

USER REPORT

miXart 8 Enables Custom Setups

Digigram's Series of Multichannel Processing, Mixing Sound Cards Facilitates Recording, Distribution

by Carl Lindemann

With the hodge-podge of different audio standards, formats and bitrates to be mixed and matched today, getting everything to cooperate takes some work. The aim of Digigram's miXart 8 series of multichannel audio processing and mixing sound cards is to bring together these differences in audio streams on-the-fly and with onboard processing. These cards also are part of a comprehensive development platform that makes it possible to build custom virtual consoles, as well as run standard audio production software.

With different card configurations to provide various I/O options matching specific needs, the miXart 8 series is a flexible package that allows broadcasters to enjoy no-compromise solutions. It pulls together all the loose ends into a tidy PC-based package for recording, distributing, routing and logging audio.

From analog to Ethernet

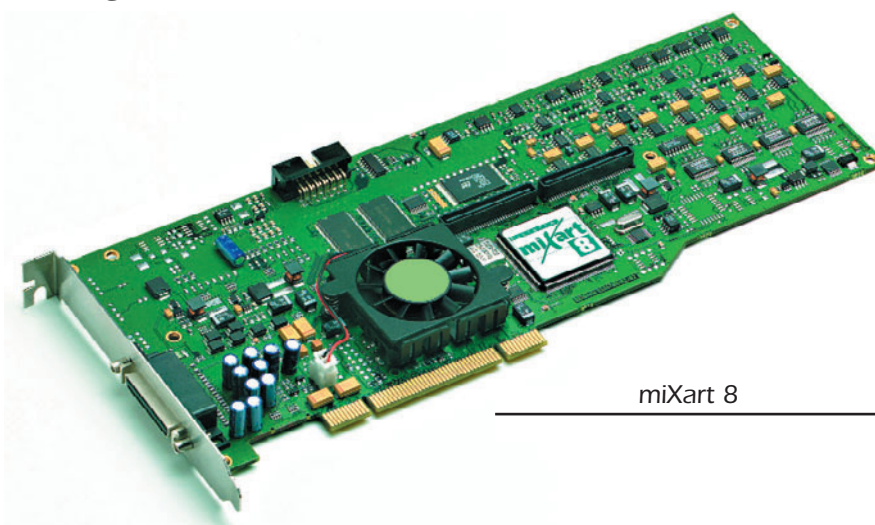
The miXart 8 series begins with the analog I/O-only miXart 8, featuring eight balanced mono inputs matched with eight mono outputs, as the name suggests. The miXart 8 AES/EBU adds four AES/EBU stereo inputs and matching outputs plus word clock and AES/EBU synch inputs, black burst and LTC inputs and a word clock output.

The miXart 8 CN and the miXart 8 ES open up the new frontier of Ethernet audio by adding eight CobraNet inputs and outputs for the former or eight EtherSound inputs and outputs for the latter on top of the analog I/O. The CN also has a CobraNet synchronized

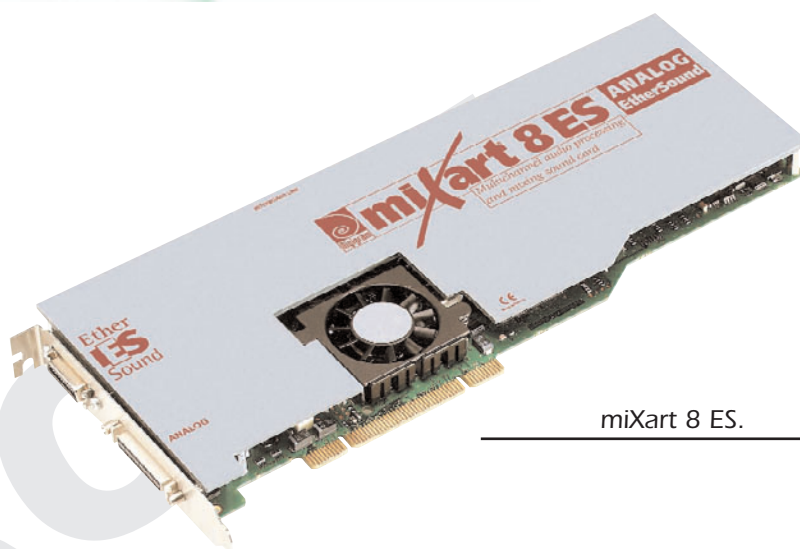
AES/EBU stereo output, an AES/EBU synchronization input, word clock synch input and a CobraNet word clock synch output. All of the full-length cards are clock-programmable from 8 to 48 kHz (CobraNet use is locked into 48 kHz, EtherSound comes at 44.1 or 48

kHz) and include an interboard connector if you want to synch up a multi-card configuration.

Onboard audio processing is carried out by the Motorola MPC8240 Power PC processor running at 250 MHz alongside 16 MB of SDRAM memory. This



miXart 8



miXart 8 ES.

Product Capsule:

miXart 8 Sound Cards

Thumbs Up



- ✓Flexible, scalable broadcast infrastructure
- ✓Low minimum PC requirements
- ✓Powerful onboard processing

Thumbs Down



- ✓Light on printed documentation

Price: \$1,690 (8/8 analog I/Os) —
\$2,850 (8/8 analog I/Os + 8/8
CobraNet I/Os)

For information, contact Digigram in
Arlington, Va. at (703) 875-9100 or
visit www.digigram.com.

allows for MPEG II layers 1 & II mono and stereo encoding/decoding, MP3 decoding and sample rate conversion to drive simultaneous recording/playback of sound files at different frequencies. PCM recording can be set for 8-, 16- or 24-bit resolution. While many pro audio cards have a breakout box for an interface, the miXart 8 uses a cable snake that is carefully labeled and painstakingly constructed. Nevertheless, a breakout box is announced for beginning of 2005.

I tested the basic analog-only card in a generic PC with a Pentium IV 1.8 GHz processor and 512 megs of RDRAM memory. While this system is on the low end of the spectrum of today's powerhouse desktops with top-of-the-line CPUs running at nearly twice the clock speed, any P4 is more than adequate for the miXart 8. Part of the beauty of the onboard processing is the low minimum system requirements — a PII and 128 megs of RAM. Almost any legacy system running a full 32-bit Windows operating systems (NT, Win2K and XP) will do because the onboard processor offloads the tough stuff.

In the HR Department

Digigram upgraded its PCX range of sound cards with the HR (High Resolution) series, which the company says is designed for demanding broadcast applications such as production, on-air, continuous playback and logging. The PCX882HR, PCX881HR and PCX1222HR multichannel sound cards are the first of the cards to offer features of the HR Series.

The HR Series offers hardware sample rate converters for simultaneous recording of digital signals with different sampling frequencies, a 66 MHz/64-bit PCI interface and a more powerful DSP. Eight inputs and outputs are provided, with digital I/Os in the PCX881 HR. The PCX1222HR offers 2 inputs and 12 outputs, analog and digital. Maximum levels of the analog inputs and outputs are +24 dBu.

Additionally, the HR Series features a set of drivers, including WDM DirectSound, Wave and ASIO, and a physical design using the short-length PCI format of 175 mm/6.875 inches long.

Cool setup

Installing the card in a PCI slot was not a problem in a full-size case, although the length might be a challenge for some of the micro cases. The processor on the card comes equipped with a cooling fan to dissipate heat that might build up if the onboard processing is run hard, like cranking encoding/decoding and sample rate conversions simultaneously for different channels.

The manual advises installing the card vertically, not horizontally. That doesn't seem like very practical advice for motherboards with PCI slots running horizontally. Nevertheless, it's easy enough to improve air circulation internally with additional fans for the case.

The software install wasn't plug-and-play, but it was simple enough under XP. The wave and ASIO drivers makes the card work with standard audio software and the included Digigram Wave Mixer, a basic recording utility that sets levels, input types and digital data formats. An open source Linux driver project for this range of sound cards exists since September 2003.

But the real gem is the VConsole builder utility. This has the power to create the virtual equivalent of a sophisticated (and pricey) mixing board with the ability to plug-in audio effects. Different configurations of audio processing and mixing can be stored and swapped at will. Operating the VConsole isn't too hard to figure out with an extensive help file built into the program. Still, it would be nice to have some printed

documentation supporting it. But once you get past the learning curve, this virtual studio — combined with the ability to synch-in added cards — adds up to an amazingly scalable solution.

The only limit is that the utility can only work on one card, but there's an easy workaround — run additional installations for additional cards. Digigram makes the miXart 8 a full-blown platform by offering an API and other tools for application developers.

The noise levels of the miXart 8 yield a respectable 85 dB S/N ratio judging by the Wave Mixer meters. This isn't as quiet as some pro audio cards suitable for hi-res 24-bit 192 KHz recording, but this is quite sufficient for most broadcast applications.

The analog miXart 8 offers a scalable, flexible off-the-shelf broadcast infrastructure to simply move and modify audio as needed. With its digitally enhanced siblings, this provides an upgrade path to the future of Ethernet based audio. Or, if you want that future today, opt for the miXart 8 ES or the miXart 8 CN now.

Carl Lindemann is director of special projects for the World Media Foundation, producer of NPR's "Living on Earth." 