protocol, AES10, or the Serial Multi-channel Audio Digital Interface, to give it its full title, delivers long distance communications for up to 64 (extended mode) bidirectional channels over just two copper

coaxial BNC or optical fibre cables. Until now though, interfacing MADI with a computer has required a relatively large and costly interface. With the advent of UB MADI (UK£750+VAT) the game has changed.

The unit arrives in a neat cardboard box several times the size of the actual unit. Inside, high density foam protects the unit itself, a short USB A to USB B cable and a memory stick with the drivers and a 'readme' text file.

Around the size of a packet of fags with sculpted sides the unit is cased in silver coloured metal with black plastic accents around the end panels and along the base. At one end there are two gold plated BNCs for the MADI input and output and at the other a USB 2.0 B type socket for the computer connection and an LED. There is no power socket since Digico has managed to engineer the UB MADI to work quite happily on USB bus power alone. There is also a tiny hole reminiscent of a Mac optical drive manual eject orifice which, I'm guessing, since there are no screws visible or other obvious fastenings, is how Digico gets into the unit. Although I didn't break it open to check, Digico says that it contains a proprietary FPGA, the design of which is derived from its SD7 MADI codec, a proprietary MADI transceiver and input format detection circuit and a 500MHz dual-core USB processor.

The original MADI specification specifies 56 channels of audio at standard sampling rates. The 2003 extension to the specification increases this to 64 channels and also provides for higher sampling rates with a consequent reduction in channel count at the expense of varispeed. Digico says that the 'sweet spot' channel count for USB 2.0 audio interfacing is 48 channels so the UB MADI sends and receives the first 48 channels of MADI streams via an ASIO driver to the application.

On a laptop running Windows installation is as

simple as it gets. Run a small installer, ignoring the Microsoft warnings about uncertified drivers, connect up your coax cables and plug it into a vacant USB 2 socket. Windows recognises the new device and installs the driver automatically.

For testing, I used a geriatric Windows laptop running Merging Technologies Pyramix and a Yamaha O1V96i with the optional MY16-MD64 MADI interface card. It was all completely drama free. Although I only had the preproduction driver, the full 48 MADI I-O channels were made available to Pyramix immediately. UB MADI detects the input format automatically; no user settings are required or available. MADI playback is synchronised automatically to any 48kHz Word clock AES3 (AES-EBU) or AES10 (MADI) stream that the device detects on its input. In the absence of an input stream it synchronises to its own internal clock. At the Yamaha end access to the first 16 channels was similarly immediate. The Yamaha card only supports 16 I-O channels but in other Yamaha devices with sufficient slots up to three MY16 EX expander cards can be added to access the maximum 64 channels of I-O.

Digico claims that the MADI to USB delay introduced by UB MADI itself is extremely low (tens of samples). However, the way in which operating systems handle USB introduces milliseconds of latency, the exact value of which will depend on many factors. At present the only operational user setting in the Digico control panel is a slider that determines latency. My ancient Windows lappy required 10ms. A new, fast Windows or Mac laptop would need considerably less. Full control software will be released with the Macintosh driver by the time you read this. For most scenarios this software will be unnecessary thanks to the automatic detection feature. Digico also says that courtesy of the processing power built into UB MADI further functional enhancements may be added in the future.

In theory, the unit can be hot-plugged and, so far as the operating system is concerned, I found this to be the case. However, some applications may take exception to having their ASIO driver interrupted and will sulk.

Working with an old laptop running Windows XP was a hard test for the UB-MADI and it acquitted itself admirably. I have no doubt that this is the simplest way yet of turning a current generation laptop with a half-way decent spec into a 48-track recorder. So, you can now do with a laptop what used to require a device the size of a large washing machine or, more recently, a relatively large interface box. I have always been sceptical of the wisdom of using laptops for recording for numerous reasons. Although I still have some reservations Digico UB MADI has turned me into a convert! ■

PROS Ridiculously simple set-up; more features to come; robust and tiny.

CONS 'Only' carries 48 of the 64 possible MADI channels; coax interface only, no fibre-optic.

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