

JANUARY 1989

USA \$2.95

CANADA \$3.95

# MUSIC TECHNOLOGY

## AL DI MEOLA

*Reflections on the Pace*

## BRETT TUGGLE

*Roth's Keys*

## TWO NEW SERIES

*Humanize Your Sequences*

*FM Programming Basics*

## COMPUTER VIRUSES

*Are They a Real Threat?*

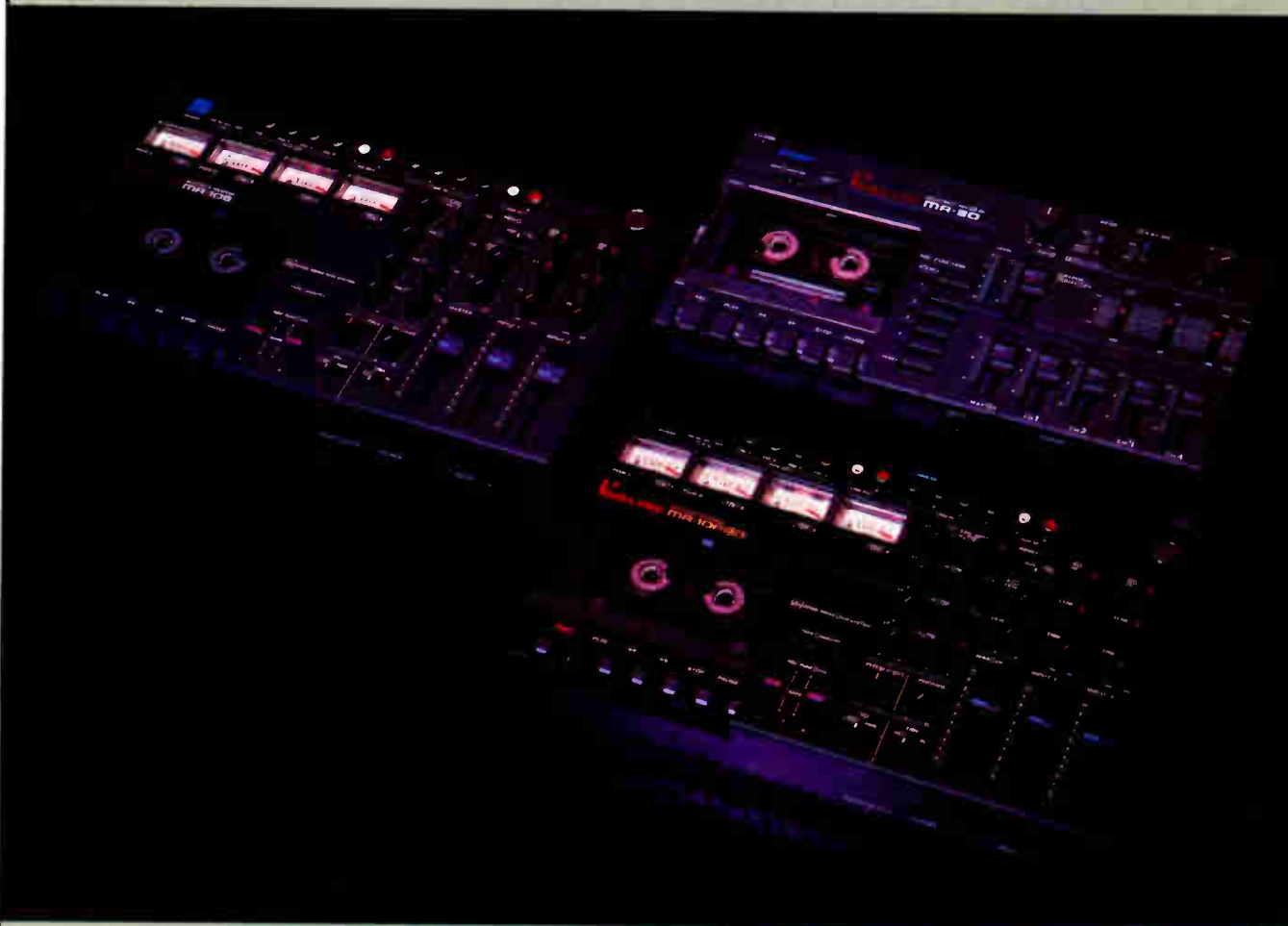
REVIEWS: Akai S1000, Yamaha YS200, Dr. T's  
SampleMaker, Turtle Beach's SampleVision, Twelve  
Tone Systems' Cakewalk Professional



# Vesta® FIRE

**SERIES MR**  
Personal Multitrack Recorders

**Our multitracks sound as good as you do  
... or better.**



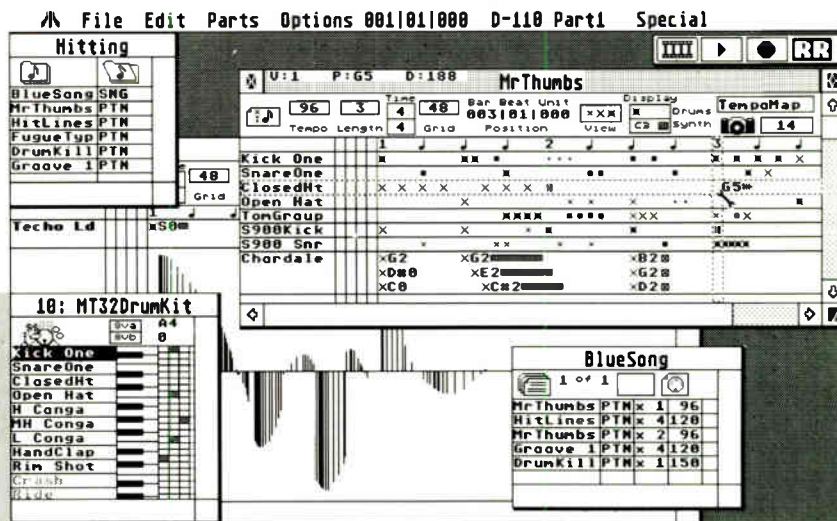
The 8-input patchbay of the MR-10B puts unlimited musical possibilities at your fingertips. Add professional VU meters, switchable dbx noise reduction, and an independent 4-channel mixer; and you're ready for any session. The MR-10PRO offers all of this plus hi-speed recording for the ultimate sound quality. If you have simpler needs, the "user-friendly" design and operation of the MR-30 is your ticket to the world of MTR. Whether you're at the top or just on your way there, we've got a multitrack for you.

**Capture  
Your  
Creativity**



**MIDCO International**  
P.O. Box 748 / Effingham, IL 62401 / Ph. (217) 342-9211

# Life Is Too Short To Waste Time Making Music.



Chances are, if you're using a sequencer, you're wasting a lot of time. Unless, of course, you're using RealTime™ the new sequencer from Intelligent Music.

RealTime lets you do everything as your music is playing. You can record a record-breaking 256 tracks. Graphically edit to the finest detail. Instantly access all MIDI controls. Load and save Patterns, Songs and device setups. Synchronize to MIDI Time Code. Even run other programs and desk accessories from within RealTime. All while you're listening.

And to speed up the creative process even more, RealTime includes the interactive features you'd expect from an Intelligent Music program. Like Track Bondage™, which lets you slave elements of different tracks to produce new combinations of musical elements. Automatic Fill Generation, which enables you to enhance your original material. Time Deviation, which allows you to give each track its own rhythmic feel. Device Lists that remember your entire MIDI setup. And much more.

So stop wasting time while you're making music. Get into RealTime today. Call or write us for the dealer nearest you. Or send us a \$10 check and we'll send you a demonstration package. For the Atari 520, 1040, and MEGA ST.

## REALTIME

RealTime features include:

- 256 simultaneous tracks
- Virtually unlimited Patterns and Songs
- 768 parts per whole-note clock resolution
- Device Lists to store drum machine and synth setups
- Graphic editing of notes, transpositions, durations, velocities, and controls
- Copying, pasting, and editing of any region or Pattern
- Painting of tempo maps and MIDI control changes
- Independent, nested track looping
- Delaying and shifting of tracks
- Graphic arrangement of Songs
- Snapshot presets of control parameters
- Importing and exporting of MIDI Files
- Synchronization to SMPTE/MTC devices
- Real time multi-tasking environment
- Complete GEM windows implementation



Intelligent Music®  
116 North Lake Avenue  
Albany, NY 12206 USA  
518-434-4110

**EDITOR**

Bob O'Donnell

**MUSIC EDITOR**

Deborah Parisi

**TECHNICAL EDITOR**

Chris Meyer

**ASSOCIATE EDITOR (UK)**

Tim Goodyer

**EDITORIAL ASSISTANT**

Dan Rue

**PRODUCTION COORDINATOR**

Debbie Poyser

**PRODUCTION ASSISTANT**

Chris Williams

**PRODUCTION MANAGER (US)**

Trish McGrath

**PRODUCTION MANAGER (UK)**

Shawn Barrett

**EDITORIAL CONSULTANTS**

Amy Ziffer (Recording)

Michael McFall (Percussion)

**SPECIALIST CORRESPONDENTS**

Michael Andreas, Nick Armington, Travis Charbeneau,  
John Diliberto, Yung Dragen, Aaron Hallas, Stefan B.  
Lipson, Lars Lofas, Chris Many, Tom McLaughlin,  
Dennis Miller, Harvey P. Newquist, Bob Rich, Lorenz  
Rychner, Carter Scholz, Simon Trask

**ART STUDIO**

Stuart Catterson (Director),

Sam Masters (Deputy), Alan Beeson, Sam Gilbert,  
Darryl Tooth, Hilary Reed

**PHOTOGRAPHER/ART COORDINATOR**

Rosemarie Rounseville

**PHOTOGRAPHY**

Peter Figen, Tim Goodyer, Adam Jones

**ILLUSTRATIONS**

Colin Cantwell, Toby Goodyer, Brent Heintz, Rick  
Lohnes

**ADVERTISING DIRECTOR**

Ce Ce Hernandez

**ADVERTISING SALES MANAGER**

Brent Heintz

**ADVERTISING COORDINATOR**

Kathy Soran

**CONTROLLER**

Sharon Pinnick

**ASST. TO THE CONTROLLER**

Stefanie Mann

**CIRCULATION MANAGER**

Debbie Miller

**SUBSCRIPTIONS**

Tiffany Sepe

**STAFF ASSISTANT**

Carol Dean Frost

**MUSIC MAKER PUBLICATIONS, INC.**

*Executive Officers*

Gary Helmers *Publisher / Editorial*

Ce Ce Hernandez *Publisher / sales*

Terry Day *President*

Dennis Hill *Publishing Director*

©Copyright 1988 Music Maker Publications, Inc.

Cover photography Peter Zander

Computer Notes Cover

Colin Cantwell ©1988 Crystal Chip, Inc.

# EDITORIAL

## The Economics of Fashion

LIKE MOST OF you out there, I have my own MIDI studio which I'm constantly thinking about upgrading. Sometimes, my pockets are deep enough to quench my techno-thirst. Sometimes, they're not.

When my pockets are deep, I'll more than happily fall prey to the latest new wonder to hit the streets. Lately, they haven't been, so I (and several friends in similar situations) have started to think a bit differently. For whatever reason, perhaps as an outgrowth of the incredible pace at which technology has progressed, we've all started to notice some incredible deals on "last year's models" and other "old" gear. Kawai's K5 additive synthesizer and Yamaha's TX16W stereo sampler (both of which have been recently enhanced), for example, are now more affordable than they've ever been. Discontinued products - like Yamaha's DX21, 27, 27S and 100 - can also be found at very attractive prices.

In some instances there may be a good reason why a product has been cut in price - because of technological advances, it might not be a good value. (As always, *caveat emptor*.) More likely at this point in time, however, is that the product simply fell out of fashion. In other words, even though it does exactly what it's supposed to, and perhaps very well, it might lack the one feature that everyone wants (or thinks they need). So if you are on a tight budget, and are willing to live with something that's not the latest trend-setter, good equipment is available - it just may not be the ones you've currently been reading about.

Along similar lines, there is a huge market out there for quality used gear. I have to admit that sometimes I've fallen prey to the strong desire of unwrapping a brand new product when a perfectly good used version

was available, but again, if you're on a limited budget, used gear is a great way to go. Plus, if you prefer the sound of older "classic" gear, the used market is the obvious one to check. (However, thanks to the popularity of house and acid house music over in England - and here, to a certain extent - old analog synths, bass machines and drum machines are in great demand and commanding very high prices.) You do have to be very careful when buying used gear, but there seems to be plenty of people around who want to upgrade to the newest wonder and who will sell perfectly good products at bargain prices to get there. Keep your eyes open.

If you're not sure where to look for used gear, I would suggest you check through local papers with classified ads as well as the popular Free Ads section in the back of MT every month. (It really is one of the best deals going.) Quite a few interesting goodies are listed this month . . .

One additional benefit of a healthy market for used equipment is that it allows people who couldn't normally afford high quality gear to get involved with MIDI equipment while at the same time allowing those who do want to purchase new equipment to sell what they currently have to raise the necessary cash. In the end, everyone wins.

So if you've got some money burning a hole in your pocket, the glamor and sounds of a new product may be your best choice. But if you are considering upgrading your MIDI rig, a quick look at "unfashionable" products may lead to a very pleasant surprise. ■

Bob O'Donnell

**MUSIC TECHNOLOGY (ISSN 0896-2480)** is published monthly, 12 times per year, for \$35.40 per year, at: Music Maker Publications, Inc., 22024 Lassen Street, Suite 118, Chatsworth, CA 91311. Tel: (818) 407-0744. FAX: (818) 407-0882. PAN: Musictech. GENie: Musicmkr.LA.

Second-Class Postage Paid at Chatsworth, CA and at additional mailing offices. Postmaster: Send address changes to: Music Technology, 22024 Lassen Street, Suite 118, Chatsworth, CA 91311.

**EUROPEAN OFFICE:** Music Maker Publications Ltd., Alexander House, Forehill, Ely, Cambridgeshire, CB7 4AF, England. Tel: 011 (44) 353-665577. FAX: 011 (44) 353-662489. PAN: Musicmaker. (Ad Manager: Rona Tait)



## HEADROOM TO BURN.

Let your solos soar.  
Let your breaks blast.

No matter how many synthesizer tracks you lay down, no matter how hot the output, a Tascam 300 Series mixer can take it. You'll get greater input sensitivity and more headroom than you'll ever need. So your sound is never limited by what your mixing board can handle.

Thirty years of Tascam engineering make each 300 Series mixer as versatile as it is easy to use. Five complete submix systems cover every multiple or alternate mix situation. Signal routing is easy from the top panel, so you'll rarely need to patch. Back panel inputs allow complete flexibility, providing mic and line, balanced and unbalanced, XLR, quarter-inch and RCA jacks.

But these aren't just studio prima donnas. Pack them up and take them on the road. A solid steel subchassis anchors the electronics, while the rugged casing seals out abuse. They're built to take it, and deliver the same sophisticated sound-handling on stage you'd expect from a prized studio performer.

When you're burning up the tracks, don't settle for a mixing board that can't take the heat. Get a Tascam 300 Series mixer. They love it hot.



# TASCAM

© 1987 TEAC Corporation of America, 7733 Telegraph Road, Montebello, CA 90640. 213/726-0303

# IN THIS ISSUE

C  
O  
N  
T  
E  
N  
T  
S

## MUSIC

### Brett Tuggle 10

Working amidst the hysterics of heavy metal prince David Lee Roth may not seem like the ideal environment for a hard-core MIDlophile, but for keyboardist Brett Tuggle, it's just like paradise.

### Listening Lab 37

On tap this month are new releases from Mark Isham, Roger Waters, Gary Numan and newcomer Judson Spence.

### Al Di Meola 48

Long recognized as an amazingly agile guitarist, this former fusion king has also created some moody, evocative works with his Synclavier guitar. Now he's trying to integrate the two.

### Akai S1000 Sampler 31

The latest wonder from Akai offers true 16-bit stereo sampling, built-in graphic displays and more. Will it become the new studio standard?

### Roland Super-MRC Software 39

The latest software offering for Roland's MC family of hardware sequencers brings extensive new editing features and more to this powerful package.

## COMPUTER NOTES

### Computer Newsdesk 56

### Dr. T's Sample Maker 62

Synthesis power of staggering proportions as well as some basic sample editing capabilities mark this new software synthesis program for the ST and any sampler as an intriguing newcomer. The question is, do you have the time?

### Twelve Tone Systems Cakewalk Professional 65

The latest version of this IBM sequencer includes support for 32 MIDI channels, macros to speed up operation and more.



## REVIEWS

### Yamaha YS200 FM Synth 14

Offering the voice architecture of a DX11, but adding built-in effects and a sequencer to the package, this new Easy FM keyboard could be an excellent starter synth.

### Computer Viruses 58

Though they were once only a problem for mainframe users, computer virus programs have begun to appear in microcomputers in alarming numbers. Roly Pickering explains what computer viruses are, what kind of threat they pose, and what you can do to avoid them.

### Turtle Beach SampleVision 70

IBM and CI devotees looking for generic sample editing software need look no further - this company's new package delivers in spades, as well as many colorful shades.

**TECHNOLOGY**

**Basic Synth Programming, Part I** 18

Creating or tweaking your own sounds on a synthesizer can be extremely rewarding – once you get over your initial fears. Over the next several months, synthesis specialist Lorenz Rychner will teach you the basics for several different types of synthesizers. The first several parts will focus on basic FM programming with Yamaha six-operator DX synths.

**Sampling Glasses** 76

If you're looking for exotic sounds for your sampler, you may not need to look any further than your kitchen cabinet and last night's wine glass.

**REGULARS**

**Readers' Letters** 7

**Newsdesk** 8

**More From . . .** 72

**Updates and Upgrades** 78

**OUTSIDE**

**Passport's NoteWriter**

Many variations on notation software have appeared in the last few months, but this Mac package has a new angle – it's completely graphics-oriented.



**The AES Report** 26

Hard disk recorders ad infinitum, Macintosh-controlled power amps, and a MIDI-controllable eight-track reel-to-reel recorder all caught our eyes and ears at the recent Audio Engineering Society Convention in Los Angeles.

**Humanize Your Sequences** 42

Tired of sounding mechanical? In the first part of a new series, Travis Charbeneau offers some useful tips on making your sequencer work as a *musical instrument*.

**Readers' Tapes** 46

**Patchwork** 52

**Perspectives** 54

Microtonality and other non-standard tuning options have started to appear on many instruments, but the implementation of the features should be improved and even standardized in the MIDI spec according to Carter Scholz.

**The Other Side**

One of the reasons the Sample Dump Standard was added to the MIDI spec was to encourage software development, but Tech. Ed. Chris Meyer isn't happy with the turnout.

# Every bit a musical instrument

The SDX is a dedicated music computer. Up to 88 seconds of sampling with true 16-bit resolution at the outputs, 64 tracks of sequencing, on-screen sample and sequence editing, SMPTE—it's all on board.

Play the SDX, either from a MIDI keyboard or "Zone Intelligent" drum pads, and you'll discover a truly responsive musical instrument. Saxes that scream when they're loud and whisper when they're quiet. Crash cymbals that you can choke. A piano with a loud pedal that really works.

Use the SDX as a stand-alone music production system and you'll discover an instrument that's a dream to use. Pull-down menus, on-screen cut and paste sequence editing, tape transport-type controls.

So take a look at the power of the SDX and remember, you won't need another computer to unleash it.



## Keyboards

- 16-bit user sampling—up to 88 seconds at 44.1 kHz.
- 16-voice polyphony.
- 16 programmable splits.
- 9 samples per split.
- Pitch bend by split
- Layering of up to 16 sounds.
- 16 programmable tracking filters.
- 64 programmable LFOs (routed to pitch, amplitude, filter cut-off and pan).
- 96 5-point envelopes (6 per voice) controlled by dynamics and MIDI note.
- On-screen sample editing with real-time loop editing, including crossfade and backwards/forwards looping.
- 16-channel stereo audio mixer.
- MIDI.
- SCSI.
- Supports 16-bit MIDI sample dump.



## Sequencer

- 64 tracks assignable to internal voices or external MIDI instruments.
- Tape transport-type controls.
- On-screen editing—clear/cut/copy/paste/merge/transpose.
- Punch-in/overdub/workloop.
- Playback quantization (note on -1/384 ppqn resolution).
- Automated 16-channel mixer.



S D X

SIMMONS

- SMPTE – stripe/sync/offset sync/chase/lock/drop frame.

## Drums



- 16-bit user sampling – up to 88 seconds at 44.1 kHz.
- Up to 9 samples assignable per drum/cymbal – 3 positions at 3 dynamic levels.
- 16-voice polyphony with assignable voices per drum.
- 16 dynamic key triggers – 16 "Zone Intelligent" pad inputs.
- On-screen sample editing with real-time loop editing, including crossfade and backwards/forwards looping.
- Hi-hat pedal input for open/close/sizzle operation.
- Cymbal choking.
- On-screen drum and cymbal building.
- 16 channel stereo audio mixer.
- MIDI.
- SCSI.

## System

- Each SDX console is complete with operating software that simultaneously supports keyboard, sequencing and drum applications.
- Expanding sound library includes 100s of keyboard and drum samples.
- Memory upgrade options: 2/4/6/8 Mb RAM – 20/70 Mb internal hard disk drive.

Simmons Electronics USA Inc., 2630 Townsgate Road, Westlake Village, CA 91361  
Tel: 1-800-TEC-DRUM



# READERS' LETTERS

**MT would like to hear from you! If you have any questions or comments about the things you see in MT, please send them to: Readers' Letters, Music Technology, 22024 Lassen Street, Suite 118, Chatsworth, CA 91311.**

## **Dear Music Technology,**

It is always a pleasure to see one's work mentioned in the press, particularly in a fine publication such as yours. So it was with great interest that I read Mr. Burger's article "Surviving a SYNCing Ship" in your October issue. Unfortunately there are a few inaccuracies concerning the Hybrid Art's SMPTEmate which I feel compelled to correct.

First of all, the SMPTEmate is not a stand-alone product. It comes packaged with SMPTETrack, Hybrid Art's software-based sequencer for the Atari ST. It is also available to ADAP users for SMPTE/cue-list triggering of samples.

Second, the SMPTEmate is not a SMPTE-to-MIDI converter and does not operate in the fashion described by Mr. Burger. When I designed the circuitry and wrote the firmware for the SMPTEmate I was not under any constraints to come up with a "generic" SMPTE interface. I was only concerned with working with one computer (the Atari ST) and one piece of software (SMPTETrack).

The SMPTEmate is a microcontroller-based device which communicates with the Atari ST via its RS232 port. While synced to tape the SMPTEmate sends a clock to the ST using a handshaking line on the serial port. This clock is the same frequency that SMPTETrack uses internally to derive various tempos, etc. So instead of SMPTETrack spending any CPU time resolving the external clock to its own internal one, as would be the case with either MIDI clock or MTC, SMPTETrack merely uses the interrupt from the RS232 handshaking line in place of the usual interrupt generated by an internal time. This scheme has several distinct advantages over conventional SMPTE-to-MIDI converters:

- 1) Zero CPU overhead on the part of the Atari ST.
- 2) Consumes zero bandwidth on the MIDI stream.
- 3) More transparent to the user. Since the SMPTEmate derives a master clock from SMPTE as opposed to tempo information, the end user need never be concerned with maintaining extra tempo maps, etc. To use SMPTETrack with SMPTE timecode the user simply specifies a SMPTE time to

correspond with the start of the song. Everything else is automatic.

4) Dramatically more accurate than either MTC or SMPTE-to-MIDI converters. MIDI clock is sent 24 times per beat, that means that at 120 bpm, 48 clocks are sent every second. While syncing to tape this means that the actual tape speed is sampled about once every 21 milliseconds.

SMPTETrack receives clocks at the rate of 2400 per second. Consequently, samples occur about once every 0.4 milliseconds, so in addition to the other advantages, we have increased resolution 5000%.

While MTC does address some of the problems normally associated with SMPTE-to-MIDI converts, in many instances MTC is even less accurate than MIDI clock. Because MTC is based on absolute times instead of tempo, MTC events may not occur on any specific "tick" or fraction of a beat. Resolving a sequencer's internal clock to this absolute clock leads to the same type of rounding errors which occur when converting SMPTE to MIDI clock.

Also, unlike MIDI clock, MTC events are not real-time MIDI events, so they cannot interrupt another MIDI message. If there is any other activity on the MIDI stream, individual MTC events are routinely delayed up to one millisecond. An analogy of this condition would be to take a keyboard sampler and randomly delay individual samples by up to 14%. The sound would start and stop at about the right time but how would it sound?

Engineering consists mostly of making compromises or, as Mr. Burger put it, "kludging." However, given the same set of circumstances, 10 engineers will give you 10 different solutions.

**Joe Fitzpatrick  
Simple Systems  
Glendale, CA**

*Well, Joe, you pretty well spelled it out - dedicated hardware can indeed usually do the job better than generalized hardware and software (although clever software can minimize some of the problems you outlined, and there's still the question of just how much of this someone can hear). The price is that the dedicated hardware will now work*

*with only one piece of properly designed software. Welcome, everyone, to the land of tradeoffs. CM*

## **Dear Music Technology,**

I would like to send in a demo tape to Readers' Tapes. I understand that you are backlogged. Would you suggest that I wait a while or is it OK to send it in?

How do you rate the tapes? Sound quality, originality, style of music, etc? If you like the tape do you recommend it to a producer or record company and do you return the tapes after you have listened to them?

**Ronnie Green  
Syracuse, NY**

*I'm still taking tapes in chronological order, despite the backlog; the sooner you send in your tape still means the sooner it will be reviewed.*

*I feel obligated to review every tape for two reasons: one, if someone felt strongly enough to send one in, I feel like I ought to review it; two, I think forcing myself to listen to every one (at least twice) keeps me honest. Tapes are selected each month by chronological order, a throwing of the I Ching, and a slight nod to the Western concern of which photos and covers would give a good external appearance in a given month. I give extra points for originality in approach; if the style is a common one (or one I dislike), I still try to remain objective and judge it on its own terms (got that karma to look out for). Sincerity, success in pulling off what was attempted, unusual approaches, sound quality, and funny letters factor in to my opinion (usually in that order). I react very negatively to safe music or big egos.*

*I'm not plugged into any producer or record label, so I don't pass material along (although I sure wish I was - a few gems have come through here). I don't return the tapes, because 1) I'm selfish, 2) I don't get the labels back from the art studio for two months (if ever), and 3) it would cost a fortune.*

*I know those aren't all the answers you want to hear, but that's my current reality. Now I think I'm going to go eat a Steve's Incredible Ice Cream Thing out of guilt and shame. YD*

# NEWS DESK

## A MESSAGE FOR THE NON-MIDI

Imagine being able to program MIDI patch changes for devices in your setup that don't have MIDI. Not possible, you say? Well, now it is, with Meico's new MIDI-CON, a unit which connects to any MIDI foot controller to send patch-change messages to any device with a 1/4" jack. You can plug in your analog delays, multi-effects units, channel switching amplifiers, lighting controllers or whatever, into one of MIDI-CON's eight 1/4" contact outputs and voila! You don't need those mechanical footswitches anymore. The eight contacts are independently isolated, separately programmable, and will send out either a pulsed output or a maintained contact position when told to by the MIDI controller. MIDI-CON's front panel features LED indicators to let you know which MIDI channel an output is on, and four operating switches. There's an attached AC power cord, and a battery back-up as well. MIDI-CON comes as either a stand-alone or a rack-mount unit, and lists for \$249.

**MORE FROM** Meico Electronics, 35 S. Dishmill Rd., PO Box 251, Higganum, CT 06441. Tel: (203) 345-3253.



MIDI-Con from MEICO uses a MIDI foot controller to drive non-MIDI effects.

## NEW ADDRESS

Forte Music, Inc, the people who are bringing you Mentor, a MIDI processor for live and studio performances (reviewed in these pages in July '88), and MIDI-MOD, a modification product that turns acoustic and electric pianos into MIDI control keyboards, has moved. Their new address is: 1951 Colony St, Suite X, Mountain View, CA 94043. Tel: (415) 965-8880.

8

## MULTITRACK WORKSTATION

The WSXI, just introduced from Sansui, is a complete cassette recording workstation, with six (yes - not four; not eight; six) tracks, six line ins, an eight-channel stereo mixer, built-in reverb and a separate four-track, two-channel cassette deck built in for final mixdown and ping-pong recording. Tape deck A (six-track) features  $\pm 15\%$  pitch control, and it runs the tape at double normal speed for improved sound quality. Other features of the WSXI include eight line/mic ins plus three auxiliary inputs for CD, tuner, and the like, send and return terminals, two stereo processor input/outputs, and - you'll like this one - memory for storing indexes, auto-stop and auto-play that can be activated by a footswitch. Great for punch-in/out.

There's more: the WSXI is MIDI sync ready. It will record FSK so you can control playback with a sequencer or drum machine or keyboard; there's also a three-preset reverb, Dolby B/C noise reduction, and two headphone jacks. Its fluorescent display shows record/playback levels, stereo bus level, the status of each track, and the tape counter. The WSXI retails for \$1949. There's also a rack-mountable version, the MR6, which has most of the features that the WSXI sports, except the additional four-track cassette. It runs for \$1299. And finally, Sansui has released the SY1 synchronizer unit, which has a built-in MIDI FSK converter, so you can sync up the WSXI and the MR6, or two MR6s. The SY1 lists for \$299.

**MORE FROM** Sansui (Kaman Distribution Sales), PO Box 507, Bloomfield, CT 06002-0507. Tel: (203) 286-0498.

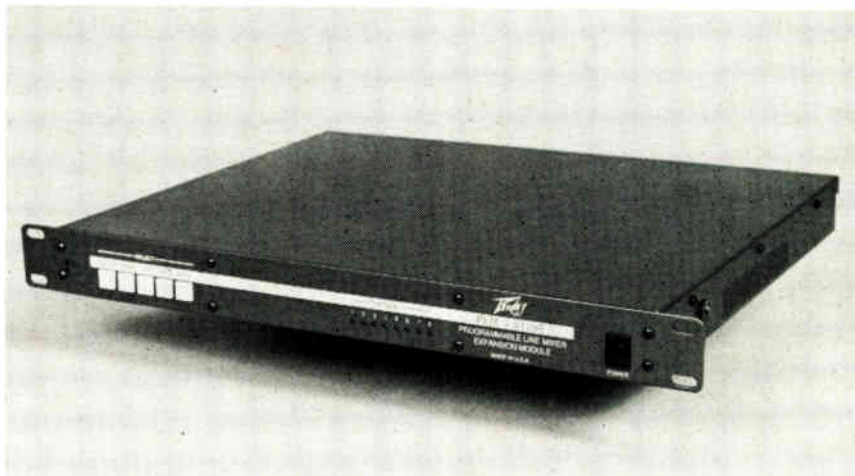
## PROGRAMMABLE PEAVEY

The Peavey PLM 8128 automated line mixer is finally available, along with the PLM 8128E expansion module for it. This line mixer is a fully programmable, completely MIDI-compatible, eight-channel unit which takes up only two rack spaces. And those eight channels can be expanded up to 32 by adding however many 8128Es you decide to get (eight channels each). The mixer has three effects sends, choice of pre- or post-monitor send for each channel, and pre-programmable channel mute and pan. It has MIDI In and Thru

ports, balanced XLR inputs on channels 1 and 2, and 1/4" inputs on all eight channels, with selectable sensitivity.

The PLM 8128E patches into the 8128's auxiliary inputs, and is controlled by the 8128. The one rack-space high expansion module includes Assign, Channel, Mix, Solo and Mute buttons on the front panel, as well as effects, monitor and main left/right outputs, aux inputs, MIDI In and Thru, and control interface jacks. The PLM 8128 lists for \$1200. The expansion module PLM 8128E lists for \$1000.

**MORE FROM** Peavey Electronics Corp, 711 A St. Meridian, MS 39301. Tel: (601) 483-5365.



The Peavey PLM8128E expansion module adds eight more channels to their new automated mixer.

MT JANUARY 1989

## GETTING A VIDEO GRASP

*Untangling MIDI*, a new 60-minute video introduction to MIDI and music technology, has been unleashed by Hal Leonard Publishing. The video, hosted by composer/musician/consultant Brad Vinikow, takes the viewer through "interactive" examples and explanations of MIDI and its applications, trouble-shooting tips and system setups. Vinikow, who has worked with the likes of Michael Jackson, Chick Corea, Barry Manilow, Steve Porcaro, Jeff Lorber and Quincy Jones, uses live musical demonstrations throughout the video to accentuate his MIDI-lessons. Also included is a workbook with more diagrams and explanations, and a glossary of terminology as well. *Untangling MIDI* retails for \$39.95, in VHS format only.

**MORE FROM** Hal Leonard Publishing Corp., PO Box 13819, Milwaukee, WI 53213. Tel: (414) 774-3630.



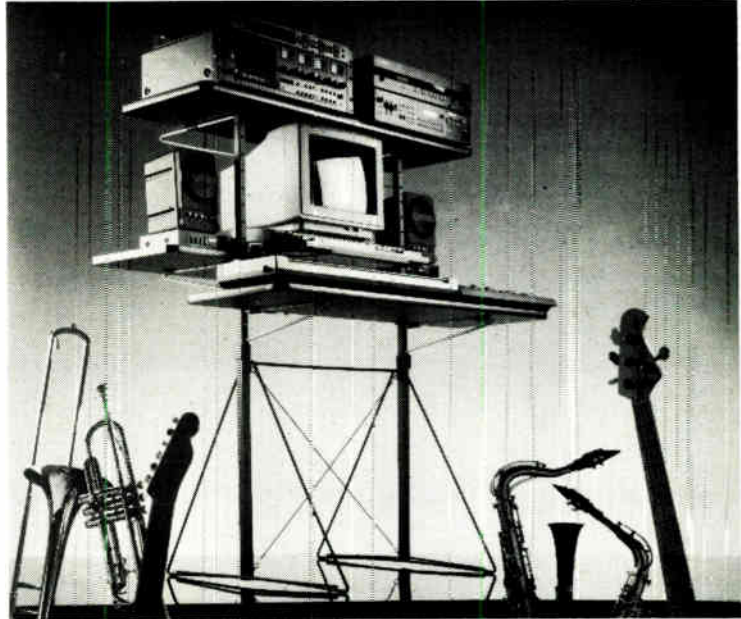
Hal Leonard's "Untangling MIDI" is an interactive video lesson on MIDI applications and troubleshooting.

## GET IT TOGETHER

"Workstation" (1988's buzzword) means different things to different people. To Invisible Products, it means the MS3000. Filling a much-needed gap, the MS3000 is a stand which will support a keyboard, a computer, a monitor and various rack-mount equipment. With three tiers and two shelves, you can make your MIDI component system into a workstation environment that will take up only five square feet of floor space. It's height

adjustable from 27 $\frac{3}{4}$ " to 49". The MS3000 lists for \$199. In addition, you can get a studio shelf (13 $\frac{1}{2}$ "x42") called the SSA61 to put another keyboard on, or other assorted gear. The SSA61 lists for \$28. And finally, Invisible is offering an optional height reducer for the whole thing, the HRB, listing at \$19, to lower the stand to 25", about the height of a piano.

**MORE FROM** Invisible Products Corp., 159 Commercial St., Lynn, MA 01905-2909. Tel: (617) 592-5992.



The new MS3000 stand from Invisible turns your MIDI setup into a workstation.

## WE WANT YOUR MUSIC

Are you tired of trying to get through to the big labels to get that ever-coveted record contract? Well, try this: send your tape to Missing Link Music so that they can list it in their Missing Link Music Catalog. Missing Link is a cassette distribution service who send their catalog to small

labels, independent cassette artists, and home recording artists. The catalogs are free, and the prices of the cassettes are "very reasonable." Try it as an alternative way to sell your cassettes.

**MORE FROM** Missing Link Music, 6920 Roosevelt Way NE #328, Seattle, WA 98115. Tel: (206) 633-2258.

## DIGITALLY CLASSIC

Available in January, the DMI64 digital rack-mount synthesizer from Voce takes an interesting approach. This one rack-space unit is designed to "give the user studio quality reproduction of classic keyboard sounds," namely, tone-wheels and combo organs. The DMI64 has MIDI, and it lets you program patch information via MIDI keyboard or computer. It comes with 64 waveforms, eight of which are reprogrammable, and 64 reprogrammable patches. It also features built-in effects, and these are some that you don't see too often - rotating speaker, chorus, and vibrato. There are two sets of audio outputs, balanced and unbalanced, to accommodate independent voice group assignments. The DMI64 will cost \$995 plus shipping and handling.

**MORE FROM** Voce Inc., 111 10th St., Wood-Ridge, NJ 07075. Tel: (201) 939-0052.

MT JANUARY 1989

## FADER AUTOMATION

Tracmix, a new product from Soundtracs in the UK, is now shipping. Tracmix is a stand-alone unit that lets you automate up to 64 channels of faders and mutes, "using high quality dbx VCAs for low noise and distortion." The unit is operated by a remote keyboard and a color monitor, and fits onto existing faders without modification to the fader bay. The automation system is totally isolated from the console and connections carry only DC signals to avoid switching noise. Mix data is held in RAM, so you don't have to keep switching disks while programming, but final mixes, grouping data, track listings, and MIDI song data are stored on 3.5" disk. Tracmix features a built-in timecode generator and reader, MIDI clock, and song pointers slaved to the timecode. Specs include: half-frame accuracy, mutes, 12-bit resolution fader position samples,



Tracmix will let you automate up to 64 channels without modification to your fader bay.

mute attenuation better than 100dB at 1kHz, THD better than -110dB at 1kHz, and noise level better than -94dB. The monitor is not included, but any IBM compatible, or RBG grounded monitor can be used. Tracmix lists at \$18,000.

**MORE FROM** Soundtracs Plc (dist. by Samson), 485-19 S. Broadway, Hicksville, NY 11801. Tel: (516) 932-3810.

# BRETT TUGGLE

## *traveling circus*

The idea of using a Mac and an impressive array of MIDI gear while playing keyboards for David Lee Roth may not seem entirely likely, but Brett Tuggle does and makes it all work. *Interview by Nick Armington and Lars Lofas.*

IT'S A LITTLE crazy just finding Brett Tuggle backstage following the David Lee Roth gig at Madison Square Garden. Seemingly hundreds of people – an assortment of leather-clad ladies, family members and fans who must have won tickets from their local radio station – have been corralled into a makeshift holding area, and the roadies are determined to make us all wait until they're good and ready.

Tuggle laughs when we finally meet up with him, after sending three or four messages backstage. "Hey, you guys, where've you been? I wanted to show you my road studio, but they just packed it up!" Oh well, we sigh, that's life on the rock 'n' roll bandwagon.

Brett Tuggle knows that lifestyle well, having been a part of it for the better part of the last decade. His resume reads like a who's who in the Los Angeles music scene – stints with Rick Springfield, Belinda Carlisle, Tommy Shaw, Roger Hodgson (ex-Supertramp), and John Kay of Steppenwolf have prepared him for his current gig – touring, songwriting and recording on keyboards with the David Lee Roth band.

He describes his work as "simply intense," and indeed, there's nothing laid-back about a DLR show – everything's a little larger than life; kind of like a circus. Tuggle spends time onstage running between two similarly-configured keyboard rigs located a good fifty yards apart from each other. If your radio was on for more than a half-hour or so this summer, chances are you heard the band's smash hits, 'Just Like Paradise' and 'Stand Up,' which he co-wrote with Roth.

Like many successful musicians, Brett Tuggle started his musical career early, while growing up in Denver, Colorado. Years of classical piano training ("after I switched from the accordion") led the young rocker to rebel somewhat as a teenager. He recalls, "that classical teaching was great training – a good foundation for me."

Tuggle admits that at least some of his current style is derived from the keyboard heroes he grew up listening to in the '70s. Asked about early influences, he quickly responds. "The first thing that really blew my mind was Steve Winwood's playing on 'Gimme Some Loving.' The power of that opening made me say 'organ is cool' all over again, and I found myself listening to Ray

Manzarek, Jon Lord and Keith Emerson, who was the king of the synthesizers at the time.

"My first portable keyboard was a Farfisa organ that cost \$800, because that was all I could afford. I remember driving a tractor on my Grandfather's farm one summer to earn the money to buy it."

For Tuggle, years of practice and garage bands paid off, consummating with his "discovery" by super-producer Keith Olsen. "He'd seen my band play in a club in Texas in 1979. Somehow he found out about the



Photography Neil Zlozower

group I was in, flew in to see us, and loved the band. Keith introduced me to a guitarist in LA who had a record deal pending and needed a keyboard player and singer. So I moved to Los Angeles in 1980, which was the best thing I ever did."

From there, says Tuggle, things snowballed, as the infamous music biz network went to work. Soon, he found himself jumping from one opportunity to another – from the previously mentioned Rick Springfield to a stint with Tommy Shaw from Styx, and in a touring band with Belinda Carlisle.

Strength and chops then brought him to the edge of his next great challenge – joining up with Roth and his band. "When I got the call to audition, I knew it was right for me. By then, I had done a lot of different things – I played guitar, I wrote, I sang and I

had the chops. I think they were looking for a rock 'n' roll attitude, and not all studio guys have that, because touring is a way of life. You have to love it. Anyway, I got very, very lucky, and won the gig."

Tuggle went into the new job with more than a bit of trepidation, knowing full well the rumors that had been spread about his new boss. "I was preparing for this thinking, 'OK, I'm auditioning for David Lee Roth; doesn't he hate keyboards?' But I soon learned that you've got to take things you hear with a grain of salt.

"Maybe there was a time where Dave didn't want Eddie Van Halen, a guitar hero, sitting behind the keyboards. But now, Dave is super-positive about having keyboards in this band. It's funny; he's always turning to the guy who's running the monitors onstage and yelling 'more keys, more keys!'"

Tuggle knew he was being hired as a sideman for the group, but he quickly found an evolving role in the band. "On our first tour," he explains, "I was supposed to play keyboards on only five or six tunes, but it ended up that I played most of the set, and also sang a lot of harmonies with Dave. I brought in a lot of new technology – Emulators and a ton of equipment – and everybody thought that it added a lot to the onstage sound.

"As I became a little more involved, I also got into songwriting and I started turning in material. Dave really liked the songs I was coming up with, and right after we came off the road, we started writing more material for the Skyscraper album. I think it was at that point that Dave felt it should be a five-piece band."

Since so much of his time is now spent touring, Tuggle carries a good-sized backstage rig with him on the road, including his Apple Macintosh computer, which he says acts as sequencer, system controller and notepad all in one. We pointed out that he was also listed as "computer programmer" on 'Skyscraper,' but Brett quickly admitted that he views the computer as a means to an end.

"The liner notes credit me with computer programming, but really, I don't consider myself a programmer, I just use the things a lot. The Mac is set up to be so friendly and very visual – to me, it's just much easier to operate than a lot of those black box sequencers. I use Mark of the Unicorn



Performer sequencer software and a lot of Opcode libraries for storing and editing the sounds which are loaded in my synthesizers onstage.

"The Mac has pulled me into a whole new world. I use it as a songwriting tool, and it's freed me up to be more creative by helping me organize my songs. Both 'Paradise' and 'Stand Up' were composed entirely on the Mac. And using a computer makes working on the albums a lot easier, too. I can lay in everything at home or on the road, and when we finally get to the studio, I'll stripe the master with SMPTE timecode and then lay down a bass part sequence. But all the other parts are played in real time for the human feel.

"The great thing about technology in record production is that the computer lets you work out your ideas more completely before you walk into the studio. That way, in preproduction, you can get the arrangements

and sounds together right in your own music room, which is fantastic. And you also save a lot of money, because you've done the programming for the keyboards, drums and bass parts."

Since the studio is, for many, a tempting mistress, we asked Brett how the dual obligation of touring and recording has affected his lifestyle. "I approach live playing totally separately from my studio work," he says. "When you're making a record, you're working with only two speakers, so things have to be placed carefully in the stereo field.

"Onstage, I play a lot of brass parts, strings and orchestration, so I try to match the record's stereo imaging whenever possible.

Still, in the studio, we overdub a lot, and when I'm performing, I can only play so much with two hands – and it's even tougher when I'm doing a lot of vocals."

Tuggle's onstage equipment list is voluminous – an inventory of technology

that seems larger than what's on display at many metropolitan music stores. After loading a new tape into our recorder, we asked him to give us a shopping list. "There are two keyboard setups onstage, and one main keyboard controller in each setup which triggers a bunch of synth modules offstage through an extensive MIDI configuration.

"By manufacturer, I have Yamaha's KX76 MIDI Controller, two TX816's, a DX7II, a REV7, two SPX90's, a D1500 digital delay, a TX81Z, an RX5 drum machine, and an RN2408 mixer. From Korg, I have an M1 workstation, which is really incredible – my favorite new synth – a DW8000, an EX8000, a DSM1 sampler, an SG1D sampling grand piano, and an S3000 reverb. I also have two E-mu Emulator II's with hard drives, two Roland D50's and a D550, a Casio FZ1 sampler and a CZ1. Then at home, I have a 6'2" Young Chang grand piano which I use for writing.

"My rig is probably the most intense technical aspect of the show. The techs and I have put a lot of time into the design of this system, and that really paid off, because I've had virtually no problems with it on this tour. A lot of the credit for that goes to Michael Bernard who helps me with the computer programming for live shows. We spend a lot of time coming up with the main sounds for each song, and then determine the timing of each sound in the tune.

"Doug Burch is my live show technician, the guy who sets up all those keyboards onstage and keeps them running. He handles any programming that might change during the show, and also maintains the Macintosh, loading disks like crazy, and generally keeps me going."

We couldn't help wondering if all that equipment might mean a little less improvisation onstage or in the studio, and Tuggle was quick to respond. "Technology has been a blessing to me and it's allowed me to do things I've never thought I could do before. But good music and real music still comes from the heart. An artist still has the obligation to create no matter how many computers and synths he might have.

"I have a year-old son. If someday he shows interest in learning an instrument, I'd try to point him, or any new player, in the direction of learning the original acoustic instrument. There's just no substitute for taking proper lessons and studying the fundamentals. Besides, the way technology is going, by the time you fully master a new electronic instrument, it's already obsolete. But if you learn how to play the piano or the guitar expressively, that's yours for life."

And so we came to the inevitable question: what's the Brett Tuggle approach to life? "That's a good one," he laughs. "Let me answer with something Dave told me once. He said, 'Whatever you do, Brett, don't sweat the small stuff.' But you know what else he said? 'It's all small stuff!'" ■

# A PICTURE-PE



Clearly, Kawai has developed everything you need to create bright, sensational sound on stage, in the studio or at home. Our line includes not only keyboards, but synthesizers, sequencers, mixers, a patch bay, monitor speakers and drum machines. Of course, each model is compatible with the others or any MIDI equipment you may have. All together, they produce show-stopping harmony that'll satisfy the soul. Here's the story:

## M8000 MASTER MIDI KEYBOARD

You're the boss with this 88-keyboard controller. It gives you affordable, flexible control of your MIDI setup. You get four independent busses with independent MIDI channels, patch programmability, real-time mixing, and more. Three velocity curves plus velocity and after-touch sensitivity sliders let you set the keyboard response to suit your taste.

Arpeggiation and delay functions can control any or all of the instruments connected to the M8000. Spillover, Zone, Transposition and Detune add sophistication and subtlety as you like it. Program your setup into any of 100 memory locations for instant recall. Another option: Drive a drum machine from the front panel.

## K1 DIGITAL SYNTHESIZER K1m SYNTHESIZER MODULE

Whether you're a beginner or an experienced pro, the easy-to-use K1 multi-timbral synthesizer will reward your ears with amazingly natural sound. With 256 digital waveforms that include PCM samplers of actual strings, vocals, drums, guitars and many more, you can call up an inspiring range of dynamic sound, fully programmable at your fingertips. In Multi-mode, create up to eight sounds into a combination patch that includes splits, layers and multiple MIDI channels. Combine this outstanding capability with the least expensive velocity and after-touch keyboard on the market, and you'll understand why the K1 could have a starring role in your next performance.

## K5 DIGITAL SYNTHESIZER K5m SYNTHESIZER MODULE

Many professionals sing its praises. And rightly so. The K5 with its additive synthesis design creates a brilliant, distinctive sound that sings above other instruments. With the 16-voice K5, up to 15 different instruments can be stacked, split, or divided across independent MIDI channels—multi-timbral specs that no other instrument can match. Add four assignable outputs, dynamic voice allocation, a weighted action keyboard with After-Touch, Attack and Release Velocity. Now you'll get an idea of the awesome power of the K5.

K5 and K1 owners have free access to Kawai's large sound library. Contact Kawai for details.

# PERFECT SETUP.



## Q-80 MIDI SEQUENCER

This is one sequencer that's ready to jam as soon as you are, thanks to its Static RAM design. The Q-80 has been pulling rave reviews for its professional prowess, especially at its low price. Compare its features and you'll see why:

- 26,000 notes of internal memory, 10 Songs, 10 Data Dump files.
  - 3.5" disc drive with 150,000 note capacity per disc.
  - Song Organization: 32 Tracks, one MIDI channel per track. Independent track looping, Tempo Track, 100 Motifs (melodic fragments that can be used in any track, similar to drum machine patterns) Chain mode plays songs in succession.
  - Real and Step Time Recording with Punch In/Out.
  - Bar and Event Editing.
- Need we say more?

## MAV-8 MIDI PATCH BAY

The surprisingly affordable four-in, eight-out MIDI patch bay. MIDI assignments are easily made using the front panel sliders. A pair of jacks are also located on the front panel for easy access. Simply wonderful.

## K1r DIGITAL SYNTHESIZER MODULE

One dynamite package with the same explosive sound of the K1. The single space rack is designed for maestros with tight schedules. Same specs as the K1m including front panel sound programming.

## MX-8R MIXER

Our popular little eight channel keyboard mixer with 2 echo sends, input gain switches and XLR outputs. The MX-8R makes a roadworthy companion to any equipment rack.

## R-50e DIGITAL DRUM MACHINE

The rhythmic sounds that spell encore: a full set of electronic drums, ambient "room" drums, a eurostyle Click, Bass Guitars and Orchestra Hits. In addition, on-board effects are programmable for every note in every pattern. Preset patterns and a serious MIDI implementation make the R-50e the right drum module. Optional sound chips also expand the sonic possibilities. Let'er roll.

## KM-20 MINI MONITOR SPEAKERS

No question. These mini power blasters will punch sound out for small studios or near-field monitoring. They boost a 12cm speaker in a bass reflex enclosure plus a 20 watt power amp, two rear panel input jacks (one switchable high/low), a bass boost switch and threaded sockets for easy mounting in any setup. Now you're wired for high performance.

# KAWAI

PROFESSIONAL PRODUCTS GROUP

Kawai America Corp., 2055 E. University Dr., P.O. Box 9045, Compton, CA 90224  
Kawai Canada Music Ltd., 6400 Shawson Dr., Unit #1, Mississauga, Ontario, Canada L5T1L8

© KAWAI AMERICA CORPORATION 1988

# Yamaha YS200

## FM Synthesizer



Photography Adam Jones

**The company's new line of YS synths sport "Easy FM" as well as built-in effects and, in the model under inspection here, a sequencer. But is this mini-workstation intended for the professional market or consumers? Review by Ian Waugh.**

**I**'VE A CONFESSION to make – I don't have a DX7 – although I do use OP's (Other People's). I must be one of the few who have managed to resist the temptation to buy what is now the world's best-selling synthesizer. It had nothing to do with the sound (which impressed me as much as anyone else); it was due entirely to the fact that the DX7 wasn't multitimbral.

Now, however, FM – especially when used to produce hard digital sounds – has become something of a cliché and I have continued to resist most subsequent DX incarnations (although I admit to falling prey to the charms of a multitimbral FM expander).

Having resisted so long and having heard the new generation of "breathy" sounds emanating from the likes of Roland's D50 and Kawai's K1, I was beginning to wonder if FM had anything left to offer.

So why more FM synths? Well, having saturated the pro end of the market (anyone who wants an FM synth has probably got one by now), Yamaha has set their sights on the home user, the first-time buyer and the semi pro. The main attraction of the YS synths can be summed up in one long hyphenated word – easy-to-use.

The three surprise newcomers are the YS200, YS100 and the B200. All are based

on the DX11 (glowingly reviewed in MT June '88) with certain consumer-friendly tweaks added – the YS200 adds an onboard sequencer, and the B200 built-in speakers as well as the sequencer to the basic YS100 (in all other respects except visual, the machines are identical).

You've got to admit the YS instruments are strange-looking beasts, although not unattractive. They are finished in a dark chocolate-brown plastic with predominantly yellow buttons, something of a change from the hi-tech green and black image we're so used to. Personally I like it, but I wonder if it's got pose appeal. (The B200, with its large speakers and gray finish is even more unusual.)



We'll look at the YS200 - as that's what's in my keyboard rack -and make relevant comments vis-a-vis the YS100 where appropriate. (I didn't get a chance to listen to the B200's onboard speakers, so I can't really comment on it.) Let's see what the beast is made of, basics first.

### The Basics

THE YS200 IS a four-operator, eight-waveform, eight-algorithm, eight-note polyphonic and multitimbral instrument (à la the aforementioned DXII and TX8IZ). It has 61 velocity-sensitive keys with after-touch - nice. Center stage is a two-line, 40-character backlit LCD, big enough to show you what's going on.

Below the LCD are four pairs of triangular + and - Selector buttons. These are the hub of the YS200's operation. When you're editing, parameters and sub-menus appear in the LCD above the buttons and - yes, you guessed it - you use the Selector buttons to alter parameters and make menu selections. The buttons increment values in steps of "1," but you can also type values in directly from the keypad. In operation it is very simple.

Above the LCD are the sequencer controls (YS200 and B200 only) and to the left is a large - no, massive - rotary volume control. It's calibrated with a very small

indent that unfortunately makes it virtually impossible to see your current volume setting (of course, if you set everything to 11 and leave it, that won't bother you). There is a socket for a volume pedal, which will help in some circumstances.

To the right of the LCD are the Easy Edit buttons. Next to the keypad is an Exit button and a Store button. If you get stuck in an operation, Exit will take you back to the last-selected voice - a mild sort of panic button. Store, as you might suspect, is used to store edited voices to user memory locations or the optional RAM card.

### Play Mode

EASY EDIT HAS its roots in the DXII and it has been extended on the YS200. There are five buttons here labeled EG, Tone, LFO, Name and Effects. Terms such as operators and modulators are generally hidden from the user, although the manual refers to them occasionally to explain what the editing functions are actually doing.

Most features can be altered through plus or minus ten steps. EG (Envelope Generator) lets you alter the Attack, Decay and Release of both the volume and tone envelopes. There are two LFOs which are used for both vibrato and tremolo, and Effects is used to assign one of the effects to a voice.

Tone has three editable features: "Brilliance" makes a sound brighter or more mellow; "Wave" determines the harmonic content (in FM terms, it controls the coarse frequency setting of the modulator operators); and the strangely labeled "Input-4Nos!" parameter selects one of the eight waveforms for each operator.

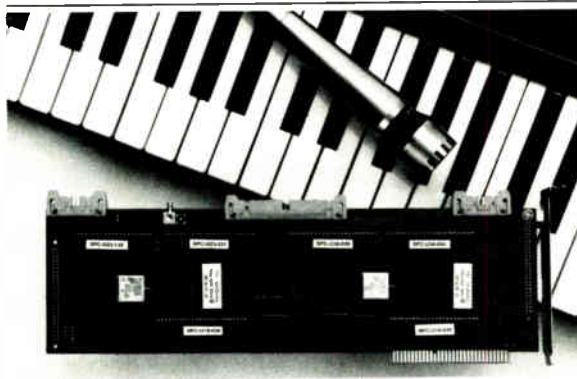
Name, I like. Here, the keyboard functions as a typewriter: pressing a key inserts the relevant letter. This is far, far better than stepping through the letters of the alphabet one at a time, a common procedure on many instruments. No big deal perhaps, but it's little things like this which help make an instrument user-friendly.

The manual generally suggests a trial and error approach to programming, and if you have an understanding of FM theory you'll know what's going on behind the scenes. Even if you don't, it's easy to tweak a parameter and see if it takes the sound in the direction you want to go. Yamaha has tried to make FM programming just about as easy as it can be, although as a consequence you do not have control over much of the finer detail.

### Job Squad

THERE ARE SEVERAL other functions under the Job button's sub-menu: Voice ▶

## THE SynthCARD™ SYSTEM



### BUILD YOUR OWN DIGITAL AUDIO WORKSTATION USING AN IBM PC/XT/AT COMPATIBLE

- PERFORM REALTIME AUDIO SIGNAL PROCESSING
- TWO 40MHz DIGITAL SIGNAL PROCESSORS PER SynthCARD
- POWERFUL PARALLEL PROCESSING & MULTITASKING
- UP TO 7 SynthCARDS PER SYSTEM - 140 MIPS!
- AudioCAD™ SOUND DEVELOPER SOFTWARE INCLUDED
- BUILD SOUNDS USING MODULAR ALGORITHMIC METHODS
- UP TO 70 OSCILLATORS + FILTERS & EFFECTS PROCESSING
- SUPPORT FOR SEQUENCERS, KEYBOARDS & OTHER MIDI GEAR
- DIRECT DISK SAMPLING, RECORDING & PLAYBACK
- UP TO 96KHz SAMPLE RATES - 16 OR 18 BITS
- WORKS WITH CD/DAT & OTHER POPULAR FORMATS
- UPGRADE PATH TO A COMPLETE SynthENGINE™ LATER



"DO IT IN THE DIGITAL DOMAIN"

15253 N.E. 90th Street, Redmond, WA 98052  
PHONE: (206) 882-0737

# SPECIAL INTELLIGENCE

## THE KEYBOARD SHOP - HOUSTON

WE SPECIALIZE IN INTELLIGENT,  
TECHNICAL INFORMATION  
ON WHAT WE SELL.  
THAT'S WHY WE DO IT BEST!

MOST BRANDS READY TO BE SHIPPED  
ON THE SAME DAY.

**BUY MAIL ORDER!**  
To Find Out How  
Call 1-800 624-2347

Product Information  
(713) 781-KEYS  
The Keyboard Shop is a division of  
**DRUM/KEYBOARD/GUITAR SHOP**



5626 SW FWY  
at CHIMNEY ROCK  
Houston, Tx • 781-DRUM  
1-800-624-2347

► Edit houses the Feedback, Transpose, Touch Sensitivity and Poly/Mono mode options. Mono mode only sounds one note at a time. Pressing a second key before releasing the first will not re-trigger the envelope, allowing you to slur notes.

The Control menu determines the pitch-bend range and the assignment of the modulation wheel, breath controller and aftertouch. Assignments include vibrato tremolo, wowwow, tone and volume. Bulk Out will send the edit voice, the 100 User voices or the System setup memory (the current Multi Mode setting – coming up) which consists of tuning, MIDI receive and transmit channels, instrument settings and so on via the MIDI Out.

As the YS200's sound generation system is similar to other four-operator synths, you can send voices to other four-op instruments. When transmitting to a 32-patch synth, however, only voices 75 to 99 are sent.

The YS200 is also at least partially compatible with four-operator voice

multitimbral synth (or it can play eight simultaneous notes in Yamahaspeak) and each voice can be given its own key assignment, volume, pan (left, right, or left and right) and detune settings. Effects and Pan cannot be used at the same time – sad but reasonable – and all voices share the same Effect.

You can edit a voice in Multi Mode, but in order to play and hear it, it must be set to receive on the same channel as the keyboard is set to transmit on. It's probably best to edit first, then work out Multi Mode assignments.

As mentioned earlier, the YS200 only has two LFOs. These are used for tremolo, vibrato and wowwow, but each voice can be given its own vibrato setting, which is very useful when building ensemble effects, especially when used in conjunction with detuning and reverb.

Multi Mode is the equivalent of the TX81Z's Performance Mode and the FB01's Configuration settings, but the YS200 only has one such setup. If you

RAM card and saved to a MIDI storage device via the Bulk Dump. The data format is the same as the QX5, so file transfer between the two should be easy.

Each Track can record up to eight notes – the YS200's polyphonic limit – and voices and polyphony must be allocated to each Track. If you run out of notes before you run out of Tracks, the remaining tracks can be used to play external instruments.

Seven voice combinations known as Part Types have been preset for you. These are very helpful, especially in the early-learning stages. They include Solo Piano, Pops, Fusion, Rock, Jazz, Latin and Classic. The Pops, for example, consists of 'Bass,' 'Piano,' 'Strings,' and 'Vibes,' and the Classic contains 'Harp,' 'Violin,' 'Cello,' 'Flute,' and 'Oboe.'

There are three types of recording – Normal, Punch and Step. Normal is real-time recording. Punch is the same but it only records over the measures you specify. If you want to re-record a track you must either erase it or use Punch recording.

In Step recording you first select a note duration in increments of 1/32nd notes; triplets and dotted notes are also available. Then you play a note (or notes) on the keyboard, select another duration, play some notes and so on. You can select normal, staccato and tenuto articulation (the manual calls these note lengths) and rests. You can insert voice changes and erase notes in step time, too.

The system doesn't tell you the names of the notes you've recorded, which is one of the features I look for in a step-time system, especially during editing. And even though it has graphic displays, its operation is quite numeric.

The Sequencer also has its own Job functions, which include naming and storing the Song, Quantize, Condition, Edit, Mix, Card, Record Mode and Effect.

Quantize affects the whole of a Track. Condition is used to set internal or external sync, whether aftertouch and velocity information will be recorded and whether or not the metronome will be heard. Edit has erase, copy, delete and insert functions which operate on complete measures (bars). While copy and erase let you operate on individual tracks, delete and insert affect the whole of the Song.

Working your way through all these features requires a fair amount of button pushing, job selection, and parameter fixing. As with most things, a little use will bring familiarity, but its operation is such that if you don't use it for a few weeks you may have to dip into the manual to remind yourself of a few things.

Speaking of which, the manual starts off in excellent fashion, with the first few pages leading you gently by the hand through "getting started" operations. It

MT JANUARY 1989



editors. Dr. T's 4-Op Deluxe requested and got the first 32 voices from it although, obviously, the YS200 has features it was not designed to handle (like the Effects). It also transmitted 32 voices, but a request for a Performance Bank, not surprisingly, was met with no response.

## Multi Mode

IT TOOK YAMAHA five years to produce FM synths with multitimbral facilities – hence the DX11 and TX802 (okay, we'll also mention the FB01). But they continue to confuse at least me by calling a sound a "voice," a term which more correctly refers to the polyphony of a "sound" or instrument.

The YS200 then, is an eight-voice

intend to do much layering or external sequencing this could be restricting.

Multi Mode can be used to construct layered sounds across the keyboard, as well as for multitimbral operation with a sequencer – which, appropriately enough, brings us nicely to the YS200's sequencer.

## The Sequencer

FOR A KEYBOARD add-on, the sequencer is powerful. It can store eight Songs each with up to eight Tracks capable of holding up to 999 measures. The total capacity is 10,000 notes if only note data is recorded (other forms of MIDI data, such as aftertouch, chew up gobs of memory – regardless of the sequencer you're using). Songs can be stored on the optional

**Subscribe  
NOW!  
SAVE  
30%**

Save almost half the cost of  
the newsstand price - 12 issues  
for **ONLY \$25.00**  
(Normally \$35.40)!

 **(818)  
407 0744**

**or**

**Send the  
Attached  
Card!**

**MUSIC  
TECHNOLOGY**

**SAVE 43%!**

**By Subscribing Today - 12 Issues Only \$25.00  
Money Back Guarantee**

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Bill Me  Payment enclosed\* or charge my  VISA  MasterCard

Card # \_\_\_\_\_

Exp. Date \_\_\_\_\_ Phone ( ) \_\_\_\_\_

Signature \_\_\_\_\_

\*Checks payable to: **Music Maker Publications**. For postage paid, attach card to envelope. \*Non-US Subscriptions must add \$12.00 additional to cover postage and must be paid in U.S. Dollars via International Money Order. Please allow 6-8 weeks for your first issue and for back issues. M189

**MUSIC  
TECHNOLOGY**

**SAVE 43%!**

**By Subscribing Today - 12 Issues Only \$25.00  
Money Back Guarantee**

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Bill Me  Payment enclosed\* or charge my  VISA  MasterCard

Card # \_\_\_\_\_

Exp. Date \_\_\_\_\_ Phone ( ) \_\_\_\_\_

Signature \_\_\_\_\_

\*Checks payable to: **Music Maker Publications**. For postage paid, attach card to envelope. \*Non-US Subscriptions must add \$12.00 additional to cover postage and must be paid in U.S. Dollars via International Money Order. Please allow 6-8 weeks for your first issue and for back issues. M189

**YES! SEND ME THESE BACK ISSUES!**

No. of Copies	Month	Year	No. of Copies	Month	Year

Please send me the index of back issues

Total No. of Copies ordered \_\_\_\_\_

@ \$3.95 per copy

Total Amount \$ \_\_\_\_\_

(Price includes postage and handling)

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ST. \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE \_\_\_\_\_

(Note: Backcopy orders subject to availability)

Payment enclosed\*

VISA  MasterCard

Minimum \$10.00 on credit card orders

Card No. \_\_\_\_\_

Expiration Date \_\_\_\_\_

Signature \_\_\_\_\_

\*Checks payable to: **Music Maker Publications**. For postage paid, attach card to envelope. Please allow 6-8 weeks for delivery. M189

World Radio History



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY MAIL**  
FIRST CLASS PERMIT NO. 318 CHATSWORTH, CA

POSTAGE WILL BE PAID BY ADDRESSEE

**MUSIC MAKER PUBLICATIONS, INC**  
22024 LASSEN STREET  
CHATSWORTH, CA 91311



**MUSIC  
TECHNOLOGY**

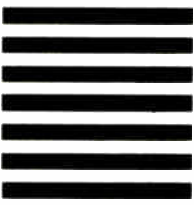


NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY MAIL**  
FIRST CLASS PERMIT NO. 318 CHATSWORTH, CA

POSTAGE WILL BE PAID BY ADDRESSEE

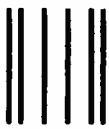
**MUSIC MAKER PUBLICATIONS, INC**  
22024 LASSEN STREET  
CHATSWORTH, CA 91311



**Combining**

**today's**

**music**

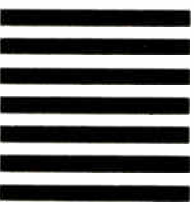


NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY MAIL**  
FIRST CLASS PERMIT NO. 318 CHATSWORTH, CA

POSTAGE WILL BE PAID BY ADDRESSEE

**MUSIC MAKER PUBLICATIONS, INC**  
22024 LASSEN STREET  
CHATSWORTH, CA 91311



**technology!**

22024 Lassen Street, Suite 118, Chatsworth, CA 91311  
(818) 407-0744 FAX: (818) 407-0882



even has an index, albeit a brief one. A couple of Quick Guide operation cards are included which are handy *aide memoires*.

## Ear Candy

LURKING WITHIN THE YS200 are 100 Presets plus 100 user memories which are initially the same as the Presets. More sounds can be stored on optional plug-in RAM cards, and the manual says ROM cards will be made available containing new sounds.

The default sound, 'Elegant,' could almost be off one of those newfangled sample+waveform instruments - it has a hint of breathiness about it, although that digital FM edge is still present. There are some delicious brass sounds, acoustic guitars, lots of basses, a variety of percussive sounds, a few novelties and quite a good attempt at voices ('AngelChoir').

The strings are quite ensemble-like for a four-operator machine. Not Mantovani, but very usable. The pianos, however, are a little on the thin side and definitely more electronic than acoustic - but that's to be expected.

Otherwise, the YS' voices are definitely a cut above the rest of your four-op synths, thanks primarily to the built-in effects. There are ten built-in digital effects including reverb, delay, distortion and stereo echo and they really are rather tasty. Their contribution to the sound should not be underestimated.

All the Presets have added reverb, though on some it's a little overdone. The Oboe, for example, sounds as if it is being played in Carnegie Hall - empty. Take away the effects and you're left with pretty standard TX81Z/DX11 voices. But who wants to take them away? The sounds are really very clean, too, and I'd be very happy to record with them.

## Verdict

A COUPLE OF years ago the YS200 would probably have been an instant hit. Now there are several alternative sources of those familiar breathy tones. And with the resurgence of popularity currently being experienced by old analog timbres, the first-time buyer is likely to be looking for a good all-rounder.

FM has its strengths and weaknesses, but Yamaha has done all they can to build "Easy FM" in the YS instruments. If you want FM sounds but aren't interested in getting to grips with the programming, they really should be on your list of potential purchases (if you are interested in programming, flip over a few pages to our new series on doing just that).

Another plus for the YS200 is that the built-in sequencer makes it eligible for this year's hip title - the workstation. However, if you're looking for an all-in-one  
MT JANUARY 1989

package to produce songs and backing tracks, you need to remember that drums aren't FM's strong suit and you only have eight voices to play with. You could link it to a drum machine, and although they would appear to make an ideal partnership, the YS200's sequencer does not support MIDI Song Position Pointers (which give the ability to start in the middle of a song and have everybody sync up - a bit of a timesaver).

As the sequencer is the only difference between the YS200 and YS100, you've got to ask, "Is it worth the extra cash?" Well, for \$200 how can you turn it down? Perhaps easily, but only if you already own another sequencer. Similarly, if you've already got a sound system of some sort,

the onboard speakers of the B200 may not be necessary, but if not, the extra \$100 could be well worth it. As a first purchase, though, these extra features suddenly become well worth the money.

When you consider that all three of these instruments have a velocity-sensitive keyboard, aftertouch and all those effects, you've got a pretty tempting instrument. In fact, if I hadn't already forked out for an FM expander, I think I would be sorely tempted indeed . . . ■

PRICE YS200, \$1395; YS100, \$1195; B200, \$1495; MCD32 RAM cards, \$75

MORE FROM Yamaha Music Corp. USA, 6600 Orangethorpe Ave, Buena Park, CA 90620. Tel: (714) 522-9011.

## How many MIDI librarians do you need?

# JUST ONE!

# SUPER LIBRARIAN™

for the ATARI ST

Suggested retail \$149.00 US  
Contact us for the dealer nearest you.

You've got thousands of sounds for the synths in your MIDI set-up, but how do you find the right one when you need it? ATARI ST users now have the most powerful and flexible MIDI librarian available on any computer. SUPER LIBRARIAN handles voices, bulk system dumps, sequences, drum machine patterns, and effects patches. And it handles them intelligently. SUPER LIBRARIAN's Bulk Organizer lets you build new banks in a fraction of the time it takes on almost any synth. And if you use a programmable MIDI Patch Bay, SUPER LIBRARIAN can automate your system to the point where the right synth is always "on-line" for a transfer. What happens when you add a new device to your set-up? Chances are we already support it, but if not, SUPER LIBRARIAN's dynamic design concept makes it possible to add almost any MIDI device. With a little effort you can even add it yourself!

### Super Librarian already supports...

YAMAHA: DX5/7/7s/7II/21/27/100, TX7/802/81Z, FB01, RX5/7/11/17/21/21L, SPX90, KX76/88

ROLAND: D20, D10, D110, MT-32, D50/550, Super Jupiter, JX8P, Super JX10, TR707/727

KORG: M1, DW6000, DW8000, EX8000, EX800, POLY800

GENDUMP: MIDI devices with SysEx transmit function

DIGITAL MUSIC CORP: MX8 MIDI Patchbay

ENSONIQ: SQ80, ESQ 1, ESQ M

CASIO: CZ1000, CZ101, VZ1

OBERHEIM: Matrix 6/1000

SEQUENTIAL: Drumtrax

DIGITECH: DSP128

KAWAI: K1, K3, K5

... and the list keeps growing!

**R**IXEL PUBLISHING™  
1573 Eglinton Ave. W., Suite 3  
Toronto, ON, M6E 2G9 Canada  
Tel: (416) 785-3036  
Fax: (416) 785-6416

# PROGRAMMING COMPLETE

## part 1



Illustration Rick Lohmes

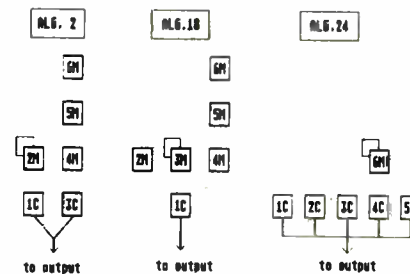
**Tired of playing the factory patches on your synths? This new basics series will help you overcome the presumed complexity of digital synthesizers, and have you cranking out original sounds of your own in no time. The first several parts will concentrate on FM synthesis and Yamaha's DX instruments. Text by Lorenz Rychner.**

**L**ET'S DEBUNK A myth. You can program a DX7. It's a musical instrument, demanding no more patience and critical listening than any other musical project you've ever completed. What's more, it lets you use all the musical knowledge and ear training that took you countless hours to acquire. Sure, there are lots of buttons to push, in the right order, and things to remember. Just as it was when you went for your driver's license – so what else is new? You can't beat that feeling of accomplishment when all the zillion sounds on cartridges and disks don't quite fit your music until you tweak one sound to perfection, or until you even program one from scratch.

This series of articles will put you on the road to becoming a successful programmer

of several different brands of synthesizers and methods of synthesis. In the future I'll be covering the LA synthesis method found in Roland's popular D series instruments, as well as the related spinoffs in Korg's M1 and the Kawai K1. In between, we may touch on Casio's FM hybrid, the VZ1. The first few parts, however, will concentrate on six-operator Yamaha FM instruments: DX5, DX7, TX7, TF1 (TX216-816), DX7s, DX7IID, DX7IIFD, and TX802. They all share the same basic operating system and programmable features. There's just one problem: these features hide in different places on the various models. I'll only mention tab numbers in the beginning, after which I'll trust you to know your way around your particular instrument. Since most of you

are likely to have the "old" DX7 (no prejudice, just statistics), you'll see the tab numbers for the "old" DX first, followed by parentheses for the tab numbers of the IID and IIFD. If you have a 7s or an 802,



**Figure 1. Operators can function either as operators or carriers, depending on the structure of the algorithm.**

take a moment to find the equivalent tabs. TX7 and TF1 modules are programmed from any of the keyboard versions. And all of the above can be programmed from any Apple/Atari/Commodore/IBM computer with an editor/librarian program.

Before we get started, a touch of nomenclature. Yamaha calls a complete sound a "voice." A voice is the result of all the numbers that had to be programmed to achieve a certain result. Other manufacturers call this a patch, tone, program, preset, or whatever. You and I would probably call it a sound. I'll go along with Yamaha in these articles and use the term "voice."

## How It Works

WHAT MADE THE DX different from all other synths that had come before it (and almost all synths that came after it)? It's the lack of ready-made waveforms. Most synths give the user at least a sawtooth and a pulse wave. This means that you have some immediate sound colors to play with, as long as you don't filter these waveforms to death. Not the DX - all it gives you to work with is a bunch of sine waves. They're too bland to be of much musical interest, since sine waves have no overtones, and overtones are what gives a sound its color or timbre. But once you use these wimpy sine waves to make your own waveforms, most any kinds of overtones are possible. These sine waves are produced by the six operators.

Take a look at the panel of the DX, and you see 32 different configurations - called "algorithms" - of these same six operators. This being the football season, think of the operators as members of a team, and of the algorithms as different line-ups that you, the coach, can call to execute different plays. Operators function in one of two ways, depending on their position in the algorithm: either as carriers, shown at the bottom of algorithm diagrams, or as modulators, shown above the bottom of algorithm diagrams (Figure 1). Carriers feed their signal directly to the built-in mixer and to the audio output, so you can hear carriers by themselves. Modulators, on the other hand, cannot be heard by themselves; their signal first has to come down the line to another modulator or to a carrier, and it is heard through the carrier only. You can always hear Opl by itself, because it acts as a carrier in everyone of the 32 algorithms. The other operators all take turns at being carriers or modulators.

By itself, each operator can only produce a sine wave. But when the sine wave of a modulator reaches the sine wave of a carrier, all hell breaks loose, overtones are created, and what you hear from the carrier is no longer the sound of a sine wave. After all, the word "modulation" simply means "change," so the modulator is the one that inflicts the change. And

you're in control of these changes, by saying how much change the modulator should contribute, when it should do it, and how it should do it. This, basically, is how the DX makes the many different sound colors that you have heard all along. Modulators are influencing carriers, and what started out as sine waves can become whatever waveform you want it to be.

Oh, and by the way - if you're worried about the following experiments because you don't want to erase any existing voices in your instrument, rest assured. The DX/TX doesn't give you direct access to the

original data in its memory, at least not until you specifically ask for it. When you call up a voice from memory, the operating system acts like a librarian that hands you a xerox when you put in your request. The original stays safely in its memory slot. You can play your "xerox," open it up, change things around, and compare your changes with the original. You do all this in a special memory area called the buffer. Think of the buffer as a workbench where there's only room to work on one "xerox" voice at a time. Nothing can be permanently wiped out until you instruct the operating system, ▶

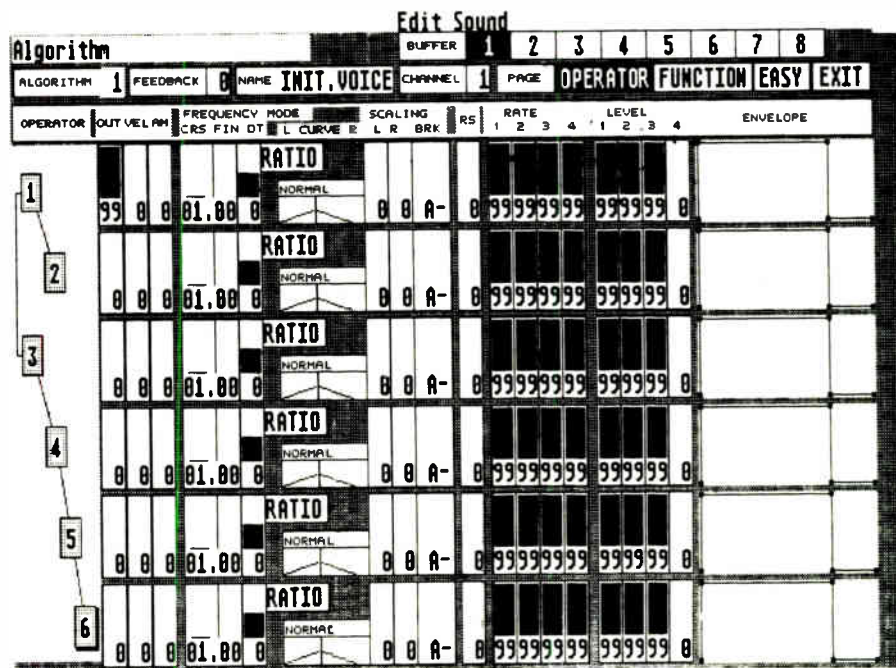


Figure 2. Parameter settings for an initialized DX7 voice.

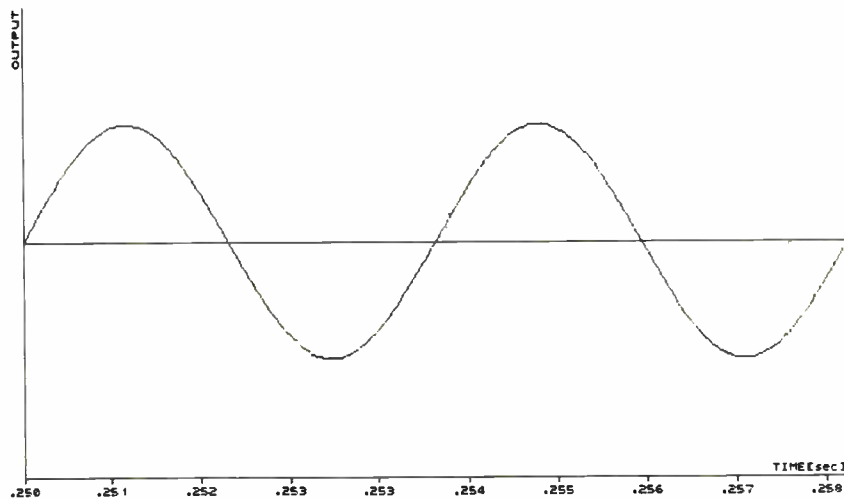


Figure 3. The sine wave output of a DX7/DX7II operator.

# Monthly Package Special

- Personal Composer/2
- Roland MPU-IPC
- (2) 5' MIDI Cables
- Call for Price!

## The Musician's Music Software Catalog & Buyer's Guide

Our all new catalog (available in early February, 1989) will be the most comprehensive issue ever published. It describes the state-of-the-art in music software and MIDI products. We offer a large selection of hardware, software, books, cables, videos, and accessories. Visa/MCard.

Send \$5 US (\$10 foreign) for a 2-year catalog subscription.



Orders: 800-332-2251 Info: 203-874-9080  
Bulletin Board 203-877-1483

### New Bulletin Board Service!

Digital Arts is proud to offer a free bulletin board service. You can dial-up from any computer and browse through our latest **SALE SPECIALS!**, place an order on-line, leave questions and get answers, and give us feedback. Use your computer and modem and call 203-877-1483.

- |  |   |  |   |
|--|---|--|---|
| <ul style="list-style-type: none"> <li>• 48-Track PC</li> <li>• Bacchus</li> <li>• C-Lab</li> <li>• Club MIDI</li> <li>• Commodore</li> <li>• CMS</li> <li>• Digidesign</li> </ul> | <ul style="list-style-type: none"> <li>• Dominant Function</li> <li>• Dr. T's</li> <li>• HB Imaging</li> <li>• Hybrid Arts</li> <li>• Imagine</li> <li>• IBM</li> <li>• Jim Miller</li> </ul> | <ul style="list-style-type: none"> <li>• Mark / Unicorn</li> <li>• Microillusions</li> <li>• Opcode Systems</li> <li>• Passport Designs</li> <li>• Pyware</li> <li>• Quiet Lion</li> <li>• Roland</li> </ul> | <ul style="list-style-type: none"> <li>• Sonus</li> <li>• Sound Quest</li> <li>• Southworth</li> <li>• Steinberg</li> <li>• Turtle Beach</li> <li>• Twelve Tone</li> <li>• Voyetra</li> </ul> |
|--|---|--|---|

Send catalog subscription order and \$5 US (\$10 overseas) to:

## Digital Arts & Technologies

Dept. MTX, P.O. Box 11, Milford, CT. 06460

For telephone consultation, call 203-874-9080. Same day shipment available on in-stock items. DAT will replace defective merchandise immediately. We cannot guarantee machine compatibility. All products are eligible for manufacturer's warranty. All sales final. Worldwide Shipping! Visa/MasterCard/POs/CODs.



**YOUR SOURCE FOR KEYBOARDS, COMPUTERS, SOFTWARE & RECORDING EQUIPMENT. WE SPECIALIZE IN SMPTE/MIDI STUDIO APPLICATIONS**

**NORTH**  
9 E. Goff Terrace.  
Arlington Hts, IL 60005  
(312) 439-7625

**DOWNTOWN**  
3154 N. Clark St.  
Chicago, IL 60637  
(312) 327-5565

**SOUTH**  
3416 Chicago Rd.  
Steger, IL 60475  
(312) 756-7625

**HOURS**  
Mon-Fri 12-9  
Saturday 10-6  
Sunday Closed



VISA • MASTERCARD • AMERICAN EXPRESS • SERVING THE CHICAGOLAND AREA

the DXII, press single/edit/tab 14 repeatedly. When you see Voice Init? (Initialize Voice A?), press the Yes tab twice. On the old DX, although you started out in the brown function mode, you are now in edit mode, with all the blue parameters at the ready. On the DXII you still are in edit mode.

### Making A Sawtooth

I MENTIONED EARLIER that the sawtooth and pulse waves are the most common waveforms on traditional synths. The sawtooth is the basis for just about every synth brass and string sound you've ever heard, plus a bunch of other sounds as well. Although the DX doesn't have a sawtooth wave in store for you, it's real easy to make one, from just two operators. One operator must act as a modulator, connecting directly with the other operator that's acting as a carrier. And the modulator must have the feedback loop. Take a look at the algorithm diagrams on the DX: in each algorithm except #4 and #6, there's just one operator with a loop symbol around its number. This indicates that this is the operator with the feedback loop.

When I mentioned earlier that each operator, by itself, can only produce a sine wave, I wasn't entirely truthful. Since the whole idea of FM synthesis is the meeting of a sine wave with another sine wave to produce overtones, the feedback operator can produce, by itself, overtones when its sine wave is looped back onto itself, as the loop symbol suggests. This is an exception, and it injects some extra energy into the modulation process. You'll hear it in a second. To get a sawtooth wave from just two operators, you only need to adjust three parameters: The output level for each operator, each operator's frequency ratio tuning, and the feedback level for the modulator. The formula is shown in Figure 5.

Can you make a sawtooth in algorithm 1 (Figure 4)? Not according to this formula, because the modulator with the feedback loop, Op6, doesn't connect directly with the carrier, Op3. The taller of the two stacks in this algorithm is like a chain reaction. Op6 first meets Op5, and the two together cook up some overtones, which you can't hear yet, since Op5 is also a modulator. This new sound now meets the sine wave from Op4, and more overtones are created. By the time this new sound meets the sine wave of the carrier, Op3, it could be any kind of waveform; definitely *not* the sawtooth according to our formula.

But look at the diagram for algorithm 2 (Figure 1). Ops 1&2 are ideal candidates. Algorithms 3&4 are no good for this formula, but in algorithm 5 you could do it with Ops 5&6. In fact, you can do it in 21 out of the 32 algorithms, wherever the

MT JANUARY 1989



feedback modulator connects directly with a carrier. So let's move to algorithm 2, just for the heck of it.

Press tab 7 algorithm, adjust the data entry slider, or press the +1 tab until the LCD reads ALG 2. You still hear only Op1, the lonely sine wave. Operator 2 needs some output level. Press tab 27 (tab 10 twice, cursor blinks at ⇌ Level) to select the parameter output level. Unless Op2 is already showing in the LCD, select it (old DX: press the blue tab operator select until the numbers cycle around to Op2; DX-II: press tab 2). Now set the level for Op2 to 75. The sound color is definitely not that of a sine wave anymore. But the feedback will give it extra brightness. Press tab 8 feedback (tab 7, use arrow key to move the cursor to Fbl) and set it to 7. Now play – there's your stock sawtooth (Figure 6). If you want more brightness, increase the output level of the modulator. Go too far and you get distortion (Figure 7). Set it back to 75. If you change the output level of the carrier, the color doesn't change, but the volume gets softer. Set it back to 99.

But what about the frequency ratio tuning that is part of the formula? Look at Figure 2. The frequency column tells you that the operators in the initialized voice are already tuned to the same frequency (both at 1, which is a ratio of 1:1). Frequency ratio (as opposed to fixed frequency tuning, which you'll use later) is a tuning system where each operator can produce its sine wave at the pitch of the key you're playing, or from hundreds of other tuning positions. Right now, because you started with voice initializing where the keyboard is set at middle C=C3 and each operator at frequency ratio 1.00, each operator produces its sine wave at the exact pitch of whatever key you play.

There are two ways of changing this – by 32 coarse steps, and by hundreds of fine steps. Press tab 18 frequency coarse (tab 8 oscillator, move cursor to Coarse). Select Op1. Play and hold middle C and press the -1 tab to get the value of 0.50. Now the pitch is an octave lower than middle C. Step back up to 1.00 (with the +1 tab), and keep going until you run out at 31.00. The pitches you hear are those of the overtone series (Figure 8). Notice that every time you double a number you go up one octave, and every time you halve a number you come down an octave. Bring Op1 back to 1.00, listen, and change it to 0.50. Not only does the pitch change, but suddenly the color is different, too. That's because the sawtooth formula says that the modulator and the carrier should be at the same frequency (ratio 1:1), whatever that frequency is. Select Op2 and set it also to 0.50. Now you have the exact sawtooth color back, simply transposed down an octave. Change them both to 2.00, and you have the exact same sawtooth color



Figure 8. The Coarse Frequency Ratio numbers, which step you through the overtone series, are easily memorized as a dominant 13th chord with a sharp 11th. In the voicing shown below it's the whole notes: 1, 3, 5, 7, 9, 11, 13 (all odd numbers). Any even numbers can simply be divided in half until a familiar odd number appears. Each division by two means that you've descended in pitch by one octave. This system also works for the harmonic overtones of the sawtooth, where all odd and even numbers are present, and for the square wave, where there are no even numbers (no octave duplications).

transposed up by an octave from whatever key you play.

You've just learned an important lesson: *Transposing the carrier with frequency ratio transposes the pitch of the sound. Changing the tuning relationship between modulator and carrier changes the color of the sound.* If you put this together with the other things you did so far, you come to the following conclusion about the role of modulators: *The tuning relationship of the modulator to its carrier determines what kind of waveform it creates. The output level of the modulator*

determines how intense the overtones of this waveform are.

Next month you'll create some other generic waveforms from simple formulas that are easy to remember. Then you'll look at the envelope generator that lets you breathe some life into these sounds. You'll learn the main programming difference between brass and bowed strings. And I'll show you some examples of factory voices where these formulas were applied. Don't bother to store today's exercise in memory. But call up all kinds of voices, press edit, check out what algorithm was used, and turn individual operators on and off to hear who's doing what, with whom, and when. Play the voices hard and soft, short and long, high and low. Then look at the numbers of output level, frequency ratio, and any others that you find interesting. Make a note of things that you can't figure out. After another few installments of this series you can go back and play detective again. Until then, happy hunting. ■

The waveform and screen printouts were generated from the Atari ST computer, with a utility program called Snapshot.Acc from within the Migraph program Easy Draw, capturing screens and saving them as Degas (a paint program) files. The screens of Figure 2, 3, and 7 are part of the DX editor/librarian program X-Alyzer, from C-Lab in Germany, which is not currently marketed in the US. I used the Steinberg Synthworks DX/TX program for Figure 6. The music example in Figure 8 was created on a Macintosh with Finale.

**ALTECH SYSTEMS**

*Totally Tubular!*

- 1 in - 3 out MIDI Interface
- 1.0 MHz Clock Speed
- Requires no external power
- Fully Optimized
- Works with all Macintoshes

For more information contact:

**ALTECH SYSTEMS**  
831 Kings Hwy Suite 200  
Shreveport, LA 71104  
318-226-1702

Macintosh 1x3 Interface suggested retail \$99.95

# TOTAL AUDIO BRILLIANCE



- Up to four incredible studio sounds simultaneously!
  - Reverberation
  - Arpeggiated Effects
  - Reverse Gates
  - Pitch Transposition
  - Pitch Shift Doubling
  - Imaged Doubling
  - Digital Delays
  - Chorusing
  - EQ
- Easy to use front panel controls
- 200 user memory locations
- Over 100 studio-crafted presets
- Fully programmable
- Full parameter control
- Random access keypad
- Ultra-wide bandwidth
- Full midi with battery back-up
- Remote footswitch jack with preset increment



**Total Audio Brilliance!** ART takes digital processing into the 21st century. Four effects at the same time. Full parameter variability. Thirty-two character LCD for operational simplicity. Create custom programs. Stack multi-effects. Store them in 200 memory locations! ART's NEW ultra-high resolution circuitry yields audio performance unequaled at any price.



*We Put It All Together...*

Applied Research & Technology  
215 Tremont Street  
Rochester, NY 14608  
(716) 436-2720  
TELEX: 4949793 ARTROC  
FAX: (716) 436-3942

**Export Distributors:**

THE NETHERLANDS/Audioscript B.V./Soest/02155-20400/FINLAND/MS Audio Services/Helsinki/09-564445/SWITZERLAND/Musikpro & Co./Molndal/031-878980/ FRANCE/High Fidelity Services SA/Paris/(1) 42.85.00.40/CANADA/Yorkville Sound LTD./Scarborough/416-731-8811/ITALY/DAI C.I.D.A./SPA/Palermo/091-60058/WEST GERMANY/PME Audio/Hauffweg/07136-6029/SWITZERLAND/Musikengros P. Gutter/Sissach/061-983757/HONG KONG/Audio Consoles LTD./Kowloon/3-712221/JAPAN/Kanata Physical Corp./Tokyo/(03) 254-3611/THAILAND/Beh Ngiep Seng Musical Instruments/Bangkok/222-5281/INDONESIA/PT Kirana Yudna Teknik/ Jakarta/021-222-5281/CAPORAL/PT. LTD./747791/JAPAN/ Aplicaciones Electronicas Quasar SA/Madrid/6861300/TURKEY/Kadri Cadmak/Istanbul/ (1) 1051672/AUSTRALIA/Hi-Fish Distrib. Pty. LTD./Cherrywood NSW/02-47774000/NEW ZEALAND/MASER, Muller Copenhagen/1-854880/U.K./Harmon U.K./Slough/075376911/NEW ZEALAND/Maser Digital/Auckland/044-3582415/USA/Music Products World Radio History/USA/ARGENTINA/Lagos Sacramento/ Buenos Aires/40-6455

# MUSIC MAKER PUBLICATIONS

your #1 source of music magazines!

Music Maker Publications is dedicated to quality, informative and educational magazines for musicians and the music industry.

Be a part of today's musical revolution by reading these Music Maker titles.

## MUSIC TECHNOLOGY

The musician's No.1 source to the latest technology in musical instruments. Staying current on synthesizers, samplers, drum machines, MIDI controllers, and a staggering array of accessories is essential to all musicians. MT leads the way every issue!

## HOME & STUDIO RECORDING

The musician's No.1 source to personal recording. Everything you need to know about selecting and using your first 4-track cassette recorder to a 32-track digital system. Such topics as signal processing, miking techniques and the basics of studio design, gives you all you'll need to bring it on home!

## RHYTHM

The drummer's and percussionist's No. 1 source to musical creativity. Every month, in addition to informing you about the latest equipment, RHYTHM is jam packed with features on technique, sight-reading, jazz, latin percussion and more-with articles and insights by the best players in the business.

Be on the Cutting Edge of Today's Music!  
Order yours today!

Each subscription saves you... **43%**

Regular Rate is \$35.40 each magazine.

**Yes, please start my subscriptions at the Special One-Year rate!**

- MUSIC TECHNOLOGY magazine for one year for only \$20.  
 HOME & STUDIO RECORDING magazine for one year for only \$20.  
 RHYTHM magazine for one year for only \$20. CMJ

Name \_\_\_\_\_

Address \_\_\_\_\_

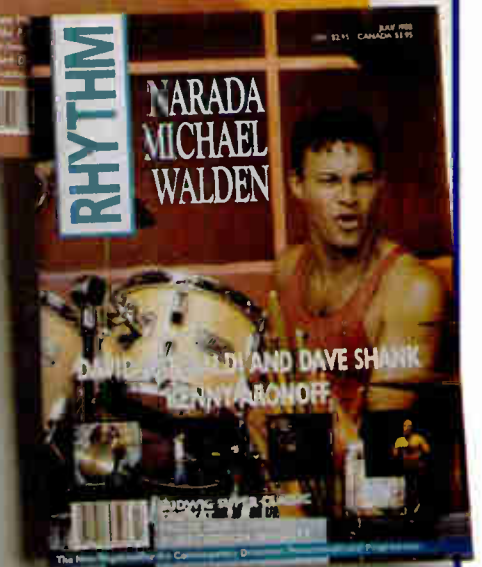
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Bill Me \$20.  Payment Enclosed\* or charge my  VISA  MasterCard

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Phone ( ) \_\_\_\_\_ Signature \_\_\_\_\_

\*Checks payable to: Music Maker Publications, 22024 Lassen St, Ste 118, Chatsworth, CA 91311 Non-US Subscriptions must add \$12.00 additional in U.S. Dollars via International Money Order to cover postage.



# Computer Digitization

## THE 1988 AES CONVENTION

Hard disk recording systems and other high-end marvels caught most of the spotlight at this year's LA convention, but not to the exclusion of some lower priced gear and those ever popular five-pin DIN ports we call MIDI. Report by Bob O'Donnell.



Photography Rose Rounseville

UNLIKE THE LOUD raucous and flash that normally accompanies the semi-annual NAMM industry conventions, the annual Audio Engineering Society's (AES) convention is a relatively quiet, somewhat austere and very professional affair. Companies who manufacture products geared for studio, broadcast, and live sound applications generally roll out their new introductions in a subdued manner, with the emphasis on substance as opposed to sizzle. Of course, with product introductions like Sony's new \$240,000 PCM-3348 48-track digital recorder, which allows you to add 24 more tracks to existing tapes recorded with Sony's 24-track digital machine, there was a certain amount of splash at the LA Convention Center, but it almost had more to do with the price tag of the new products than anything else.

In fact, to continue the analogy, if there's one thing (besides the pleasant quiet of the convention floor) that separates AES from NAMM, it's the price of the products being displayed. While prices for new product innovations at NAMM shows often drop, it seems the prices for high quality studio gear keep ascending. Admittedly, your dollars often buy you access to technology that was barely imaginable a few years ago, but still, you have to wonder how long people in studios are going to keep paying

the kinds of prices expected to put together a high class recording facility. I guess we shall see.

### The Movements

THE MOST OBVIOUS trends on display in LA were the abundance of hard disk-based digital recording and editing systems, and the proliferation of computers (particularly Macintosh II's) controlling various devices in the audio chain, including many of these hard-disk recorders. The digital recording systems based on hard disks were so prevalent, in fact, that it became easy to get confused over which system had which features. Though they all basically allow analog signals to be digitized (or digital signals to enter directly into the system), and then recorded, manipulated and played back, the manner in which the manipulation and editing, in particular, is performed varies widely among the systems. One point in common with most, however, is that the storage media currently in use – namely the hard disks – is seen by many as a potential problem in years to come. As optical disk (ie. CD) recording systems, 8mm video tapes and other types of data storage become prevalent, 300 megabyte hard disks may soon become the dinosaurs of the computer era. To their credit, many of the manufacturers involved with digital recording pointed out that with the benefit of SCSI (Small Computer Systems Interface) connectors, they are ready to simply plug in the latest developments in data storage – including optical disks. How realistic these kinds of predictions are will be determined in time, but the companies who adapt the quickest, I think, will be the ones who survive the inevitable digital brawls.

Another point worth bearing in mind is that digital audio is indeed growing in strength and acceptance, but that acceptance is being hampered by a lack of unified standards on how to get the data around. Processors are starting to grow all sorts of digital I/O (input/output) connectors, such as AES/EBU, RDAT/CD (a slight variation on AES/EBU), and various digital tape recorder format connectors, to keep the signal in the

cleaner digital domain (switching back and forth between digital and analog can't help but degrade the audio). A well accepted standard would go a long way towards development in this industry. But on to the products...

### Instruments

BEFORE JUMPING HEADFIRST into the intricacies of hard-disk recorders I thought I'd fill you in on the latest developments in MIDI keyboards, drum machines and sequencers. The big news for this familiar area comes from New England Digital, Roland, Korg, Akai and Simmons. At the high end of the list, NED introduced two newly-packaged and upgraded Synclavier systems, the **Synclavier 3200** and the **Synclavier 9600** (ranging in price from \$42,000 to \$320,000). Though the 3200 was touted as a lower-priced system, don't start breaking your piggy banks just yet – you'll still need about \$57,000 to get 8Meg of RAM and 8 voices as well as the Macintosh II and software around which the system is now controlled. The 9600 offers up to 96Meg of RAM, 96 stereo voices, FM, additive synthesis and resynthesis as well as 100kHz sampling. It also includes the Synclavier keyboard and a Mac II front end. Both the 3200 and the 9600 are packaged in attractive new stand-alone boxes and both now include extensive MIDI control.

Roland chose AES as the site to publicly unveil their impressive new **R8 Human Rhythm Composer** (\$995) which includes 68 onboard 16-bit samples, room for more sounds via ROM cards, eight individual outputs, touch-sensitive pads and their unique "humanizing" functions. They also showed their **A50 Master Keyboard** (\$2195), which supports polyphonic aftertouch, four independent keyboard zones, multiple velocity and aftertouch curves and a slew of other features. The company's **U110 sample playback module** (\$1095) – previously called the T110 – was also on hand, as was a new CD-ROM player for the S550 sampler. The **CD5** (\$1995) comes with a disk loaded with the equivalent of 104 sound disks, has a SCSI connector for connection to the HD80 hard disk if so

MT JANUARY 1989

desired, can also function as a CD audio player and can be controlled via the monitor output of the S550. Nice.

Down the hall in the **Korg** booth, the company was showing the **MIR** (no list price), a rackmount version of their popular **M1** synth that includes all of the functions of the keyboard version (including the sequencer) and adds a **MIDI Overflow** mode. The company also demo'd the first of several planned **ROM** cards with new samples for the **M1**, as well as new **ROM** cards for the **P3 Piano** and **Symphony Modules**. The **M1 ROM** cards will come packaged with a **RAM** card containing patches that take advantage of the nice-sounding new samples – the combination is tentatively priced at under \$90. Korg also showed a partially completed **Q1** sequencer and a non-operational **SI** sampling drum machine/sequencer, but unfortunately the **SI** has been delayed and may not appear for several months.

Samplers were the big news at the **Akai** booth, where the company demo'd the **SI000** sampler (see review elsewhere in this issue) as well as the new **S950** (\$2495), an upgraded version of the original **S900**. The **950** offers the ability to expand up to 2.25Meg of **RAM** (750K is standard), a sampling rate extended up to 44.1kHz, the ability to load samples while playing, and an option for digital I/O and an **Atari** hard disk interface. The **S950** also includes built-in time compression and expansion functions, something which is not yet available on the **SI000**. Sounds developed for the **S900** are compatible with both the **S950** and the **SI000**. Akai also showed the **XE8**, a **MIDI** controlled 16-bit drum expander in a single rack space. The eight-voice **XE8** has 15 sounds in **ROM** and an additional amount can be added via **ROM** cards; it also features eight individual outputs.

**Simmons** continued to announce additions to their massive **SDX** sampling system with the introduction of their **SDX Real Time Recorder**. Planned as a \$299 update for existing owners, the sequencing software features 64 tracks, non-destructive quantization of individual tracks or regions within a track, graphic block or event listing edit capabilities, programmable tempo changes, individual track offsets, a resolution of 384 ppqn, **SMPTE** sync abilities and a host of other functions. Sequences can be stored along with samples on floppy or onto the **SDX's** internal hard disk for quick retrieval.

### Did You Say Hard Disk?

ONE OF THE more well-received hard-disk recording systems at the show was the Mac-based **Dyaxis** from **Integrated Media Systems (IMS)**. First introduced over a year ago, this system's ability to work with multiple tracks in the editing stage and to convert one digital format into

MT JANUARY 1989

another in real time seemed to set it apart from the crowd (like many of the other systems unveiled, it only permits two tracks to be recorded or played back at one time). The price for a system that includes the **A/D** and **D/A** converters, the **MacMix** software, a 320Meg hard disk for half an hour of stereo audio, the digital conversion and digital output hardware, and the **Time Code Interface** for synchronizing to **SMPTE** via **MIDI Time Code** is \$15,645, not including the **Mac**.

If, on the other hand, you want to get a bit more risky and perform digital equalization, time compression/expansion (which allows you to shorten or lengthen a piece of audio data without affecting the pitch) or other digital signal processing (**DSP**) functions, you may want to use **Digidesign's** new **Sound Designer II** (\$995) sound editing software, which is compatible with **Dyaxis (Blank Software's Alchemy** (\$495) is as well). Speaking of **Digidesign**, with the introduction of the **AD In 16-bit stereo A/D converter** (\$995), and in conjunction with their existing **Sound Accelerator card** (\$1295) for the **Mac SE** and **II**, the company has their own hardware system for digital recording. Though they originally touted the **Sound Accelerator** as a real-time sample and synth editing tool (thanks to its powerful **Motorola 56001 DSP** chip, the newest wonder and buzzword to hit the world of computer music), the addition of the **AD In** box and a large hard disk turns **Digidesign's** package into one of the least expensive desktop audio production system available.

A slightly different approach to the

digital audio equation was taken by **Symetrix**, who unveiled a prototype of their **DPRI00 Digital Processing Recorder**, which is also based around the **Macintosh**. In addition to hard disk-based recording, the **DPRI00** will be able to perform real-time signal processing, such as reverb, compression, etc, thanks to the system's four **56001** chips. Another company emphasizing real-time control was **Steinberg Digital Audio**, who unveiled the **Topaz Computer Controlled Recorder** (prices start at \$24,000). **Topaz's** roots are in the **PPG Hard Disk Unit (HDU)** – when **PPG** founder **Wolfgang Palm** started working at software powerhouse **Steinberg**, the **HDU** project was resurrected, redesigned and renamed. The large, multiple-space rack unit around which the **Macintosh-controlled** system is based contains **AES/EBU** spec digital inputs and outputs (analog I/O with **A/D** and **D/A** converters is optional), a 360Meg hard drive, and a built-in tape streaming backup. The accompanying software permits all editing functions (which are all non-destructive) to be performed in real time – including adjustments to time compression and expansion of the audio material. Up to eight different rack units may be combined for multitrack digital recording and an optional remote will provide the system with two 100mm faders, an alpha dial, function keys and several **LCD** displays. **Steinberg** only had sketches of the remote, but I think it'll prove to be a really important part of the system – moving faders and knobs with a mouse just doesn't quite have the same impact as using the real things. ►



**New England Digital's** new Remote Controller/Editor/Locator for their direct-to-hard disk recording systems provides a more familiar user interface to those who work in recording and post-production environments.

▶ Yet another Mac II-based system was unveiled by **Sonic Solutions** (headed up by Andy Moorer, ex-Droidworks). The company's **Sonic System** (\$44,100 including the Mac II), is specifically intended for CD mastering applications and includes the ability to process two channels of audio, while at the same time download another stereo pair to digital tape. Over on the ST, **Hybrid Arts** showed a nice-looking turnkey (all in one package) system for their **ADAP II direct-to-hard disk recording system** (prices start at \$3495 without the computer and hard disks), but unfortunately the software was not running.

### Digital Hardware

IN THE REALM of hardware-controlled systems, the most interesting newcomer was the **Audio Tablet** (in the mid-\$50,000 range) from British company **Real World Research**. Designed primarily for post-production applications such as dialog and music editing, the system avoids the waveform displays of other systems and concentrates on a tape recorder analogy. To further reinforce a hardware approach, its touch-sensitive plasma display actually makes a clicking sound when you access a function. (I know that may sound strange, but it's an ingenious idea that seems incredibly obvious once you've experienced it.) The rack-mountable main



Yamaha's new SPX1000 is a full bandwidth stereo effects processor that can do up to five effects at once.

units can each handle up to four channels of analog or digital I/O and multiple racks can be combined for more channels.

**Solid State Logic (SSL)** formally unveiled their **O1 Digital Production Centre** (\$178,000) to the US market at AES. The O1 consists of an eight-channel digital console with digital EQ and dynamics processing and multiple hard disks for storage of the data. Analog and digital inputs are supported (including the new MADI - multiple channel audio digital interface - standard, which is simply a multi-channel version of the AES/EBU standard) and a tape backup system is standard.

From the quiet hills of Vermont came the enhanced and slightly redesigned **PostPro and Direct-to-Disk** (\$108,000 for 25 minutes per track) systems from **New England Digital (NED)**. In addition

to a new dedicated Remote Controller/Editor/Locator, updates to the eight-channel digital recording systems include a Macintosh II-based graphics workstation as a front end, built-in time compression, VITC (vertical interval timecode - the type of SMPTE that exists in the video blanking interval on video tape) synchronization, CMX edit list (a defacto industry standard format for video edit and hit lists) conversion, and additional digital I/O for use with the various digital formats.

Along similar lines, **WaveFrame** announced a new digital I/O card that supports all major digital formats for their **AudioFrame Digital Audio Workstation**. Over at the Fairlight booth, the redesigned **MFX control console** (around \$7000), which is specifically designed for users who are doing post production applications, was on display.

## MASTER THE ART OF SAMPLING

GET THE MOST OUT OF YOUR SAMPLING INSTRUMENT  
WITH TIPS FOUND IN THESE HAL LEONARD PUBLICATIONS:

### THE SAMPLING BOOK



by Steve DeFuria and Joe Scacciaferro  
This book provides a complete step-by-step presentation of all the skills needed to master sampling. Topics include: looping, splicing, multi-sampling, velocity cross-fading, resynthesis, choosing the best sampling rate, key mapping and much more. Over 25 actual hands-on experiments walk you through practical and useful musical applications of sampling. Another book in the Ferro Technology Series.  
00605666 ..... \$17.95

### SAMPLER SET-UPS



By Terry Fryer  
Set-ups are quick guides that provide step-by-step instructions for every major operation of each individual instrument. Ideal for road musicians, recording engineers, users of multi-keyboard set-ups, as well as the novice. These handy reference guides are printed on durable stock and are 3-hole punched so they can be kept together in a binder.  
00239002 Casio FZ-1 ..... \$9.95  
Available soon—  
00239001 Ensoniq Mirage ..... \$9.95

See your local music dealer or order through Music Maker Publications

#### PLEASE RUSH ME THE FOLLOWING:

\_\_\_ 00605666 The Sampling Book ..... \$17.95  
\_\_\_ 00239001 Ensoniq Mirage Set-Ups ..... \$9.95  
\_\_\_ 00239002 Casio FZ-1 Set-Ups ..... \$9.95

\_\_\_ \$2.00 Shipping/Handling

\_\_\_ Tax (CA residents add 6% sales tax.  
Los Angeles residents add 6.5% sales tax.)  
\_\_\_ Total

\_\_\_ Check/Money Order enclosed  
(Make payable to Music Maker Publications)

#### PLEASE CHARGE MY:

\_\_\_ VISA  
\_\_\_ MASTER CARD

Account Number Exp. Date

Cardholder's Signature

#### SHIP TO:

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Mail this coupon to:

**Music Maker Publications**  
22024 Lassen Street, Suite 118  
Chatsworth, CA 91311 MTM15

Fairlight also played up their new Waveform Supervisor co-processor, with which they're promising six tracks of mono or four stereo pairs of digital recording.

For those of you into the nitty-gritty of digital recording and playback, two different companies showed developments in 20-bit technology. dbx announced a **20-bit analog-to-digital converter (ADC)** and on the other end of the equation, **Ultra Analog** introduced the world's first **20-bit digital-to-analog converter (DAC)**. Neither one is directly available to end users, but both chip sets offer promise of even higher quality digital audio products in the future.

## Computerization and "MIDIization"

ONE OF THE most intriguing applications of computer control at AES had nothing whatsoever to do with hard-disk recording. **Crown's IQ control system** for their Macrotech line of amplifiers allows up to 2000 (no, that's not a typo) amplifiers to be monitored and adjusted via a Macintosh and appropriate software. It's not quite MIDI-controlled power amps, but it's pretty darn close. The system basically consists of the single rack space **IQ Interface (\$895)**, which connects to the Mac via an RS422 cable, and individual modules (\$350) for each amplifier. Each IQ Interface can control up to eight amps via Serial In and Out jacks. The Mac software included in the package lets you visually monitor and adjust the level of the amplified signal, mute it, adjust its phase, check the temperature status of each amp and numerous other options that are vaguely related to MIDI automation software. Admittedly, it probably won't have a big impact on how you and I make our music, but it's an interesting application of technology, nonetheless.

Probably the hit of the show, at least to my eyes, was an analog recorder that I think will have a big impact on how MIDI musicians record their music. The **Fostex R8** (approximately \$2800) is a MIDI-controllable eight-track recorder which uses 1/4" tape. With the optional **MTC1** MIDI control port (approximately \$300), which also includes jacks for SMPTE in/out, and an external synchronization connector, the R8's transport and track status controls can be controlled via MIDI commands. At their booth, Fostex also showed a DA running on the Macintosh called **Mac Remote** which permits the selection and storage of punch in and out points, locate points, etc, as well as remote operation of the transport. In addition, the R8's meter panel and transport controls detach from the recorder and work as a remote control - a great idea. Finally, if all this wasn't enough, the R8 is packaged in a compact, attractive package (it even has a little handle) that I have to admit is kinda cute. **MT JANUARY 1989**

(A cute 8-track? Well . . .) Look for this baby to be a big hit with the MIDI recording crowd.

**Fostex** also made quite a splash in digital recording with the unveiling of the **D20 Professional DAT recorder** (approximately \$8000) - the first one which can record and be slaved to SMPTE. (Sony originally promised and is now working on a standard with other companies for a SMPTE/RDAT, but Fostex went ahead with their own system.) The unit supports both 44.1 and 48kHz sampling rates, can also be controlled by a synchronizer and will accept digital I/O via the AES/EBU standard.

In the arena of digitally controlled audio mixing, **Musically Intelligent Devices** unveiled several upgrades to their **Megamix** automation systems. First off, the company showed a retrofittable group of faders which include the record, mute, solo and group controls found on the company's existing **IF18 Intelligent Fader Interface**. The faders and built-in VCAs were shown fitted into a **TAC Scorpion**, but the company promised that other popular boards would be supported. Control software for the MIDI-equipped system can now be run on an Atari ST, as well as a Mac or IBM. A new controller page in the program allows you to store



The **Fostex R8** MIDI-controlled eight-track reel-to-reel recorder was one of the highlights of the show.

settings of other controls (such as EQ) which the system cannot automate by letting you create your own board with knobs and faders and setting their appropriate positions.

Another ST controllable automation package unveiled at the show was **Steinberg's mimix**. The Desktop Mixing System, as the company refers to it, consists of the mimix software and rack-mountable 8-channel VCA boxes (up to eight can be combined for 64 channel control). It also has options for the **FMC64** fader-to-MIDI converter and the **MBS8** mimix Bypass Switch box, both of which can be retrofitted to nearly any type of existing consoles. With the fader-to-MIDI converter, which converts the position of the fader into a MIDI continuous controller which the software can record, the system becomes practically invisible - instead of having to use the mouse to adjust the levels, you can simply use the

board's existing faders. The package has a number of other nice features, including a programmable noise gate for each of the VCA channels, a cue list page, user-adjustable fader curves, audio and gate triggering, and a host of synchronization options including support of MIDI Time Code (MTC).

Over in the **JBL/Soundcraft** booth, a greatly enhanced **Twister automation package** that was retrofitted into 600 Series Soundcraft consoles wowed quite a few people. One could operate the board as normal and just have the software (created by Steinberg - Twister created their mimix hardware) record and automatically save the moves, use the computer screen to provide fader levels, timecode display, peaking indicators, and VU meters, add software-controlled noise gates on each channel with the Twister, and/or go back later and graphically edit each move and add a hit-list for triggering other MIDI devices. The price for a system (including computer; not including board) is around \$9000 for a 24-channel system.

On a slightly different note, **Apogee** - a company best known for its award-winning filter chips - introduced the **MIDI Accelerator (\$250)**, a hardware MIDI data thinner that uses intelligent processing to clear the MIDI data stream of excessive controller messages. Three knobs and one switch on the little unit's front panel allow you to select various amounts of filtering for aftertouch, mod wheel and either breath or foot control data. The intelligence built into this box' processing revolves around not thinning any controllers which immediately follow note-on events to preserve the most important musical inflections.

With their new **Audio Matrix 16 (\$695)**, a MIDI controlled audio patchbay, **360 Systems** offered yet another possibility for MIDI control in the home or professional studio. The two rack space unit has 16 1/4" in and out points, including two groups that are doubled on the front panel for easy access, and 99 presets for storing various configurations of the outputs. The switching is said to be instantaneous and the signal-to-noise ratio of the unit is an impressive 102db at 1kHz unweighted.

Over at the **Peavey and Peavey/Audio Media Research (AMR)** booths, a similar product was being shown, the **MAP 8x4** MIDI-controlled audio patchbay (\$429), along with several other nicely repackaged products that the company has displayed at previous conventions (but hasn't shipped as of yet). The **MAP 8x4** includes eight sets of 1/4" jacks as well as four mono effects/send return loops and offers the ability to store 128 different patches. The company also showed the **Sync Controller MIDI/SMPTE synchronizer (\$999)**; the **MIDI Manager** ▶

(\$399), a basic MIDI system controller which in conjunction with the optional **EAC8** Event Automation Controller (\$109) permits you to automate certain non-MIDI gear; the **MDB 2x4** MIDI Thru Box (\$79); and the **LM8** (\$249), a rackmount 8x2 keyboard mixer with two mono effect sends.

### Signal Processing

THE REAL STARS of the Peavey and AMR booths, however, were the **Autograph programmable equalizer** (\$549) – called the **AEQ2800** and priced at (\$449) in the AMR line – and the new **Multiflex** multiple multi-effects processor (approximately \$1000) – called the **QFX 4x4** in the AMR line. In addition to offering 128 programmed variations on a 28-band graphic equalizer, the Autograph also has built-in RTA (real-time analysis – not included in the more studio-oriented AMR version), which allows you to determine the EQ of the room you're playing in. The Autograph can then automatically adjust the EQ for the room and then add your own favorite EQ settings over the top of the first EQ curve it generates, allowing you to have the same EQ every time you play – regardless of the room. Pretty neat. The Multiflex is also a nice development which I'm surprised no one else has come up with yet. What it consists of is four independent multi-effects processors

(UltraVerbs, in Peavey-ese) each with its own set of stereo inputs and outputs. Depending on how you choose to use it, you can either have four different effects happening to four different tape tracks at once, or you can gang several different processors together (by simply choosing which inputs and outputs you connect to – the processors can be serially linked) to produce a nearly ridiculous amount of processing. Each processor can be independently programmed on the large 40x2 LCD display and is capable of producing reverb, delay, and chorus effects at once. All in all, a lot of processing power.

Speaking of processing power, **Alesis** showed a working version of the impressive sounding **Quadverb** (\$449), which allows you to do things like just put chorus on the echoes of certain delay programs. In addition, every single parameter can be addressed in real time over MIDI.

Recognizing that the magic number is now four, **DigiTech** unveiled an updated version of their popular **DSPI28** called the **DSPI28 Plus** (\$499). In addition to now having the ability to produce four effects at once, the 128 Plus also has a full 20-20kHz bandwidth and an easier to use front panel. Over at the **ART** booth, the big news was a series of high definition analog graphic equalizers, the **HD31** and **HD15** (both of which should be under \$450), that utilize

some of the circuitry found in the company's programmable IEQ systems.

The big news from **Yamaha** at AES was the **SPX1000** digital multi-effects processor (\$1795). The SPX1000 is a true stereo effects processor, meaning that it can produce different effects on the left and right channels. It has both proprietary Yamaha digital I/O as well as standard analog 1/4" connectors. The second generation effects processor can produce up to five effects at once either in series or parallel, including compression, distortion, EQ, chorus, delay, exciter, reverb, pitch shifting and sampling (up to 2.9 seconds in stereo), and its bandwidth is a very pleasant sounding 20-20kHz. On top of all this, up to two parameters per program can be affected in real time via MIDI continuous controller messages. A fitting successor to the SPX90.

### Until We Meet Again . . .

THE ONSLAUGHT OF hard disk-based recording and editing systems as well as the continued growth of audio products built with MIDI in mind should make the marriage between digital audio, computers and MIDI an interesting one to watch for the next few years. The storage media for these digital systems may change as new advancements in optical disk recording are achieved, but it looks as if the recording systems of the '90s are being defined today.

## A HOME FOR THE HOMELESS STUDIO.

Take a peek at the new kid on the block: The Home Recording Package from Ultimate Support Systems. This rugged system turns that battlefield of equipment into a well-organized homefront.

The result? A clean setup that gives you a clean sound.

To insure smooth recording sessions, we've included an outlet strip for one-switch power access, and an acrylic writing/mouse surface. Now everything stays within arm's reach.

Our system is made to be built upon. We know that when the fever hits and you expand your studio, you'll want it all to feel right at home. At Ultimate Support, we make it easy.

Check out how we've added Mounting Brackets for speakers, Rack Rails for effects, and Support Bars for the computer keyboard.

After all, there's no place like home.

For a Free Home Studio brochure, contact USS or a dealer near you.



The last word in support. Guaranteed for life.  
Ultimate Support Systems, Inc.  
P.O. Box 470  
Fort Collins, CO 80522-4700

In Canada: Roland Canada  
13880 Mayfield Place  
Richmond, B.C. V6V 2E4, Canada



# Akai S1000

## Digital Sampler



Photography Adam Jones

**Akai's 12-bit S900 quickly established itself as a popular studio-standard sampler. Will the company's 16-bit S1000 sampler be able to equal the success of its predecessor? Not-so-random sampling**  
*by Simon Trask.*

**A**KAI HAS EXCELLED in digital sampling from the outset. From the S612 sampler in 1985, which alongside Ensoniq's Mirage introduced "affordable" sampling, through the X7000 and its rack-mounted companion S700 to the studio-standard S900, the company has consistently produced quality sampling instruments.

However, these days a company can't be seen to be resting on its laurels for too long, especially where sampling is concerned. A new generation of 16-bit samplers is emerging to take the lead at the professional end of the market, and Akai's new flagship sampler aims to be leader of the pack.

### Overview

AKAI'S S1000 STEREO 16-bit linear sampler comes in a 3U-high 19" rack-mounting format and the company's distinctive light-gray coloring. At about 21 pounds it is no lightweight, but then in terms of capability it's no lightweight either.

MT JANUARY 1989

The 16-voice S1000 comes with two megabytes of sample memory as standard, expandable to four, six or eight megabytes. An eight-megabyte system is capable of recording around 95 seconds in mono at a 44.1kHz sampling rate. Unlike the S900, the S1000 has only two sampling rates: 44.1 and 22.05kHz. Sampling inputs are located on the front panel, where you have both balanced XLR and jack inputs. You can select from three input levels (-58, -38 and -18dBm), with additional record-level control from a knob located above the sample inputs.

Of course, the S1000 doesn't retain any sample data through power-down, which means you need to save your precious samples to either floppy or hard disk. The S1000 supports 2DD and 2HD 3.5" floppies, the latter providing around double the amount of storage of the former. It's worth noting that even 2HD disks won't save the entire 2MB memory that the S1000 comes fitted with, let alone the optional larger amounts of memory.

Provision for software updates is a requisite feature of any sampler nowadays. With some foresight, Akai has included a

dedicated Options button for calling up a software page which will allow access to upgrade features. One such feature which has been touted since the S1000 was first announced is time-stretching, which allows the duration of a sample to be expanded or compressed without altering its pitch. Something tells me this feature is going to make a lot of people happy. Akai's new S950 sampler comes with time-stretching implemented, so hopefully the S1000 won't lag too far behind.

The sampler's rear panel is well endowed, with a slot for an Atari/Supra or SCSI hard-disk interface card, MIDI In, Out and Thru sockets, stereo audio outs and eight individual audio outs (with dynamic polyphonic voice assignment), a mono send/stereo return effect loop (through which you can route any combination of samples), stereo headphone output, footswitch input and a slot for Akai's AES/EBU digital audio interface card (which could open up some interesting possibilities for, say, DAT editing).

Prominent on the front panel is a 320-character (8x40) backlit LCD window (with contrast control located to the left ▶

► for easy adjustment). Akai has put this display to good use in devising the user-interface aspect of the S1000. Essentially this revolves around two infinite rotary knobs for parameter selection and value adjustment respectively, eight dedicated Mode buttons, and eight Function softkeys for calling up sub-pages or activating specific functions within each mode. It's a system which makes for operational simplicity and clarity, and overall Akai must be congratulated on this aspect of the S1000. However, this doesn't mean the S1000 is a cinch to understand or that it always allows you to work quickly.

Akai is also to be congratulated on the S1000's manual, which has been written in a friendly and imaginative style and is fairly comprehensive. Minus points are the absence of SysEx and other MIDI information as well as an index.

### Organization

THE S1000 ALLOWS you to store up to 200 samples in its internal memory. To make some sense of these you need to organize them into Keygroups, while Keygroups are in turn organized into Programs. To put it another way, a Program is a map of samples across the keyboard, and Keygroups are the means to create the map.

Up to 100 Programs can be held in the S1000's internal memory. Pressing Select Program takes you, logically enough, to a page which allows you to scroll through the list of Programs (five at a time can be displayed on the sampler's LCD screen). Although Programs are numbered, the S1000 actually identifies them by the name you give them. An easy way to layer Programs (and therefore samples) on the keyboard is to set them to the same number.

You can specify up to 99 Keygroups per Program, each with its own keyspan. Keygroups can overlap however you want them to, and you can specify a crossfade between Keygroups where they overlap. Defining Keygroups is a laborious process (despite what the fancy graphic display might lead you to believe) which could have been made much easier by allowing you to input low/high note values directly from the keyboard.

**Transposition** *"The S1000 employs an interpolation algorithm for sample playback which ensures that resolution isn't lost when samples are transposed downwards."*

You can specify MIDI velocity-response ranges for each of the four samples within a Keygroup, with the option to crossfade between samples where these ranges overlap. To my mind, this aspect of the S1000 greatly enhances its flexibility. What's even better is that you can specify tuning, loudness, filter-cutoff and



individual-output offsets from the "global" Program values, as well as an absolute pan value (L50-R50) and a sample playback mode, for each sample within each Keygroup. This means you can treat the same sample in a variety of different ways.

Other features which are global per Program include LFO pitch modulation, loudness, dynamic control of loudness, the stereo pan position, and dynamic control of panning.

If you want to create a stereo mix on the S1000, you can add in effects processing by routing the samples through the onboard effect loop, into which you can plug external signal processors. Individual Programs can be given their own effect on/off setting, but there's no provision for controlling the effect level of each

within each Keygroup of a Program to any individual output by specifying an output offset. Needless to say, this feature greatly enhances the flexibility of the S1000's output routing.

As an added bonus, you can use the stereo outs as two more individual outputs, bringing the total up to ten. Voice assignment is dynamic across all the outputs, and despite Akai's labeling of the individual outs as mono 1-8, they are in fact polyphonic. All in all, you could scarcely ask for a more flexible set of output facilities than Akai has provided here.

### Sampling

THE FIRST THING to be said about the S1000's sample quality is that it is extremely clean and dynamic, and is mercifully free of noise in the traditional weak-spot - the tail end of sound. Really, it's everything you might expect from a 16-bit system.

As mentioned earlier, you have a choice of two sample rates: the CD-standard 44.1kHz and more modest 22.05kHz (giving 20kHz and 10kHz bandwidths respectively). Along with a growing number of samplers (such as Ensoniq's EPS and Roland's S330), the S1000 employs an interpolation algorithm for sample playback which ensures that resolution isn't lost when samples are transposed

Program. Of course, the individual outs aren't included in the effects loop.

There are eight individual audio outputs in addition to the stereo outs. Each Program can be assigned to any one individual out, and more than one Program can be routed through the same output. Additionally, you can route each sample

downwards. The result is a cleaner and brighter sound than we've come to expect from samplers which employ the more traditional variable-rate sample playback.

The S1000 requires you to sample on top of an existing sample, so you must either select one of the four default waveforms (built-in) or copy an existing sample first. Then you must select stereo or mono sampling, the sample bandwidth, a root note for sample playback at original pitch, and a record duration. There are three means of triggering the sampling process: input level (relative to a programmable audio threshold), MIDI Note On command (in which case the note you select will become the root note for sample playback) or footswitch trigger (from the rear-panel footswitch input).

Input level is adjusted using the Rec Gain switch and Rec Level knob on the sampler's front panel, and the sampler will give you an amplitude-envelope display of the signal as it's being recorded. The sample can be immediately played back either from the keyboard or (if you're temporarily keyboardless) by pressing the S1000's Ent/Play button.

With a sample in memory there are basically three things you can do to it: trim it, loop it and splice it. Trimming allows you to snip off the beginning and end of your sample, allowing you to be not too specific when sampling, discarding whatever you don't need (or, alternatively, extracting whatever you do need) after the event. Pressing the Ent/Play button allows you to hear the trimmed sample before you actually do the irreversible deed.

Akai hasn't pinched pennies on the S1000's looping facilities. You can create up to eight loops for each sample, which seems rather excessive but will no doubt please some people (to my mind, having so many loops presents more interesting possibilities for looping rhythms than for looping segments of instrumental sounds). To activate each loop, you have to specify a non-zero duration (anything up to 9.998 seconds); the sampler will continue to loop round the specified portion of a sample until the end of the allotted time, when it will jump to the next non-zero loop. These durations can be specified to millisecond resolution, which doesn't make life as easy as being able to specify a repeat number for each loop, but does offer more possibilities if you're patient enough. If you have set up multiple loops to help the sound evolve, having these loops timed results in a more "natural" progression in the sound as opposed to having the loop evolution transpose along with the pitch.

The Loop screen provides two windows, which show you the amplitude envelopes of the overall sample and of sample segments at the beginning and end of the loop. As in sample trimming, you can zoom in and out on the waveform and the loop

segments if you need to see any part of the sample more clearly. You can also press the Ent/Play button to hear the aural results as you adjust the loop start and end points – an exceedingly good idea, as Mr Kipling might say.

The S1000 provides two looping aids: auto-looping and crossfade. The former when activated searches out loop points which in theory should lend themselves to smooth looping (making different attempts each time you press the F7 softkey). This seems to search out not only zero-crossing points but (to put it crudely) waveform "shapes" which in some way mirror one another. While this approach certainly proved to be useful, it is (as the manual admits) by no means infallible. After all,

unlike humans, samplers don't actually have ears – and after all, there might not actually be any ideal loop points. The next step, then, is to help create them by means of crossfade looping. This is a process which attempts to "smooth out" the jump from loop end to loop start by fading out a certain number of samples before the loop end while fading in the same number of samples at the loop start (you can set this figure yourself). Crossfading on the S1000 alters the crossfaded segment permanently, so you should approach it with caution (perhaps making a backup of the sample beforehand). As I've no doubt said before, the best path to looping heaven is your own experience. The S1000's software helps, and while not as sophisticated ▶

# JAN HAMMER



SOUND GENESIS

SOUND GENESIS CORPORATION

7807 CREEKRIDGE CENTER

MINNEAPOLIS, MINNESOTA

U.S.A. 55435

(612) 944-8528

"Because the Fairlight is such a superb sampler, it has allowed me to create many of my sounds. However, when it comes to the sampling of orchestral instruments I rely on the brilliant quality of Sound Genesis' Master Sampler Collection."

"It's simply the only way to go!"

► as that on some, is not to be sniffed at.

Sample splicing allows you to take any portions of two samples and link them together to form a new, third sample. Using successive splices you can link together any number of samples, and with a bit of crafty manipulation even insert one sample into another. By specifying a crossfade overlap you can smooth out the transition, a useful feature if you want to combine, say, a piano attack with a string sustain.

Digital filtering (employing an 18dB/octave low-pass filter) is applied to samples in real time, and may be programmed for each Keygroup within each Program. Additionally, individual samples within a Keygroup can have their own cutoff offset.

Filter cutoff can be controlled dynamically from MIDI velocity and aftertouch, while setting a key-follow value allows the brightness of a sound to be changed according to key position (in positive or negative directions). Additionally, you can assign pitch and filter cutoff to be controlled by envelope two. Resonance control is not implemented, and apparently is out of the question.

Envelope one is hard-wired to controlling amplitude. Attack and release times of this envelope can both be controlled by attack velocity, while release time can also be controlled by release velocity, and decay and release times can be related to pitch (with a choice of positive and negative response in all cases).

The S1000 presents you with a graphic display of each envelope's shape, and while you still have to alter numeric ADSR parameters rather than "drag" the shape around as you do in much mouse-based computer software, it's a useful feature nonetheless.

## Disk Access

WHEN YOU POWER up the S1000 with a sample disk in its floppy drive, the entire contents of the disk, including operating system if present, are loaded automatically. While the sampler holds its initial OS software internally in ROM, on power-up it looks first on floppy and then on hard disk for an OS with a higher version number. If it finds one, it will load it and run it in preference to the default OS – clever stuff.

The S1000 allows you to load the entire disk contents, all Programs and samples, all Programs only, all samples, cursor Programs plus samples, cursor item only (Program, sample or drum file – see below) or the operating system. Once OS upgrades are made available on disk, you'll be able to make as many backup copies as you want.

One feature of extreme importance to S900 owners who want to upgrade to the S1000 (or even to use an S1000 and S900 alongside one another) is the new

sampler's ability to load S900 samples and translate them into its own format. This means that the S1000 straightaway has a vast library of samples to draw on, even if they aren't going to show it off in its full splendor. The four S900 source disks I tried presented no problems; the samples emerged not only unscathed from their journey, but sounded positively radiant, with their loop points thankfully preserved. However, you will need to redo the amplitude envelope settings (an easy enough task) and remap the samples across the keyboard (a more laborious task). If you no longer need to use your S900 disks, you can always reformat them for S1000 usage.

The manual notes (rather honestly, I thought) that, because the S1000 uses a different pitch-shifting method from the S900's, it may "sometimes produce more noise if it plays a sample which was lightly clipping in the S900." You have been warned.

Saving to disk works along the same lines as loading. "Mass" saves can be spread across more than one floppy if necessary (the S1000 prompts you to put a new disk in the drive). However, remember that individual samples are limited by single disk capacity, so if lengthy samples are the name of the game you'll need to invest in a hard disk (in which case you'll also benefit from a much faster disk access time).

Programs and Samples on disk can be renamed at any time, and you can clean up your disks by deleting single items (ie. the currently selected sample or Program), all Programs (but not their associated samples), all samples, the entire volume (*everything* on the disk), or the operating system.

When you switch off a hard disk, its read/write heads are normally left hovering somewhere over the disk surface. For this reason, any knocks received in transit could crash the heads onto the disk, with disastrous consequences all round. Fortunately, the S1000 allows you to

**Compatibility** *"One feature of extreme importance to S900 owners wanting to upgrade to the S1000 is the new sampler's ability to load S900 samples and translate them into its own format."*

"park" the heads safely away from the disk area.

Floppy disks can be formatted for low or high density as appropriate, but it seems that hard disks have to be formatted externally (though from the S1000 you can delete the directories on your hard disk whenever you want to re-use it).

## Percussion

INCLUDED ON THE S1000 is a special Drum mode dedicated to working with Akai's ME35T trigger-to-MIDI unit. This otherwise impressive converter for those

musicians of a percussive persuasion has only one memory, which may be why Akai has allowed all its parameter values to be programmed on the S1000 and stored on disk.

In spite of the memory limitations – which aren't actually helped that much by the 1000 because it can only store one Drum Program to disk – the trigger conversion aspect of the ME35T is well-designed, and for any S1000 owners wanting to use their sampler as a sophisticated drum/rhythm machine it's a useful marriage.

You need to set up two-way MIDI communication between the ME35T and S1000, allowing whole Drum Programs or individual parameter changes programmed on the S1000 to be transmitted to the interface via MIDI SysEx. In this way the sampler is effectively providing the programmable memories for the interface. In fact you can address up to two ME35Ts from the S1000, each via its own SysEx channel.

## MIDI

BASICALLY, THERE ARE three ways of playing the S1000 via the five-pin DIN cable: on a single channel (Poly mode), on any of 16 channels (Omni mode), or multitimbrally on up to 16 channels at once (Multi mode).

Multi mode works like this: you assign each of the S1000's Programs to any one MIDI channel (1-16) and to a MIDI patch number (1-128). You can only call up an S1000 Program if the incoming MIDI patch number has been assigned to a Program; if you send the sampler a MIDI patch number which hasn't been assigned to an S1000 Program, the sampler will remain silent on that channel. A trifle confusing in the heat of the moment, perhaps, but straightforward enough once you've figured it out.

Akai has gone one step further in allowing you to assign multiple Programs to the same incoming MIDI patch number

– in other words, layer sounds within the instrument. Bearing in mind that layered textures will reduce the polyphony of the S1000, this is a useful feature to have.

Although voice allocation in Multi mode is completely dynamic across Programs and channels, you can actually specify a polyphony limit for individual Programs, which can be a handy way of avoiding unintentional voice-stealing from other Programs. Another interesting (and unusual) feature of the S1000 is its ability to assign low, normal, high or hold priority to individual Programs. When the S1000

MT JANUARY 1989

runs out of spare voices it steals from low-priority Programs first and high-priority Programs last. Hold is a special case, in that voices for Programs with this priority can only be stolen for new notes required by the same Program.

Other useful MIDI features include a MIDI note velocity peak meter display for all 16 channels, a MIDI data receive monitor and a matrix-styled MIDI data-filter display which allows you to selectively enable and disable response to notes, pitch and mod wheels, aftertouch and volume on each MIDI channel.

SysEx communication allows you to transfer all programs, all samples, a single program, a single sample or the drum settings. Akai has provided two protocols for sample transfer: the generic MIDI Sample Dump Standard and an S1000-specific format. According to the manual, the latter "invokes a superset of the SDS standard, with additional built-in commands which recognize certain special features of the S1000." I'd guess, in the absence of further information, that this has something to do with the loop and envelope settings.

SysEx transmission can be initiated from the S1000's front panel, as well as remotely. On the reception side, SysEx data is received automatically when the S1000 is on its MIDI page. It's worth pointing out that sample transfer via MIDI is inherently

a slow business, and not really advisable for large amounts of data (unless you're very patient).

## Verdict

AKAI HAS DONE more than enough on the S1000 to justify it becoming the latest must-have studio toy - from which point it will no doubt go on to establish itself as the new workhorse of the professional studios.

The sample quality is excellent, living up to the reputation of true 16-bit sampling. However, on the sound front I must point out that our review model exhibited an annoying continuous background whine which most definitely shouldn't be present on a high-end professional instrument such as this. A quick call to Akai confirmed the problem but also led to the discovery that the noise was actually coming from a transformer linked to the large LCD display. In other words, it's purely a mechanical noise and does not have any effect on the audio, but Akai assured me that they are working on fixing it nevertheless.

Akai could have provided a better introduction to the S1000's many capabilities than the four sample disks (piano, strings, brass and drums) which come with the machine, but at least there are already over 100 sample disks available specifically for the S1000 (though some samples require a lot more memory than

the standard two megabytes) and S900 owners can readily draw on their existing libraries - a big point in the S1000's favor.

Akai has made very intelligent use of the sizeable LCD screen, and overall are to be congratulated on the operational design of the S1000. However, I would like to see the mapping of Keygroups onto the keyboard made much quicker by allowing low/high note limits to be programmed from the keyboard itself.

Already a powerful beast, the S1000 could really set the sparks flying when the planned Version 2.0 software (a free upgrade) comes out with the time stretching capability.

The company is also releasing the S1000PB, a playback-only version of the S1000 for a few thousand dollars less, and the S1000HD, which is an S1000 with onboard 40Mb hard disk for about \$1000 more.

Akai's new flagship sampler is indeed a worthy successor to the S900, and should be gracing the upper echelons of studio-land for some while to come. ■

**PRICES** S1000, \$5999; S1000PB, \$3600; S1000HD, \$6999; EXM005 2Mb memory upgrade card, \$1350; AES/EBU digital input card, TBA; Atari and Supra hard disk interface card, \$99; SCSI hard disk interface card, \$160; Sound library SL1001.

**MORE FROM** Akai Professional, 1316 E. Lancaster, Fort Worth, TX 76113. Tel: (817) 336-5114.

*"There is no great genius without some touch of madness."*

Seneca

**Resonate... creative tools for musicians**

(415) 323-5022 PO Box 996, Menlo Park, CA 94026

## Happy New Ear!

Thank you for making Listen the year's best-selling interactive ear-training software.

Season's Greetings from the staff at Resonate!

Listen, still \$99



from **Resonate**  
or your dealer

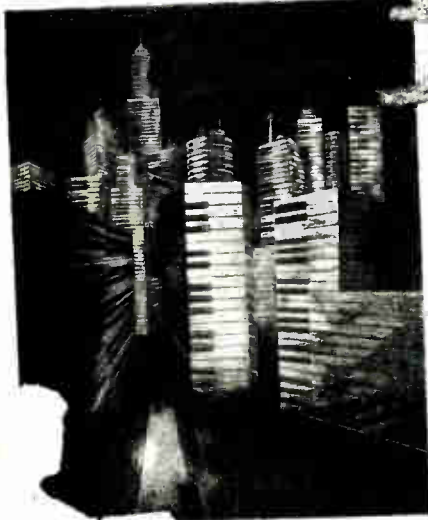
# Buying a Keyboard?

Then we've got the perfect companion.  
KEYFAX 3. Julian Colbeck's definitive guide to buying electronic keyboards.

KEYFAX 3 is the latest, 1988/89 edition of "the electronic musicians' bible," and it's the best ever! Hundreds of electronic pianos, synthesizers, samplers, home keyboards and sequencers are listed. For each model there's a spec sheet, an overall rating, and an in-depth analysis of its capabilities. The reviews are straightforward, detailed, and accurate, and instruments are grouped together by category to make comparisons between models easy. It's a formula that's proved successful for thousands of musicians, so order your copy of KEYFAX 3 today. Just clip the coupon and pop it in the mail, or give us a call. Either way, don't go shopping without it!

## KEYFAX

THE DEFINITIVE GUIDE TO BUYING ELECTRONIC KEYBOARDS BY JULIAN COLBECK



OVER 100 SYNTHS, SAMPLERS, SEQUENCERS & HOME KEYBOARDS TESTED

## KEYFAX

Save yourself a trip to the mailbox - order by phone: (818) 407-0744.

Check enclosed for \$ \_\_\_\_\_  
 (Payable to Music Maker Publications)

Charge this order to my:  MASTERCARD  
 VISA

Account Number \_\_\_\_\_

Cardholder's Signature \_\_\_\_\_

Exp. Date \_\_\_\_\_

Mail this coupon to:

**Music Maker Publications**  
22024 Lassen Street, Suite 118  
Chatsworth, CA 91311

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

Please send me \_\_\_\_\_ KEYFAX3

book(s) at \$19.95 each:

California residents add 6% sales tax.

Los Angeles residents add 6.5% sales tax.

Please add \$2.50 for postage & handling.

(Foreign orders, add \$6.00)

PLEASE ALLOW 3-4 WEEKS FOR DELIVERY.

SubTotal \_\_\_\_\_

Tax \_\_\_\_\_

Shipping \_\_\_\_\_

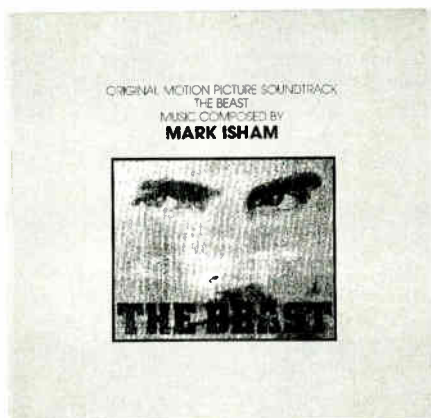
TOTAL \_\_\_\_\_

# Listening Lab

---

## MARK ISHAM

*The Beast*  
A&M SP 3919



### Pick of the Month

This is the type of music I've been looking for – two involving side-long instrumentals that are not classical, not new age, and not acid rock (although I still like acid rock, mind you). Created as a motion picture soundtrack, the texture is that of the desert going from dusk to dawn; the pieces evolve with a twisted logic seemingly created by a demented shaman. Only once does Isham seem to take the harmonizers and loops off his trumpet, with several obviously Perkophoned (trumpet-to-MIDI converter) lines. David Torn contributes a lot of dreamy, anguished guitar – about two parts looped to one part recognizable guitar to about another two parts “bowed.” The samples, with the exception of strings, are heavily processed and mostly unidentifiable. Percussion (much provided by Kurt Wortman) is a textured combination of African, metal, and heavy reverb; the only sequence I spotted was done with a sinewy analog patch crossbred with a mallet instrument. A few backwards and runaway tape effects are thrown in for good measure. Extra points to those who recognize the Mutron phase shifter in the opening minutes. Current leader in my personal “album of the year” sweepstakes.

■ Chris Meyer

MT JANUARY 1989

---

## JUDSON SPENCE

*Judson Spence*  
Atlantic Records

If you're one of the many who prefer rock 'n' roll and R&B to hip hop and house, but you've been wondering what all the fuss is surrounding the new styles, you just might check this out the next time you're at the local record store. Strong playing, great vocals, immaculate production . . . aside from the occasionally laughable lyrics (“ooh my leather jacket always smells like her perfume”), this could be one of the year's best pop/rock/R&B/dance albums.

Great rewards await careful listening: the mix of subsonic bass with clean, dry percussion, power guitar and reverbed vocal is most certainly the modern answer to contrapuntal invention. Much attention has been devoted to vocals – little lyrical snippets are snatched by samplers and pitch/speed transposed up a hair; reverb is abruptly chopped, leaving delicious space before a chorus. Drum machine programming enhances acoustic bashing with an '80s sophistication lacking in most rock groups. Tasty stuff.

It could be argued that anybody's songs would sound good with the likes of Jeff Porcaro, Billy Preston, Alex Acuña, Jerry Hey and Rick Moratta playing their hearts out, but in this case the album is definitely greater than the sum of its parts. Hats off to Spence, co-writer and keyboardist Monroe Jones and executive producer Jimmy Iovine for one of the best produced projects I've heard this year . . . I only hope Spence's music stays this pure as the lyrical content matures.

■ Deborah Parisi

---

## ROGER WATERS

*Radio Kaos*  
Columbia Records

It took Roger Waters three years to complete *Radio Kaos* after his first solo album, *The Pros and Cons of Hitchhiking*. The result is an impeccable production by the ex-Pink Floyd mastermind perfectionist. Along with co-producer Ian Ritchie, Roger has

crafted another timely concept album whose power derives from the creative use of technology to support the meaning of intelligent lyrics and ideas. Roger makes fairly heavy use of the Fairlight and drum programming, yet he avoids sounding sterile by subtleties of arrangement and mixing ingenuity: check out his expressive use of a Shakuhachi sound on 'Me Or Him?', the drum programming on 'Home,' and the brilliant mix of 'Four Minutes' (where a sound that embodies the impending doom combines with a ticking clock and symphonic washes of various sounds, bits of conversation, and musical Morse Code). Despite a couple of weak cuts, *Radio Kaos* is a major contribution to art rock. ■ Mihai Manoliu

---

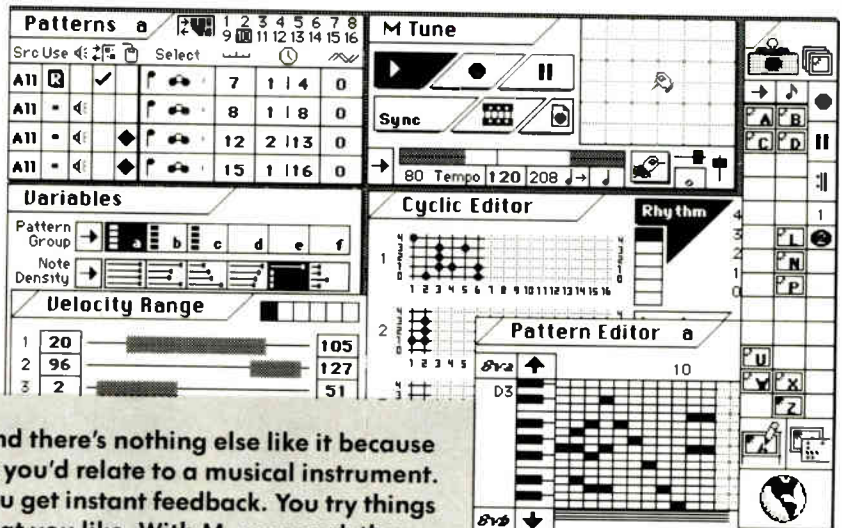
## GARY NUMAN

*Metal Rhythm*  
Illegal ILP 035 (import)

Here's a record whose cover art actually reflects what's inside: a high-contrast black-and-white photo of Numan in a leather jacket, black shirt, and no makeup; the album title and name are in futuristic lettering with the title (in blue) being virtually the only splash of color. There's no drummer here; Gary does some funky-up stark drum machine programming with drum samples so modern that they sound like android replicas of the real thing (particularly the snare – a great lean decay/gated burst of noise). Rarely is a bass player present, too; more synth, and snap bass samples (and we can all thank Kraftwerk circa *Electric Cafe* for making the extended transposition and phrasing of them legitimate). Some interesting and understated synth pads, nicely underused sampled horn stabs, funk clean rhythm guitar, metalloid lead guitar, sax, and good backing vocals (not to mention Numan's alien harmonized voice) round out the landscape.

This may be his strongest release since *Pleasure Principle*; regardless, I've always thought of Numan as the only one who could make synthesizers sound as mean as a distorted guitar. There's not a lot of contrast here, but it had me twitching all over the place. Truly CyberFunk. ■ Chris Meyer

# It's Not Just Another Pretty Interface.



It's M. From Intelligent Music. And there's nothing else like it because M lets you relate to your computer as you'd relate to a musical instrument.

When you play an instrument you get instant feedback. You try things out and refine them until you find what you like. With M, you work the same way. M lets you change your music while you're playing it.

Here's one possible scenario. Enter notes and chords. Go to the rhythm control and draw several different rhythms. Then, with a click of the mouse, hear each of the rhythms applied to your notes and chords. Next, create a pattern of accents against your notes and rhythms. That's the idea of M, playing with different elements of music independently.

But M doesn't stop there. You can change virtually any aspect of your music in real time. Even the structure. Imagine scoring a film by moving the mouse in sync with the images on a video monitor. Imagine performing on stage with your computer and calling up new sections whenever you like. M lets you do it.

Call up M as a force in your MIDI arsenal whenever you want fresh and creative ideas. Ideas you would never get with any other instrument. M can read and generate MIDI Files so you can use it in ensemble with a wide variety of other MIDI applications.

All pretty interfaces are not the same. Look into M.



Call or write us today for the dealer nearest you. Or send us a \$10 check, specify your computer, and we'll send you a demonstration package. M runs on the Macintosh in the stunning new Version 2.0 shown here. It's also available for the Atari ST. And our new Amiga version is now shipping.



Intelligent Music®  
116 North Lake Avenue  
Albany, NY 12206 USA  
518-434-4110

M is a trademark of Intelligent Computer Music Systems, Inc. Intelligent Music is a registered trademark of Intelligent Computer Music Systems, Inc. Macintosh is a trademark licensed to Apple Computer Inc. Atari and ST are trademarks of Atari Corp. Amiga is a registered trademark of Commodore-Amiga, Inc.



# Roland Super-MRC Sequencing Software

Photography Rose Rounseville



**The latest sequencing package for Roland's MC500 family of dedicated sequencers offers a quantum leap in features over its predecessor.** *Review by J. Eshleman II.*

OKAY, I'LL ADMIT it . . . I'm hooked on the Roland MC500. As one of the first and few dedicated sequencers that is software-based, the MC500 has become popular with many artists in the studio and especially on stage. Since the release of the initial MRC sequencing software (which comes with the MC500), Roland has released a batch of new MC500 software programs for song-chaining, SysEx storage, and more. But now we have a new sequencing package for the MC500 MkII and updated MC500s. It's called the Super-MRC.

All of the things that were available on the original MRC software have been improved or had new functions added on in the new S-MRC program. I'll try to focus mostly on the newer features. S-MRC has five modes of operation: Standby, Disk, Link, Utilities, and Configuration. Each mode has a menu and sub-menus.

Standby Mode has most of the basic operating commands for the sequence functions: record, play, modify, etc. Eight recording tracks are available, plus rhythm and tempo tracks. Rhythm parts can now be entered in real time by "looping" patterns and overdubbing parts from an external MIDI device. A new "Mix Record" feature has been added which allows you to overdub onto tracks without erasing the original data. S-MRC also features a new programmable ten-point auto-locator, and a clearer display readout.

The Edit section is basically the same as before (erase, delete, insert measure, merge, extract, transpose, change velocity, change MIDI channel, quantize and copy), but with enhancements. "Extract" now allows you to

specify what range and type of data is extracted and whether it replaces or is mixed with data in the designated track. Velocity changes can be rate scaled (higher sounds can be louder and lower sounds softer, or vice versa), and have gradual or immediate crescendo or diminuendo effects. "Quantize" features new "Rate" settings that allow you to select exact quantize resolutions, or slightly off settings. Additionally, there are five new edit sections which allow gate time changes, clock shifts, data thinning, track exchanges, and "Multi-Edits" which allow note numbers, velocity, aftertouch values, control changes or pitch-bend values to be compounded or reversed!

"Microscope" mode allows detailed individual event edits, and it now has a new "Event Memory" feature which lets you store individual MIDI events in memory to be recalled later. A new Utilities section features a Time Calculator (bravo!) which calculates segment times in minutes and seconds, including programmed tempo changes. This mode also has a "Data Check" and "Tune Request" feature.

An exciting "Real Time Modify" option allows you to edit gate time or velocity information in real time from an external MIDI controller. This can be done by using pitch-bend, velocity, note range or control changes to modify existing velocity as it plays back - or use one finger to rewrite steps in real time. Other features include a "Song Link" option, and a separate mode for system configuration settings (which can be stored to disk). There is also a conversion function that allows you to convert data recorded on

the original MRC program over to S-MRC, but it can't be converted back. (I figured out a way around that: borrow a friend's MC500 for a day, then use your MC500 with S-MRC to edit your stuff, and play it back into your friend's MC500, which is recording using the original software.)

There are simply too many features in S-MRC to cover in depth, and you probably want to know how well it works, right? I put the S-MRC through two exhaustive production projects that used most of its features and for the most part, it was splendid. At first, I had some problems with keyboards freezing up, but found that it was because of the programmable system configurations. They have to be set for your own particular layout so that you aren't echoing MIDI data. Also, there seems to be a bug in the program which caused it to simply ignore my edit commands from time to time. Thankfully, nothing caused a complete crash, so the final work didn't suffer in the least.

By the way, users of the original MC500 or MC300 should know that this software will work on your unit, but Roland doesn't recommend it because it will eat up some of the RAM that was formerly available for data storage and it's very slow because of multiple disk accesses. This program was really meant to run on the more powerful MC500 MkII for delay-free editing, but MC500 owners can have an optional memory update (OM500) installed in their units to turn it into a Mark II if desired.

One final (common) complaint: the owner's manuals (there are two) are chock full of typos, and some things didn't quite make the translation into English (eg. the explanation of the Gate Time Ratio's functions on Page 189 is baffling).

But all in all, I think that Roland's Super MRC sequencing software program is a "must have" program for serious MC500 users. Some might be put off by the software's complexity, but that's really at the core of its advantages. Where the old MRC software allowed for very good "first-aid" editing, Super-MRC allows surgical editing precision that was previously unknown. For those who use the Roland MC500 in any professional capacity, the Super-MRC program will turn your MC500 into a whole new animal. And for those who have never worked with one of Roland's hardware sequencers, the combination of the MC500 MkII with the Super-MRC software is an extremely tough one to beat. Now if Roland could just find an English typesetter with a dictionary . . .

**PRICE \$299**

**MORE FROM** RolandCorp US, 7200 Dominion Circle, Los Angeles, CA 90040. Tel: (213) 685-5141.

Don't let another good idea go down the drain.



Personal Studio Series is a trademark of Yamaha Corporation of America.



Maybe it was the stacatto you picked up on when the water hit the tile. Or the pitch change you heard when the shampoo bottle fell into ankle-deep water.

Either one is more than enough to start writing a whole song in your head. Then finally, after jumping out six times to make notes on a steamy mirror, you decided the shower could wait.



*R100 Reverb Processor*

The song couldn't.

It's precisely that kind of passion that prompted Yamaha to create the Personal Studio Series.™ A line of equipment designed especially for the home recordist.

Like the R100 Reverb Processor, for example. It has high-performance 16-bit A/D and D/A converters. Stereo outputs. And most importantly, sixty superb pre-set reverb, reflection, delay and stereo effects. All of which you can modify yourself to sound like any room—small and tiled or otherwise.

The Yamaha Personal Studio Series. See it at the Yamaha Professional Audio dealer near you. And don't forget your towel.

Yamaha Corporation of America, Professional Audio Division, P.O. Box 6600, Buena Park, CA. In Canada, Yamaha Canada Music Ltd., 135 Milner Avenue, Scarborough, Ontario M1S 3R1.



*Personal Studio Series*™

**YAMAHA**  
Engineering Imagination™

# rehumanize

## YOUR SEQUENCES

### part 1

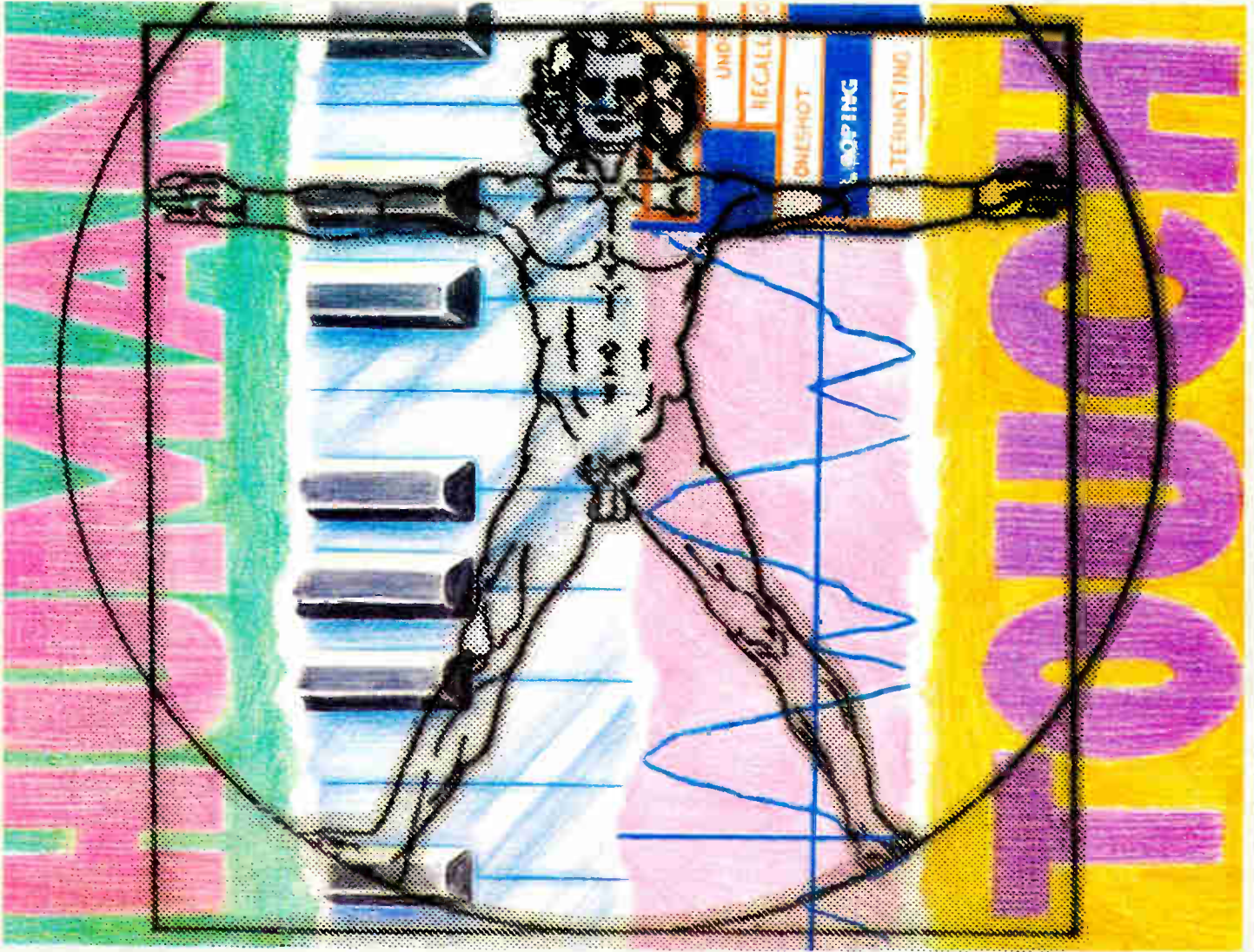


Illustration Toby Graeber

Though they're often guilty for the worst offenses when it comes to mechanical-sounding music, in the right hands, sequencers can actually be very expressive. In the first part of a new series, we lay the groundwork for explaining how you can use your sequencer to add life to your music. *Text by Travis Charbeneau.*

**I**N A SENSE, virtually all of us engaged in the attempt to make meaningful music with MIDI equipment are immigrants to an alien shore. Most of us come from the Old Country of guitar, Hammond B-3, piano, drums or Transylvanian hammered dulcimer to this "New World" of MIDI, computers and the daring challenge to "do it all" ourselves. Disembarked, we attempt to forge ahead valiantly into a musical wilderness.

Suddenly, with the help of our impressively imitative synths and samplers, we're flutists, first violinists cheering on the string section, or Eddie Van Halen on a really hot night.

Sure pal. Fat chance.

But, we've burned our ships on the beach with this huge investment in money, time, and ego. We press on, beset both by New World techno-savages cleverly hiding beneath our own microchips, and by

traditionalists from the Old Country who complain about "machines making music." Like all pioneers, we suffer the hazards of being in the vanguard.

### The Trouble with Machines Is . . .

**ONE SUCH HAZARD** is the discovery that timbre alone doesn't mean squat. The best Transylvanian hammered dulcimer patch in the world doesn't give you a convincing rendition of "My Old Transylvanian Home." We find a lot of similar blank areas on our charts where the old navigators would have scrawled, "here be monsters."

Such monsters include the temptation to dump patterns from the drum machine and just let 'em ride; or punch up "flute"

MT JANUARY 1989

and play polyphonic pianoflute. Enter the sequencer and even sorer temptations arise in the form of badly-used quantization, mindless looping, over-layering, a general "laying on of keys" in the usually vain hope that something musical might come out the MIDI port.

When this happens our efforts *can* sound mechanical. Unfortunately, this often leads to yet *another* temptation to retreat into timbral narcosis and the quest for "the ultimate patch" (preferably augmented by gobs of digital signal processing), whereupon one may simply lean on the keyboard and enjoy a good sonic bath. Some New Age suffers notably from this phenomenon.

The do-it-all world we are exploring requires us to do the one thing most easily forgotten and most difficult to do when you're playing (or programming) everything: sound human. Ultimately, what I'm referring to is creating "soul" in the music, but specifically I'm talking about all the nitty-gritty techniques we humans cobbled together in order to cope with all the weird instruments we've invented down through the ages. Ironically, the best way, really the only way, to "humanize" your electronic instruments, is with the aid of your computer, and this means drawing a basic distinction between synthesis and simulation.

To return to one of my earlier examples, one can easily synthesize the sound of a flute. Simulating a human playing the flute, however, is an entirely different animal. Similarly, unless your fingers are a yard long, it's impossible to simulate a "strum" on a keyboard over the proper register of a guitar. The real-time control necessary for wind instruments and guitars is simply lacking on most synths, and this situation is partly responsible for the proliferation of new and expensive wind controllers and guitar controllers. But before you rush out to blindly throw even more money at the problem, consider using the computer. Also, be aware that the \$35 breath controller which drives virtually all DX-series synths goes a long way towards solving the problem of expression, and again it's the computer which can enable you to truly put over a convincing simulation.

Finally, if you can't get your drum machine to stutter, flam or do a press roll because you can't play them or your model doesn't support those features, remember that the computer/sequencer combination liberates us from the constraints of keyboard technique and pre-determined features. Properly learned, your sequencer can simulate the playing of instruments whose sounds were never meant to issue forth from a row of black-and-whites.

This series will explore, with the aid of one lost explorer's hopeless charts, sequencer-based simulation tips and  
MT JANUARY 1989

techniques for various instruments, including plucked, wind-driven and percussion varieties. My assumption is that you are a do-it-all composer/performer working at least some of the time totally alone with a computer, a reasonably-competent sequencer, and a couple of sound-generating modules, and that you are striving for orchestral or ensemble performances. Horowitz or Segovia you don't want to be. The London Philharmonic or Megadeth? Maybe.

This last point is important. Currently,

*"Quantization is especially useful as a repair tool . . . but it can also be a great creative tool, particularly if you cultivate a sensibility for just a dash of slop."*

even using the best controller/sound-generating gear in the world, you are unlikely to achieve the nuance and clarity of a virtuoso unless you *are* a virtuoso. Even then, people will gripe about graininess in your sample, etc. However, as anyone who has played in a real band knows, ensemble work can hide a multitude of sins. As a hardened sinner, I'll begin this series with our most important instrument: the sequencer itself.

## Tempo

TEMPO WAS THE first "humanizeable" feature of this instrument to go under the whip in the form of various real-time interfaces which would follow a human click during live performance. Since we're safely out of the realm of live performance, let's take a look at tempo flexibility as it comes already-bundled with many sequencers. How do you get tempo to jive with "feel?"

Assuming your sequencer supports a tempo track, globally or by individual track, you have all the tempo control any human group of players could desire. Better, in fact. Your drummer won't get excited and speed up, causing bitter recriminations about whose "job" it is to guide and keep time. And global tempo control is just fine. Unless you're into experimental music, the idea is to keep "the group" together. If your sequencer supports offsets for individual tracks, you can always simulate the bass player who needs sleep or the drummer upset at his girlfriend (see below).

After you've got your basic tracks laid in, say for a rock instrumental, open up the tempo window, listen to the piece and just let your imagination go. Basic tempo: 120 beats per minute. But, it's a hot night at Club I'Go Go. The band starts at 120, however, after the first eight bars, people are crowding onto the floor. (The number is actually going over! They're falling for this!) On the eighth bar the drummer rolls into the second verse and, responding involuntarily to an adrenaline rush, the

tempo goes up: bar 9: 122, bar 10: 123, bar 11: 125. (Holy click! We're losing it!) But at 125 you smartly regain control and sizzle up to the chorus. Drummer does a nice, broken tom roll, and you immediately flip back to 120.

What a tight group!

Then: guitar break. Another abrupt flip back up to 125. As the guitarist burns to a climax, the tempo climbs just perceptibly up to 128. Third verse: bang: 125. Then, something you could never get right at the real Go Go: a perfect ritard on the vamp:

123, 120, 117, 111, 106, (crashing, flailing drums, bass totally out of register, guitars feeding back). And Then: Perfect Dead Stop. Right down to the reverb dying *on* the beat. Something that would have taken years to achieve in garages and clubs, perfect tempo control, *perfectly* in accord with musical content, is accomplished with some thoughtful entry of a few digits.

Fooling around with tempo can be a lot more subtle or a lot more obvious. Try raising it just a couple of BPMs for each bar in a two-bar drum roll heading into the break, then resuming the original tempo. The roll will build a head of steam "just like a real drummer." In the obvious department, try a classical piece and picture the conductor threatening with his baton as he pushes and pulls an orchestra 12 times in as many bars. Your variations may run over a very narrow range, maybe a change of one or two BPMs from one bar to the next, but the effect can be gloriously convincing.

For sheer random variation in tempo, make a tempo track of some uneven length that has nothing to do with the structure of your song, maybe nine bars of narrow variation running 120, 122, 121, 119, 118, 119, 121, 123, 122. Loop it and forget it. Barely-perceptible, these slight variations can sometimes automatically provide "humanizing" of tempo.

## Velocity

THE SAME APPLIES with velocity and MIDI volume (controller 7) assigns, although "automatic" will definitely not work here. Even if your keyboard puts out velocity, etc, you are unlikely to achieve the perfect nuance in, say, the chord voicing for a string section. This is what the computer was built for. Put them in at a straight 64. Then go to the event editor and goose or lower the velocity on individual notes. High part cuts like a knife? Cut it down by a factor of 20. Suddenly, instead of Jack the Ripper, it's a frail harmonic ghost, hovering over the voicing. A great bottom harmonic which lacks ►

# Rhythm City

America's Largest Dealer for the Electronic Musician  
All Name Brands

Roland • Korg • Ensoniq

E-mu Systems • Kurzweil • Casio • Akai  
Tascam • Fostex • Soundcraft • Studiomaster

All lines of keyboards and software in stock!

Digidesign • Passport • Dr. T. • OpCode • Mark of the Unicorn  
Complete MIDI Recording & Performance Systems

Professional Advice

New and Used Equipment Available



## Musicians Buy At Rhythm City!

287 E. Paces Ferry Rd.  
Atlanta, Georgia 30305

(404) 237-9552

Hours: Monday thru  
Saturday: 10-6

# MUSICPRINTER PLUS

THE ULTIMATE INSTRUMENT FOR DESKTOP COMPOSING

### FOR IBM COMPUTERS

Elegance in composing, printing and performing music.

- Compose/arrange directly on the screen
- Print full hi-res scores using dot matrix printers
- Play MIDI out with studio musician precision

MusicPrinter Plus is the most comprehensive, friendly, easy-to-learn composition package on the market today. This new standard-setting program was developed by composers/educators and is published and backed by the nation's leading music education software company.

### SUPPORTS

IBM PC, PC AT, PS. 2, or compatibles with 640K RAM. CGA, EGA, VGA, or Hercules. IBM Music Feature or Roland MPU-401. Call or write for information.

Temporal Acuity Products, Inc.

300 - 120th Avenue N.E., Bldg. 1 - Bellevue, Washington 98005  
(206) 462-1007 or 1-800-426-2673 (except WA)

sufficient testosterone can likewise be boosted to anchor the chord.

My sequencer, Voyetra's Sequencer Plus III ("SP3"), also allows me to crescendo or decrescendo velocities (as do several others). Phrases or passages can thus build to dominate others, or diminish to a subordinate role. I can fade in or fade out better than most "real" players. Try combining a little crescendo with the tempo build-up in our two-bar drum roll cited above. A tired pattern taken right off your machine can be sculpted in this way to fit your expression, even if you've never hit a drum in your life.

Sequencer Plus can only crescendo individual notes from velocity X to velocity Y. What if you have a held chord you want to swell? Use a string of strategically-placed controller 7s to swell MIDI volume (most, but not all gear supports good old number seven.) Line these up under your long chord until the effect is just right. Want a chord to fade out? Reverse the process.

If all your gear supports number 7, you can go a long way towards an automated mix. At the very least, you can achieve "human" dynamics which often exceed those of human groups. In most of my early bands we were so alternately pre-occupied and then thrilled at playing all the notes right that our dynamic was utterly flat. (It usually ended up somewhere around Spinal Tap's "11.") Changes in dynamic, even in straight-ahead rock 'n' roll, are very important and effective. Again, after all the tracks are in, go to the mixer and audition bars for forte and piano. Then go back and insert number 7s or velocity assigns until the right feeling arrives.

## Quantization

BUT WHAT ABOUT quantization? Ouch. This can be the ultimate sore spot. For years musicians have striven to be tight. Now tightness is possible at the push of a button. Result: "mechanical." Quantization is especially useful as a repair tool, perhaps to put a bassline back in time with the kick drum. But it can also be a great creative tool, particularly if you cultivate a sensibility for just a dash of slop. Say you've got a nice, loose groove going, leading up to an instrumental break. Try quantizing just the break to match both the bass and the drums.

In this case, the abrupt move into lock-step, standing out from your carefully-cultivated slop, will sound truly impressive, just like "real" humans who have suddenly become God. If you lock-step the whole number, be prepared for brickbats from the Old Country. Quantization is like any powerful new tool. It tends to be over-used at first. Finding an appropriate place for it in your creative palette is worthwhile. Used appropriately, quantization can knock your socks off.

MT JANUARY 1989

More subtly, offsets, which slip tracks or parts of tracks forward or back in relation to the others, can also help humanize a composition/performance. SP3 has two offset functions, one on the main screen which offsets in playback only, allowing you to audition various degrees of slippage, and a permanent offset that will take any part of the track and "physically" slip the piano roll notes so that they're permanently repositioned after you've decided on the desired result.

This is great for the upset drummer effect alluded to above. For, say, 11 bars smack in the middle of the tune, he's thinking, "Why is Melanie dancing with that Don Johnson clone and why is he touching her and why is she smiling like that?" The rest of the band is beginning to look over their shoulder occasionally, barely holding their own in the temptation to speed up. PO'd drummer finally notices he's taking it out on his skins (and, saintly type that he is, the rest of the band) and slips back into the groove.

"Aggressive" and "laid-back" are not normally considered adjectives for machines. But these two attitudes can be simulated with uncanny effect by a computer. Of course, chances are, no one will consciously notice that anything is happening. Let's hope. As in all music, so many cues are unconscious. But the effort will help your music sound less "mechanical."

## Transposition

YOUR SEQUENCER MAY also support various types of transposition that can help add variation and color. Say you've got a wonderful single-line sax vamp, built on a great repeating phrase. But it can only repeat so long without sounding robotic. Make a copy and do a simple transpose up or down seven semitones. After a few bars of the single-line phrase, merge your transposed track and go poly, fading out from there. If straight fifths aren't working, try a different assign or go in afterwards and change some or all of them to achieve a better harmony.

SP3 supports harmonic transposition and harmonic inversion, as do many other sequencers. Go ahead and lie. Tell your key signature window that the song is in C-minor Dorian instead of plain old C-minor. Your vamp suddenly switches modes for the fade. Inversion can turn a phrase inside-out around a selected note axis, for some genuine junk, but also for some nice surprises. Your single-line suddenly vamps psychotic for the fade.

## Human???

"MY GOD," SOME of you are now wondering. "All this key-punching, this micro-surgery for a few bars of music!?" As one who played 20 years in bands, I can answer confidently: yes, this is no on-the-

fly, spontaneous kick-out-the-jams enterprise. If that's what you wanted, you just wasted a whole lotta money, pal.

As one who has also written for 20 years, I can confidently describe my own New World expeditions as more like writing. In terms of aesthetic legitimacy, MIDI/computer composition/performance is just as valid as writing, or painting, or animated film making, all of which also lack spontaneity and fail to yield quick results. But, they do yield results.

Experienced musicians will also recognize the MIDI/computer encounter as being very much like taking a band into the studio, the chief exceptions being that it's a lot less arduous, frustrating,

*"The do-it-all world we are exploring requires us to do the one thing most easily forgotten and most difficult to do when you're playing (or programming) everything: sound human."*

combative, time-consuming and just plain boring (not to elaborate on expensive). The bottom line in both cases is what oozes forth from the final mix and goes out on cassette. If I daren't do so now, I will soon defy you to tell the difference between a well-produced group coming out of the studio and a sufficiently clever and innovative one-man, do-it-all type coming out of his back room.

OK. I heard that snicker back there when I said all this was less expensive than studio time. Lust for gear has driven more than one of us out onto our city streets panhandling for that new DI10 or Matrix 1000. But, next time you're drooling over the ads and reviews on these pages, look seriously at your current rig. Have you really exploited it to full capacity? Be honest.

I said, "Be Honest!" Look what The Beatles did with two guitars, bass and drums. There's much to be said about really knowing your instrument. In keeping with our theme, it's likewise more difficult to "humanize" yet another piece of strange new gear which probably comes with a manual not even written for humans. Striving for total competency – and more humanity – is greatly aided by total familiarity with your equipment. After you live with it long enough, it even starts to look like you. This makes it easier to humanize.

On the other hand, the capacity to better simulate human technique is being built into a lot of newer gear. Some of it, new drum machines from Roland, for instance, employ "artificial intelligence" to, say, run the ride cymbal from the cup to the rim during a series. Instead of real AI, which is not yet out of the lab, I'm guessing these machines use variations on the types of algorithms found in algorithmic compositional software, where you set parameters and the algorithm simulates a controlled randomness.

But improvement in sequencing is where the real action will be. The well-loved Alesis MMT8 dedicated sequencer already supports different types of quantization to adjust note ons, note offs, note durations, changing the note ons without affecting durations, etc. In brief, more flexibility.

More significantly, and probably a whole lot cheaper, look for software upgrades for your present computer-based sequencer. The new Master Tracks Pro, for example (it wasn't the first, nor will it be the last), supports a more sophisticated approach to quantization where you set a margin of error or a quantization "window." Notes that fall off the click, but are within the

margin of error, are left unquantized. Real clams are dug up and re-positioned. This way, some of the original human slop in the performance is retained and only the spills are cleaned up.

Sequencers from other companies will not be left behind in this department. As upgrades become truly more powerful – not just face-lifts or "look, we took the bugs out!" – they may be well worth considering. Part of the beauty of MIDI and the computer is the snowballing of this technology making possible more sophisticated, creative new tools. Like all technology, it balances effortlessly on the shoulders of invisible predecessors. But I don't think we'll ever have a true "human" button. You'll still need to know simulation, how and where to apply it. But better "humanizing" tools are probable and welcome.

"Humanizing" a garage band is no problem. However they may end up after ten years on the circuit (or, more dangerously, two months at the top), they at least started out as human. And for either immediate, visceral gratification or the magic that can sometimes occur when the whole equals more than the sum of its parts, it's true: there's nothing like a live, interactive jam. No one is locked out of that, and long may it live. But, right up to the bottom line of what goes on tape; right up to where I can confidently dare you to tell the difference, we're talking apples and oranges between that particular experience and the scrivener-like satisfaction you get from making the computer do your bidding.

And this is where we techno-nerds get to throw the final brickbat at those who complain about "mechanical music." Once the computer has truly done our bidding, it's our music. That old saying about computers, "garbage in, garbage out" easily and validly translates to "human in, human out." ■

# Readers' Tapes

This month, Yung applies for the job of short-order cook.

*Copping out by negarD gnuY.*

THE GUILT HAS become too much. I have received more tapes this past month than I typically review in three. Also given my weakened condition due to my various and sundry vitamin addictions, my chakras have shut down and my brain is paralyzed beyond any hope of being able to figure out a solution. Thus, a cop-out: quick-take reviews of a large number of tapes using as few verbs as possible. I call it Zen; I'm hoping my music editor calls it "art."

– **Kerry Rhys/six-song demo:** Slightly tousled-hair ballads. Funny occasional exploitation of factory samples (guitar crunch chords, sax). Good analog bass. Stolid production. Drum machine sounds (Yamaha RX5) are up to date, but sometimes plodding, too cute, or over-processed. Reasonable vocals by Noah Hickman and Roger Harris. A future on AOR radio and in Atlantic City.

– **Jim Hoke/four-song demo:** Sincere. A relaxed Nashville studio hack does Rundgren,



Jim Hoke

Zappa, and a Jive Five cover. Good sax; weak vocals except when he does smooth whispering ('Ghost in the Closet'). Good fun; poor recordings. Lisa Haddad sounds like the best of the late '60s/early '70s background singers.

– **Ariella/four-song demo:** Professional. Canadian. Photogenic. Dark, heavy, strange percussion backdrop to pop/funk (pale-faced variety) songs. Mostly sequencer+sampler+simple synths; a little guitar plus serious/high female vocals. Dense and riveting, but recording just a little murky. Tempo could also come up a few beats-per-minute. In general, strange sounds (many of them original) and intriguing production over, under, and around all-too-familiar song structures. Good future as a producer/engineer.

– **The Alia Band/four-song demo:** Also photogenic. Too obviously sequenced (little regimented, percussive cycles interlocked like some large musical clock). Vocals undermixed. Pop boppers with demented, massively detuned breaks. Cute, pleasant, and unchallenging (except for the breaks, which come off as plain weird). Annoying, because I feel there's some under-utilized talent in there.

– **Wind/Demo 6: Order:** Enormous ego (I should print the letter sent with the tape). Alternately energetic and thoughtful (guitar-controlled) synth, sampler (stock sounds), and drum machine workouts with a bit of fuzzed guitar chording properly mixed in. Progressive influences with a touch of late-'80s technopop. Vocals strained; recording needs to be cleaner. Klutzy drum machine programming, playing sometimes devolves to noodling. However, add two more equally creative musicians, and Asia just might be reborn.

– **William S. Moore/five-song demo:** Happily demented uptempo instrumental, with silly samples, rollicking guitar (sampled?!?), straight-ahead beat programming with fun percussion and bass licks . . .

and that was the first cut. If Art of Noise grew up in Indiana, this would be their kids' demo. Fun, light, and bright. But William – please stay away from classical music.

– **Mark Thomas/Styles and Songs demo:** Guitar and guitar synth. Brief demos of eight different styles (from Bach inventions to a Van Halen solo in isolation) show above average chops, but not much conviction (ie. calls a random-note synth intro "jazz"). The songs, on the other hand, are some of the best I've heard – the cut 'Me and My Machines' brings to mind the album *Trans*, if Robert Palmer had done it instead of Neil Young. On the rest, he manages to emulate an intelligent, cool, hard pop band (no, those aren't contradictions; although they are admittedly a bit of a Taoistic stretch). Forget jingles; get this man a record contract.

– **Paul Turgeon/Louis and the Laymen:** "As a youth I had formal training in the art of playing accordion, but I inevitably gave it up as a bad habit when I discovered girls." Mostly guitar-oriented '70s FM rock at a variety of tempos that work; occasional ham-boning that doesn't. Noisy Synsonics drum machine work that sounds better than it should. Sing stronger, Paul; cut down a little on the cheese on the keyboard sounds, and keep the bass playing (understated grooving that matches the rhythm guitar). Music for driving alone past midnight with the windows or the top rolled down when you've heard The Eagles one too many times.

– **Barry Dean & David Holbrook/four-song demo:** Mostly synth and gated-drum-



**Alia** machine-oriented '80s FM rock at the same tempo. Not at all weird; almost suitable for the VHI set. Polished skills. Tasty fuzz guitar breaks (by David), proper hot-and-bothered/sensuous male vocals (by Barry). Not the type of record I would buy, but there's definitely a market there. Watch recording levels – right channel was 5dB hot, and overloading on the peaks.

– **David Eldon Cosgrove/Criminal Record:** Light jazz instrumentals. Chalk in pastel



colors. Occasional minor bridges break up the stock chord progressions. Safe, happy music, with a degree on sincerity. After thirty seconds, I was expecting to be offended enough by the lack of weight to reach for the "eject" button; instead, I sat down and read a magazine.

- **Billy Stark/Exploring Worlds:** A definite love for early-to-mid '60s psychedelic rock. Much era-accuracy, too: loose playing, Farfisa organ imitations, military-like matching of the



Billy Stark

snare and bass, and many appropriately out-of-tune guitars and vocals (with a couple of exceptions - like the smooth/bent synthness of 'Lessons' and the odd machine-chugging synth-and-fuzz guitar anthems like 'Runway'). Feelings of Texas; Georgia (even though he's really from Minnesota). As a historical document, it's fun, but ultimately tiring; with more polish, it would warrant many repeated listenings.

- **Lorenzo the Magnificent/Music for Art Openings:** Creedance Clearwater Revival. Early Blood, Sweat, and Tears. *Apostrophe* and earlier era Frank Zappa. Humor and down-homey performances (with occasional mouth harp) meet cosmic lyrics. Real instrumentation. Other side is some symphony. Letter babbled something about only visiting this planet briefly, but having assimilated all of our musical influences quickly and having spewed this out as an answer (the letter, in turn, was also lost by an anonymous editor). Who's Lester Kohn? His name was scribbled on the inside. The song titles on the J-card don't match the music on the tape. Somebody's lying to me. Lorenzo didn't do this music. What's going on here? Where's the *real* tape?! I will not have my aura this heavily screwed with . . . !

(Several hours later, after taking several hits of vitamin C, niacin, and an Extra-Strength Excedrin . . . )

It seems that my psychic limit is somewhere just short of a dozen tapes in one weekend. I apologize. Next month, I promise

we'll get back on track with a combination of fuller reviews and the above short-takes. Keep 'em coming; I do enjoy this line of work . . . thanks to you. ■

**Contact Addresses:**

**Kerry Rhys,** Baton Rouge, LA. Tel: (504) 767-5965.

**Jim Hoke,** Nashville, TN. Tel: (615) 865-4543.

**Ariella** c/o White Dove Productions, 2317 West 37th Avenue, Vancouver, British Columbia, Canada V6M 1P4. Tel: (604) 261-8595.

**The Alia Band** c/o Loose Wig Sound, Hollywood, CA. Tel: (213) 461-8273.

**Wind,** 2922 NE 16 Terrace, Gainesville, FL 32609.

**Michael S. Moore,** 4504 Tujunga Avenue, North Hollywood, CA 91602.

**Mark Thomas,** Tel: (818) 888-6787.

**Paul D. Turgeon,** 1081 New Boston Road, Fall River, MA 02720.

**Barry Dean & David Holbrook** c/o Straight-Forward Productions. Tel: (818) 880-2217 or (918) 250-6428.

**David Eldon Cosgrove,** 4126 Greenbrush Lane, Moorpark, CA 93021. Tel: (805) 529-4177.

**Billy Stark** c/o Fashion Corner, 3000 Hennepin Avenue South, Minneapolis, MN 55408. Tel: (612) 822-3103. Tapes cost \$8.

**Lorenzo the Magnificent** c/o Lory Kohn; if his letter is to be believed, he isn't on this planet anymore. I don't think it was even his music.

Send your demo tape, a biography, photo, equipment and recording details, as much of your address as you want revealed, and price (if you're willing to sell your tape) to: **Readers' Tapes, Music Technology, 22024 Lassen Street, Suite 118, Chatsworth, CA 91311.**

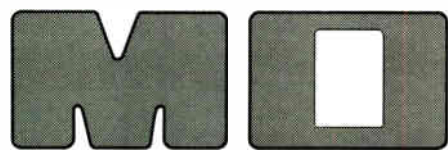
# GET AN EDGE ON 1989

If you're planning to make a business of your music in 1989 — it's time to get started.

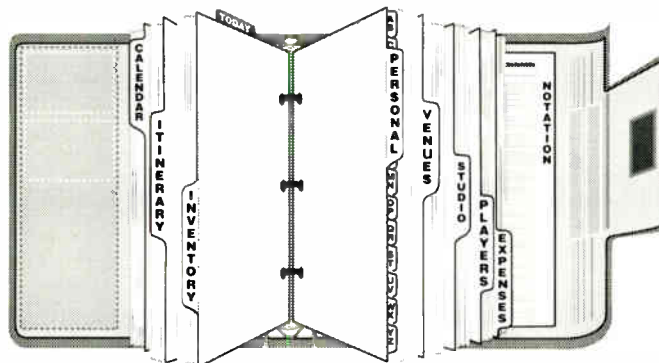
The success philosophy of organization and time-management has been proven. Business survival depends on it.

Finally, you can get that successful edge.

Finally, **you** have a musician's business tool that can seriously help the "business of your music." — *now!*



**MUSICIAN'S ORGANIZER**  
Dedicated Products for Dedicated Professionals.



Complete pro design: black suedene binder, hi-tech color graphics, black locking rings and inside storage pockets.

Sections include Calendar, Players, Inventory, Itinerary, Studio, Venue & Expenses.

Musician's extras include a Holder for 3.5" floppy disks, a manuscript writing pad and more!

**ORDER NOW and GET A BONUS CALENDAR!**

Now you can get the 1989 CALENDAR with Music Events, plus the Fourth Quarter of 1988 and use your Organizer — now!

Yes, I want an edge on 1989 ... send **MUSICIAN'S ORGANIZER** Now!

Name \_\_\_\_\_

Address \_\_\_\_\_

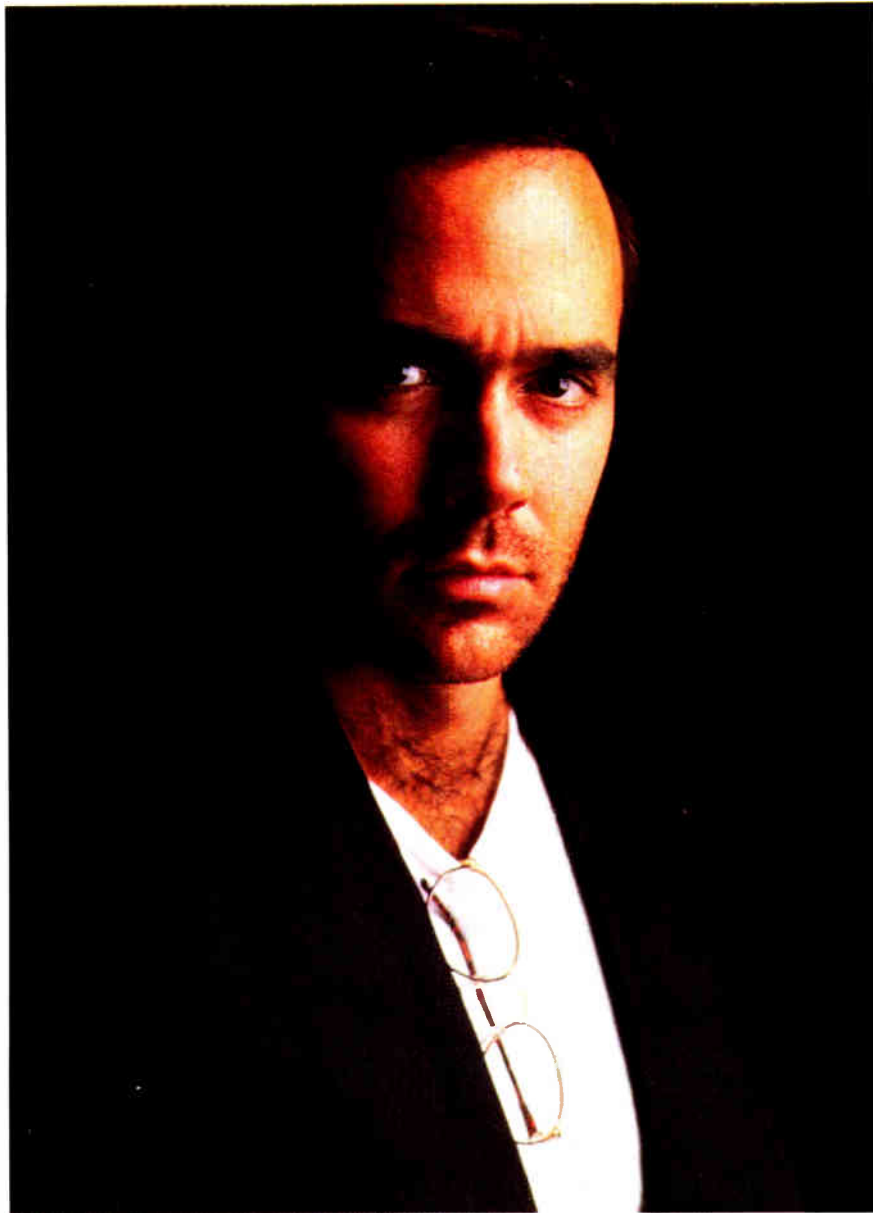
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

MO-1 is \$49.95 + \$5 S/H • CA Res + \$3.25. Sales Tax • Outside USA + \$10 S/H  
 Payment Enclosed — or charge my  VISA  MasterCard

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Phone ( ) \_\_\_\_\_ Signature \_\_\_\_\_

Make Checks & Money Orders payable to:  
Music Maker Publications, 22024 Lassen Street, Ste 118, Chatsworth CA 91311



# ESCAPE FROM THE **FAST LANE**

Speed demon or reflective composer? Perhaps Al Di Meola has it covered on both fronts. *Interview by John Diliberto.*

**A**L DI MEOLA is a musician trapped by his own reputation. In the glow of '70s fusion, he was the firebrand guitarist with Return To Forever, setting a cyclotronic pace for the electric guitar. So when he began making his own records in 1976 with *Land of the Midnight Sun*, everyone expected even more guitar frenzy. And to a degree, Di Meola delivered with furious solos played over tricky time changes on 'Casino,' 'Elegant

Gypsy' and 'Splendido Hotel.' But even then, Di Meola felt the composer in him was getting short-changed by the guitarist.

"In the beginning all they ever talked about was the speed, so I always wondered why they left out what I considered to be the more important aspect of what I put into the music, which was the composition," he laments. "What happened was I sort of became a victim of that."

So in 1983, when Di Meola switched gears

into the techno-fusion of *Scenario* and again in 1985 with the acoustic-oriented *Cielo e Terra*, he de-emphasized his guitar pyrotechnics in favor of atmospheres and arrangements. "I put more attention on composition and less on the actual technique and speed playing," says Di Meola, "because especially with the new transition in the music, I didn't feel it would lend itself to fill up a lot of bars with that kind of thing. It's a more spacious kind of music and approach."

There was also another agenda at work, gaining respectability from critics who have treated Di Meola as nothing more than a virtuoso, mega-note guitarist. "It was also in the hopes of getting some critics to sit up and listen to the composition," confides Di Meola, "which they didn't do."

His fans also had problems. Di Meola's records had previously sold in the high six figures, with *Elegant Gypsy* reportedly hitting 700,000 units. Beginning with *Scenario*, however, sales took a precipitous drop. They weren't prepared to accept him without those death-defying electric runs.

Di Meola is a captive in a prison of his own design, the architect of his audience's expectations. Whether playing in front of an electric band or in a solo acoustic setting, Di Meola always knew how to extract cheers and screams of adulation from the crowd with fast-fingered runs to the top of the neck, screaming sustains and rock guitar-hero poses. He's consistently manipulated his audience like Pavlovian dogs. But it's a two-way street.

"Especially live," he confesses. "It's one of those wonderful traps because you know what's going to get them going crazy. If you do that particular run you're going to get a response. With the trio it happened all the time. It happens in my concerts. It happened with Return To Forever and we used that. It's almost like if you get in trouble, okay, give 'em one of these and you get some energy going from the audience. But I got tired of doing that."

**D**I MEOLA IS IN a reflective mood, sitting in the basement studio of his white stucco Spanish villa in northern New Jersey. On one side of the echoing vinyl-tiled room his acoustic and electric guitars rest on their stands, while on the other side is his Synclavier. He's between record contracts, having released his third and final album on Manhattan records, *Tirami Su*, in 1987. It's only his second respite since the 34-year old guitarist joined Return To Forever at the age of 19 in 1974.

At that time, he was an *enfant terrible*, whose name was mentioned in the same breath with John McLaughlin and Larry Coryell. For Di Meola it all ended prematurely when Corea dissolved the group in 1976. "I thought it was a very wrong move at the time," recalls Di Meola. "Because we were just about to break through at the top. We'd just signed a very nice deal with CBS, but it happened. Everyone wanted to go out and do their own thing. I always felt like that band could stay together and still do our own solo projects and be successful at both. But you need four guys to agree on that and three of us did."

It didn't hurt Di Meola's fortunes much at the time. His first album, *Land of the Midnight Sun*, was already out, his second

arrived as RTF disbanded, and both made even further inroads into the lucrative rock audience that RTF and other fusion groups had pioneered. Still in his early twenties, Di Meola was more than willing to be a guitar hero at the peak of fusion's excitement and impact. He was even getting to play with some of his heroes like Steve Winwood on Stomu Yamash'ta's GO! projects in the '70s,

*"I've always been in situations where I'm playing with really good musicians, like Chick and Stanley. I was 19 years old and thrown into deep water. It makes you stretch. You gotta grow or you sink."*

playing alongside Phil Manzanera, Klaus Schulze and Michael Shrieve.

"I was still only 21 years old, and I walk into the studios in London and I see Steve Winwood through the glass singing," he says with a tinge of awe. Even as a star in his own right, he was still a fan. "I was, like, fourteen years old playing 'Dear Mr. Fantasy' in a garage in New Jersey, and six or seven years later here I am in London where The Rolling Stones and The Beatles come from and I walk through the door and there's Steve Winwood. I don't need to do drugs, this is great."

Di Meola was riding the fusion wave just as it was breaking. Now, looking out on the fuzak that has devolved from '70s fusion, he finds his own music more vital than ever. "That stuff was exciting," he cries exuberantly. "It's funny, I got burned out on it for a while. I'll be honest. The live album, *Tour de Force*, marked the end of that whole period. Two or three years go by and I don't want to hear the music at all. And then this new radio station that we have in New York, CD101 (a commercial new age station), they're playing some of the older albums, in addition to the newer ones, not because it's me or anything. I'm not blowing my own horn, but the fire that's in that music you don't hear in new music today.

"Because what's trendy today is that yuppie stuff that you hear," he criticizes, "the real light saxophone stuff that's real nice and doesn't hurt anybody. But there's so much of that and there's hardly anything that has that rush that RTF used to give or Mahavishnu or Weather Report in its heyday with Jaco in the band. Maybe because it's not trendy. But I get the inkling every now and then to want to go back and do something like that. Even though I hinted at it on *Tirami Su*, it wasn't full out. It wasn't like 'Casino.' 'Casino' was a full out burn with that Latin percussion pumping. It was exciting."

Yet even on those early albums, it was evident that Di Meola was writing complex, technically devious compositions, full of odd time signatures and tortuously winding melodies. *Splendido Hotel* in particular was rife with lush arrangements for electronic keyboards, multitracked acoustic and electric guitars and percussion. His compositions had suite-like constructions that were influenced by classical music more than jazz or rock, not

unlike Chick Corea's own neo-classical tendencies with RTF.

"When you're playing instrumental music you have to make up for the lack of not having a lyric or vocal," he explains. "I like to have the movements change and excite as much as possible. Plus I come from the Return To Forever school of composition where it was very much like that. It was

structured more as a classical composition than an A-B-A jazz standard or pop tune."

Di Meola's first real departure from this formula was the 1983 album, *Scenario*. He dropped the conventional fusion line-up and, except for two tracks, the album was all recorded by Di Meola and synthesist Jan Hammer.

Coming out of Chick Corea's RTF, Di Meola was no stranger to electronics, and all his solo albums were heavily synthesized with Barry Miles and Jan Hammer on keyboards. But *Scenario* tuned into the emerging techno-sounds of the '80s with the Fairlight CMI. "There was one album in particular that got me into wanting to try something different, especially focusing in on the Fairlight," recalls Di Meola, "and that was the Peter Gabriel record *Security*, with 'Shock the Monkey.' I was really into that record for a time. It inspired me to try something different with the guitar being more of the lead instead of the vocal."

*Scenario* surged with electronic rhythms and the kind of techno-acoustic textures that Hammer would go on to popularize with his *Miami Vice* soundtracks. Ironically, although *Scenario* failed to sell, it served as a demo for Hammer for the popular TV show. "That's the first album where Jan used the Fairlight," laughs Di Meola. "I'm the guy that got him to use it."

"Jan was very resistant to using the Fairlight when we were doing the album," he continues, thinking back to 1983 and the Caribou recording Studio in Colorado where *Scenario* was made. "Jan and I got along great and we had some good things going and I said, 'Jan, I think it's time to expand. There's these new computerized synthesizers with samples and things.' He said, 'Man, I can get any sound with the Minimoog.' He was so resistant. The first four hours he kept a distance from it. And then like the fifth hour I went over to him and said, 'You're gonna wind up buying one of these,' and he said, 'No way!'"

Needless to say, Hammer did buy one after only three weeks according to Di Meola. "A year or two later he was making 30 grand a week doing *Miami Vice*," he laughs sardonically.

Although *Scenario* didn't fare well, it spawned an unlikely hit with the disco mix of 'Sequencer.' "Yeah, I felt very strange ▶



► about that, I must admit," says Di Meola. "I was praying that it wouldn't become a hit. Isn't it strange that I'm saying that? But it's true! What the record company did, without my support, was they went in and re-mixed it for the discos and unfortunately or fortunately for them, it became number one on the dance charts. So all of a sudden this press is coming out that Al Di Meola has a number one dance tune and I was very embarrassed by it to be quite honest.

"At that time 'Rockit' was very big with Herbie Hancock so they were hoping for a white version of that, you know?" he grimaces. "And it backfired. Because the fans don't want to hear that kind of stuff. I know what they want to hear."

*Scenario* was his first album on a new CBS contract. It was also his last. "Yeah, boy was it," he laughs. "Whoo! That was the last one."

Almost concurrently to the electronic *Scenario* sessions, he was playing in an acoustic guitar trio with John McLaughlin and Paco DeLucia. Their second album, *Passion, Grace and Fire* also came out in 1983 and only fortified Di Meola's reputation for playing notes faster than the speed of light. The trio was about nothing if not virtuosity,

50

trying to top each other with every flight. "Absolutely," boasts Di Meola. "We were up there kicking one another's ass. That was the great thing about it. It was a very healthy competition. At times, it didn't feel so healthy, especially when you got kicked. But we were up there trying to impress one another and that turned the audience on. It really made you stretch and grow and usually the best musical events happen that way, especially for me. I've always been in situations where I'm playing with really good musicians, like Chick and Stanley in the beginning. I was 19 years old and thrown into deep water. So doing the trio was the second episode in my life that seemed similar to the first one. It makes you stretch. You gotta grow or you sink."

After all that stretching, growing and competitive virtuosity, it was time for a rest. Several years with RTF, several years touring and recording his own music, plus playing in the guitar trio had left Di Meola depleted. "I was burned out on burning," he claims. "I didn't record or release an album and I didn't do one concert, and there was one or two months in particular where I took the phone off the hook and I didn't even call out for that whole time and no one could get me. I had the police coming to my house a

lot looking for me because no one could get me."

But Di Meola wasn't in some sort of speed lust withdrawal. During this period, he was developing an acoustic-based music with electronic orchestrations that would result in two albums, *Cielo e Terra* and *Soaring Through a Dream*. "*Cielo e Terra* was intended originally to be a solo guitar album, acoustic guitar with the emphasis being on the influence of 20th century classical guitar music," says Di Meola. He was particularly impressed with an album by Julian Bream called *20th Century Guitar* and the composition 'Quartre Breves,' by Swiss composer Frank Martin.

As he got more into the album and began recording he was introduced to the Synclavier. "I called one of the programmers with the system to try it out for some overdubs," he recalls, "and I was so taken that I decided to purchase one."

Besides his delight with the sounds, he felt the Synclavier was more suited to a guitar controller than the Fairlight. He began shaping the compositions with the Synclavier, triggering breathy voices and melodies with his guitar.

*Cielo e Terra* has an open-ended, airy sound, unlike anything he'd previously

MT JANUARY 1989

recorded. Spacious guitar lines were played out among the sparse percussion of Aírto Moreira, like wind blowing over desert scrub grass. *Cielo* reflected the intense period of isolation and introspection that Di Meola spent, but it was also a more intimate recording, that was centered not by Di Meola's sabre guitar lines, but by more impressionistic compositions.

"I felt like with these new compositions, if I put too much guitar into the piece it would actually ruin the enchanting, open quality the pieces are supposed to have," he explains. "Because they are not like the pieces of the past that were jam packed with technical sections that wove together. It's completely different."

Di Meola continued this direction on *Soaring Through a Dream*, with percussionist Aírto Moreira singing in a gentle Brazilian lilt. The album drew comparisons to guitarist Pat Metheny's recent work with Brazilian singers and instrumentalists. "A lot of what he does incorporates Synclavier and acoustic guitar and even the electric he uses," says Di Meola, "so there are going to be some resemblances, especially with the sound of the voice in the music."

"But, yeah, definitely," he reconsiders. "Certainly he doesn't play guitar like me so that should be the one key element in there. That's why I have to focus more on the guitar playing and maybe a little less on the Synclavier in the future."

But Di Meola's long-time love of Latin music has been well documented – from the scorching Latin rhythms of Casino back to his childhood in northern New Jersey. "Growing up where I grew up in North Jersey, there were a lot of Latin influences," he says. "I used to go into the city at the Corso Club on 89th Street to see Latin bands play and the radio which was loaded with Latin stations."

Di Meola has managed to skillfully blend the Synclavier into his music. It's used mostly as a background to his guitar acoustics on *Cielo e Terra*, but on *Soaring Through a Dream*, he triggers it with his Paul Reed Smith electric using a Roland interface. He feels that the ability to trigger new sounds has altered the way he composes.

"When you're playing on your own instrument but hearing a different sound, you actually respond differently than if you hear the guitar sound," he claims. "That's a fact, especially when you have a sound that has a slow envelope like a lot of the samples do. A lot of the more beautiful samples that have the wind sound, like a wood flute or saxophone, usually the envelope for it is very slow as opposed to a flute, which can be very precise, short attacks. You can play fast; but sounds that you can play fast with are not that impressive and there are only a few of those. But it's the ones that have a very slow, lyrical envelope that force you to play that way, more lyrical. Plus you're hearing a different sound so you think differently. So

by having that and using an instrument like this when you compose, you find yourself composing pieces you would have never composed if you had the straight guitar sound."

Yet he's been backing off the Synclavier recently, and writing more on guitar. "I find myself composing more on the guitar and I use the Synclavier afterwards," he admits. "I'm a little afraid to get so much into the Synclavier because it's easy to make some of these things sound great. There's a lot of guys out there who can make them sound real good and they leave out the meat of the music."

Di Meola records many of his own samples. Looking at a mandolin leaning against the wall, I asked him if he played it. "I don't, but I sampled it," he replied mischievously. "If you listen to *Soaring Through a Dream*, on the piece called 'Ballad' you'll hear it in the background."

"When Aírto was down here I sampled one of the little bells hanging from the bell tree and to hear this sound played on the guitar," he continues, "bending and glissando, it's gorgeous with the long reverb." He makes that bell sing on 'Traces (of a Tear)' from *Tirami Su*, gliding one note into another in an angelic flight, before switching to some re-synthesized trumpet.

Needless to say, with a noisemaker like Aírto in his studio, Di Meola found many opportunities for sampling. "I sampled the berimbau, I sampled Flora [Purim] about 20 times."

The Synclavier allows him to access a more pan-ethnic world of sounds. "I like having the flavors of different parts of the world in the music and different instruments enable that to happen," he agrees. "The Synclavier is a great example where you can sample these great instruments like an oud or any of the foreign string instruments and then play it back on the guitar, but be able to phrase as if you're playing the guitar but with that sound. This is what makes it unique and interesting."

"You hear a sound, like the koto sound, and you're glissandoing and bending like a guitar player, how can that be?" he asks rhetorically. "And then you're playing chords with it, guitar chords, jazz chords, let alone the brass instruments that you can't play chords on but you can on a guitar. So guitar becomes a more expressive instrument in some ways than the actual instrument itself."

Despite the feeling that *Terra e Cielo* was his "most fulfilling album as an artist," Di Meola is still drawn towards the sound of the electric guitar and he thinks his audience would rather have him there as well. "It's just that I'm realizing that the guitar sound will always be very popular," he says with resignation. Di Meola thinks his audience is often mystified at the new technology, as if he's playing by sleight of hand. "It's funny, even in concert you would expect the whole audience to know exactly what's going on

because they can see your hand moving even though they're hearing a pan-pipe or flute. I would think that they would know that it's you. But it took them a long time to grasp that. People know me from being a guitar player and it's real hard for me to present something new to an audience without them being upset about not hearing the guitar, when in fact it was a guitar they were hearing. But I understand it."

**D**I MEOLA IS STILL conflicted, torn between expanding his compositions and playing his guitar, split between his audience expectations and his desires, and looking in the cracked mirror of his own self-image and that imposed on him by critics. *Tirami Su*, which is an Italian dessert but also translates as "uplifting," was an attempt to reconcile the two, bringing the electric guitar back into the forefront.

"That album had the Synclavier guitar, classical guitar, Ovation's acoustic steel string, the 175 jazz body Gibson, all of my guitars that I feature in a live performance balanced over the whole album. *Soaring Through a Dream* had mostly acoustic guitar and Synclavier guitar but not much straight guitar. So I tried to cover all the bases."

*Tirami Su* also has more of a traditional fusion sound as Di Meola looks back to his earlier successes to find a formula. "There's just something about 'Casino' and 'Elegant Gypsy,'" he says, "and I realized in that day it was popular for a number of reasons but other than the fact that fusion was new and there was an excitement there, the music had a fire in it, and okay, I hate to admit it, more on the rock side, but it doesn't seem to be hurting other people."

Despite his extensive work with the acoustic guitar, both on his own records and with the trio, Di Meola will always be drawn towards the electric, seduced by its power and expression which he once claimed was greater than an acoustic guitar. "Yeah, because of the way you can bend and shape notes," he says. "It's probably easier to make an electric guitar cry, just from bending the notes and the sustain quality that you have. The slurring is more effective, glissandos."

"Rhythmically it's not as expressive," he counters himself. "Not at all because you can't attack an electric guitar within the strings like you can with an acoustic guitar. I'm just talking more about the lyrical quality an electric guitar might have over an acoustic guitar. It just sings more; it's more vocal."

As Al Di Meola prepares to enter the studio with his old associate, keyboardist Barry Miles, he can't deny that his virtuosity is part of his personality, a characteristic that makes him the artist he is. "Certainly that aspect is so much a part of who I am," he says. "So I have to put that back. It was almost a mistake to leave that out to the degree that I left it out." ■

# PATCH WORK

Bright, breathy, hip, happenin' and otherwise totally bitchin' sounds are what we're looking for here, so if you've got some, share the wealth. Send your creation visually on a patch chart from the owner's manual (along with a blank one for artwork purposes) and audibly on a demo tape (in case we don't have access to your weapon of choice) to: Patchwork, Music Technology, 22024 Lassen St., Suite 118, Chatsworth, CA 91311.

If we decide to use your patch, you will be justly rewarded with a free year's subscription to MT (a \$25 value!). Start accessing functions and incrementing parameters.

## VOICE DATA LIST

VOICE NO./NAME

ALGORITHM	5			
FEEDBACK	0			
FREQUENCY	1.00	1.00	1.001	1.00
OSC. WAVE	W3	W3	W3	W3
DETUNE	-3	+3	+3	-3
OUT LEVEL	99	99	99	99

EG				
AR	31	31	20	15
D1R	14	16	8	9
D1L	4	4	14	14
D2R	8	8	14	14
RR	12	12	10	10
EG SHIFT	OFF	OFF	OFF	OFF

SCALING				
RATE	0	0	0	0
LEVEL	0	0	0	50

SENSITIVITY				
PITCH	0			
AMPLITUDE (0-3) (ON/OFF)	OFF	OFF	OFF	OFF
EG BIAS	0	0	0	0
KEY VELOCITY	3	1	3	7

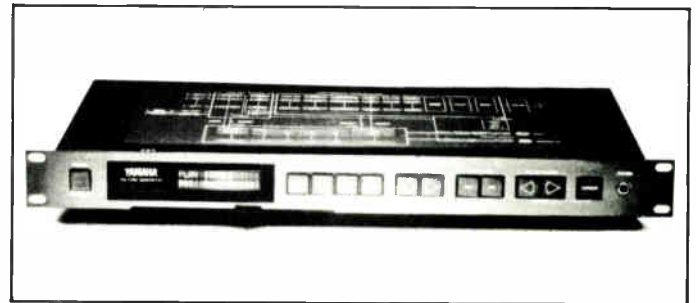
LFO	
WAVE	TRI
SPEED	0
DELAY	0
P MOD DEPTH	0
A MOD DEPTH	0
SYNC	OFF

FUNCTION	
MODE	POLY
P BEND RANGE	4
PORTAMENTO	FULL-TIME
PORTAMENTO TIME	0
FC VOLUME	40
FC PITCH	0
FC AMPLITUDE	0
MW PITCH	50
MW AMPLITUDE	0
BC PITCH	0
BC AMPLITUDE	0
PC PITCH BIAS	0
BC EG BIAS	0
MIDDLE C	02
REVERB RATE	6

## YAMAHA TX81Z OBX Bass

Wally Michalak, Seattle, WA

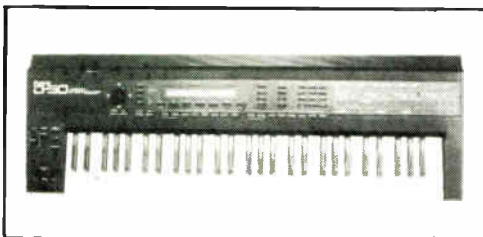
Wally's offering is an excellent, fluid bass patch that could be mistaken for a heavily-fuzzed bass guitar in a mix. It also stands up pretty well on its own and is good enough to earn him a free subscription. ■



## ROLAND D50 Concerto

Andy Morton, Birmingham, AL

Andy has submitted a beautiful classical guitar patch here, which he plays in exactly the right manner on his tape. Although it's very convincing overall, the upper registers are especially authentic. ■



[Common Parameters]

Structure No	3	
Pitch Env	Velocity	0
	KF(Time)	0
Partial Mute	L0	0
	L1	0
	L2	0
	L3	0
	Sust	0
	EndL	0

LFO	Wave	TRI	0	0
	Rate	82	0	0
	Delay	3	0	0
	Sync	KEY	OFF	OFF
EO	Lf	63		
	Ht	250		
	HO	0-3		
Chorus	Rate			
	Depth			
	Balance			0
	Hg	0		

Pitch Modulation	LFO Depth	0
	Lever Mod	0
	After Mod	0

[Partial Parameters 1/2]

WG	Coarse	C4	C4
	Fine	-6	0
	KF(Pitch)	1	1
WG Music Motion	LFO Mode	+R	+L
	P ENV Mode	+	+
	Bender Mode	KF	KF
WG Wave Form	Wave Form	SGU	
	PCM No	23	
WG Pulse Width	PW	00	
	Velocity	+1	
	Alter Touch	0	
	LFO Select	+1	
	LFO Depth	00	

TVF	Frequency	42
	Resonance	07
	KF(Freq)	1/8
	Bus Pans	<D>3
	Bus Direction	
	Bus Level	+5
TVF ENV	Depth	60
	Velocity	54
	KF(Depth)	4
	KF(Time)	2
TVF ENV	T1	0
	T2	39
	T3	52
	T4	61
	T5	45
TVF ENV	L1	100
	L2	72
	L3	0
	SustL	0
	EndL	0
TVF Modulation	LFO Select	+1
	LFO Depth	3
	Alter Touch	+2

TVA	Level	83	100
	Velocity	+10	+36
	Bus Pans		
	Bus Direction		
	Bus Level		-4
TVA ENV	Velocity (T1)	0	2
	T1	0	0
	T2	0	60
	T3	0	82
	T4	0	29
	T5	0	39
TVA ENV	L1	100	100
	L2	100	79
	L3	100	+3
	SustL	100	0
	EndL	0	0
TVA Modulation	LFO Select	+1	+1
	LFO Depth	0	31
	Alter Touch	0	0

Key Mode	DUAL or SIF
Spot Point	C4
Tone Balance	20
L-Rev Shift	0
U-Rev Shift	0
L-Fine Tune	0
U-Fine Tune	0
Bender Range	02
Alter Pitch Bender	0
Portamento Time	50
Portamento Mode	UL
Hold Mode	UL
Output Mode	02
Reverb Type	03
Reverb Balance	50
Total Volume	100
Chase Mode	ULU
Chase Level	50
Chase Time	50
MIDI TxCH	e.g 12
MIDI SepCH	e.g 16

# PATCH WARE

NEWS: In the past, Synthware offered its customers the option of custom-picking specific DX7/DX7II voices to comprise their DX/TX Voice Packs. Well, it seems that business has just been too heavy to be able to continue doing it that way, so now they've arranged those voices into three pre-packaged products. **Voice Pack #1: "State-of-the-Art FM Digitals"** includes 64 sample-like sounds of guitars, clavs, bells, and various hybrid-esque voices (no FX sounds). **Voice Pack #2: "Symphonic and Orchestrated Instruments"** gives you 64 sounds of horns, strings, woodwinds, orch-hits, vocals and the like. **Voice Pack #3: "Contemporary and Modern Instruments"** features 64 acoustic-clone voices, including acoustic pianos, clavinet, guitars, analog synths, organs, sax, etc. Each pack costs \$49.95, and is available in the following formats: data charts, DX7IIFD disk, QX3 disk, MDFI disk, Atari ST disk, Commodore 64/128 disk, TX7 data cassette, CX5M disk/cassette, and RAM cartridges.

Other new Synthware stuff includes their **DSO/DSSO Voice Pack 64** for \$49.95, which features 64 patches, all fully balanced in volume, organized by type-of-sound, and some even utilizing the DSO's microtonal and fixed frequency capabilities. The **24 Disk Mirage/EPS Sampler Library** is now available, featuring over 92 samples of everything from acoustic instruments to analogs to hybrid sounds. These disks are \$13.95 each, with a minimum purchase requirement of two disks. Special bulk prices for this library: four disks - \$44.95; six disks - \$64.95; 10 disks - \$99.95; 16 disks - \$149.95; and for those of you who want it all, the entire 24 disk library will cost you \$199.95. For full patch lists, catalogs, or any other a-sordid info, contact: Synthware, 1126 Whitner Rd, Reading, PA 19605. Tel: (215) 921-3111.

For those of you with products on the high priced end of the market comes **Protégé** and **The Master Sampler Collection** for the E-mu Emulator III and Fairlight CMI Series III respectively. These two collections of patches from Sound Genesis are all carefully crafted, critically tuned, mapped to the keyboard and assigned preset effects, so all you have to do is pop them into your machine and go to town. The Protégé for the EIII is their newest release, and essentially it's a library of eleven sounds on eleven disks. Included in the set are: solo cello, a 24-violin ensemble, an eight-string bass ensemble, flute, solo trumpet, French horn, solo alto sax, solo baritone sax, concert cymbals, congas, and electric bass. All sounds are sampled in stereo, with the exception of the electric bass, and each disk will cost you \$125. For more info, contact: Sound Genesis Corp, 7807 Creekridge Center, Minneapolis, MN 55435. Tel: (612) 944-8528. ■

MT JANUARY 1989

# WISER MUSIC

"VISIT THE MIDWESTS'  
LARGEST MULTI-KEYBOARD SPECIALIST"

KURZWEIL  
E-mu Systems, Inc.  
SEQUENTIAL  
AKAI  
KAWAI  
Oberlin  
KORG  
CASIO  
TOA  
Lexicon  
AUX  
AUDIO-TECHNICA  
ART  
FOSTEX  
dbr  
Studio Master  
ROSE  
ALESIS  
RANE  
ATARI  
SIMMONS

ATARI  
ST-1040-520  
Sold and Serviced

MIDI  
SMPT  
SYSTEMS  
FOR  
THE  
PROFESSIONAL

SOUTH WORTH  
digidesign  
PASSPORT  
Hybrid Arts, Inc.  
JESPER ELECTRONICS  
Performer

Dr. Ts  
opcode

800-635-WISE  
314-837-3030

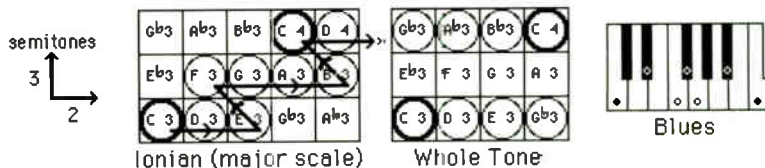
11740 WEST FLORISSANT AVE., ST. LOUIS, MO 63033

KEYBOARDS  
DRUM COMPUTERS  
SEQUENCERS  
PA  
RECORDING  
SOFTWARE  
COMPUTERS  
SERVICES  
SUPORT

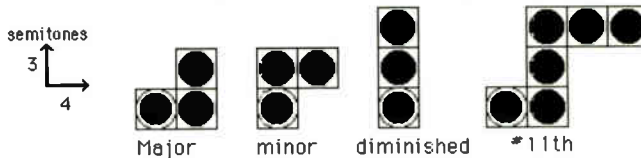


## Did you ever wish an intelligent instrument could help you learn music theory?

### See How Modes Work.



### See How Chords Work.



Play by Pointing. Change Chord, Mode, or Key with a Touch.

HARMONY GRID for Macintosh. \$99

MAKE MUSIC WHILE LEARNING HOW

MIDI supported but not required.

To hear or order Harmony Grid  
call (617)661-2HIP.  
Mastercard & Visa accepted.  
Dealer Inquiries welcome.

hip  
SOFTWARE CORPORATION

117 Harvard Street, Suite 3, Cambridge MA 02139

# perspectives

## BETWEEN THE KEYS

Opinions by Carter Scholz.

ONE OF THE virtues of synthesizers is that they never need tuning. Digital electronics can hold a pitch with unwavering accuracy. But the tremendous ease and convenience of this has a downside: As it becomes unnecessary to tune, fewer musicians learn how to tune, or how to hear subtle differences in tuning.

This is a great pity, because the unprecedented tuning stability and accuracy of these instruments makes it possible to use tunings other than the twelve-tone equal-tempered scale which has been the "standard" for Western music for only the past 150 years.

On earlier, lighter keyboards (harpsichords, clavichords, fortepianos) it wasn't at all unusual for a performer to retune his or her instrument between pieces, giving each piece a unique flavor. The advancing technology of the modern piano made that problematic. As pianos grew louder, bigger, and heavier, with stiffer strings kept under greater tension, it required a specialized set of tools and skills to tune them. It can take days for a tuning on a modern piano to "settle in." Because of the difficulty of retuning this monster to fit the music, music was forced to fit the beast. Thus, the Western musical scale was standardized; hundreds of toothsome variants were replaced by plain vanilla. And keyboardists stopped tuning their own instruments.

But what acoustic technology took away, electronics can now restore. Digital synthesizers have no stiff strings, no recalcitrant moving parts. Their tunings are a set of numbers written in the instrument's memory, and those numbers can be changed just as easily as the numbers that make up a patch.

This is revolutionary. For the first time in the history of music, we have a technology ideally suited to instant, effortless retuning. And for the most part, we can't use it - because most manufacturers don't think it's important enough to give us access to it.

There is no technical reason not to give users full and complete control over the tuning of their keyboard. And there are overwhelming musical reasons to do so. We may decide to use good old equal-

temperament after all; but it should be our decision, not the instrument's.

This state of affairs has to change, and it is changing. Yamaha, Ensoniq, Kurzweil and Korg already make tunable instruments. If this trend continues - as I hope it will - it will become important to establish some standards and desiderata. A recent meeting of the *Just Intonation Network*, attended by David Canright, John Chalmers, David Doty, Doug Keislar, Shabda Owens, Robert Rich, and myself was a first step towards a set of recommendations to be made to the International MIDI Association and individual MIDI manufacturers. Some of our points:

- *Any instrument that can be tuned, should be tunable.* If the hardware can do it, the software should let you do it.

- *Tuning resolution should be no coarser than one tenth of a cent.* (A "cent" is one-hundredth of a semitone.) This is the most important issue. The best resolution currently available is around 1.2 cents. It's true that most acoustic instruments can't be tuned any more accurately than that, so it may seem like overkill to ask for 0.1

*"We now have a technology ideally suited to instant, effortless retuning, but we can't use it."*

cent. But electronic timbres are cleaner and more exposed, and out-of-tune beating is far more obvious, especially in slow-moving music. At the limit of human hearing, an out-of-tuneness of 0.1 cent produces one beat per second, which is easily audible.

- *Tuning resolution should be consistent throughout the range of the instrument.* Some hardware gives adequate resolution on one end of the keyboard, but not the other. Pitch perception is logarithmic, and so should pitch generation.

- *Any MIDI note should be tunable to any frequency.* Some instruments permit tuning a note only in a narrow range around its "standard" equal-tempered value, or insist on identical 12-note

octaves. This is needlessly restrictive.

- *A real-time tuning change should not cause glitches or note-offs.* It's desirable in many kinds of music, especially in just intonation, to change tunings while notes are sounding.

- *Tunings should be switchable via MIDI.* One of the unused MIDI continuous controllers could be designated a "tuning" control, to allow the selection of any of 128 different available tunings, much as the MIDI program change message allows patch selection.

Tuning is such a fundamental part of music, and so easy to accomplish with digital instruments, that it seems ridiculous to have to argue for it. Harry Partch, Lou Harrison, Terry Riley, Wendy Carlos, and hundreds of other composers have decided that "composing" means being responsible for the tuning as well as the notes. Ethnic musics remain closed worlds to instruments locked into equal temperament. The ability to change tuning on the fly (what Harrison calls "free style") opens vistas onto a music of unprecedented harmonic depth.

We have in our hands a technology that promises new dimensions of musical expression. It's time for manufacturers to stop imitating the piano of a hundred years ago, and to give us the instruments of today, capable of making the music of tomorrow.

*(The Just Intonation Network solicits comments and suggestions about MIDI tuning implementations. If you're a user or a manufacturer with an interest in tunings, please contact the Just Intonation Network, 535 Stevenson St., San Francisco, CA 94709.)* ■

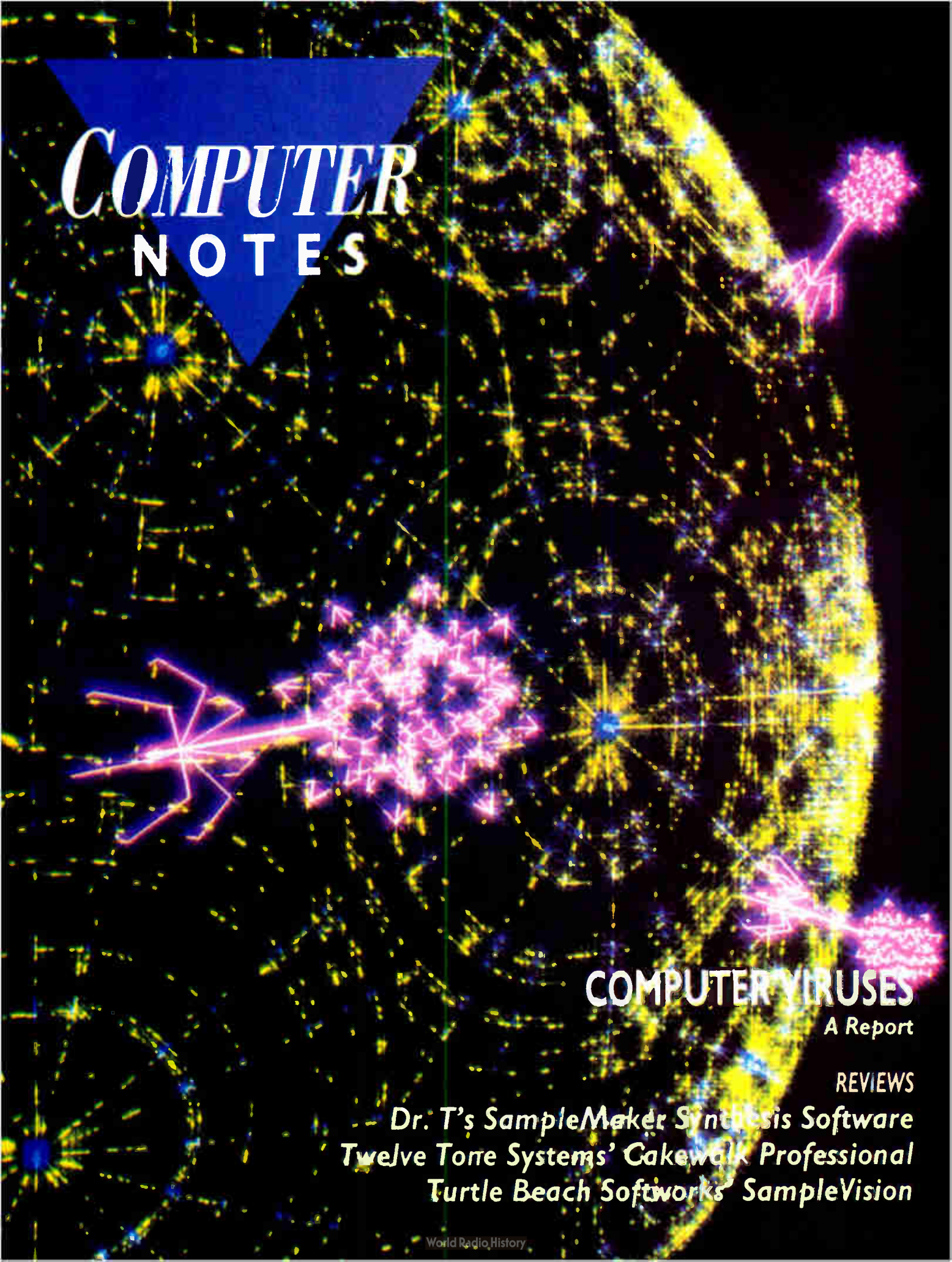
---

Something in the electronic music industry you'd like to comment on in 1000 words or less? If so, send your musings to: *Perspectives, Music Technology, 22024 Lassen St., Suite 118, Chatsworth, CA 91311.* Please include a daytime telephone number with your submission. We pay \$100 for every *Perspectives* article we decide to publish.

Please note: the opinions expressed in *Perspectives* are those of the author; they do not necessarily represent those of the editorial staff or the publishers.

MT JANUARY 1989





# COMPUTER NOTES

## COMPUTER VIRUSES

A Report

REVIEWS

— Dr. T's SampleMaker Synthesis Software  
Twelve Tone Systems' Cakewalk Professional  
Turtle Beach Softworks' SampleVision

**News**

Reviews

Previews

Applications

Technology

**COMPUTER  
NEWS DESK****DROP IN AN ENGINE**

Spectral Synthesis will be unveiling their SynthEngine Digital Audio Workstation, and accompanying AudioCAD software, at the 1989 winter NAMM show. The system is modular in design, and can cater to either the high-end or low-end market, depending upon the user's needs.

So what exactly is the SynthEngine? Basically, it's a digital music system that runs on Spectral's own dedicated IBM PC-compatible setup, or if you have your own IBM, you can buy the cards and software to upgrade your computer to become a proverbial SynthEngine. The major components include:

- The SynthRack, a 19-inch rackmount unit with a 10-slot AT-compatible system backplane, power supply, a 12MHz 80286 AT computer board, a hard drive, a floppy drive, and I/O interfaces for keyboards, digitizers, printers, Video Graphics Display, RS232 serial ports, MIDI, SCSI, AES/EBU, CD/DAT, and SMPTE;
- The SynthCARD, an IBM PC bus compatible board, with two Texas Instruments TMS320C25 DSP chips working at 40MHz, and up to 16 megabytes of sample RAM;
- The FlyBy Bus controller and I/O card, a single peripheral controller card for the IBM PC/AT, which can be programmed for MIDI filtering and redirection, and routes all signals to and from the A/D and D/A converters;
- The DashBoard, a table-top console which controls inputs, MIDI I/O, and features eight variably-configurable slider pots for input of frequency, sensitivity, bandwidth, and the like;
- The Spectral A/D/A Converter Module, with 16-bit standard resolution, optional 18-bit with sampling rates up to 96kHz; and finally,
- The AudioCAD software, which runs under Microsoft windows, allows for multitasking, and includes an algorithmic sound design and signal processing program, a digital mixing, recording, and playback program, and a sequencer and score editor program. On top of all this, the SynthEngine will run existing IBM software.

Though it's not released yet, preliminary pricing for the SynthEngine, which includes everything mentioned above, is \$14,950, with the option for additional SynthCards at \$1295 each. That's the high-end system. Spectral also offers a "Starter Kit" for only \$1995, which includes the FlyBy Bus, one SynthCARD, and the AudioCAD software to use with an IBM-compatible XT or AT and a DAT recorder to perform the D/A conversions.

**MORE FROM** Spectral Synthesis, Inc, 15253 NE 90th St, Redmond, WA 98052. Tel: (206) 882-0737 or (206) 883-9110.

**ORGANIZE YOUR MI**

Previously specializing in editor/librarians for MIDI devices that were otherwise ignored, Snap Software is programming for the big time now: they've just released the MI Data Organizer for the Korg MI and IBM PC/XT/AT and compatibles. Separate libraries are featured for programs, combinations, sequences, and global data; not to mention a Drum Kit Editor and Combination Editor. The program reads and writes both MI internal memory and RAM cards, and lets you transfer info from disk to

RAM without touching the MI's internal memory. It also features pop-up menus and Microsoft Windows compatibility. The librarian is available for \$115; the Drum Kit and Combination editors will cost registered owners of the librarian the cost of the floppies to put them on. A full editor for the MI, as well as a Yamaha CI format version, are expected in the near future.

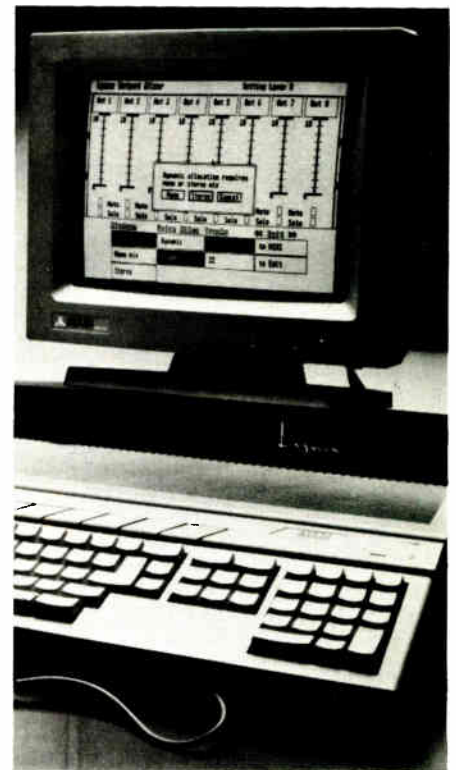
**MORE FROM** Snap Software, 1116 Janey Way, Sacramento, CA 95819. Tel: (916) 451-9914.

**16-BIT SAMPLING LYON**

Stereo sampling, in fact. Lynex is a I U rackmount device with 1 megabyte internal RAM for 10.5 seconds of mono, or 5.25 seconds of stereo, true 16-bit sampling at 50kHz, from the UK company, Commander Electronics. You can expand the memory by adding another single-space rackmount box to give you up to 128 megabytes of RAM. Lynex also has eight-voice polyphony, an eight-channel digital mixer, and individual outputs for each voice; and you can double the polyphony to 16 voices by using lower bandwidths. Its controlling software runs on the Atari ST computer, but the operating system is loaded completely into Lynex' own memory, leaving the computer open to perform various functions, including: waveform redrawing, multiple looping, keyboard splitting, etc. Lynex can be used as a desk accessory, so you can run other software on your computer at the same time.

Lynex, scheduled for unveiling at the Winter NAMM show in Anaheim in January, retails for \$3300; the price of the expansion boxes is not yet released. Also note: a Mac version is expected in the near future.

**MORE FROM** Russ Jones Marketing Group, 17700 Raymer St, Ste 1001, Northridge, CA 91325. Tel: (818) 993-4091.



The new Lynex 16-bit stereo sampler from the UK works with the Atari ST.

**MAKING EFFECT**

From Johnsware comes four editor/librarians you can use with your Atari 520, 1040, or Mega STs. The first is called MIDIBoss (\$74.95), which basically gives you a spreadsheet of all the MIDI devices you have set up, and lets you interactively define program changes, custom MIDI messages, and SysEx data for each device. Up to 128 complete system configurations can be stored on one bank screen. The second program is called MSBehave for - you guessed it, JL Cooper's MSB+ (\$74.95). MSBehave lets you edit with on-screen graphic displays, and the librarian lets you organize and save entire banks of patches, with a Clipboard function for easy

repositioning of patches within the banks.

Also appropriately named, the DSPatcher (\$74.95) for the DigiTech DSP128, and SDDemon (\$49.95) for the Korg SDD2000, let you perform pretty much the same functions for their respective devices as the MSBehave. All four programs will allow you to load two complete banks of patches into the ST at once, print out hard copies of patch and bank sheets, send out SysEx data for use with the MIDIBoss, work with both monochrome and color monitors, and include a desk accessory version, as well.

**MORE FROM** Johnsware, 5802 42nd Ave, Hyattsville, MD 20781. Tel: (301) 927-1947.

## WHAT'S NEXT?

By now you've heard about the newest brainchild of Steve Jobs (former chairman and co-founder of Apple Computers) - the NeXT computer. So what's the big to-do? Well, for starters, the NeXT machine has a removable 256 Megabyte optical disk that let's you read/write/erase data, a 17" super-high-resolution (300 dpi) MegaPixel display monitor, integrated sound capabilities, and an optional 400 dpi Laser Printer. The main processor is Motorola's 68030, Motorola's 68882 Floating-Point Unit handles mathematical computations, and the 10 MIPS speed of the Motorola 56001 Digital Signal Processor chip (also found in many hard-disk recording systems) is used for sound. NeXT's own ICP (Integrated Channel Processor) chip allows the 68030 to run at 5 MIPS, and the OSP (Optical Storage Processor) chip controls the optical disk.

All this hardware is supported by a huge array of standard software. Included are a multitasking operating system that's compatible with 4.3BSD UNIX system, a bunch of object-oriented environment programs, a graphic application development program, printing software to support the PostScript language, word

processing, database, graphic electronic mail applications, and a bundled library that comes complete with a dictionary, thesaurus, Oxford Dictionary of Quotations, and the complete works of Shakespeare (yes, we're talking about an incredible memory capacity here). A press release accompanying the NeXT literature also mentioned that Mark of the Unicorn plans to port its popular Performer program (with additional features) over to this monster machine.

Perhaps the most shocking feature of this computer is its price: \$6500 (the laser printer is \$2000); certainly less than might be expected. The catch - you know there's going to be one - is that the NeXT is currently being marketed to the higher education market only right now, so you can only buy it as a student; it's not available to the general public. Nevertheless, we have to wonder what diverse paths all this computing power will be directed towards. Considering that it has a 56001 built-in and a large portion of its roll-out demo was devoted to showing off its CD-quality stereo playback capability, the potential for musical applications is impressive.

**MORE FROM** NeXT, Inc, 3475 Deer Creek Rd, Palo Alto, CA 94304. Tel: (415) 424-0200.

## WINSONG FOR WINDOWS

Maranatha Systems has released version 2.00 of their WinSong software for Microsoft Windows, IBM PC or compatible, and a mouse. WinSong includes four programs:

- The Composer, for creating, displaying, and printing music notation;
- The Tapedeck, a 24-track sequencing program with filtering, quantize and deflam, MIDI sync, transposition, and editing;
- The Jukebox, for live performance, including song queues, variable length pauses, and SysEx support; and MIDIEX, which lets you download and upload SysEx info to and from the computer.

WinSong supports a number of MIDI interfaces for the IBM, including the Roland MPU401, Music Quest, Mellotron MUART, IBM Music Feature, and Cheetah-MIDI. The package retails for \$249.95.

**MORE FROM** Maranatha Systems, Inc. (MidWest MIDI Consultants), 17911 NE 101st Ct, Redmond, WA 98052. Tel: (405) 736-6676.

## LEAPING LXPI'S!

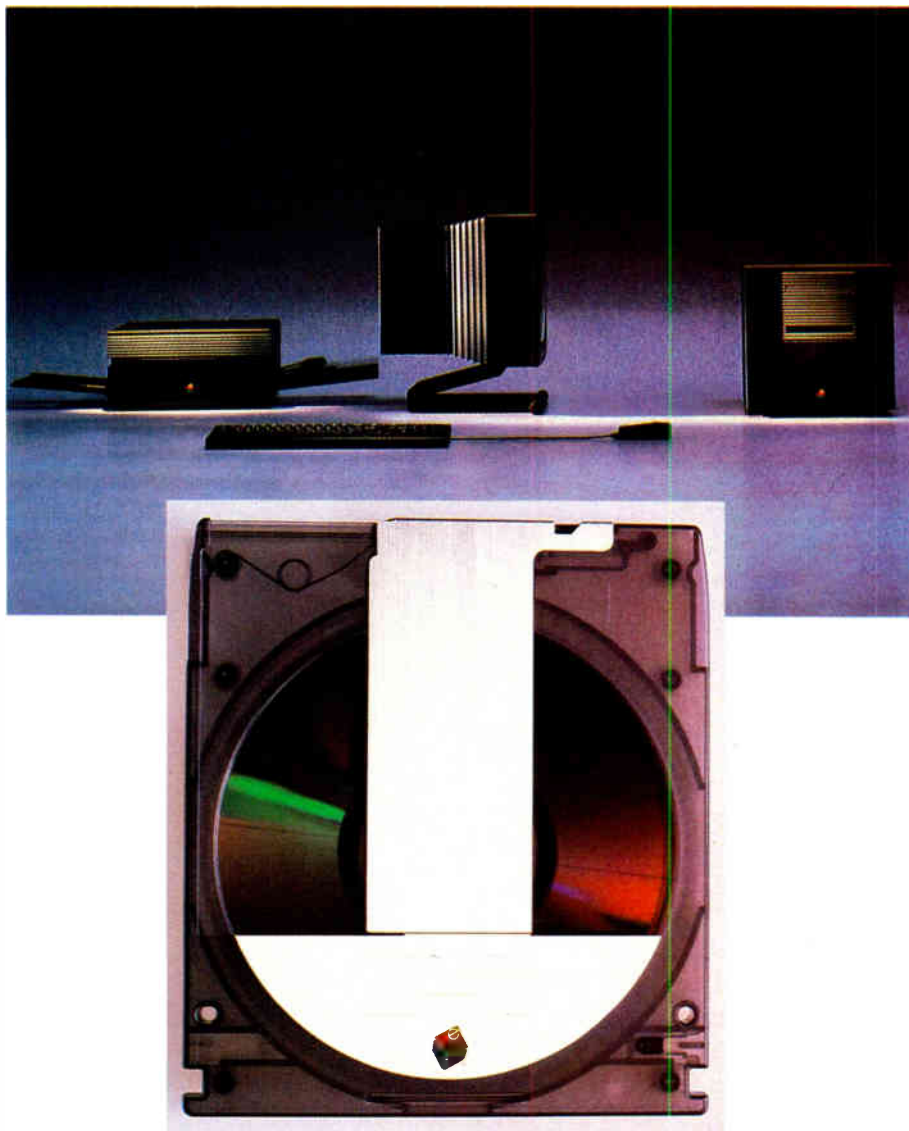
For Lexicon's LXPI and the Commodore 64/128 comes an editor/librarian from Leaping Lizards. The program lets you do real-time editing of all ten effects parameters and all four "Dynamic MIDI" controller assignments from the same screen. You can create and store in the LXPI up to 128 effects, and print out patch sheets. The program runs in "great" color, too! Retail price: \$49.95.

**MORE FROM** Leaping Lizards, 1614 1/2 NE 80th St, Seattle, WA 98115-4450. Tel: (206) 527-3431 or (800) 367-0333.

## BEYOND SIGHT AND SOUND

It's OvalTune, a bran' spankin' new program from Intelligent Music. Written by algorithmic guru David Zicarelli (the same guy that gave us IM's "M"), OvalTune is an interactive, graphically-oriented program that combines sight and sound. The program runs on the Macintosh, and basically takes drawings created with the mouse, or PICT and Clipboard files from other Mac graphics programs, and sets them to music. It will also generate moving images which can be saved as OvalTune "Videotapes." With thirteen drawing algorithms (ovals, rings, dots, rectangles, lines, "pictures," etc), 128 sampled sounds in memory to play through the Mac's speaker (also MIDI compatibility for us MIDI-musicians), and a 256-color palette if you're using the Mac II, you can create a whole new type of art. Of particular interest to us, it uses nine presets, each with eight independent lines of musical output, including melodies, rhythms, and sound assignments, and MIDI File compatibility, to accommodate the "Tune" in OvalTune. The retail price is \$145.

**MORE FROM** Intelligent Music, PO Box 8748, Albany, NY 12208. Tel: (518) 434-4110.



# VIRUS!

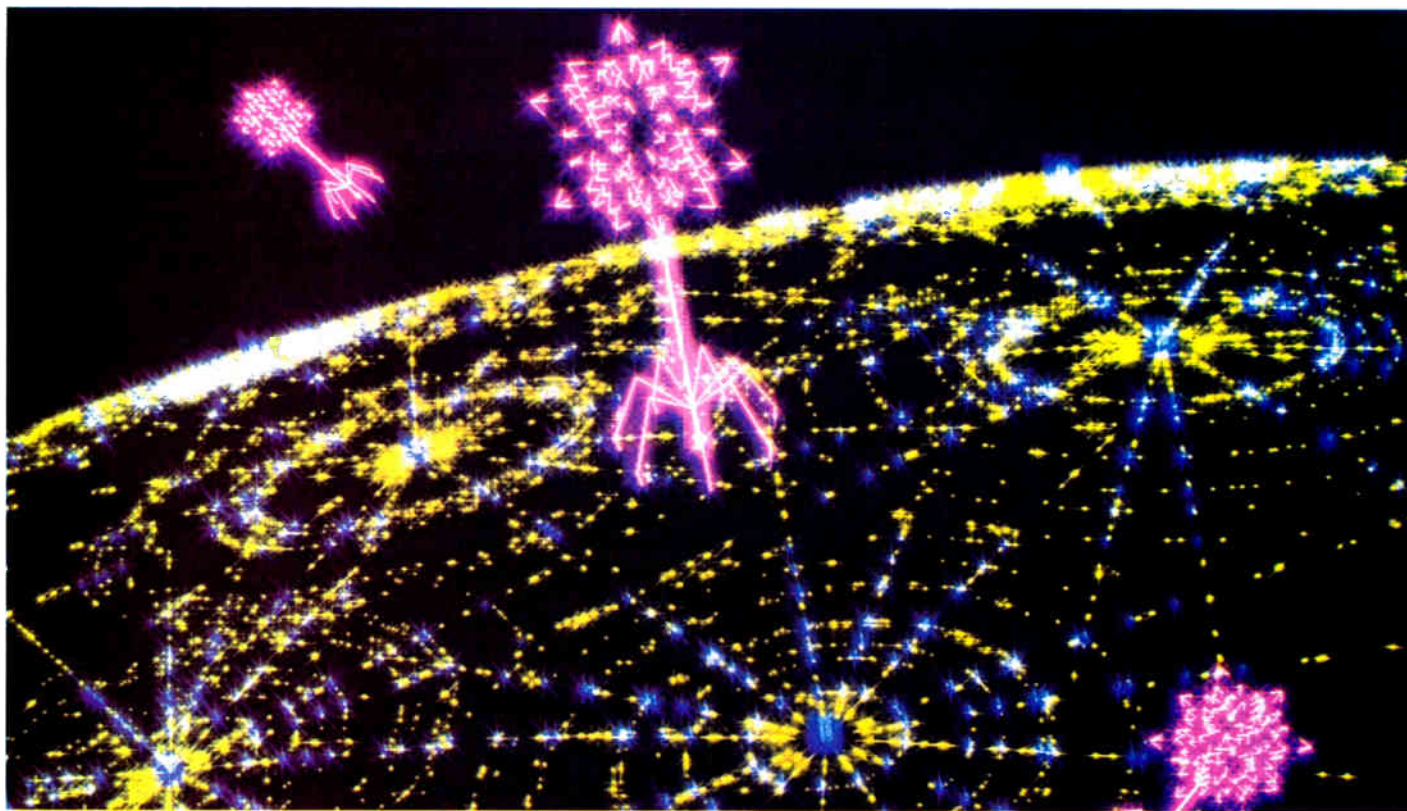


Illustration Colin Cantwell

The thought of destroyed hard drives and lost files is a real nightmare for computer users, but with the frightening growth of computer viruses the possibility of losing months of work is becoming a real concern. The questions that remain are, what exactly is a computer virus and what can it do to your computer and software? *Text by Roly Pickering.*

**O**VER THE LAST few months they've made the cover of the New York and Los Angeles Times, been featured as a cover story in Time magazine and probably created a bigger commotion than any technological development in years. The next generation of computers or a hot new synth pop band, perhaps? Hardly, because the "they" in question here are computer viruses. Those nasty little bugs that often silently and invisibly attach themselves to files or even programs and then proceed to replicate like many human viruses until they cause the system to slow way down, crash or even destroy data have become big news and for good reason. As computers and computer-stored data takes a larger place in our day-to-day activities, the possibility of Orwellian-like data manipulation and data loss becomes very real. The recent scare from a virus created by a student at Columbia

University only underscores the point.

Even as a potential musician, you face some potential problems. For example, maybe tomorrow, or the day after, as you put the last touches to your latest masterpiece of musical creativity, the following could happen. The normal screen message disappears and this flashes up:

**.CJ Your data is being held to ransom**

**code to input. FAILURE TO DO THIS WILL RESULT IN THE LOSS OF DATA. YOU HAVE EXACTLY 1 HOUR TO COMPLY >>> any key to continue: <<<**

It's no good pulling the plug out, because the virus would have already done its dirty work and the data would already have been scrambled. It could, of course,

*"In some cases, a Trojan Horse will simply print a message on your screen, though in other cases they can overwrite or otherwise destroy your existing files."*

**by the "SHASBAH VIRUS" Unless the following instructions regarding the transfer of funds to the following accounts are carried out to the letter, the data will be destroyed. Upon successful completion of these instructions you will be given a 10-digit**

happen to any program on any computer. Music is only one area that the "techno-terrorists," "electronic extortionists" and other low-life computer sickos could play in; others include Computer Aided Design, Desktop Publishing, accounting, spreadsheets . . . anywhere. The technology

already exists that allows it to be done; transfer of money by telephone is commonplace, the writing of a virus only takes about half an hour to plan out.

Even worse than the Shasbah virus is a type of nasty known as a Trojan Horse. As with their mythical namesake, what these little beauties do is to pose as a friendly helpful program, so that they can get into your computer, and then do their job. In some cases, a Trojan Horse will simply print a message on your screen, like the infamous 'World Peace' message that popped up on thousands of Macintoshes a little over a year ago, though in other cases they can overwrite or otherwise destroy your existing files, like the notorious Sexy Ladies Hypercard stack that trashed several Mac hard drives before its real purpose was discovered.

*"The Vampire Worm came out at night to take advantage of large networks of computers - in the morning when humans arrived it would disappear."*

For those responsible for writing the viruses, getting caught is a possible, but unlikely outcome. The history of the host software may be as complicated as a four-dimensional chess game, with perhaps 300 people involved between conception and selling, double that number with access to the data, and spread over a period of time that could be measured in years. The

program might be translated from another machine, assembled on a third, written by several programmers in a language made by someone else from a source code that used routines which were translated from . . . Anywhere in that chain can be the hidden bomb that could blow up on you.

Logic bombs have been around since the early '70s in one form or another, with the earliest recorded being a program called the Vampire Worm. It got its name from the fact that it only came out at night, to take advantage of the large networks of computers that were available. In the morning when humans arrived it would disappear. There was even talk of using the virus to multitask, for maintenance and for useful ends. The logic bomb is usually nasty, in that on a certain date or when a pre-conceived set of circumstances arise,

then the bomb is "detonated" - sometimes years after the timers were set.

The Jerusalem Virus was triggered on Friday the 13th. It was defused in time only because of the sense of humor of the programmer, who had ensured that on every Friday or on the 13th of the month the machines involved would slow almost to a halt. Complaints about this from users

prompted a search which discovered that the virus was only aimed at the IBM PC, and that it had spread almost right through the IBM community of Israel. Steps were taken to stop users from running the machines on the appointed date, including taking advertisements out in newspapers and using the national TV and radio. Even now computer users all over the world set the date in their system to the 14th, returning it to the correct date after midnight - just in case.

When viruses first began to make the news, many people were led to believe that viruses only affected mainframes, but unfortunately, history has proven that point to be wrong. IBM, Atari, Apple, Tandy and Amiga microcomputers (with the infamous ". . . something wonderful has happened, your Amiga is alive" message followed by the destruction of all files) have suffered from examples of what an idiot (they're not "hackers") can do with an assembler package.

So what can you do to avoid some of these problems? Well, several individuals and companies have come up with virus detection and "vaccine" programs which can determine if you have any infected disks and then eradicate certain viruses, respectively. As these types of programs are brought out, however, in some cases the virus types mutate around them (through a reprogramming effort on the

**EVERY  
MUSICIAN  
NEEDS HIS  
TECHNOLOGY  
MUSIC TECHNOLOGY  
Subscribe Today  
(818) 407-0744**

**PROFESSIONALS DEMAND  
THE BEST TOOLS AVAILABLE.**

**MANNY'S SUPPLIES  
THE BEST SUPPORT SYSTEMS  
NECESSARY TO HELP  
ACHIEVE EXCELLENCE -**

**PROFESSIONAL TOOLS  
TO ASSIST  
IN CREATING  
THAT EXCELLENCE**

*Manny's - The Professional Choice*

**MANNY'S MUSIC  
156 West 48th Street  
New York, New York 10036**

**(212) 819-0576**

**Mon.-Sat. - 9:00 - 6:00**

## Vaccine Programs

If a 23-year-old computer nerd from Cornell can cripple the computer systems of several universities, research centers, and the Defense Department, then its probably time you got a little protection for your computer. Here are a few of the vaccine programs that will provide you with basic safeguards against the more common viruses. In the Macintosh world, the most common viruses are nVIR and Scores viruses. Commodore Amiga users should protect against SCA and Byte Bandit viruses. Atari ST users are relatively (but not completely) safe from viruses because of the fact that the operating system is stored on a ROM chip. For Atari ST users who are curious, however, and for IBM users, contact your local user group or bulletin board for more information.

### • Macintosh:

- *Virus Rx*: Checks for nVIR and Scores viruses. Upon detecting unusual

part of the original virus developer) – even to the point of hiding in a vaccine program. If you ran what you thought was Flushot 4 you would have got more than you bargained for. Flushot 1, 2 and 3 were useful programs warning you of impending doom, the author of which countered the virus-infested Flushot 4 with Flushot+, which carries the immortal words of warning to the interloper: **“GO ON SLIME BUCKET, MAKE MY DAY”**

Some of the more recent viruses approach almost human levels of deceit. One example, called the Brain virus, from Lahore in Pakistan, is smarter than the average virus. It hides amongst the data that should be on the disk, telling you that there is no virus, just a couple of bad sectors – which is, of course, where it resides. It can modify itself and looks for inoculation “bytes.” As yet it’s not known what it does other than marking the disk – when it’s nearly full of data, of course – “Copyright Brain.”

To get some idea of how fast a virus can spread, a programmer at the technical university of Clausthal, near Hanover in Germany, wrote a program in REXX, an IBM command language, as a seasonal joke. It was called “Christma” and what it did was to show a pretty Christmas card on screen. Meanwhile it was looking at two files known as Names and Netlog. The first contains the names of your regular correspondents, the other a list of all recent incoming and outgoing mail. Armed with this information the virus then sends a copy of itself to all listed users before deleting itself.

On December 9th 1987, the  
60

behavior, Rx indicates if a file is considered “dangerous,” “altered” or “fatal.” The specified files must then be deleted. Rx is from Apple computer and is available free from user groups and bulletin boards.

- *Vaccine*: Looks for nVIR and Scores viruses and issues a warning if certain resources are being changed. Permission to alter said file is then either granted or denied by the user. Vaccine, available free from Mac user groups and bulletin boards, was written by Don Brown from CE software.

### • Amiga:

- *VCheck1.9*: Detects the SCA and Byte Bandit viruses and issues a warning. Written by Bill Koester from Commodore, the program is free and available on bulletin boards and from Amiga user groups.

- *VirusX 1.6*: Detects both the SCA or Byte Bandit viruses and alerts the user to the presence of them. Written by Steve Tibbett, the program is free and available from bulletin boards and Amiga user groups. ■ Stefan B. Lipson

programmer sent a copy of this to his friends. They ran it and saw the Christmas card. It duly sent a copy of itself to all their friends. The university was on the European Academic Research Network (EARN), which is linked via the Montpellier Bitnet to the US, both of which have automatic dialers (Listservs) to distribute information to thousands of users worldwide. These also have Names and Netlog files. The speed with which the

*“After ten days strange hold-ups and mistakes were occurring in parts of the system; after 14 days the whole system had ground to a halt, paralyzed by Creeper.”*

virus spread was increasing.

By Friday the 11th of December, a task force was set up. Sites were being isolated and hunter-killer viruses were sent along the same routes after the Christmas card virus, in a desperate bid to stop it, but by now it had spread further afield. Off Bitnet is VNET, IBM’s own personal network – and IBM staff kept very long name files. The virus was perfectly at home on VNET as the IBM and the mainframes both used the same language. The entire network was shut down for 72 hours and the electronic side of corporate communications stopped while the virus was purged.

The sickos don’t even have to damage data or the machine to screw up a system. The symptoms of a virus infected disk can be as common as things like slow operation, problems with printing and occasional crashes. (And by the way, just because you run into problems like this doesn’t mean your disk has become

infected – there are plenty of other possible explanations which are much more probable.) But putting in garbage like this will often be just as effective as a killer virus –and it’s happened to at least one large company already.

An employee of a large multinational company left a little program called Creeper in the mainframe at his company headquarters that checked every month to see if his name was still on the payroll. If it was, all well and good. If not, it would deposit 400 bytes of garbage in a system that held over 300 million. These 400 bytes would double every 24 hours. One month his name was missing, so it duplicated itself and went back to sleep. He had been fired. After ten days, strange hold-ups and mistakes were occurring in parts of the system. After 14 days the whole system had ground to a halt, paralyzed by Creeper. The company created emergency workspace and wrote another virus into it called Reeper, whose only purpose was to kill Creeper. For days the viruses fought it out, with one, then the other gaining the upper hand, until Reeper won.

Not all viruses are mainframe or even software oriented. Exactly what damage the virus will cause, varies from strain to strain. Apart from scrambling data, there are those that will either repeatedly knock the read/write head of the hard disk against the stops to bend them (which can be more efficient than a blow torch in converting hard drives to instant scrap metal) or follow the classic route of the Commodore PET Poke, where, by putting a specific number into a specific address in the computer memory, it is possible to up

the clock rate of that computer to a point where the chip itself overheats and fries. This has come back as the Sizzle virus, but just as nasty and with the same effect.

Some viruses attempt to be amusing: in one, the “cookie monster” appears on screen, demands a cookie, and if you don’t give it one, starts eating the screen characters. If you type “Cookie,” it politely says “thank you” and disappears. There is an Apple virus that, if the Macintosh program is fitted, will produce the words “don’t panic” from the Mac’s internal speaker. Most unnerving.

## Taking Precautions

**EVEN IF YOU** only buy original software and never let your computer talk to strange computers via networks, never run any software that you haven’t run before, and never borrow or loan any software, there is still no guarantee that it can’t happen to you. However, it is extremely

MT JANUARY 1989

unlikely that such a scenario would occur because that means the original programs would have had to be infected. Software companies have a great deal at stake when it comes to viruses and original programs, so they are extraordinarily cautious about checking for problems before programs are released. There have been exceptions; some early copies of an upgrade for a well-known Mac desktop publishing program had a virus in them, but that was quickly discovered and corrected.

Viruses have become so widespread because they generally use the ability of computers to talk to one another to get across great distances, and the inability of them to do anything other than blindly follow instructions to infect any other program that it or the host comes into contact with. In many cases, the ultimate aim of the virus is "damage or destroy," so they can be as deadly as any human virus. Most viruses somehow attach themselves to the system software and because basically all applications and files need to or somehow come into contact with the system, all your files can quickly become infected. (One of the benefits of having the operating system stored on a ROM chip, as the Atari ST does, is that the computers are less prone to viruses.)

No one anti-virus program will protect you, just as no one set of procedures will be watertight. The best that is available today is to know your enemy. Bulletin board services and computer networks (such as PAN and GEnie) have been accused of being the source of many problems because you can never tell if the programs or files you download from those systems have been infected. On the other side, however, they are often the place where you can find free or shareware virus detection and vaccine programs. Most of the Sysops (bulletin board system operators) are very experienced in the weeding out of suspect software and callers, not allowing software to be loaded until it is checked. The more established Sysops can call on a range of experienced users to dissect and analyze the best-hidden and most discrete programs. They can also supply the latest news on the most effective method to combat the recent moves by the virus aimed at your machine. You should find users with experience in every field, not only in computing, MIDI and music. You'll also get the latest in Public Domain (PD) and Shareware programs down the phone at a fraction of the normal cost. (For more on bulletin boards, see "Getting on Line" in the March '88 Computer Notes section of MT). Be extremely careful with any software you do download, however; it won't hurt to be doubly cautious.

There are various commercial service and software packages available to protect you and your equipment from damage, or  
MT JANUARY 1989

to repair damage that has already been done. (See the accompanying sidebar for more details.) But before you spend your hard-earned cash, remember that no one thing can protect you from all the viruses that existed yesterday, let alone today's and tomorrow's.

Being careful is cheap and effective. These are some of the precautions that will help you to help yourself: 1. Back up all your work regularly. 2. Write protect your disks whenever possible. 3. Do not use pirate software. 4. If possible, use software that has been checked by someone you trust, and who knows what to look for. 5. At the first sign of something extraordinarily unusual, switch off.

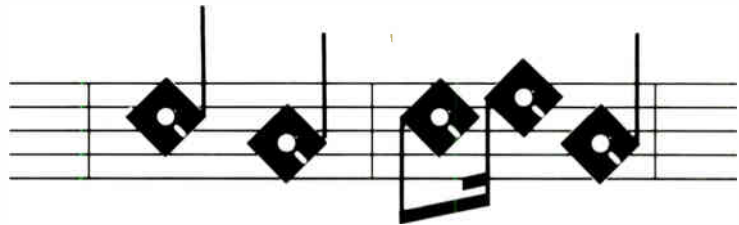
These simple steps won't stop every possible attack on every computer, but they will stop most of them, or at least minimize the risk to your computer and your data. Virus rumors are easier to start than stop, so the next time your computer crashes, don't assume you've got a virus — there's more chance it's a bug. There are also "joke" programs around that are not viral at all.

However, if your synth won't stop playing the birdie song in 23/17 on a rubber triangle patch, and you don't have a sequencer, you can immediately discount the joke. You just might have captured the very rare Tweety Bird virus. ■

## PUBLIC DOMAIN MUSIC SOFTWARE 19.95

INTRODUCTORY 3 DISK SET —  
IBM — MAC — ST — AMIGA — C64

These great value disks will serve as a fine introduction to our world of public domain music/midi software. Thousands of titles are available from Gemini's world-wide library of SONGS, SEQUENCES, UTILITIES, PATCHES, SEQUENCERS, EDITORS/LIBRARIANS etc.! P.D. software is now so prolific and of such quality that you cannot afford to ignore the potential. Take our 3 disk sample pack and receive our large worldwide catalog free! Why pay hundreds of dollars for programs that can be obtained for almost nothing!



**CALL US OR SEND TODAY FOR YOUR 3 DISK SET  
MONEY REFUNDED IF NOT DELIGHTED!**

**GEMINI**  
Marketing Incorporated

P.O. Box 640  
Duvall  
WA 98019-0640

Please list your equipment when ordering, i.e. computer/synths/midi i'face/seq'r etc.

Please add \$3 ship/hand ea. order

COO welcome—add \$3.50

Foreign orders add \$5 air US funds

Checks—allow 10 days clearance

Orders shipped promptly

WA residents add 8.1% tax

CALL TOLL FREE—24 HR SERVICE—ORDERS ONLY



**1-800-346-0139**

OTHER INQUIRIES—206-788-4295





News

Reviews

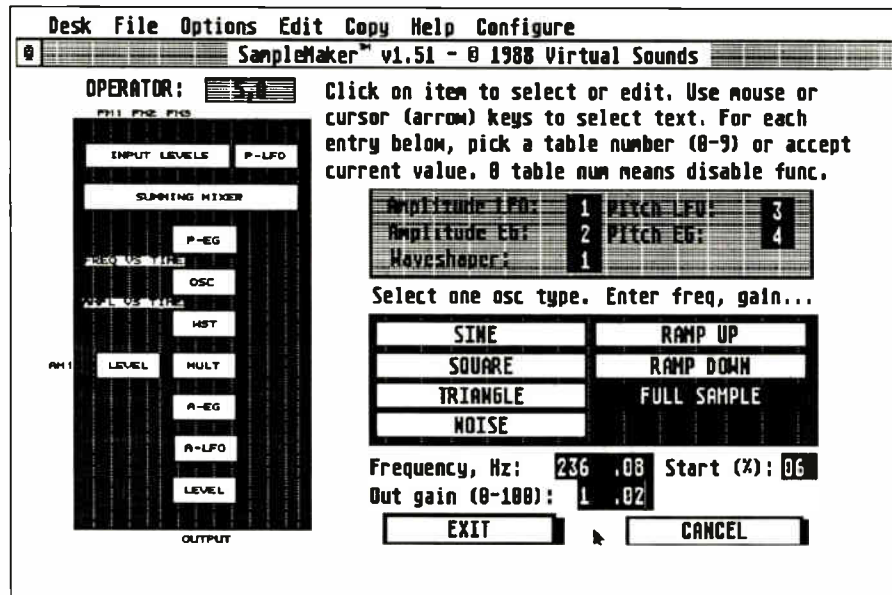
Previews

Applications

Technology

# Dr. T's/Virtual Sounds' SampleMaker 1.51

Figure 1. A SampleMaker operator.



Over two years in the making, this program for the Atari ST combines some of the most powerful synthesis features available with some lessons in patience. *Review by Chris Meyer.*

**HERE'S AN ANALOGY:** What if someone offered you more money than you ever imagined, but the catch was that you could only get it at a pace slower than you were making money now? Would you take it? Turn it down? Would you wait for the next revision?

Such is my dilemma in this review.

## BIOGRAPHY

In brief, SampleMaker is a program that runs on the Atari ST (any size; color or monochrome) and has two main purposes in life: one, create sounds using a modular, semi-patchable combination of additive, FM, AM, waveshaping, and multi-waveform synthesis techniques; and two, function as a medium-complexity sample waveform editor. The samples analyzed or created can be up or downloaded to or from a Prophet 2000/2002, Akai S900, Ensoniq Mirage (and by Christmas, EPS), E-mu Emax, Casio FZ1, or any sampler obeying the Sample Dump Standard. One sample may be used alongside the synthesis techniques in the creation of a new sound.

I first caught wind of SampleMaker back in 1986, when I was still working for Sequential Circuits and had just bought an Atari 1040ST. Being the owner of a Sequential Prophet 2002 sampler, I was so enthused by the possibilities of unlimited synthesis capabilities that I wanted to purchase it sight unseen on the spot. Unfortunately, it wasn't available. And it remained unavailable, until I saw an ad for it

right before the June 1988 NAMM show. I went to NAMM, checkbook in back pocket, to try and buy it again - but this time, my overloaded credit cards stopped me. However, as luck would go, a review copy plopped on my desk just a few months later.

By now, most of you have jumped to the last paragraph to read the conclusion. For those who stuck around for this one, I'll give a bit of it to you now: SampleMaker is indeed an extremely powerful synthesis program and rudimentary sample editor that can create unique sounds and download them into any of several sampling keyboards. However, this version of the program is simply painfully slow to work with, with a 1986-standard user interface. The bright side of the coin is that the potential is there, and Dr. T's (along with the program's author, Bill Rosenkranz) are extremely honest and open-minded about improving and speeding up SampleMaker. In fact, an incremental revision that might see some user interface polishing is due by the time you read this, and a 1989-standard version 2.0 is scheduled to be shown at the January NAMM show with an unspecified ship date thereafter. For those still curious, hang on and I'll tell you what the current version's all about.

## OPERATION

Author Bill Rosenkranz stated that his original intention was to start with something that imitated a Yamaha DX7's FM synthesis, and

then tried to expand it in the extreme (I'm also reminded, to an extent, of Buchla's Model 400). What he ended up with was a grid of sixty "operators" (self-contained sound-producing modules, akin to the DX7's six operators - Casio people should think of "lines;" Kawai KI people, "sources") that can be interconnected in a number of ways. The structure of an operator is shown in Figure 1.

You have five common waveshapes to deal with, along with noise and a sample (the manual also suggests that one can create an arbitrary waveshape in the sample editor portion of the program and use that via the load sample option). The sample may play through once, or repeat over and over. The basic pitch of this oscillator may be set to 0.01Hz precision (a sample plays back at its original pitch; noise is noise). You may also start a given percentage of the way into a sample, if you want to get past the attack portion, etc.

Now comes mucking with that basic oscillator. The frequency may be changed by an envelope (any one of nine in the program; each has ten points that you may position yourself), an LFO (again, the program has nine; each one may have one of five typical waveshapes plus noise, and has a frequency range of 0.01-9.99Hz), and, more importantly, three FM (frequency modulation) inputs. You can plug any of the 60 operators (including the one you're working on) into these inputs. The input level ("modulation index," for you FM gear-heads out there) is scaled from 0.01-99.99. An



input level of 100 corresponds to a modulation level of several hundred on a DX7, which normally only goes up to 99 (some serious noise) - one of many examples where SampleMaker gives you a wide range of parameter control.

The loudness of the operator may also be changed in several ways. First, there's an AM (amplitude modulation - very similar to "ring" modulation) input, that should be familiar to those who have worked recently on a Kawai KI, Roland LA series, Ensoniq ESQ1 or SQ80, or Casio CZ or VZ series. Essentially, the level of the signal coming out of the oscillator at any given moment is multiplied by whatever is plugged into that input (again, any of the 60 operators). The result is very distorted or "bellish" sounds. A loudness envelope and LFO follow, which live by the same rules as the pitch modulations. The output gain is adjustable (again) from 0.01-99.99. SampleMaker automatically scans the sound for the loudest level and scales it so it doesn't clip (good of it to protect the user; still, being a rock 'n' roll type, I wish it would let me overload from time to time).

The one element in there you may not recognize is the Waveshaper (see Figure 2). Essentially, this is a little table of numbers that takes the incoming waveshape, and remaps it to a waveshape that you draw (with up to 20 points; the two endpoints are fixed). So, for example, if you fed a ramp wave into the waveshaper, you could remap it so that a signal level of 10% of the full scale in came out at 50%; 20% in came out as 40%, etc. This feature (first seen on the similarly configured Buchla 400) allows some serious warping of the sound. A favorite trick of mine is to mess up just the extremes of the table, so when the input wave is at its extremes, it gets fuzzy and spikey (in other words, a good way to add high end to the sample). Again, you can define up to nine waveshape tables, and any operator can use any one of the nine tables (in the case of the

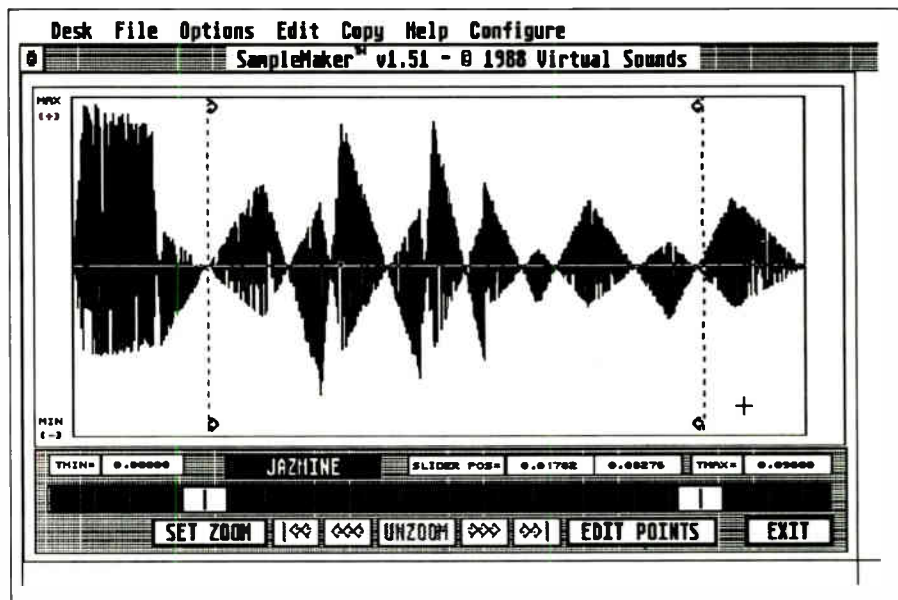


Figure 3. The sample editing page.

waveshaper, LFO, and EQ, number "0" means no affect at all).

All in all, SampleMaker pretty much gives you more power than any other available synthesis program. Still, it has a couple of frustrating holes. For one, I wish that there was some gain control going into the waveshaper, like the Buchla. Having the ability to control if and when the input wave stretches to those extremes I've mucked up gives a great amount of timbral control - just a burst of fuzz at the beginning, fading into normalcy. I've talked to creator Bill Rosenkranz about that, and he's mentioned the possibility of adding another input before the waveshaper. Two, if you have an operator FM'ing itself (feedback, a la the DX7), it too is not dynamic nor filtered. Again, Bill is discussing just having a generalized element for enveloping signals in version 2.0 (along with delays and any number of DSP functions). Three, you'll run out of ten envelopes in a complex patch faster than you'll run out of operators. I hope to see the

number of those increased in the future.

Ok, now onto the real question. How does all of this sound? Well, what does a synthesizer sound like? In this case, you have FM out the ears, enough operators to muck about with additive (see the *All About Additive* series in the April and May '88 issues), the nice controlled "dirtiness" of AM, and the chance to do some serious distortions with waveshaping. This means that you have all of these different elements to bring to battle, creating very complex sounds. The sounds I've heard come out of SampleMaker (their examples and my own work) have a hazier, dirtier air, which is a very viable alternative to the ultra-polished sheen of typical additive and FM.

## SCISSORING SAMPLES

The other great attraction of SampleMaker is using it as a generalized sample editor. I don't have one yet that runs on the Atari ST, and I was particularly looking forward to this feature.

What you get in the package is a fairly workmanlike version of one. You can see the whole sample, or zoom to a smaller portion of it by adjusting the sliders along the bottom of the screen and hitting "set zoom" (see Figure 3). The sliders also tell you how far (time- or sample-wise) you are into the sample. You can then move along the zoom you've selected. To see a bigger portion, you have to "unzoom" and start again (not as flexible as other editors; again, more flexibility is promised in version 2.0). At the higher degrees of zoom, you can edit the sample point-by-point by grabbing a spot and moving it around. I found this a great way to do micro-editing - better than using the mouse to "redraw" the waveshape (my hands aren't steady enough).

From this point on, you can set loop points, cut and paste, scale the amplitude (including using an EG to re-envelope a sample), merge two samples together, and reverse or invert a section of the sample. You can't do a crossfade

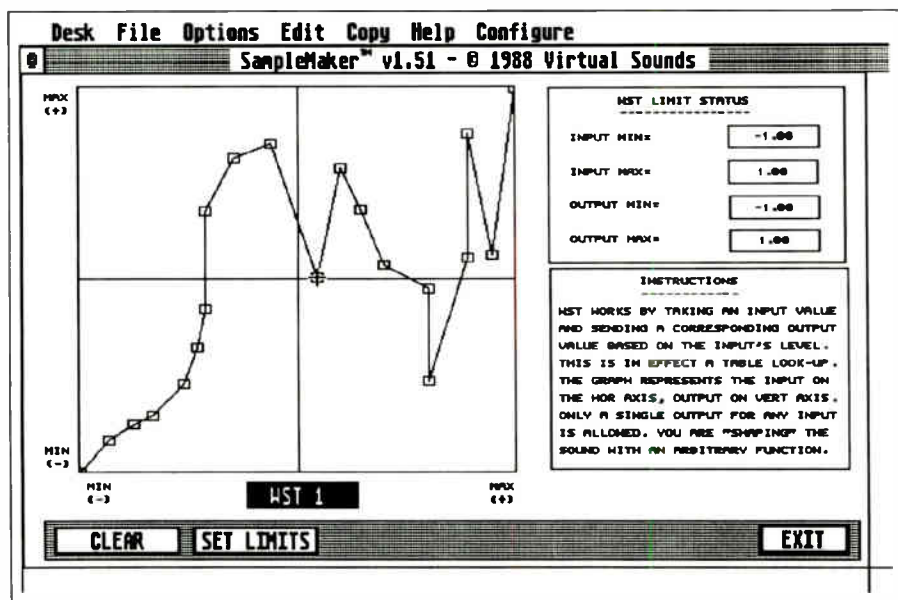


Figure 2. One of the nine waveshaping tables.

► or a crossfade loop directly – to execute this, the manual steps you through how to alter two different soundfiles and then merge them later. Like I told you, this isn't a full-featured editor, but it does contain most of the common rudimentary functions.

There is an FFT (Fast Fourier Transform – a way of looking at the harmonic spectrum of the sound over time), which I found particularly handy for seeing what sort of bandwidth my sound was taking up, and therefore how low a sample rate I could get by with to conserve memory. The viewing bandwidth and angle are fixed, however, meaning that you don't see a lot of resolution.

In practice, I found the sample editing portion of the program useful in only basic ways. I was

## Packaging, Documentation and Robustness

**SAMPLEMAKER AS A package comes with two single-sided disks – one with the program (copy-protected) and desktop; the other with a number of demo files. Most of the demo files (over 40) are encoded with the ARC data compaction utility; a copy of the utility and clear instructions on how to use it are included. All in all, you get four single-sided disks-worth of sounds for free (good move). The manual is typical Dr. T's small-format (fatiguing to read, if your contacts are giving you trouble), with the front fifth dedicated to an addendum for changes between versions 1.5 and 1.51. The addendum is very well written, and aside from feature changes, mentions such helpful things as tricks to speed up operation, how to deal with each sampler, and even a short section on how to protect yourself from computer viruses. The main manual also starts off well at holding your hand, but quickly moves to assuming too much knowledge (and anticipating too few questions). Back in its favor, there are a number of extra**

able to get a click out of a sound by dragging an errant point around, and I was able to impose a new envelope on an overly-compressed electric bass sample. I was also able to trim off silence at the attack, and look at a waveform to guess at some good loop points. But when it comes to heavy-duty (or even just slightly above medium-duty) sample manipulation, I found myself (still) without the proverbial free lunch – it wasn't a replacement for its dedicated counterparts. Judge accordingly based on your own sample editing needs.

### SPEED OF LIFE

Aside from the above power, SampleMaker has other nice touches, such as copy utilities, help screens, and even the ability to format a disk from inside the program. On the other hand, I have numerous bones to pick about using the program overall. This thing is s...l...o...w

– both in getting around and in number-crunching time.

The “novice” mode of the program is the best example of the former. You can put SampleMaker in a mode where it gives you a help message before every action – great for steering around for the first time. However, the default option (what the carriage return key triggers) after accessing a function or encountering a dialog box is “Cancel” instead of the normal “OK,” which means the program is always trying to turn you back instead of urging you forward. This is common to the way SampleMaker thinks about the user. That may change by 1.52, and will change by 2.0 (where they are planning very window-based, random-access user interface, instead of the regimented

useful tables, such as the frequencies of musical pitches and what sample rates were best to choose to loop these.

SampleMaker is not yet MPE (Multi Program Environment – Dr. T's “switcher” for the Atari ST) compatible, but it does have the usual Dr. T's touch of the whole screen becoming a virtual MIDI keyboard for trying out sounds on the sampler. All communications are done via MIDI – no RS422 or SCSI yet (however, this too may change).

I personally used a Prophet 2002 with only one hitch (which Dr. T's say has already been identified and corrected), and I040ST old-ROM and Mega ST4 computers with just one lock-up and a couple real minor bugs. In other words, the product is well-endowed with extras, has a pretty good manual, and is of average robustness. Dr. T's imagines that there will be a routine update around Christmas, and a major revision during 1989 at a higher price that will be available to previous owners for the difference in list price. ■

CAD/CAM interface even the manual admits it has now).

Other disturbing quirks to the user interface exist as well, such as after you have synthesized a sample on the main screen, you can't hear it on the Atari's grungy 8-bit speaker or download it to your sampler until you move to the sample editing screen. You also can't edit any part of or synthesize your sound from the sample edit screen – the two are frustratingly mutually exclusive. Similarly, whenever you edit an envelope, LFO, or wavetable, you have to exit to the main screen before you can edit another, instead of moving sideways. All in all, I was making far more mouse strokes and clicks than I was expecting.

Second, SampleMaker takes forever to turn your dawdlings into a sample. Example: I was working on a sound that ate up just three of the 60 operators, was at a middle-of-the-road

sample rate of 31.25kHz, and was three seconds in length (it evolved over time, and I wanted a nice section to loop). It took just short of two hours to calculate the sound. Re-enveloping a four-second bass guitar sample took over 15 minutes (several times slower than doing the identical thing on a different ST sample editing package). This tends to stamp out creativity and tweaking.

The manual suggests using shorter sample lengths for experimenting, and then going to a full length for a final crunch (sample rate, length of sample, and complexity of patch all contribute to making the crunch time longer or shorter). However, the envelopes are always scaled over the full length of the sample – so, if you change the length of the sample, you change the rates of your envelopes (thereby changing your sound). The envelopes are also always made to fit on one screen, so when you're talking a three-second sound, just a few pixels on the screen means tenths of a second – making it nearly impossible to accurately dial in a complex attack. Again, Rosenkranz and Dr. T's are working on ways of speeding the number crunching up; others have already solved the too-small-a-screen problem, and perhaps this can be copied.

On the other hand, that two-hour sound I created above sounds good, is unique, and happens to even transpose cleanly over the entire transposition range of my sampler (many synthesized sounds do, as opposed to “real” samples which seem to be good for typically only an octave). In other words, the time was in no way wasted . . .

### TRADEOFFS

So, the final Do I Buy/Don't I Buy formula itself is fairly simple, but you have to plug in the numbers yourself: SampleMaker is very powerful, and allows you to create sounds you won't get any other way. However, the program (as it now stands) is very slow to use, both in terms of user interface and execution speed. I personally don't have a lot of spare time in my life right now, and therefore won't make SampleMaker a main program that I use. However, I'm certainly going to keep going back to it now and then for fun (or, a unique sound).

The additional catch above is “as it now stands.” I have reason to believe that the next update will be a little quicker to use, and version 2.0 (again, no release date has been set) should make this program world-class. Do you wait, or buy and play now (keeping in mind that your feedback now may mean that you have a hand in what version 2.0 will exactly be)? Again, your decision – but in general, I sure am glad to see software like this even exists. If we don't keep coming up with new sounds for our sampler, everybody's gonna get pretty bored sooner or later . . . ■

### PRICE \$299

**MORE FROM** Dr. T's Music Software, 220 Boylston Street, Suite 206, Chestnut Hill, MA 02167. Tel: (617) 244-6954

MT JANUARY 1989

# More from Music Maker Publications

## RHYTHM

### A Must For All Drummers & Percussionists. Jam Packed With:

- Reviews on the Latest Equipment
- Technique
- Big Band
- Latin Percussion
- Jazz
- Sight Reading
- Transcription & Much More!

## HOME & STUDIO RECORDING

Today's recording musician needs a reliable source of information on techniques, equipment and advances in technology. Home & Studio Recording will provide:

- Reviews on the latest recording equipment for the home & studio environment.
- Features carrying topics such as signal processing, miking techniques, MIDI sequencing, and the basics of setting up a studio and much, much more!
- Interviews with engineers and producers who are actively shaping music today.

# RHYTHM

**ONLY \$17.70** One Year Subscription

**SUBSCRIBE TODAY!**  
*Money Back Guarantee*

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Bill Me  Payment enclosed\* or charge my  VISA  MasterCard

Card # \_\_\_\_\_

Exp. Date \_\_\_\_\_ Phone [     ] \_\_\_\_\_

Signature \_\_\_\_\_

\*Checks payable to: **Music Maker Publications**. For postage paid, attach card to envelope. \*Non-US Subscriptions must add \$12.00 additional to cover postage and must be paid in U.S. Dollars via International Money Order. Please allow 6-8 weeks for your first issue and for back issues. M189

## HOME & STUDIO Recording

THE MAGAZINE FOR THE RECORDING MUSICIAN

**ONLY \$20** One Year Subscription

**SUBSCRIBE TODAY!**  
*Money Back Guarantee*

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Bill Me  Payment enclosed\* or charge my  VISA  MasterCard

Card # \_\_\_\_\_

Exp. Date \_\_\_\_\_ Phone [     ] \_\_\_\_\_

Signature \_\_\_\_\_

\*Checks payable to: **Music Maker Publications**. For postage paid, attach card to envelope. \*Non-US Subscriptions must add \$12.00 additional to cover postage and must be paid in U.S. Dollars via International Money Order. Please allow 6-8 weeks for your first issue and for back issues. M189

# Music Maker Publications

*your #1*

*source of*

*music*

*magazines!*

- Music Technology
- Home & Studio Recording
- Rhythm

22024 Lassen Street, Suite 118  
Chatsworth, California 91311  
(818) 407-0744 FAX: (818) 407-0882

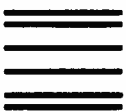
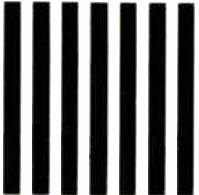


**BUSINESS REPLY MAIL**  
FIRST CLASS PERMIT NO. 318 CHATSWORTH, CA

POSTAGE WILL BE PAID BY ADDRESSEE

**MUSIC MAKER PUBLICATIONS, INC**  
22024 LASSEN STREET,  
CHATSWORTH, CA 91311

NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

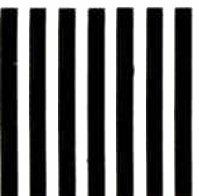


**BUSINESS REPLY MAIL**  
FIRST CLASS PERMIT NO. 318 CHATSWORTH, CA

POSTAGE WILL BE PAID BY ADDRESSEE

**MUSIC MAKER PUBLICATIONS, INC**  
22024 LASSEN STREET,  
CHATSWORTH, CA 91311

NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



World Radio History





# Twelve Tone System's Cakewalk Professional

Multiple MIDI channels, macros, extensive event filtering and more separate this upgraded IBM sequencing system from its predecessors. *Review by Carter Scholz.*

News

Reviews

Previews

Applications

Technology



IN A FAIRLY short time, Twelve Tone System's Cakewalk sequencer (see original review in MT November '87) has gained a large and devoted following, and deservedly so. The program is not only one of the slickest, most powerful IBM sequencers, it's one of the least expensive. This newest version of the program, Cakewalk Professional, offers enhanced performance over Cakewalk 2.0, at an expectedly higher price.

Cakewalk is a 256-track sequencer with 120 ppqn resolution, and a full complement of standard sequencer functions. The snappy, logical user interface works equally well from the keyboard or with the optional mouse. I think it may be one of the best IBM sequencer interfaces going.

Of its numerous features, the "Event Filter" is really something special: after selecting a time region to edit, you can choose which kinds of events will and won't be affected by the edit, with a tremendous degree of control. MIDI channels and data types (notes, program changes, pitch-bends, etc) can be selected, as well as ranges of values, velocities, and durations. The available edit operations are diverse, with two kinds each of transposition and quantization, time stretching or sliding, general-purpose data interpolation, and more. Any of these edits can be event-filtered. Overall, it's an impressive package. For price, performance, and absence of copy protection, Cakewalk scores high.

Cakewalk Pro is a separate program from Cakewalk 2.0; it's not the "next version," although registered users can upgrade (for the difference in price plus \$25), and the two programs look and act alike. But Pro is meant to work with a Music Quest MQX32 dual-port MIDI interface, which provides 32 virtual MIDI channels (16 on each port). Pro will also run on MT JANUARY 1989

any MPU-compatible interface, though with only the standard 16 channels. (Twelve Tone intends to support the Yamaha CI computer, and the CMS404 four-port MPU-compatible interface. Hopefully they will make the interface type switchable rather than produce a separate program for each interface, so a user can move between systems or upgrade his or her hardware without losing the software investment.)

While retaining the highly efficient and intuitive user interface of its older brother, Cakewalk Pro adds a valuable feature: macros. A macro lets you record any series of key presses, and play them back by pressing a single "hotkey" of your choice. If you're performing a series of repetitive multi-keystroke actions - let's say you use a couple of different Event Filter settings repeatedly - this automation can mean the difference between productivity and burnout. External memory-resident macro programs exist, but it's always nice to have macro capability built in to a program - it saves money and prevents memory conflicts.

Cakewalk Pro's macros are pretty good. You can record up to 32,000 keystrokes under a single hotkey, and up to 64 hotkeys can be defined. A macro can call another macro, and so on, with up to eight macros working at once. If you put a macro under F1, and then need F1's normal function, you can override the macro; you can use such overrides within a macro, too. Only one file of macros can be active at once. One very nice feature in the macros section is if you assign a macro to Alt-0, this macro will be executed every time Cakewalk starts up. One use for this would be to set up certain parameters as defaults that can't be saved with the Setup option.

The timebase, previously fixed at 120 ppqn, is

now user-selectable from 48-196 ppqn, and Cakewalk Pro will convert old files for you. The quantize function has a neat addition - you can now pull notes some percentage towards a beat, rather than force them onto the beat.

Cakewalk Pro reads and writes Standard MIDI Files. In case you haven't heard (or read the feature in November's MT), Standard MIDI Files are the recently-adopted method for transferring sequences between different sequencers. Currently the standard is best supported by Macintosh programs, but the IBM world is coming along. MIDI Files can be shared across different computers. Pro can import both format 0 and format 1, and exports format 1. The following MIDI file meta-events are supported: meter, tempo, general text, track name, instrument name, first key signature.

Cakewalk's "notepad" is great for keeping comments about a composition. Maybe you'd prefer to try to remember what "CHIATDF.SNG" is all about a year after you wrote it and you've lost the track sheets? Pro now lets you view and load songs by their comments rather than their cryptic DOS filenames. Great idea! However, it only shows you the first 30 characters of your comments, meaning that it's more like viewing a Macintosh-size file name than actual comments. It's better than DOS, in any case.

Like Cakewalk 2.0, Pro reads and writes MIDI chase-lock sync. Although the MQX32 is reportedly capable of reading and writing SMPTE and MIDI Time Code, the program doesn't yet exploit these capabilities.

Finally, if you're still running from floppies, you may be suffering from overlay-slowdown as Cakewalk swaps working parts of the program in and out of memory from disk. Cakewalk Pro lets you cache its overlays in extended or expanded memory. (Although, frankly, if you've got that extra memory and still don't have a hard disk, you need a consultant.)

In sum, Cakewalk's still a great program. Are the extra features worth the extra bucks? It depends. If you need to manage 32 MIDI channels from an IBM, this is a good way to go - there aren't many multi-port IBM sequencers out there, and the Cakewalk/MQX combination is definitely cost-effective. ■

**PRICE \$250**

**MORE FROM** Twelve Tone Systems, PO Box 226, Watertown MA 02272. Tel: (617) 924-7937.

# MAXI MIDI.

MIDI equipment is the best thing ever to happen to music—if you can use it the right way. Too bad that most equipment owner manuals read like a wiring diagram and are about as tough to follow.

But now there's help for the musician who wants to get the most from his MIDI equipment without having to get a degree in computer engineering first—the popular, easy-to-read MIDI music books from Alexander Publishing.

Don't think that just because our popular books are unbelievably easy to comprehend, they're only a superficial skimming of the subject—far from it. The fact is, Alexander Publishing books give MIDI musicians like you such a solid, comprehensive understanding of how to *get the most* from their MIDI-equipped gear that we've earned enthusiastic recommendations from Yamaha, Ensoniq, Korg, Oberheim, and other leaders in the MIDI equipment field. And if that weren't enough, our proven learning systems are used by Cornell and Duquesne Universities, the U.S. Navy School of Music, the U.S. Air Force Bands, and other renowned institutions.

## Written in English, Not Gibberish.

Alexander Publishing offers you easy-to-understand books that help you get a quick grasp of how to use your MIDI equipment to the max. We call our books "Learning Systems," because they're written the way you've told us you want to learn, not the way we think you "should" learn. But what we call our books isn't important—what *is* important is that you'll

pick up on this material *faster, more easily, and more thoroughly* than you ever thought possible (just ask any one of our thousands of readers).

## Written by Experts.

When we publish a book, we don't fool around with second best. Our authors include **LORENZ RYCHNER**, Synthesis Dept. Program Director, the Grove School of Music... **CHARLES KOECHLIN**, the man who orchestrated for Debussy and Cole Porter... **TERRY GRIFFEY**, Chief MIDI Consultant for the U.S. Air Force Bands... **DAN WALKER**, Synthesizer Instructor, Brookhaven College... **DAVID CRIGGER**, known around the world for his Drum Drops albums... to name a few.

## Maxi Learning—Mini Cost.

Each information-packed book from Alexander Publishing is the equivalent of hours of classroom training—if you could find it. Yet the cost is about what you'd pay for a couple of record albums—in most cases, under \$20. And many come complete with audio cassettes giving you over three-quarters of an hour of recorded musical examples.

You paid a good chunk of money for your MIDI equipment. Why not get all your money's worth from your equipment—and use all your musical potential—with the MIDI learning systems from Alexander Publishing? Try us: We guarantee you'll learn more—and more quickly—than you thought possible. Order your Alexander Publishing books now, and start getting the most from your music!

## ORDER THESE ALEXANDER PUBLISHING BOOKS NOW!

The Yamaha DX7II/DX7IIIFD .....\$21.95  
 Yamaha DX7S .....\$21.95  
 Yamaha TX81Z .....\$19.95  
 Yamaha TX81Z Sounds .....\$29.95  
 Yamaha FB-01 .....\$9.98  
 Roland D50 Right Now .....\$9.98  
 Programming the Roland D50 .....\$24.95  
 Korg DSS-1 Sampler .....\$34.95  
 Revised Ensoniq ESQ-1, Vol I .....\$24.95  
 Ensoniq SQ80, Vol I:  
 Sequencing and Recording Handbook ..\$19.95  
 Ensoniq SQ80 Drum Set Handbook .....\$21.95  
 How to Make Your Drum Machine Sound  
 Like A Drummer: (Specify Make/Model:  
 Yamaha RX5, Yamaha RX11/15, Roland  
 TR505, Roland TR707, Roland TR626,  
 Korg DDD-1, Korg DDD-5) .....\$29.95  
 All Make-and-Model Version of Above:..\$21.95  
 Casio CZ101 .....\$14.95  
 Murphy's Law MIDI Book .....\$19.95  
 Recording, Syncing and Synths .....\$17.95  
 101 Songwriting and Composing  
 Techniques .....\$9.98  
 Teach Yourself Keyboard Playing  
 and Improvisation  
 —Vol. I .....\$21.95  
 —Vol. II .....\$21.95  
 The Instant Composer, Vol. I .....\$21.95

How to Be Successful In Music Without  
 Overpaying Your Dues .....\$19.95  
 How to Stay Booked  
 a Year in Advance .....\$18.95

### NEW TITLES!

The Freshman Year—3rd Edition .....\$39.95  
 Advanced D50 Programming, Vol I .....\$19.95  
 Roland PR100 Sequencer .....\$17.95  
 The Professional Writing Series:  
 —Orchestrating The Melody (Koechlin) ..\$17.95  
 —Advanced String Writing (Koechlin) ..\$29.95  
 Kawai K1, Vol. I .....\$17.95  
 Yamaha TX802 .....\$19.95  
 Ensoniq SQ80 Programming Guide .....\$24.95  
 Yamaha QX5 Sequencer .....\$24.95  
 Kawai K5: Vol I, Operations .....\$17.95  
 How To Do A Demo-Quality Recording  
 in Your Bedroom .....\$19.95  
 Sequencing and Arranging Series:  
 —Vol I, Arranging the Whole Song ....\$19.95  
 —Vol. II, Basic String Writing  
 (with tape) .....\$24.95  
 —Vol III, Arranging for Woodwinds  
 (with tape) .....\$19.95  
 —Vol. IV, Arranging for Brass, Strings  
 and Percussion (with tape) .....\$19.95  
 Korg 707 Operations & Tweaking Book ..\$17.95

MUSIC MAKER PUBLICATIONS  
 22024 Lassen Street  
 Chatsworth, CA 91311

TO ORDER: Fill in titles below, complete name and address information, and mail coupon to address above, with check or money order. Please add \$2.50 shipping and handling per title. CA residents, add 6.5% sales tax. Allow 3 to 4 weeks for delivery. FOR FASTER SERVICE, call (818) 407-0744 for MasterCard or Visa orders.

Name \_\_\_\_\_  
 (please print)

Street \_\_\_\_\_ Apt. # \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone ( ) \_\_\_\_\_

PLEASE SEND ME THE FOLLOWING TITLES:

\_\_\_\_\_ \$ \_\_\_\_\_

\_\_\_\_\_ \$ \_\_\_\_\_

\_\_\_\_\_ \$ \_\_\_\_\_

\_\_\_\_\_ \$ \_\_\_\_\_

Total Order Amount: \$ \_\_\_\_\_

Plus \$2.50 S&H per title: \$ \_\_\_\_\_

CA Sales Tax: \$ \_\_\_\_\_

TOTAL ENCLOSED: \$ \_\_\_\_\_

MT1



# Turtle Beach Softworks SampleVision

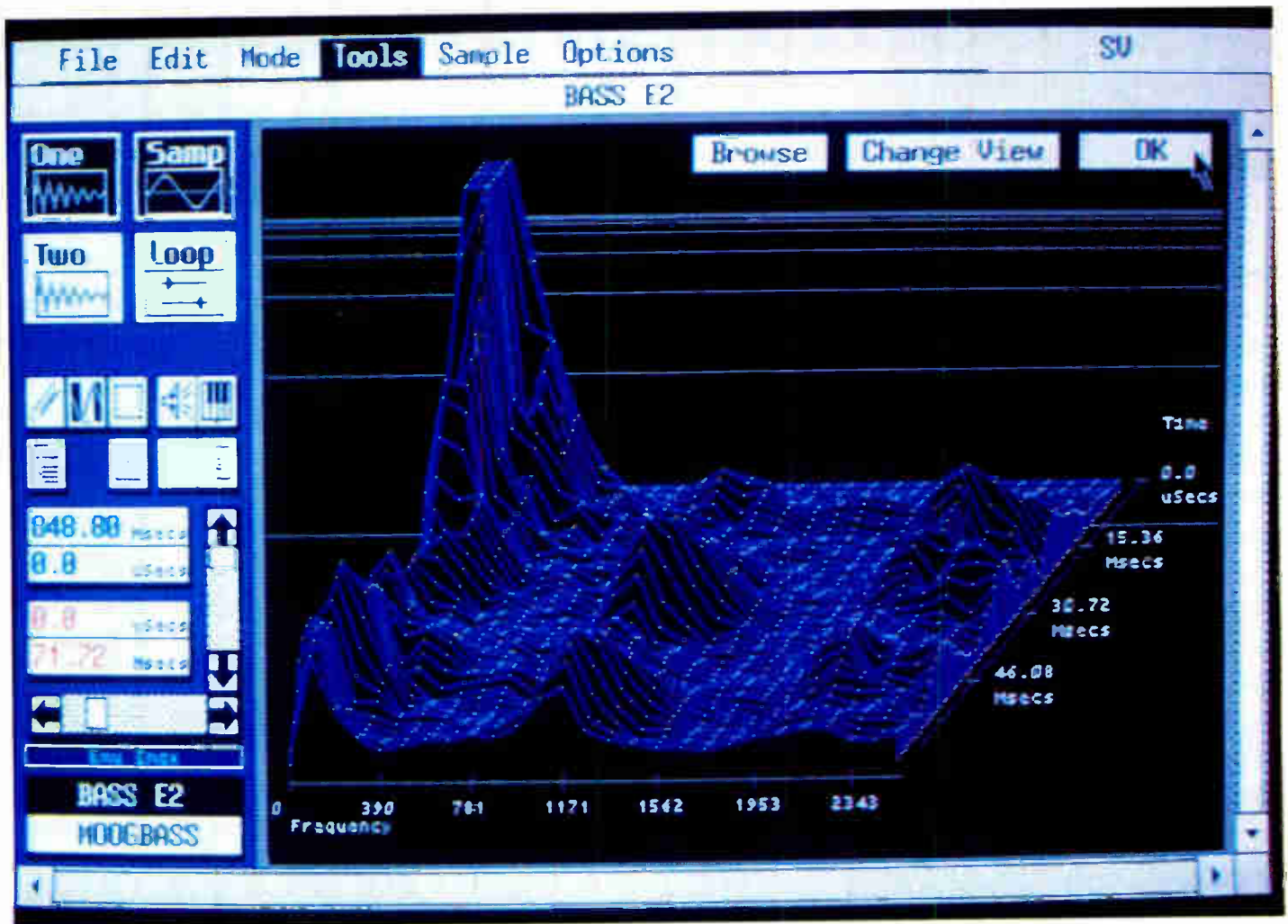
News

Reviews

Previews

Applications

Technology



The company's new generic sample editing program for the IBM brings gorgeous color and a slew of impressive capabilities to the world of Big Blue. *Review by Dennis Miller.*

"TOO BAD YOU'RE still using that IBM," the line goes, "all the serious music software is coming out for the Macintosh!" I've been hearing that one a lot lately – concerts, cocktail parties, you name it. Well, let's set the record straight: SampleVision, from Turtle Beach Softworks, has just brought "Mac-quality" sample editing to the IBM, and if this ain't a serious piece of software, I don't know what is!

We've all seen those great sample editors out there for the other guy's machine – nice

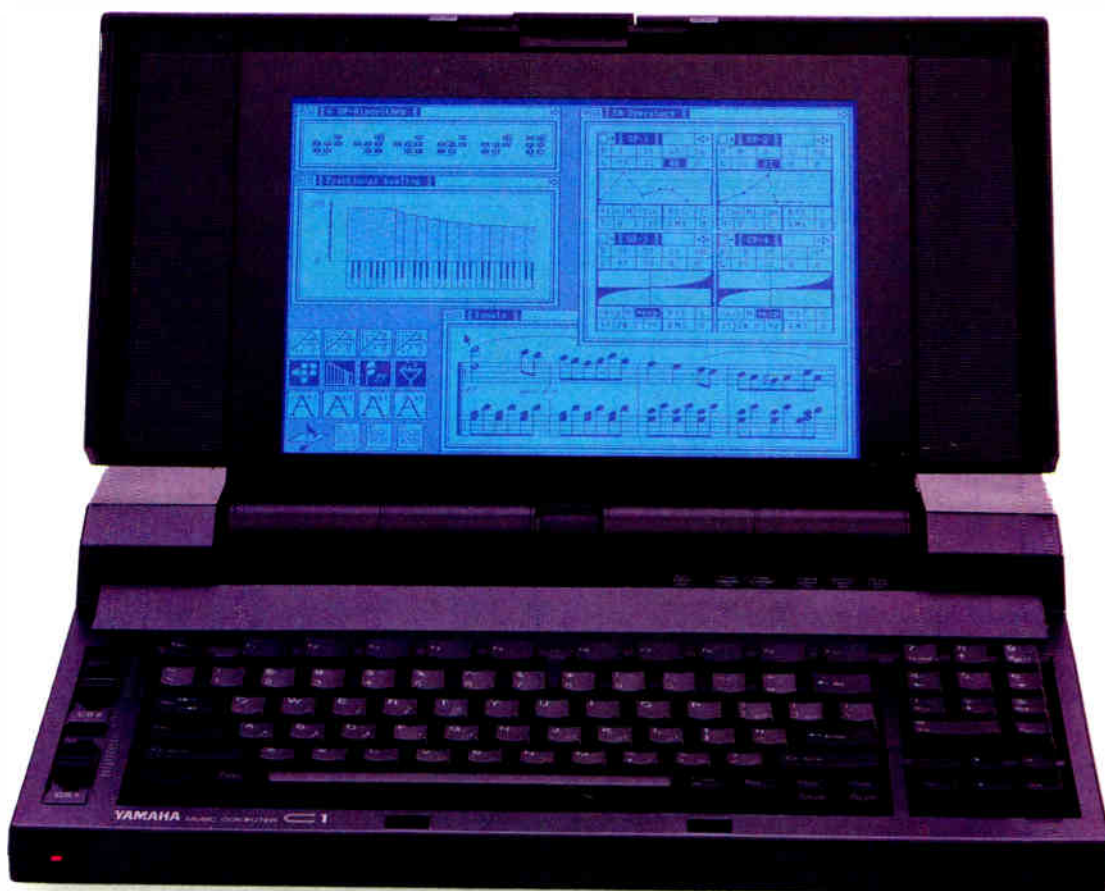
graphics, super equalizers, great editing functions – all the things that make sampling much less painful. "If only they ran on the IBM," you say to yourself . . . No need to daydream now, because SampleVision matches those "other" programs feature-for-feature for the most part, and adds a couple of new tricks which I know you're gonna like. Its tool kit includes Fade/Scale, Normalize, Mute, Interpolate, Merge, Mix, and Reverse as well as a bunch of handy loop-editing features. It also lets you peek

at your sample in some pretty unusual ways, including what it calls "Animate" and "Browse." For under \$350, I think you're easily gonna get your money's worth.

## HARDWARE REQUIREMENTS

SampleVision is a generic program which currently supports the following samplers: Akai S1000, S900, S700, X7000, and S612; Casio FZ1, FZ10M; E-mu Emax, Emax SE and Emax HD; Ensoniq EPS and Mirage; Korg DSSI and DSMI;

# It will help you play your favorite tunes.



If you're determined to get ahead in music, we offer the following suggestion:

Mind your own business.

With the Yamaha® C1 Music Computer, you can put yourself in complete control. Whether you're building a sequence, organizing your voices, hyping the band or just making a valiant attempt to figure out your taxes.

The C1 is IBM-compatible. So right



*The C1 gives you access to thousands of advanced MS-DOS programs, for music and business.*

from the start, you've got access to thousands of the most advanced programs.

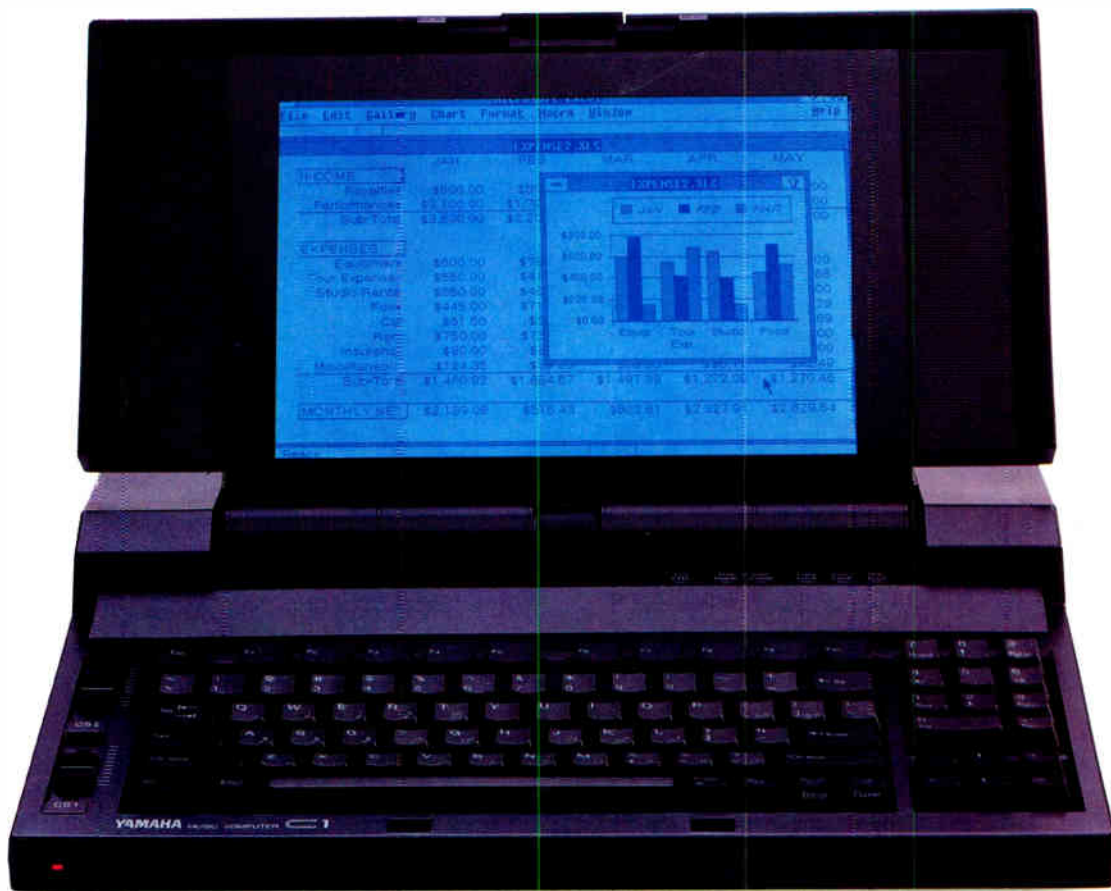
It has an 80286 processor, for speed. A megabyte of memory, for power (with room for 1.5MB more). And a Toshiba-style expansion port that allows you to add more options down the road.

But unlike other computers, the C1 is the product of a very musical family.

It's thoroughly wired for a professional MIDI setup, with two MIDI INs, one THRU and eight OUTs. It even under-



# And a few other numbers.



stands SMPTE—no converter required.

Plus, it has two programmable sliders for better MIDI control. And keys marked with music symbols, to make data entry less of a mystery.

You can start with a pair of built-in 3.5" disk drives. Or choose a model with one 3.5" drive and a 20MB hard disk. Which can not only carry a tune, it can carry hundreds of voices—and all of your programs as well.



*C1 for the road. Our computer even comes with its own carrying case.*

Of course, the C1 has connections for all your standard computer goodies, including monitor, modem, printer and mouse. And it's been designed for easy carrying from living room to studio and stage.

Call 800-333-4442 for the name of the authorized Yamaha C1 dealer nearest you, then stop in for a screen test.

See how well it performs when you play music. And when you play accountant. **YAMAHA**<sup>®</sup>

Yamaha Music Corporation, U.S.A. Digital Musical Instrument Division, P.O. Box 6600, Buena Park, CA 90622. In Canada: Yamaha Canada Music Ltd., 235 Milner Avenue, Scarborough, Ontario M1S3R1.

IBM is a registered trademark of IBM Corp. Toshiba is a registered trademark of Toshiba America Inc. Excel and MS-DOS are registered trademarks of Microsoft Corp.

Oberheim DPX1; Roland S10, S220, S330, S50/550 and MKS100; Sequential Circuits Prophet 2000 and 2002; Yamaha TX16W; and the Sample Dump Standard. It requires an IBM PC/XT/AT or compatible and will also run on the Yamaha C1. Because of its graphic orientation, you'll need 640K memory, a hard disk, and a graphics adaptor. The color on an EGA monitor is incredible, but you can certainly do just fine with a monochrome display. Also, better have a Roland 401 or compatible interface around or you won't get to talk much with your sampler.

Keep in mind that a generic program like SV can't help you control the front panel of your sampler - you'll need a dedicated program for that. (Turtle Beach also makes an editor specifically for the Akai S900 and for the

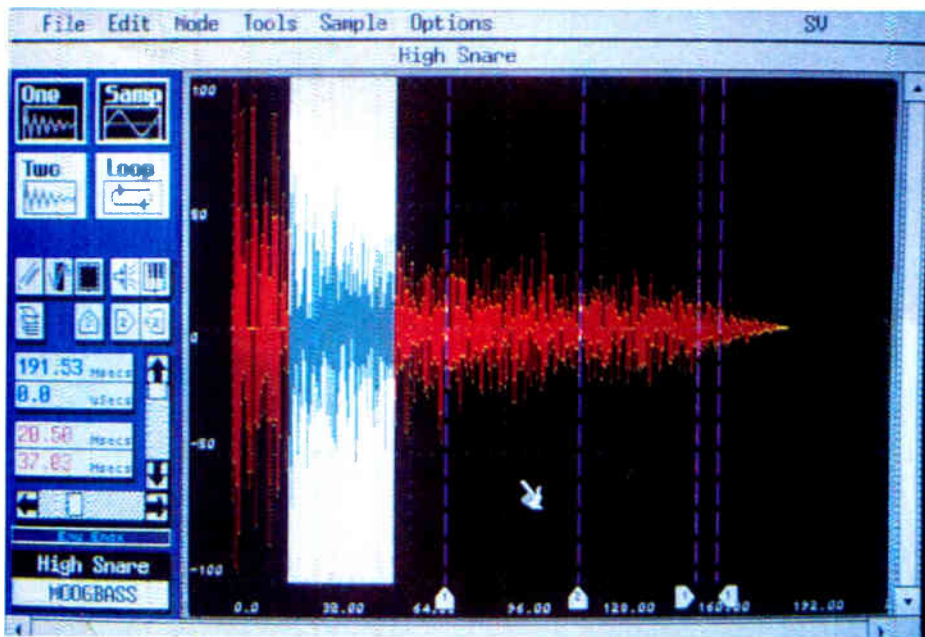
Mirage.) What we're doing here is just working with sound itself. SampleVision will let you can send samples back and forth between different machines - it reads 8, 12, or 16 bit as well as Sound Designer file formats, and converts them all into its own file type. Unfortunately, it relies exclusively on MIDI for communication and doesn't offer the speed of a SCSI or RS422 protocol (for the few machines that offer it). It's a bit frustrating to wait while SV (or any sample editor, for that matter) sends your soundfile back to the sampler - only loop points can be updated quickly - though I'm told Turtle Beach should soon be offering a "Digital Playback Port" hardware add-on option which will have an audio output. This preview capability will be a great boon.

## GETTING STARTED

To get a sense of how SV works, let me walk you through the stages of a normal editing session. After SampleVision initializes your MIDI setup and you choose which samplers you want to work with, you'll arrive at the sample editing window. The user interface is based on the GEM model, which means that you'll be using icons, pull-down menus, scroll bars and windows to get around. With a mouse (optional but highly recommended) you won't have to mess with the keyboard at all, but if you like you can use *control* or *alt* key "shortcuts" for virtually all the program's functions.

From the sample edit screen, you get a sample to work with either by loading a file from disk or retrieving one from your sampler. If your sampler can store only a single sample, like the Akai S612, you'll use your hard drive as a soundfile "library" and keep all of your soundfiles there. If you want, you can load a second sample at this point, because SV has two Sample Buffers. A single mouse click moves you between the buffers, and you can easily transfer bits of sound from one to the other. You can also name the soundfiles in each buffer which will help you remember which sample you're working with.

Depending on the resolution you choose and the size of your sample, you can see the entire soundfile displayed, or just a single two or three sample segment. SV lets you view and edit at a maximum resolution of 1/50,000th of a second which is as good as almost any commercial program I know of. As for the big picture, you can work with a sample of about 2000Meg if you happen to have the disk space free. By the way, SampleVision is a "hard disk-based" system, not a RAM-based one, which means you're going to be able to access to a lot more of your sound "at once" than you ever imagined. More on that later . . .



The main sample editing display in SampleVision.



The FFT Browser function allows you to dissect a waveform and see how it changes over time.

## EDITING

At this point you're probably ready to fine tune your sound so you'll want to zoom in on a segment by clicking on the mouse and holding it down while you drag it across the wave. I had better luck getting to the absolute start point of a sample by moving the mouse from left to right. Not a big deal by any means, but it was strange that I couldn't just start at zero and go out from there. From the pull-down Edit menu, you can choose to Cut, Trim, Paste, Mix Paste, Delete, or Copy the segment you've selected. Unfortunately, SampleVision only has a single cut/copy buffer which can't be named; this won't be a problem unless you're trying to design a sound using pieces of many different samples.

Once you've tailored your sound a bit, you can get a lot fancier by working with the "Tools" menu. In this area you'll find a number of functions which will effect your entire soundfile, or only the range you choose in the Range Selection window, which opens up before any type of processing is done. Among the more self-evident features are "Reverse," "Invert," "Mute," "Fade," and "Scale." These features

worked quickly enough on my XT, but when I ran the program on an AT, they really blazed. Speed is not much of a concern with these types of functions, but when we get into Frequency Analysis and such things, a quick machine is really handy to have.

Other tools in this menu are the "Normalize" function, which raises the volume of your sample as high as it can without going through the ceiling, thereby increasing the signal-to-noise ratio of your sound, and "Interpolate," which improves the resolution of your sound by taking an average of every consecutive pair of samples and adding it as a third sample to the pair. This increases the size of the soundfile by 50%, but really makes a noticeable difference, especially when you're using older, low resolution sounds with a newer sampler.

## GAMES WITH FREQUENCY

Next in line is the Digital Equalizer, which gives you six filters to work with - High Pass, Low Shelf, Notch, Band Pass, High Shelf, and Low Pass. Each of these can be set for a center frequency, bandwidth, and gain. SampleVision tells you what the upper limit of your center frequency will be by calculating the Nyquist point - one half of the sample rate. The program itself can't EQ samples higher than 10kHz. If the

**Looping:** *"The 'Animate' function creates a moving, oscilloscope-like display on the screen by continuously re-plotting a single cycle throughout the entire soundfile."*

equalizing isn't to your taste, you can select Undo and start over.

In addition to creating a striking visual display which the manual tells us "will greatly impress our friends," Frequency Analysis (or "FFT" - for "Fast Fourier Transform" frequency analysis) has several practical uses. First, you can make an educated guess about a successful loop point if you locate the spot where all the attack harmonics have died down. Next, you might notice certain frequencies that you want to filter out of your sample, or you could check the FFT to see whether you are sampling at a higher rate than you need - if you could re-sample at a lower rate you'd save an awful lot of memory.

In the FFT window you first determine the range to be analyzed and then set the time slice measurement of your display. You can then control scaling, direction, plotting of time, frequency, change "analysis mode," and if you're working in color, alter the settings for the display.

If you want to zoom in on a spot, you just reset the selected range and you might request a larger number of time slices at the same time. Mercifully, SV has stored the FFT and doesn't have to recalculate the whole thing (normally, a very time-consuming process). This feature will be a real timesaver. Also, because you're working with a hard disk-based program, you could actually get an analysis of an entire 2000Meg sample (2000Meg drive not included). Many current sample editors limit you to available RAM or floppy disk space.

Another nice feature of the FFT window is

MT JANUARY 1989

the "Browse Button" which, as far as I know, is not found in any other program. This function lets you see the frequency content of each individual time slice displayed as a bar or line graph - sort of like a real-time spectral analyzer. You can "animate" the spectrum by moving the mouse back and forth or just click on the spot you want to see.

## LOOPING

Well, this is what you're curious about, right? SampleVision has several unique features which can make looping a lot less time-consuming. Clearly, that's one of the main advantages of any software-based editing program.

Before I cover some of them, let me mention a little bit about navigation. SV lets you set and name eight position markers and two loop markers to help you keep your bearings as you zoom in and out of its numerous display modes. You can move from anywhere to a marker just by pressing the *alt* key and the number of the marker you want; the loop start and end markers are accessed with *alt-* and *alt =* respectively. Your markers stay set even when a new sound is loaded, but you can reset them quickly with the Clear All Markers Menu.

To get started with looping, you'll probably set the loop markers in the sample edit window at a relatively "stable" phase in the sound

(where the amplitude level is fairly flat), and then get a better view of the sample by moving over to SV's Frequency Analysis area. From here you move to the Loop Editor. If you've miscalculated and set your loop markers out of the range of your particular sampler, you'll get an error message in this window and none of your editing functions will work. If everything's copacetic, you can work with up to eight loop points which will be displayed at the top of the window.

The screen at this point is split in two, representing the start and end points of the loop. Underneath the window you see a set of "Match ▷" icons which will automatically search forward or backward for points that are within five percent of the values of your loop start or end points. This will help determine a good "zero crossing" spot - a point where the beginning and end points of the loop have identical amplitudes - a minimum requirement for good looping. You can also get different views of the wave from this vantage point to find good matches in timbre. SV lets you preview the sound of your loop by clicking on a little eighth-note icon in the corner of the screen. When you're in the loop editor, the loop settings in your sampler are instantly updated every time you change them on the screen.

SV has a number of other useful tools for creating good loops. Most important are the "Crossfade Loop" and the "Animate" functions. Crossfade is a fairly common feature which takes data from the start and end points of the loop and mixes them together - sort of like a

miniature fade in and out. This gives a more homogeneous flavor to your sound at the loop point and can help eliminate a lot of clicks and low frequency bumps. The "Animate" function, something I haven't seen elsewhere, creates a moving, oscilloscope-like display on the screen by continuously re-plotting a single cycle throughout the entire soundfile. This is another way to spot where the attack portion of the sound has ended and the harmonics are dying out. (For those expecting miracles, remember that not even SampleVision, which has some of the best loop facilities around, can guarantee you a smooth loop. With something like a complex, constantly changing orchestral timbre, it's probably not going to happen. Better know when to give up . . .)

Now that we've covered the major areas of the program, let me mention two other handy features. One is the "Draw Mode" which, if you're working at a high enough resolution, turns your cursor into a pencil. If you want to "touch up" a few glitches in your sample, you can click on the mouse and get to it. I found that using the Crossfade function occasionally left a few rough spots which I wanted to eliminate. I could have removed them with the delete function, but I had more fun redrawing the wave with the pencil. If you're so inclined, you might try expressing your artistic inclinations by designing your own waves - just "Mute" an existing sample, sharpen your mouse, and save your work as a new file. With a little luck, you could actually come up with some really useful stuff.

Finally, there is the onboard sequencer, which lets you record and playback a couple of hundred notes for seeing how your sample sounds in a musical context once you've blasted it down to your sampler.

## END OF SAMPLE

If you're serious about sampling and don't plan to trade in your IBM anytime soon, you'll be happy to learn that nearly all of the high-end wave-editing features that you've been hearing and reading about are now available with SampleVision. SV gives you an extensive set of editing features to work with - Fade, Scale, Reverse, Invert, Mix, Merge, etc - and allows you to do an awful lot of signal processing as well. In addition, it gives you some new functions which no program for any computer currently offers like "Animate" and "Browse," and because it is a hard disk-based system, you can hold an extremely large soundfile in memory. Its features work as advertised; I had no trouble getting the program to do exactly what I wanted, and somehow I had the feeling that somebody who really understood the sampling process had set the program up to work in a logical and consistent way. SampleVision meets the competition head-on and, at long last, brings state-of-the-art sample editing to the IBM. ■

PRICE \$349

MORE FROM Turtle Beach Softworks, PO Box 5074, York, PA 17405. Tel: (717) 757-2348.

Son of **FX**

ORGANIZE YOUR RECORDING, COMPUTER AND RACK-MOUNTABLE EQUIPMENT IN AN ATTRACTIVE, MOBILE WORK STATION.

SON OF FX FEATURES:

- Two adjustable shelves for multi-tracks, drum machines, computers and more!
- Holds up to 10 rack "spaces" of equipment.

- Shown with optional "Rack Drawer"

ASK YOUR DEALER FOR A DEMONSTRATION  
CALL OR WRITE FOR FREE BROCHURE

**FOUR** DESIGNS COMPANY 6531 GROSS AVENUE • CANOGA PARK, CA 91307  
(818) 716-8540 OUTSIDE CA 800 544 3746



**RACK**

ECONOMICAL 19" RACK MOUNT "FURNITURE" FOR THE PROFESSIONAL OR HOME STUDIO.

FX RACK FEATURES:

- Holds up to 18 "spaces" of equipment.
- Attractive black textured vinyl laminate.
- Shown with optional wheels.

ASK YOUR DEALER FOR A DEMONSTRATION  
CALL OR WRITE FOR FREE BROCHURE

**FOUR** DESIGNS COMPANY 6531 GROSS AVENUE • CANOGA PARK, CA 91307  
(818) 716-8540



**RTS-321**



EVERY AUDIO PROFESSIONAL NEEDS THIS VERSATILE "PHONE" / "XLR" ADAPTER IN THEIR TOOL KIT

RTS-321 FEATURES:

- 1/4 RTS Male Phone and 3 pin Cannon Female XLR.
- 32 position switch instantly changes the internal wiring to match your specific interconnection needs.

ASK YOUR DEALER FOR A DEMONSTRATION  
CALL OR WRITE FOR FREE BROCHURE

**FOUR** DESIGNS COMPANY 6531 GROSS AVENUE • CANOGA PARK, CA 91307  
(818) 716-8540

**RACKRATE**

A UNIQUE PRODUCT DESIGNED TO SAFELY TRANSPORT YOUR VALUABLE RACK MOUNTED EQUIPMENT.

RACK RATE FEATURES:

- Holds up to six "spaces" of equipment 11.5" deep.
- Threaded steel mounting rails w/padded handles.
- Lower weight, greater strength, lowest cost.

ASK YOUR DEALER FOR A DEMONSTRATION  
CALL OR WRITE FOR FREE BROCHURE

**FOUR** DESIGNS COMPANY 6531 GROSS AVENUE • CANOGA PARK, CA 91307  
(818) 716-8540



**FOUR DESIGNS  
PRODUCT INFORMATION  
CALL 1-800-544-3746**

**Say you saw it in  
MUSIC TECHNOLOGY**

# More From . . .

You can contact any manufacturer listed for literature on products in this issue.

**01 Digital Production Centre:** Solid State Logic (SSL), Beggroke, Oxford, England OX5 1RU. Tel: (44-86) 584-2300.

**A50:** Roland Corp US, 7200 Dominion Circle, Los Angeles, CA 90040. Tel: (213) 685-5141.

**ADAP II:** Hybrid Arts, Inc, 11920 West Olympic Blvd, Los Angeles, CA 90064. Tel: (213) 826-3777.

**Alchemy:** Blank Software, 1477 Folsom St, San Francisco, CA 94103. Tel: (415) 863-9224.

**AudioFrame:** WaveFrame Corporation, 4725 Walnut Street, Boulder, CO 80301. Tel: (303) 447-1572.

**Audio Matrix 16:** 360 Systems, 18740 Oxnard, Tarzana, CA 91356. Tel: (818) 342-3127.

**Audio Tablet:** Real World Research (c/o SYCO), 20 Conduit Pl, London W2 1H5, UK. Tel: UK (01) 724-2451.

**Autograph programmable equalizer / AEQ-2800:** AMR/Peavey Electronics Corp, 711 A St, Meridian, MS 39301. Tel: (601) 483-5365.

**CI:** Yamaha Music Corp. USA, 6600 Orangethorpe Ave, Buena Park, CA 90620. Tel: (714) 522-9011.

**Cakewalk:** Twelve Tone Systems, 11-A Main St, Watertown, MA 02172. Tel: (617) 924-7937.

**CDS:** Roland; see A50.

**CM5404:** Computer Music Supply, 382 N. Lemon, Walnut, CA 91789. Tel: (714) 594-5051 or (800) 322-MIDI.

**Cue:** Opcode Systems, 1024 Hamilton Court, Menlo Park, CA 94025. Tel: (415) 321-8977.

**CZI:** Casio, Inc, 570 Mt. Pleasant, Dover, NJ 07801. Tel: (201) 361-5400.

**D110:** Roland; see A50.

**D20 professional DAT recorder:** Fostex Corp. of America, 15431 Blackburn Ave, Norwalk, CA 90650. Tel: (213) 921-1112.

**D50/D550:** Roland; see A50.

**D1500:** Yamaha; see CI.

**DMX:** Oberheim-E.C.C., 2015 Davie Ave, Commerce, CA 90040. Tel: (213) 725-7870.

**DPRI00:** Symetrix, 4211 24th Ave. West, Seattle, WA 98199. Tel: (206) 282-2555.

**DPXI:** Oberheim; see DMX.

**DSMI:** Korg USA, Inc, 89 Frost Street, Westbury, NY 11590. Tel: (516) 333-9100.

**DSPI28 Plus:** DigiTech, 5639 S. Riley Lane, Salt Lake City, UT 84107. Tel: (801) 268-8400.

**DSSI:** Korg; see DSMI.

**DSX:** Oberheim; see DMX.

**DW8000:** Korg; see DSMI.

**DX7/DX7II:** Yamaha; see CI.

**Dyaxis:** Integrated Media Systems (IMS), 1552 Laurel St, San Carlos, CA 94070. Tel: (415) 592-8055.

**EAC8:** Peavey Electronics Corp/AMR; see Autograph.

**Emax:** E-mu Systems, 1600 Green Hills Rd, Scotts

Valley, CA 95066. Tel: (408) 438-1921.

**Emulator II:** E-mu; see Emax.

**EPS:** Ensoniq Corp, 155 Great Valley Parkway, Malvern, PA 19355. Tel: (215) 647-3930.

**EX8000:** Korg; see DSMI.

**Fairlight CMI III:** Fairlight Instruments, Inc, 2945 Westwood Blvd, Los Angeles, CA 90064. Tel: (213) 470-6280.

**FB01:** Yamaha; see CI.

**FZ1/FZ10M:** Casio; see CZI.

**HD31/HD15:** ART (Applied Research & Technology, Inc.), 215 Tremont St, Rochester, NY 14608. Tel: (716) 436-2720.

**IQ:** Crown International, 1718 W. Mishawaka Rd, Elkhart, IN 46517. Tel: (219) 294-8000.

**Jupiter 8:** Roland; see A50.

**KM802:** Yamaha; see CI.

**KX76:** Yamaha; see CI.

**LinnDrum & Linn 9000:** formerly made by Linn Electronics.

**MI/R:** Korg; see DSMI.

**Macintosh Plus/SE/II:** Apple Computer, Inc, 20525 Mariani Ave, Cupertino, CA 95014. Tel: (408) 996-1010.

**MAP 84:** Peavey; see Autograph.

**Master Tracks Pro/PC:** Passport Designs, Inc, 625 Miramontes St, Half Moon Bay, CA 94019. Tel: (415) 726-0280.

**Matrix 6:** Oberheim; see DMX.

**Matrix 1000:** Oberheim; see DMX.

**MC500/300:** Roland; see A50.

**Megamix:** Musically Intelligent Devices, 6 Brian St, Commack, NY 11725. Tel: (516) 864-1683.

**MFX:** Fairlight; see Fairlight CMI III.

**MIDI Accelerator:** Apogee Electronics Corp, 1517 20th St, Santa Monica, CA 90404. Tel: (213) 828-1930.

**MIDI Manager:** Peavey; see Autograph.

**MIDI Patchbay:** Akai Professional, 1316 E. Lancaster, Fort Worth, TX 76113. Tel: (817) 336-5114.

**Midiverb II:** Alesis Corporation, 3630 Holdrege Ave, Los Angeles, CA 90016. Tel: (213) 467-8000.

**mimix:** Steinberg/Jones, 17700 Raymer St, Suite 1001, Northridge, CA 91325. Tel: (818) 993-4091.

**Minimoog:** formerly made by Moog Electronics.

**Mirage:** Ensoniq; see EPS.

**MKS100:** Roland; see A50.

**MMT8:** Alesis; see Midiverb II.

**MPU401:** Roland; see A50.

**MQX32:** Music Quest, Inc, 1700 Alma Dr, Suite 260, Plano, TX 75075. Tel: (214) 881-7408.

**Multiflex/QFX 4 x 4:** AMR/Peavey; see Autograph.

**OBB:** Oberheim; see DMX.

**PCM 3348:** Sony Corp. of America, 9 West 57th  
MT JANUARY 1989

# An Education for Life

St, New York, NY 10019. Tel: (212) 418-9427.

**Performer:** Mark of the Unicorn, Inc, 222 Third Street, Cambridge, MA 02142. Tel: (617) 576-2760.

**Perk-a-Phone:** Greg Ives, c/o Intertune Ltd, 544 Cascade Dr, Springfield, OR 97478.

**Personal Composer:** Personal Composer, PO Box 648, Painted Church Rd, Honaunau, HI 96726. Tel: (808) 328-9518.

**PostPro and Direct-to-Disk:** New England Digital, 49 North Main St, White River Junction, VT 05001. Tel: (802) 295-5800.

**PPG Wave 2.3:** formerly made by PPG GmbH.

**Professional Composer:** Mark of the Unicorn, Inc, 222 Third Street, Cambridge, MA 02142. Tel: (617) 576-2760.

**Prophet 5:** formerly made by Sequential Circuits, Inc.

**Prophet 2000/2002:** formerly made by Sequential, Inc.

**Quadraverb:** Alesis; see *Midverb II*.

**R8:** Fostex; see *D20* . . .

**R8 Human Rhythm Composer:** Roland; see *A50*.

**REV7:** Yamaha; see *CI*.

**RN2408:** Yamaha; see *CI*.

**RX5:** Yamaha; see *CI*.

**S10:** Roland; see *A50*.

**S20/220:** Roland; see *A50*.

**S612:** Akai; see *MIDI Patchbay*.

**S700/S900/S950/S1000:** Akai; see *MIDI Patchbay*.

**S3000:** Korg; see *DSMI*.

**SDX/SDX Real Time Recorder:** Simmons Electronics USA, Inc, 23917 Craftsman Rd, Calabasas, CA 91302. Tel: (818) 884-2653.

**Sequencer Plus III:** Voyetra Technologies, 333 5th Ave, Pelham, NY 10803. Tel: (914) 738-4500.

**Series 3 Modular:** formerly made by Moog.

**Series Ten:** Harrison Systems, Inc, PO Box 290157, Nashville, TN 37229. Tel: (615) 834-1184.

**SGID:** Korg; see *DSMI*.

**Sonic System:** Sonic Solutions, 6115 California St, San Francisco, CA 94121. Tel: (415) 751-8666.

**Sound Designer II:** Digidesign, 1360 Willow Rd., Suite 101, Menlo Park, CA 94025. Tel: (415) 327-8811.

**SPX90:** Yamaha; see *CI*.

**SPX1000:** Yamaha; see *CI*.

**Sync Controller:** Peavey; see *Autograph*.

**Synclavier 3200/9600:** New England Digital; see *PostPro*.

**Topaz:** Steinberg/Jones; see *mimix*.

**Twister:** JBL/UREI, 8500 Balboa Blvd, Northridge, CA 91329. Tel: (818) 893-8411.

**TX816:** Yamaha; see *CI*.

**TX16W:** Yamaha; see *CI*.

**TX81Z:** Yamaha; see *CI*.

**UI10:** Roland; see *A50*.

**X7000:** Akai; see *MIDI Patchbay*.

**XE8:** Akai; see *MIDI Patchbay*.

**YC45D:** Yamaha; see *CI*.

MT JANUARY 1989


The entertainment industry is a multi-billion dollar enterprise, and music plays a leading role in it. In fact, the frequency and variety of musical entertainment available every day through radio, television, recordings, and concerts can overwhelm even the most accustomed listener. That's one reason why a comprehensive program of music study is such an important part of a good education: It teaches us to listen attentively, to think about what we hear, to recognize complex musical content, and to participate fully in the musical experience. After all, great music is always entertaining—but if we don't even hear it, we'll never know everything else that it has to offer as well.

Music study—think about it. It's an education *for life*.

One in a series from the  
*Foundation for  
the Advancement  
of Education  
in Music*


1902 Association Drive  
Reston, Virginia 22091

# **WORLD MUSIC, USA™**


 **MIDI/WORLD MUSIC™** - ELECTRONIC EXCHANGE OF SONGS, SOUNDS, IDEAS AND INFORMATION™ - is an electronic information service for the professional computer music community, serving ALL computer music systems (MIDI or non-MIDI) with bulletin board services, libraries (songs, patches, samples,...etc.), and real time conferences. Designed to fulfill the needs of the music, video, film, broadcast, MI and educational industries.


As you are probably aware, in the past the cost of online information has been incredibly expensive and not so reliable - but not anymore. Registration fee is only \$29.95 (which includes 2 free hours of online time or \$10 credit) and non-prime time rate is FIVE DOLLARS (\$5) per HOUR (300 or 1200 baud, 2400 baud with a small surcharge), a FRACTION OF THE COST of competing services! There are NO HIDDEN CHARGES or monthly minimum fees.



MIDI/WorldMusic is found within GENIE™ (General Electric Network for Information Exchange). All of your favorite services and many more are offered by GENIE to include;

 Travel and shopping,  
SIG's and User Groups (all computers, law, financial,...etc.),  
Electronic Mail,  
CB Simulator,  
News and many other services.

To subscribe just follow these easy steps:

-  1) Set your modem for half duplex (local or echo), at 300 or 1200 baud,  
2) Dial (toll free) 1-800-638-8369  
3) Upon connection, enter HHH,  
4) At the U#= prompt enter XJM11820,GENIE and press RETURN,  
5) Once you have joined type MIDI at any prompt.

 **WORLD MUSIC ELECTRONIC PUBLISHING™** introduces a unique new electronic public relations service with hundreds of thousands of end customers accessible. Electronic PR can be made available to the customers within minutes rather than the months it takes for hard copy PR. MI manufacturers are finding this to be a very powerful "instant access" service. Very low introductory rates are now in effect.

 **WORLD MUSIC, USA™** and  **BLC - POST PRODUCTION SOUND™** offer complete Digital Music and Post Production Sound for film and television. We have complete digital audio and film suites located at the 20th Century Fox Film Corp. studio lot - Call for rates. Watch for the feature film "In The Aftermath" from New World Pictures, a film that we produced 80% of the soundtrack using computers (foley, sound effects and music - all digital) - in Dolby Stereo and Surround Sound!

GENIE rates shown in effect 1/88. Non-prime time applies Mon. - Fri., 6pm - 8am local time, all day Sat., Sun., and nat'l holidays subject to service availability. Additional \$7.50/hr. surcharge applies for 2400 baud service. Uploads are free during non-prime time hours at 300 or 1200 baud. GENIE rates and services subject to change. Third-party services offered on GENIE may include additional charges. GENIE is a trademark of General Electric Information Services Company, USA. WorldMusic and WorldMusic Electronic Publishing are trademarks of WorldMusic, USA. Call between 11am to 1pm PST, Monday thru Friday at (213) 392-0103, or write to WorldMusic, USA/ P. O. Box 933 / Santa Monica, CA 90406-0933, for information.

# INPUT OUTPUT

Have a technical question that you can't seem to find an answer for? If so, send it to our team of experts at: *Input/Output, Music Technology, 22024 Lassen St., Suite 118, Chatsworth, CA 91311.*

**Q** I recently purchased a Roland TR808 drum machine with the intention of using it in conjunction with my Yamaha RX5. I knew the TR808 wasn't MIDI-equipped, but I thought I could link the two instruments together from the RX5's External Clock In/Out jacks. As I soon found out, to my cost, this isn't possible - presumably because the RX5 is expecting a CV/gate pulse while the 808 uses Roland's Sync 24 system.

You've probably guessed what I'm about to ask: is there any kind of Sync 24/MIDI converter, or alternatively a converter between the Sync and External Clock jacks? Any information would be gratefully received.

Paul W. Gibson  
Yuma, AZ

**A** Don't reach for your checkbook yet. You can get the TR808 and RX5 to run in sync.

The problem you've run into is not in the type of sync pulses the two machines talk, but in a start/stop signal that the TR808 needs to see before it will run as a slave unit. The Sync 24 (five-pin DIN) socket on the rear panel of the TR808 is wired as follows: pin 1 - Start/stop; pin 2 - ground; pin 3 - clock. Making up a cable to connect the ground and clock pins to the RX5 shouldn't present you with any problems as long as you know the difference between a soldering iron and a number four iron. The start/stop signal can be taken from the start/stop footswitch jack on the RX5. Obviously, to incorporate this your cable will have to be a split cable (5-pin DIN and 1/4" jack at the TR808 end), but it's considerably cheaper than buying a synchronizer.

The RX5 now becomes the master drum machine. You must switch the TR808 to "slave" using the switch on the rear panel and press Start before starting the RX5. The TR808 should now read the RX's clock pulses quite happily, starting when it starts and

MT JANUARY 1989

stopping when it stops. The only problem is that it won't automatically reset itself to the start of a pattern when the RX5 is stopped - you'll have to switch it back to "master" each time. - Tim Goodyer

**Q** I'm thinking of upgrading to eight-track after using a Tascam 244, and using a MIDI sequencer for tapeless tracks. As I own only one multitimbral expander, it looks as if I'll have to use several tape tracks if a particular synth is to be used more than once in a song.

Having virtually no experience with stand-alone mixers, my question is as follows: would it be possible to have the sequencer run, say, four sounds on my TX81Z and one on my OSCar, mix all the sounds through separate channels on the mixer (thus getting separate EQ for each sound) and put the results on one tape track? If so, what would the sound quality be like?

Would this approach mean that for each sound running simultaneously I would need a corresponding box of effects if I wanted each sound to be processed?

Rose Sims  
LaCrosse, WI

**A** If you wanted more than one OSCar sound playing at the same time within a song, you'd definitely need to record one sound onto tape, since it's basically a monophonic instrument. (If you run it in "Duo" mode you'll get limited use of two, single-oscillator voices, but they'll both appear at the same single audio output on the OSCar - therefore any EQ or effects will affect both voices.)

However, because the TX is capable of playing eight sounds at the same time, you could theoretically have eight different musical parts running together without the need to put them on tape. In practice there are two reasons why you might want to put some of the TX sounds on tape.

First, the expander might not have enough

voices to play all your musical parts at the same time - it's only eight-note polyphonic, and what's more you have to assign a fixed polyphony to each part.

Second, the TX only has two audio outputs. This means that you can route a maximum of two TX instruments at a time through separate channels on a desk - hence through separate EQ'ing and effects processing.

There's nothing to stop you mixing several sounds onto one tape track, but these sounds then lose their independence in the final mix.

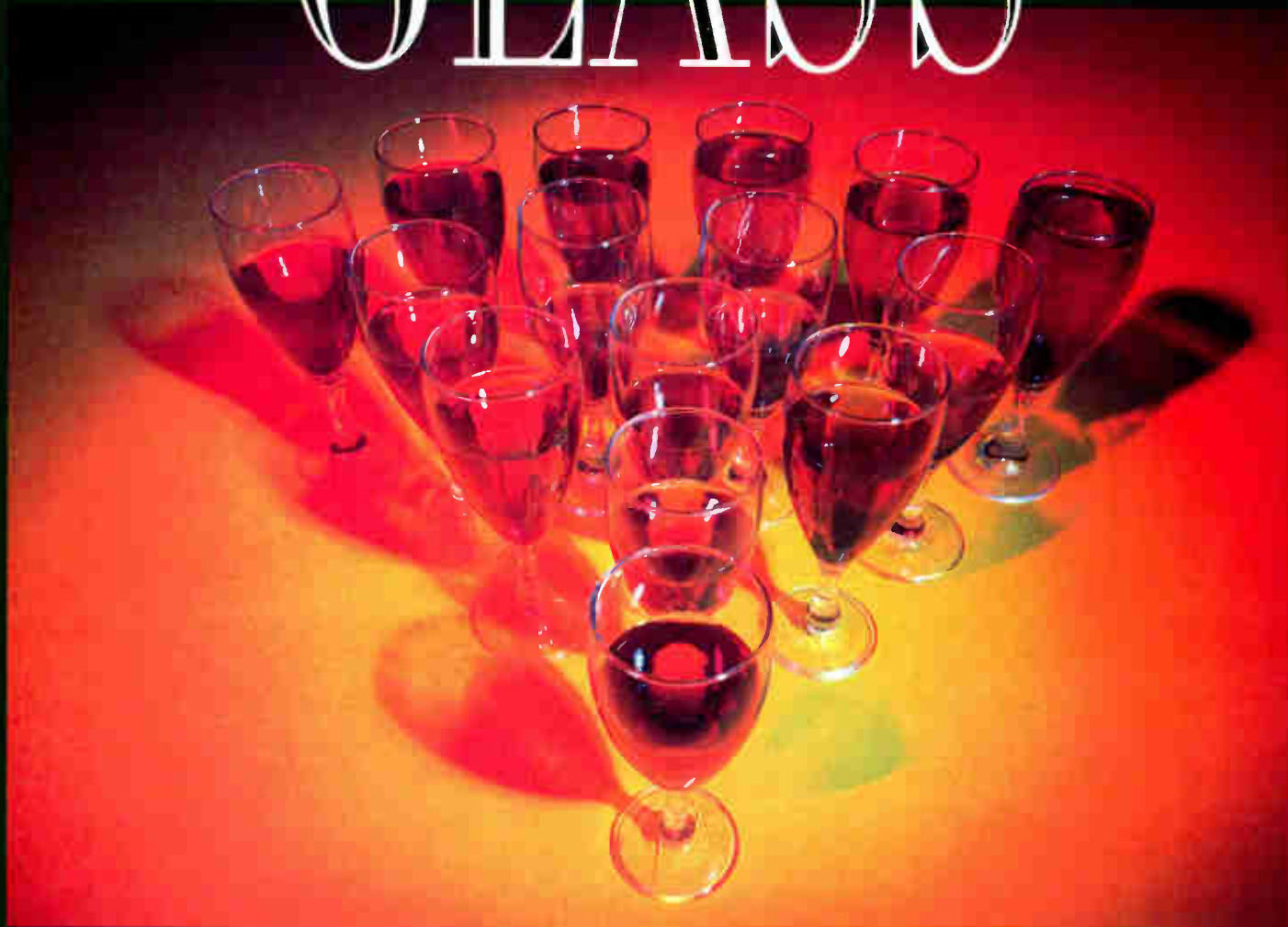
How many effects you need depends on exactly what you want to do - for instance, how many different types of effects you want to use, the combination of taped and sequenced parts, and whether or not the taped parts are recorded with effects already on them. If you put effected parts on tape (either mixed onto one track or on separate tracks) you're committed to the result, but your effects processor is free for further use.

Most mixing boards have two kinds of effects routing: insert points, and effect sends and these appear on each channel and interrupt the audio path of the signal, allowing you to patch in anything from a reverb unit to a computer-controlled mixing automation package. Effects sends and returns work together to provide an effects sub-mix. You'll find a send (or sends) on each channel to an auxiliary output. This is patched to your effects processor and back into the mixer at the effects return (which is often a stereo pair to facilitate use of stereo effects) to appear on the panel as anything from a solitary volume control, to an extra pair of channels complete with their own EQ. Given sufficient channels and an un-EQ'd effects return, it can be advantageous to forget the return and use a mixer channel (or two panned for stereo effects) instead. But beware of feedback loops which can arise if you have the effects send up on the channel you're using for effects return.

The options are open, and really depend on the specific demands of your music and the amount of money you can afford to fork out.

- Tim Goodyer

# art of GLASS



Photography Adam Jones

**Looking for an inexpensive way to expand your sample library? Last night's wine glass could become the focal point of your next composition.** *Text by Tom McLaughlin.*

**I**'VE DONE IT, you've done it, we've all done it at one time or another. Maybe back in physics class, or while trying to occupy your hands during a conversation over a glass of wine. Fact is, rubbing the rim of a glass produces a most pleasant sustained sound – one that can easily be captured and turned into a musical instrument with a sampler. Rubbed glasses can be used on their own to take the place of haunting bowed strings or voices, and they also mix well with any number of sampled or synthesized sounds

to add a magic, or shall we say *glass-like*, timbre to a composite patch.

## The Search for Glass

**THIN-WALLED GLASSES** seem to "speak" more readily than thick ones. Thin, fine crystal gives the sweetest sounds. Regardless of what type you use, though, be *very careful* that there isn't a chip out of the rim or you'll put a nice slice in your finger-tip – probably without feeling or noticing it until you've got blood in your

coffee, in your disk drive, down your 50s . . .

Getting long smooth notes takes a bit of practice – you need to learn how much pressure is needed to make a glass "sing." To obtain the best results, your hands and glasses should be clean and free of any sign of grease or oil. Washing them thoroughly first should do the trick. By the way, keeping a bowl of water handy to dip your fingers in as needed is a less sticky, and more hygienic, way of keeping your fingers moist than licking them every few seconds.

Different pitches can be obtained in two ways: using different sized glasses or filling a glass with water until you reach the desired pitch. For a comprehensive multi-sample, both methods will be of use. Unlike filling bottles up with water for



making a set of blown bottle samples, however, filling a glass up with water will lower the pitch when rubbed. An empty glass will give you the highest note it's capable of producing – don't ask me why; the very first time I experimented with tuning a glass with water, I thought my ears were playing tricks on me. Tuning your glasses will only give you a range of a minor third to a sixth lower than their empty pitch, a major third or fourth being a typical glass' most musical-sounding range.

Small liquor glasses may be used for the very high notes; wine glasses for mid-high; half-pint glasses for the mid; and large pint-size beer glasses and brandy snifters for the mid-low and low. Laboratory beakers can be used for a complete set of samples as they're available in sizes ranging from a few milliliters up to several liters, and using the same make of beaker throughout will give you a consistency of tone hard to find with a variety of household glasses.

Do you want a wet set or a dry set of rubbed glass samples? A "wet" set of glasses (using water to adjust the pitch) will have a dreamy pitch and tone color modulation as the water moves about, but, unless you're doing an underwater scene, filtered "dry" samples (relying on a collection of glasses for different pitches in a multi-sample) mix smoother with strings.

## Playing Glasses

RUBBING GLASSES HAS a lot in common with bowed strings – to all intents and purposes your finger is the bow. A legato note requires following the rim of the glass with the flat of a finger in a consistent circular motion. You'll find that you can get about half way around the rim of a glass before you have to change the position of your finger, so each complete revolution will be made up of two distinct cycles.

If you develop a really good technique you might be able to do an entire revolution in one cycle, but either way, unless you loop around a few samples of your sound, there will be some natural cycles in your loops. It's part of the charm of rubbed glasses, and if you have the help of visual editing it will actually make positioning long loops easier. To save on

allow the note to decay naturally. Thin, finer quality glasses will ring clearer and longer than your garden variety bar glass.

You can also pluck a glass with your nail or a soft plectrum. Again, higher quality glasses have a more musical tone. If plucked forcefully, you'll set any water in the glass into a rocking motion, giving an ethereal, wet vibrato. This is really nice to use in a Loud/Soft keyboard map with a gentle, non-vibrato pluck for the soft, bringing in the brighter, vibrato version as you play harder. Try this as an additional tine element in a layered electric piano sound – it could give the ubiquitous DX7 Rhodes some competition. You can also mix different pizzicato glasses adjusted to the same pitches together for an ensemble pizzicato. A small loop, around one or two wave cycles, enables plucked samples to ring on longer than naturally and makes some fun manipulation with a VCF and VCA possible. And then there's tremulando glasses – rubbing a glass rim rapidly back and forth for a shimmering effect. Eerie.

## Recording

MAKING SEEMS TO give a sweeter sound if performed around the side of a glass rather than focusing on the rim. Positioning the mic about ten inches away should do the trick. Cutting all frequencies below 50Hz or so with an equalizer or filter will minimize room noise and the rumbles of any passing traffic. (You'll hear these more clearly when a sample is transposed higher so play it safe by filtering.) And if you're working with sampling rates lower than 25kHz or so, a bit of top end filtering wouldn't go amiss either.

You might find attractive the added resonance obtained by holding the base of the glass against a wooden surface (such as guitar, piano or table top) with one hand and rubbing with the other. If you don't want this resonance, a towel or pad like those made for computer printers and mice will help cut down on vibrations passing through to the surface the glass is resting on.

A lot of high-frequency harmonics and partials are produced by a singing glass, so

clipping or aliasing of your samples. Rubbed glasses have a somewhat piercing quality that can be sampled as is and "mellowed" afterwards with a filter, or adjusted at source with microphone choice, equalization, a lower sampling rate or a combination of these.

## Manipulation

OF COURSE, SAMPLING "silly" things like rubbed glasses tends to be done when you're in "that sort of mood." But by taking the time to experiment with stretching the possibilities of instruments while still in the pre-sampling recording to tape phase (and manipulating them by editing), you'll most assuredly reap the benefits of a more interesting set of samples. I've found that if you play a rubbed glass sample back very slowly, stretching out the attack tremendously, you'll get an ambient, slightly metallic, almost ethnic sound. With a percussive envelope fading to nothing before the sample reaches its steady state, you'll find you've got a new sound that mixes well with bongos, guicas, log drums and the like.

A thorough sample recording session would include recording a first pitch dry, and two subsequent pitches wet, legato rub, staccato rub, tremulando rub, pluck, pencil tap and pencil eraser tap for each glass.

You should digitally fade in samples with rough or lengthy entries to polish them up and save on memory space. Be sure to leave at least a little bit of rough edge at the beginning if you want your samples to sound natural. Editing off the appropriate amount at the beginning of your samples will give a more percussive sound which feels really good when played from a keyboard – not quite an electric piano and not quite a bell to uninformed ears.

Most samplers have enough memory to store six or more legato loops at a respectable bandwidth on a single floppy disk. This should be more than enough material to put a multi-sample together from. When dividing up your memory space, think in terms of sets of sounds as follows.

- Several shortish loops and a long one or two for an Ensemble Map, layered so that you've got one long loop under shorter ones.

- Taking advantage of any velocity switching or cross-fading and constructing sets of Dry/Wet, Legato/Staccato, Legato/Tremolo, Tapped/Rubbed glass samples.

- Putting together keyboard split maps with an electric piano-like percussive map on the left three octaves and a legato set on the top two octaves.

Assembling a good collection of glass samples is an effective way of extending a sample library, whether it's for an Akai S612 or a full Synclavier system – and it's unbelievably inexpensive. ■

*"To save on memory space in a multi-sample, all the sample data you need is the attack of a note and a loop around the first smooth cycle or two."*

memory space in a multi-sample, all the sample data you need is the attack of a note and a loop around the first smooth cycle or two of a note, discarding the remainder.

Once you've got the hang of playing glasses, you'll find that you can elicit staccato notes with a short sharp rub of the glass, and removing your finger carefully once a steady tone has been produced will

you'll need a fairly high sampling rate for your sample to sound natural. For this very reason it's a good idea to divide sampling your rubbed glasses into two sessions. The first one covers recording glass rubs onto analog or digital tape, the second concerns sampling those recordings. During the second session you can experiment with various equalizations and sampling rates, seeing how far you can go before you get

# THE MUSICIAN'S LOOP

Here's your chance to beat the high cost of high-tech by becoming a charter member of a unique cooperative. Put together by musicians, for musicians, and pooling our buying power, we can pass on prices from the quantity discount columns on the price sheets. And we're authorized to sell all the big names in MIDI keyboards, drum machines, software and recording equipment. We're set up for immediate delivery, quality service and plenty of helpful advice.

Members receive a free catalogue and regular newsletters with the latest product info, tech tips and "members only" specials.

**Call today for membership details and best prices.**

**919-968-1616**

©1987, The Music Loft

## grandma's music & sound



**Solid Technical Advice  
Factory Service Center  
Large Inventory  
Major Brands**

**505-292-0341**



800 Juan Tabo NE  
Albuquerque, NM 87123

# Updates and Upgrades

**In our endless battle to keep you on the cutting edge of technology, MT brings you the latest versions currently available of your favorite software and hardware. Check it out.**

■ **Alchemy:** Blank Software has announced the release of Alchemy 1.2 for the Macintosh. New features include true 16-bit stereo sound editing, network support for the Emulator III and Roland S50 and S330, full SCSI support, improved Emax SE performance, and compatibility with the new Macintosh version 6.0.2 System Tools.

- *Blank Software, 1477 Folsom St, San Francisco, CA 94103. Tel: (415) 863-9224. Updates are available to registered owners for a \$25 materials and handling fee. Also available is a two-disk Hypercard format demo program, entitled HyperAlchemy, for \$15.*

■ **Cue:** Opcode has announced the release of version 2.1 of Cue, for the Macintosh, the sync software widely used in post production for film, television and video. The big news in this version is the added ability to import and play back MIDI Files, the newly-adopted standard. Now you can import sequencer files into Cue and have those sequences locked to SMPTE to do the cue sheets, automated "streamers" and "punches" and MIDI-triggered sound effects that Cue can produce.

- *Opcode Systems, 1024 Hamilton Court, Menlo Park, CA 94025. Tel: (415) 321-8977. Cue version 2.1 retails for \$595. Owners of Cue version 2.0 can update to 2.1 for \$20 plus \$5 s/h. Earlier versions can be updated for \$75 plus \$5 s/h.*

■ **Music Publisher:** Graphic Notes has announced shipment of Music Publisher Version 2.0, their music notation and publishing program for the Macintosh. New features include the ability to input and play back compositions on MIDI devices as well as through the Mac, facilities "for sophisticated part extraction and transposition," and better lyric and text handling. Other new features: measure numbers, automatic placement of odd beat markings, alignment of lyrics to notes, including hyphens, custom note placing so you can determine your own proportional spacing, and exporting PICT files. Using a separate keypad called Presto, Music Publisher is capable of handling everything from lead sheets to orchestral scores, with or without lyrics, with fonts that are publication-quality.

- *Graphic Notes, Inc, 200 7th Ave, Santa Cruz, CA 95062. Tel: (408) 476-4520. Music Publisher version 2.0 retails for \$595. Registered owners of version 1.0 can receive free upgrades by calling (800) 336-6683.*

■ **PPSI:** JL Cooper's PPSI (Poor Person's SMPTE) has been upgraded. Version Three of this handy little device is pretty similar to the original version, featuring MIDI Sync-to-Tape with Song Position Pointer, SMPTE-MIDI Time Code, and SMPTE-to-DTL (Direct Time Lock) for use with Mark of the Unicorn's Performer sequencing program. It reads true SMPTE in all formats, has auto-merge and slow or fast chase functions. The new addition? An external switch on the front panel to quickly and simply shift between functions.

- *JL Cooper Electronics, 13478 Beach Ave, Marina del Rey, CA 90292 Tel: (213) 306-4131. PPSI Version Three list price: \$199. PPSI Version Three is a new product, no upgrade available.*

■ **Pro24:** Steinberg/Jones' Pro24 sequencing software has now officially been released in a third version, to become Pro24 III. New features include a completely new owner's manual, four sub-tracks (buffers) that you can bounce between before committing them to the main 24 track, Iterative Quantize (you can quantize in steps by clicking the mouse to push the note closer and closer to the beat), and remote control from a MIDI keyboard. Another huge new feature is the Drum Edit page, which will let you break up any one of the 24 tracks into 96 monophonic tracks, spread out over six pages which display 16 tracks each, so you can set up a number of drum patterns and save them on disk, to load into sequences later.

- *Steinberg/Jones, 17700 Raymer St, Suite 1001, Northridge, CA 91325. Tel: (818) 993-4091. Pro24 III retails for \$295, and is available as an update to registered and unregistered owners for \$75.*

**Manufacturers:** If you have software or hardware revisions or upgrades that you'd like MT readers to know about, please send info to: *Updates and Upgrades, Music Technology, 22024 Lassen St, Suite 118, Chatsworth, CA 91311; or FAX (818) 407-0882.*

# SELL IT FOR NOTHING

## WITH A FREE CLASSIFIED AD IN MUSIC TECHNOLOGY

MUSIC TECHNOLOGY's free classified section is designed to help private sellers find buyers and bands find other musicians. If you buy and sell musical equipment or sounds as part of a small business, please contact the Advertising Department to place a regular classified ad.

### KEYBOARDS

**ENSONIQ EPS**, trade or \$1500. Akai AX73, \$375. Yamaha DX100, \$200. All exc cond. Tel: (702) 348-4726, leave message.

**KORG 707**, w/bag, extra ROM cards, multitimbral, split, layer, new cond, \$750 obo. Alan, Tel: (303) 973-1218.

**KORG M1**, one week old, \$1900. Memorymoog Plus, w/anvil case, \$700. MIDIPlexer, \$100. Tel: (717) 586-3917 or (717) 876-3419.

**KURZWEIL K250**, sampler, MIDI controller, sound generator, fully loaded, includes QLS-System/Macintosh, cables, stand, \$8500. Eric Heiberg, Tel: (804) 358-3852.

**MIDI BASS**, 4 samples, \$325. Casio CZ101, \$195. Korg Poly 800 rackmount, \$200. Gerald Jr. Tel: (504) 872-1188 or (504) 879-2481.

**ROLAND D50**, brand new, warranty, \$1300. Allen, Tel: (914) 623-7303.

**ROLAND D50** with hard case, extras. Me not musical after all, hardly used, \$1450. Paul, Tel: (619) 943-7657.

**ROLAND MKS70** 12-voice synth module, \$825. MKS20 16-voice piano module, only \$750. DEP5, make offers. Tel: (309) 452-3456.

**YAMAHA CP80** electric grand w/ anvil case, great cond, \$1200. Joel, Tel: (615) 832-2363, leave msg.

**YAMAHA DXI** with anvil ATA case, stand, manuals, pedals, and cartridges, mint cond, originally \$11,000, complete \$2000. Tel: (703) 830-4873.

**YAMAHA TX416** MIDI rack (4 DX7 modules) w/ Opcode ed/lib, large patch library for Mac, \$1800. Yamaha SPX90 effects unit, \$500. Korg EX800 wavetable synth, w/ Opcode librarian and large sound library, \$650. All studio use only, must sell. Tel: (716) 691-7219.

**YAMAHA TX802**, \$1140. TX1P, \$540. TX7, \$499. REV7, \$735. KX76, \$690. Akai X7000, \$1000. All new in box, w/ warranties. Chris, Tel: (205) 633-7495.

### SAMPLING

**OBERHEIM PROMMER & DX**, burns EPROMs, PROMs and EEPROMs, both w/ MIDI, \$900 package only. Tel: (212) 982-1366 days.

**PROPHET 2000**, 512K, library, \$900. Yamaha RX5 drum machine, new cond, \$650. Yamaha TX1P, \$650. MT JANUARY 1989

Tel: (219) 232-3874.  
**PROPHET 2000**, mint cond, 30+ disks, \$1000. MSQ100 sequencer, \$75 obo. Craig, Tel: (415) 864-3545 or (415) 346-2680.

**ROLAND S50** sampler keyboard, like new, asking \$1600 obo. Approx. 30 sound disks incl. Tel: (215) 967-2169.

### SEQUENCERS

**SEQUENTIAL CIRCUITS** sequencer cartridge with Commodore 64, cassette, manuals, \$125 obo. Tel: (503) 642-9180.

**YAMAHA QXI** sequencer, brand new, still in original packing, never used, \$1150 or make offer. Tel: (305) 753-7121.

**YAMAHA QXI**, sequencer, full documentation, only \$600. Steve, Tel: (203) 289-7570 days, (203) 828-0559 nights.

### DRUMS

**LUDWIG** 5-piece drum kit, unique black transparent shells, power-toms, Zildjian cymbals, \$500 obo. Andy, Tel: (901) 664-4679, leave name & number

### COMPUTING

**ATARI 520ST** computer, manuals, & built-in 3.5" drive. Master Tracks Pro, CZ-Android. Tel: (901) 423-3032, leave name & number.

**C64 SOFTWARE**, Dr. T's Mirage VDS, \$50. CZ Patch, \$30. FB01/DX100 editor, \$40. Convertifile, \$20. John, Tel: (508) 398-3990, after 6pm EST.

**FOR APPLE II+, IIe**: Passport MIDI interface, cables, Dr. T's Sequencer, Key Clique SysEx software, all manuals, \$200. Tel: (602) 391-1621.

### RECORDING

**TASCAM 15** 24x8 w/ 16 trk monitoring, 4-band EQ, 4 echo sends, 2 aux-sends, P & G faders, \$3500 obo. Kenn, Tel: (405) 321-2297.

**TASCAM 38** reel to reel 8-track, Tascam M30 mixing board, dbx noise reduction, Chicago area. Tel: (312) 596-2665.

### PERSONAL

**BASS PLAYER** available, fretted and fretless, slaps, sequencer chops,

groove and ear, paid situations. Jeff, Tel: (718) 727-4935.

### MISC

**AKAI MG1214**, dbx 160X, Emax rack & 63 disks, PCM70, Roland TR707, patchbays, MIDitrack ST w/ SMPTE, DX & CZ android, all w/ warranty. Tel: (718) 699-6666.

**DIGIDESIGN** Sound Designer (Akai S900) software for Macintosh, \$150. Fifty 2.8 disks, \$150. JL Cooper 8x10 MIDI switcher, \$150. Tel: (615) 824-6391.

**LYRICON** MIDI Wind Driver, \$760. Roland SRV2000 reverb, \$500. Casio CZ101 w/ voice cartridge, \$270. Tel: (813) 997-0323.

### WANTED

**16-TRK AUDIO + MIDI** equipment: console, multitrack outboard, 5900, SPI200, MPC60, Atari 1040, MT32, DX11, D110, DX7,

D50. Tel: (718) 875-5443.

**ANY INFORMATION** on the DX7S: patches, groups, clubs. John R. Mathews, 525 Victoria St. #75, Costa Mesa, CA 92627.

**CZ101s, FB01s**, Korg EX800s. Write: Kevin, 5765 Glenwood Dr, Baton Rouge, LA 70806. Tel: (504) 924-1203.

**GRAMMY** Award-winning producer seeking new talent: send photo, history, tape to: Darrell Johnson, 3020 Edgehill Cleve, OH 44118. Tel: (216) 765-6458.

**SONGWRITER** seeking publisher and acts who need original songs to perform and record: pop, rock, dance, and ballads. James, Tel: (716) 695-3042.

*Note: Music Maker Publications takes no responsibility and cannot be held liable for sales, purchases, trades, or any other transactions conducted through our Free Advertising Department.*

## MT FREE CLASSIFIED ORDER FORM

**FILL IN THE FORM** to a maximum of 18 words (one in each box), and send it to: **MUSIC TECHNOLOGY, 22024 Lassen Street, Suite 118, Chatsworth, CA 91311.** Please print clearly in **BLOCK CAPITALS.** Your ad will be printed in the next available issue.


Name .....

Address .....

City .....

State .....

Zip .....

Please include this ad in the ..... section.

# ADVERTISERS' INDEX

Alesis .....	OBC
Alexander Publishing .....	66
Altech Systems .....	23
Clarity .....	21
Digital Arts & Technologies .....	22
Drum, Keyboard, Guitar Shop .....	15
Foundation for the Advancement of Music .....	73
Four Designs Company .....	72
Gemini .....	61
Grandma's Music .....	78
Guitar Shack .....	22
Hal Leonard .....	28
Hip Software .....	53
Intelligent Computer Music Systems .....	1, 38
Kawai .....	12/13

Keyfax 3 .....	36
Manny's .....	59
Music Loft .....	78
Musician's Organizer .....	42
Pixel Publishing .....	17
Resonate .....	35
Rhythm City .....	44
Sausalito Craftworks .....	20
Simmons .....	6
Sonus .....	44
Sound Genesis .....	33
Spectral Synthesis .....	15
Tascam .....	3
Trebas .....	IBC
Ultimate Support Systems .....	30
Vesta-Fire .....	IFC
Wise Music .....	53
Yamaha (C1 Division) .....	68/69
Yamaha (Pro Audio) .....	40/41

**BE A RECORDING ENGINEER**  
Train at home for High Paying -  
Exciting Careers. FREE Information.  
**AUDIO INSTITUTE OF AMERICA**  
2174 Union St., Suite 22X,  
San Francisco, CA 94123.

**DAT  
TAPES**  
*Best Pricing Anywhere!*  
15 min to 120min lengths  
**THE TOY SPECIALISTS**  
333 W. 52nd Street,  
NY, NY 10019.  
(212) 333-2206

**KAWAI K1/K1m  
KORG M1**  
*Librarian/Editors - for Atari ST*  
**SynthView K1** (\$69.95): Easy to  
use point and click arranging and  
editing of singles & multis.  
**SynthView DW8** (\$49.95): Librarian/  
Editor for Korg DW & EX-8000.  
**SynthView M1** (\$79.95): Librarian  
only for Korg M1. Will be upgraded  
to include editing capability.  
*Send check or money order (\$3 P/H, \$7  
foreign). COD's/dealer inquiries welcome.*  
**SYNERGY RESOURCES**  
754 N. Bolton Ave., Indianapolis,  
IN 46219. Tel: (317) 356-6946

**Caruso  
Music**  
**LOOKING FOR USED MIDI EQUIPMENT?**  
We've got tons of super clean Yamaha,  
Roland, Korg, Ensoniq, Kawai,  
Akai and E-mu products in stock.  
*Come in or do it all through the mail.*  
Call or write for prices and details.  
**Caruso Music, 20 Bank Street,  
New London, CT 06320, USA.**  
Tel: (203) 442-9600 FAX: (203) 442-0463

**Entertainers, Singers,  
Musicians**  
For Professional Background Tracks  
Minus Any Instruments  
**Jingles Entertainment**  
5415 Bellaire, #342M  
Bellaire, TX 77401  
(713) 667-0250

**0-50 0-20**  
**0-10 0-110**  
**NEW** \$40.00 each  
448 new voices now available on our seven different  
**STUDIO SERIES™ ROM Sound Blocks** for your L/A Synth.  
**Top 40 • New Age • PCM**  
**Analog • Digital • Effects • Orchestral**  
**TX81Z** Our TX81Z Voices  
are 100% compatible  
with the DX11!  
**757 New Voices**  
**\$56.00** per format  
On Data Cassette or Mac™ disk for Valhala's TX81Z program or Opcode's Mac program.  
**ESQ1** 80 Voice ROMS \$25.00 ea.  
160 Voice ROMS \$52.00 ea.  
320 Voice ROMS \$99.00 ea.  
Please write or call for complete voice listings. 80 Voice Percussion ROM \$30.00  
Orders or info call: 1-313-548-9360 ext. 507  
Cont. USA \$3.50 S/H. AK, HI & Canada \$12.00 S/H  
All others \$16.00 S/H + \$3.00 per each item.  
**VALHALA**  
Box 20157-MT  
Ferndale, MI 48220  
All Prints only in  
USA Funds on  
a USA Bank.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION  
Required by 49 C.F.R. 101.11

1. TITLE OF PUBLICATION: MUSIC TECHNOLOGY  
2. ISSUE DATE: FEBRUARY 1988  
3. NUMBER OF ISSUES PUBLISHED ANNUALLY: 12  
4. ANNUAL SUBSCRIPTION PRICE: \$35.00  
5. YEARLY ADVERTISING REVENUE: \$1,000,000  
6. YEARLY CIRCULATION: 100,000  
7. NAME AND COMPLETE ADDRESS OF PUBLISHER: MUSIC TECHNOLOGY, INC., 1100 LEXINGTON STREET, SUITE 110, CHICAGO, IL 60611  
8. NAME AND COMPLETE ADDRESS OF EDITOR: GARY HERMAN, 1550 MEADOW BROOK CIRCLE, THOUSAND OAKS, CA 91320  
9. NAME AND COMPLETE ADDRESS OF BUSINESS MANAGER: BOB O'CONNOR, 1801 BURBANK BLVD., #2, VAN NUYS, CA 91411  
10. NAME AND COMPLETE ADDRESS OF CIRCULATION DEPARTMENT: MUSIC TECHNOLOGY, INC., 1100 LEXINGTON STREET, SUITE 110, CHICAGO, IL 60611  
11. NAME AND COMPLETE ADDRESS OF HEADQUARTERS: MUSIC TECHNOLOGY, INC., 1100 LEXINGTON STREET, SUITE 110, CHICAGO, IL 60611  
12. NAME AND COMPLETE ADDRESS OF SALES OFFICE: MUSIC TECHNOLOGY, INC., 1100 LEXINGTON STREET, SUITE 110, CHICAGO, IL 60611  
13. NAME AND COMPLETE ADDRESS OF DISTRIBUTION OFFICE: MUSIC TECHNOLOGY, INC., 1100 LEXINGTON STREET, SUITE 110, CHICAGO, IL 60611  
14. NAME AND COMPLETE ADDRESS OF HEADQUARTERS: MUSIC TECHNOLOGY, INC., 1100 LEXINGTON STREET, SUITE 110, CHICAGO, IL 60611  
15. NAME AND COMPLETE ADDRESS OF SALES OFFICE: MUSIC TECHNOLOGY, INC., 1100 LEXINGTON STREET, SUITE 110, CHICAGO, IL 60611  
16. NAME AND COMPLETE ADDRESS OF DISTRIBUTION OFFICE: MUSIC TECHNOLOGY, INC., 1100 LEXINGTON STREET, SUITE 110, CHICAGO, IL 60611

**ROCK STREET MUSIC**  
Music & Pro Sound  
Drums, Guitars, Amps,  
Sound & Recording Gear  
Call or write for more information:  
148 South Main St., Dept M,  
Pittston, PA 18640  
(717) 655-6076

**SINAP  
Software**  
Musical Instrument Digital Interface  
Genuine "Companion" Products by  
Snap Software. Patch Editor/Librarians  
for your Favorite boxes  
**For IBM-PC/XT/AT & Compatibles:**  
GM70 Companion \$75  
GP8 Companion \$100  
MEP4 Companion \$100  
PCM70 Companion \$115  
**NEW!**  
M1 Data Organizer \$115  
**To order:**  
Send check or money order to Snap  
Software, 1116 Janey Way, Sacramento,  
CA 95819. CA residents add 6.5% tax.  
Call (916) 451-9914  
for new product information

# TAKE YOUR FIRST STEP TOWARD A CAREER IN THE MUSIC BUSINESS.



- Highly selective, two-year training program
- Campuses throughout North America
- Current theory mixed with practical hands-on training
- Modern state-of-the-art 24-track recording studios and digital audio labs
- All classes taught by qualified, working professionals
- Job placement assistance
- Financial assistance available
- Fully accredited by ACCET

  
INSTITUTE OF RECORDING ARTS

6602 Sunset Blvd., Hollywood, CA,  
U.S.A. 90028 (213) 467-6800

112 East 3rd Ave., Suite 305, Vancouver, B.C.,  
Canada V5T 1C8 (604) 872-2666

410 Dundas St. East, Toronto, Ontario,  
Canada M5A 2A8 (416) 966-3066

290 Nepean Street, Ottawa, Ontario,  
Canada K1R 5G1 (613) 232-7104

1435 Ileury, Suite 301, Montreal, Quebec,  
Canada H3A 2H7 (514) 845-4141

# imagination.



Imagine a digital reverb that is so good you can make records with it. And is so affordable you can easily put several in a 4 track home studio.

You've just imagined MICROVERB® II. The almost impossible combination of professional sound quality *and* affordability. 16 classic digital reverb programs. The cream of the crop in one box. What could be more simple? Or useful. For records, demos, on stage; anywhere and everywhere your music needs to sound inspired.

From sparkling vocal chambers and natural ambient rooms to deep instrumental washes and explosive gates. With the simple turn of a knob you choose the right one. As your imagination sees fit.

A personalized statement is hard to come by in music. It takes sweat, guts, a passion for excellence. And imagination. It also takes the right equipment.

MICROVERB II lets your imagination run wild.



LOS ANGELES:  
Alesis Corporation • 3630 Holdrege  
Avenue • Los Angeles, Ca. 90016

LONDON:  
Alesis Corporation • 6, Letchworth  
Business Center • Avenue One,  
Letchworth, Hertfordshire SG6 2HR