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**MARK OF THE UNICORN SHIPS DIGITAL TIMEPIECE UNIVERSAL
SYNCHRONIZER FOR SMPTE, VIDEO AND DIGITAL AUDIO SYSTEMS**

**MOTU'S DIGITAL TIMEPIECE SYNCHRONIZES ADAT, DA-88, PRO TOOLS,
WORD CLOCK, S/PDIF, VIDEO, SONY 9-PIN, SMPTE, MIDI MACHINE
CONTROL AND MIDI DEVICES UNDER ONE ROOF**

**DIGITAL TIMEPIECE IS THE FIRST SYNCHRONIZER TO LOCK ADAT, DA-88,
PRO TOOLS, WORD CLOCK DEVICES, S/PDIF DEVICES, SONY 9-PIN VIDEO
DECKS, SMPTE DEVICES, MMC DEVICES AND COMPUTERS**

AES, NEW YORK, NY - September, 1997. Mark of the Unicorn, Inc. (MOTU) is impressing AES show attendees here in New York this week with its recently released Digital Timepiece™, a universal synchronizer that provides centralized, sample-accurate synchronization for the myriad of devices found in today's digital audio recording studio. Until now, locking together ADAT™, DA-88™, Pro Tools™, word clock audio devices, S/PDIF devices, video decks, SMPTE time code devices, MIDI Machine Control devices and computers has been difficult - if not impossible. The Digital Timepiece can connect to all of these types of devices and synchronize them with one another.

The Digital Timepiece offers several synchronization firsts. For example, users can now synchronize a stack of Alesis ADAT™ recorders with a stack of Tascam DA-88™ recorders with 'plug-and-play' ease and sample-accurate timing. The Digital Timepiece also works with other devices that support the ADAT and DA-88 proprietary sync protocols, such as the Panasonic MDA-1™, SONY PCM-800™ and Tascam DA-38™.

The Digital Timepiece supplies all of the necessary components for stable, sample-accurate synchronization: address (SMPTE time code location and audio sample number), time base (word clock), and machine control (for transport and cueing). The user chooses an external source -

or the Digital Timepiece itself – as a time base and address master, and then the Digital Timepiece continuously generates all other synchronization formats, locking together all connected devices with frame-accurate timing. Sample-accurate timing is achieved with devices that allow it, such as ADATs and DA-88s.

The Digital Timepiece is more flexible than most synchronizers because it allows users to choose different master sources for time base, address and transport, as best fits the user's studio setup. For example, a user could choose house sync video as the master time base, the Digital Timepiece as the address (time code) master, and their computer software as the transport master.

Digital audio synchronization formats supported include word clock, Digidesign 256x 'superclock' and S/PDIF. These industry standard formats allow the Digital Timepiece to synchronize a wide variety of digital audio systems, including Digidesign Pro Tools™ 4.0, Pro Tools Project™, stand-alone hard disk recorders, digital mixers, computer-based digital audio workstations, S/PDIF devices (such as DAT recorders) and Digidesign's Audiomedia™ II and III cards.

Because the Digital Timepiece directly supports third-party synchronization formats like 'superclock' and ADAT Sync, it eliminates the need for expensive synchronization add-on equipment such as Digidesign's SMPTE Slave Driver™, the Digidesign Video Slave Driver™, Alesis BRC™, Tascam SY-88™ sync card and others. The Digital Timepiece dramatically undercuts the cost and setup overhead of these other devices while offering most of the same features in a compact, efficient, single rack-space unit.

The Digital Timepiece can also generate and slave to all forms of SMPTE time code, including LTC, VITC and MTC (MIDI Time Code). All SMPTE frame formats are supported when generating and reading time code, including 29.97 drop and non-drop for NTSC video applications. These SMPTE sync features allow the Digital Timepiece to synchronize with computers, analog tape decks, stand-alone hard disk recorders, MIDI devices, and virtually anything that can either generate or slave to SMPTE or MIDI Time Code.

The Digital Timepiece supports MIDI Machine Control (MMC) transport and record functions. These features allow users to control their entire rig from a single source (such as their MMC-compatible computer software), eliminating the need for expensive, dedicated hardware control surface add-ons such as the Alesis BRC™ and Tascam RC-848™ for basic machine control tasks.

The Digital Timepiece includes support for the SONY 9-pin machine control format. Users can connect a SONY 9-pin compatible video deck, which can then be slaved to the Digital Timepiece. This allows users to control the video deck, along with all of their other gear, from their favorite MMC-compatible computer software or any MMC-compatible hardware controller. Conversely, the Digital Timepiece can slave to the 9-pin video deck.

The Digital Timepiece provides many other essential video features. The rear panel has two BNC video jacks (IN and OUT) in addition to its SONY 9-pin connector. Internally, the Digital Timepiece has a built-in video sync generator, which can be synchronized with the Digital Timepiece's audio phase lock engine or run independently of the Digital Timepiece's synchronization features. The VIDEO IN jack allows the Digital Timepiece to slave to any NTSC or PAL video source, such as house sync video or VTR output. The VIDEO OUT jack can display whatever is being received on the input, or it can produce blackburst. In either case, the Digital Timepiece can overlay up to twelve lines of text and information on its video output signal, including a large and small SMPTE time code burn-in, status information (e.g. the Digital Timepiece's current sample rate output), MIDI sequencer triggered streamers with punch, and numerous lines of user-programmed text (such as client and project names). Text lines can be positioned vertically as desired.

The Digital Timepiece supports 44.1kHz and 48kHz sampling rates. It also supplies 0.1% pull-up and pull-down at both rates, an essential feature for users who work with film cues that have been temporarily transferred to video for music scoring or audio post production. By using a pull-down rate while working with film in video format, users can easily avoid synchronization and drift problems that arise from the 0.1% speed difference between the film transfer rate of 30fps and the NTSC video playback rate of 29.97fps.

The Digital Timepiece delivers pristine sound and an extremely stable, high-resolution digital audio time base with no dithering, rounding, or software delays. This level of performance is made possible by custom-designed VLSI technology and a proprietary high-frequency phase engine.

Depending on the specific scenario in which the Digital Timepiece is being operated, its lock-up time can be as fast as one second. Fastest lockup times are achieved by slaving the Digital Timepiece to house sync video ("blackburst") or by running under its own internal clock. When slaving the Digital Timepiece to SMPTE or MIDI time code (without video as a time base), lock up time is typically 2-4 seconds, depending on the overall stability of the incoming time code.

A new, proprietary Mark of the Unicorn synchronization format, called 'Control Track', is supplied via two 8-pin circular DIN sockets on the Digital Timepiece rear panel. By means of high-resolution sample address information, Control Track can synchronize two Digital Timepieces with sample-accurate timing.

The Digital Timepiece can be operated in a computer-based setup or as a stand-alone synchronizer. The front panel supplies buttons and status LEDs for making all of the necessary basic operational settings. Users can choose the overall operating mode (called the 'time base mode'), the sample rate (44.1kHz or 48kHz), sample clock pull-up or pull-down (0.1%), and SMPTE time code format (30, 29.97, 29.97 drop, 25 and 24). Status

LEDs are also supplied to indicate communication between the Digital Timepiece and devices connected to it. A convenient S/PDIF THRU button

allows the user to easily bypass the Digital Timepiece when transferring S/PDIF audio from one device to another – without having to swap cables. The front panel also has a quarter inch phone jack for an Alesis LRC™ or compatible controller.

The Digital Timepiece rear panel has three input/output pairs of BNC connectors for video, word clock and Digidesign superclock. A pair of RCA phone jacks supply S/PDIF input and output. Other rear panel connectors include a pair of standard ADAT 9-pin Sync In and Sync Out sockets, DA-88 15-pin Sync In and Sync Out sockets, a SONY 9-pin video sync jack, a pair of quarter-inch phone jacks for SMPTE (LTC) input and output, two pairs of MIDI IN and OUT sockets, an RS-422 jack for optional connection directly to a Macintosh computer, and two additional circular DIN-8 sockets for the Digital Timepiece's proprietary Control Track protocol.

The Digital Timepiece™ ships with Macintosh console software that provides access to numerous additional features. For example, the console allows users to program SMPTE time code offsets for individual devices connected to the Digital Timepiece, such as a single ADAT within a chain of ADATs. Users can even program individual track offsets for ADATs and DA-88s; track offsets can be specified as a number of samples. The console software also lets users control the Digital Timepiece's video graphics features.

The Digital Timepiece is now shipping and is available at Mark of the Unicorn authorized resellers. The US list price is \$995.

Mark of the Unicorn is a leading developer of computer based, music production tools, including the TEC Award and MacWorld World Class award-winning Performer Version 5.5 professional sequencer, Digital Performer, FreeStyle for Windows & Macintosh, UNISYN universal patch editor/librarian, MOSAIC notation publishing program, and a complete line of MIDI interfaces, including the MIDI Timepiece AV.

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