Mark of the Unicorn, Inc.
1280 Massachusetts Ave.
Cambridge, MA 02138
Phone: (617) 576-2760
Fax: (617) 576-3609
Email: info@motu.com

Press
Contact: Jim Cooper
Phone: (617) 576-2760
FAX: (617) 576-3609
Email: jim@motu.com
Web: www.motu.com

MOTU DEBUTS 24-bit/96kHz RECORDING SYSTEM FOR MAC AND WINDOWS

MOTU ANNOUNCES 1296 HARD DISK RECORDING SYSTEM

MOTU 1296 SYSTEM OFFERS 12 CHANNELS OF 96kHz I/O EXPANDABLE TO 36 CH

NAMM 2000, LOS ANGELES - February 3, 2000. Mark of the Unicorn, Inc. (MOTU) debuted the 1296, a two-space rack-mountable computer-based hard disk recording system for Mac and Windows that offers 12 simultaneous channels of 24-bit, 96 kHz input and output on balanced XLR connectors. The 1296 core system includes a PCI-324 audio card with three "Audio Wire" connectors, allowing users to expand the system to three 1296 interfaces for up to 36 simultaneous channels of 24-bit 96 kHz input and output. The 1296 audio interface will also be sold as an expansion I/O that can be "mixed and matched" with MOTU's entire line of audio interfaces, including the 2408, 1224, 24i and 308. For example, a 2408 user can upgrade their system to 96 kHz simply by plugging in a 1296 expansion interface. The 1296 core system includes MOTU's Macintosh workstation software, AudioDesk, which supports 16- and 24-bit recording, editing, mixing, effects processing and mastering at 44.1, 48, 88.2 or 96 kHz. Standard ASIO and Wave drivers are supplied for widespread compatibility with 3rd party audio software for both Mac and Windows.

"With its wide dynamic range, 19-segment level meters for every input and output, and expansion to 36 channels, the 1296 is clearly the top choice for anyone who is serious about multi-channel 96K recording," said Jim Cooper, MOTU's marketing director. "In particular, the 1296 is ideal for surround recording and mixing applications because each 1296 rack unit can accommodate two 5.1 surround stems, both in and out. That's a total of six separate 5.1 mixes in a fully expanded system. For stereo mastering, the 1296 includes AES/EBU I/O with sample rate converters on both input and output. This means you can run the system at 96 kHz, for example, and bounce a stereo mix to DAT at 48 kHz with bit reduction and dither being handled by plug-in processing in the host computer. And the audio quality of the 1296's analog circuitry and converters is simply magnificent: our measurements show an A-weighted signal-to-noise ratio of over 117 dB on its twelve inputs."

1296 rear panel:
12 XLR analog in and out, AES/EBU and word clock

The 1296 audio interface has a double-space, rack mountable steel chassis with twelve XLR analog input connectors, twelve XLR analog output connectors, stereo AES/EBU in and out, word clock in and out, and an extra “AES” word input that allows the unit’s AES/EBU section to independently resolve to an external word clock source. Finally, the rear panel includes a standard MOTU Audio Wire jack for connection to a MOTU PCI-324 audio card.

The 1296’s isolated analog I/O circuit board is equipped with the latest generation state-of-the-art 24-bit “enhanced multi-bit” 128x oversampling 96 kHz A/D and D/A converters. The A-weighted dynamic range is 117 dB for the 12 inputs and 116 dB for the 12 outputs. The 1296 also employs latest-generation R/CORE transformers, which achieve efficient, low-heat operation with virtually no magnetic interference or acoustic hum.

The 1296 can resolve with other devices via its standard BNC-style word clock input and output, or via the ADAT SYNC connector on the PCI-324 card. When multiple 1296 interfaces are connected, no extra synchronization connections are necessary, as the interfaces resolve with each other via the PCI-324 card.

Sample rate conversion for AES/EBU in and out

The 1296’s AES/EBU input and output each have an independent sample rate converter, allowing them to send and receive digital audio signals at a different sample rate than the rest of the 1296 system. For example, while the 1296 system clock operates at 96 kHz, the AES/EBU input could resolve to a digital mixer running at 48 kHz and the AES/EBU output could simultaneously run at 44.1 kHz for output to a DAT machine.

1296 front panel: 19-segment level meters with peak/hold LEDs

The 1296 front panel provides status and metering information in three sections: Input, Output and Clock. The Input and Output sections provide accurate, 19-segment LED meters for each input and output. Each meter displays audio level in 3 dB increments from -42 dB to -4 dB and then in 1 dB increments from -4 dB to unity gain. Unity gain is indicated with a red “over” LED, along with an additional hold LED that can be cleared via software. The “over” LED continues to dynamically indicate further peaks, even after the hold LED has been illuminated. This allows 1296 users to correct levels without having to repeatedly clear the hold LED.

The Clock section provides colored LEDs that indicate the 1296 system’s operating sample rate (44.1, 48, 88.2 or 96 kHz), as well as the sample rate of the unit’s AES/EBU section (if it’s operating at a different rate than the rest of the system).

The PCI-324 card:
Custom Processor, Expansion, and Sample-accurate Sync

The 1296 core system ships with a single PCI-324 audio card, first introduced with the popular 2408 system. The PCI-324 card has three MOTU Audio Wire connectors and a standard 9-pin ADAT SYNC input connector that provides sample-accurate sync with ADAT family multi-track recorders. A “Control Track” connector is included for sample-

accurate synchronization with Tascam family multi-track recorders via a MOTU Digital Timepiece universal synchronizer.

The PCI-324's three Audio Wire connectors allow up to three 1296 interfaces (or other MOTU audio interfaces) to be connected to the computer at one time. Each Audio Wire connection carries up to 24 channels of 44.1 or 48 kHz input and output for a possible maximum of 72 simultaneous input and output channels. When the system operates at 88.2 or 96 kHz, each Audio Wire can carry up to 12 channels of input and output for a possible maximum of 36 simultaneous input and output channels.

The Audio Wire format uses standard 1394 components, but MOTU has developed a proprietary communication protocol between the card and the external I/O to handle the extremely low latencies required by the system.

AudioDesk Workstation Software for Macintosh: Recording, Editing, Mixing, Plug-ins and Real-Time Effects

Included with each 1296 core system is AudioDesk, a full-featured audio workstation software package that includes multi-channel waveform editing, automated virtual mixing, graphic editing of ramp automation, real-time effects plug-ins with 32-bit floating point processing, crossfades, support for third-party audio plug-ins (in the MOTU Audio System and Adobe Premiere formats), background processing of file-based operations, sample-accurate editing and placement of audio, and more. The 1296 system can also be used with MOTU's award-winning Digital Performer audio sequencer software package.

In either case, the host computer determines the number of tracks that the software can record and play simultaneously, as well as the amount of real-time effects processing it can support. A faster computer with more RAM and faster hard drives will allow more simultaneous tracks and real-time. Standard third-party acceleration products can also help users achieve higher track counts.

Compatibility with Third-Party Audio Software

The 1296 includes a standard multi-channel Windows Wave (.WAV) driver, ASIO 2.0 drivers for Macintosh and Windows, and a Macintosh Sound Manager driver. These drivers allow users to record, edit, mix, process and master their 1296 projects on a wide range of third-party audio software applications. MOTU systems have been tested with all major audio packages on Macintosh and Windows.

96 kHz or 88.2 kHz recording

Users can work at the 96 kHz or 88.2 kHz sample rates using any host audio software that supports these sample rates, such as MOTU's AudioDesk and Digital Performer. ASIO 2.0 drivers are included for sample-accurate, 96 kHz operation with Steinberg Cubase VST and other ASIO-2.0 compliant programs.

The 1296 will ship Q2 2000. Prices for the core system and expansion I/O have not yet been announced.

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