Transoniq Hacker

The Independent News Magazine for Ensoniq Users

The Real Scoop on Piano Loops

Craig Anderton

Many samplers and synthesizers are judged by the quality of their piano sound — which is probably why Ensoniq has put a lot of effort into supporting their samplers with piano disks and why their current generation of ROM-based instruments feature new, improved piano samples. I'm sure part of this is because people who can't afford the bucks or space for a grand piano look to their electronic instruments to do the best possible simulation, but also, sampling fans recognize that a piano is a hellishly difficult sound to sample. If an instrument can get that right, it can probably do a good job with other sounds.

The problems of piano sampling were brought home to me while porting pianos from the Prosonus sample library over to the EPS and EPS-16 Plus. The quality of the samples was just fine, but if you've ever tried to sample a piano, you know what the difficulties are:

• Pianos are percussive instruments, with envelopes that decay over time. As a result, unlike a wind instrument or organ, there's no steady-state, constant-amplitude portion of the signal that would allow for a long forward or crossfade loop.

• The envelopes take a long time to decay. Therefore, unless you have humongous amounts of internal memory, you will not be able to fit several samples with natural decays into a sampler, thus making looping a necessity.

• Given all this, it seems that grabbing a single-cycle loop as close to the end of the waveform as possible would give the best results. And here's where the big problems begin.

When you strike a key on a piano, except for the lowest strings you are actually setting two or three strings into vibration. Because of the nature of piano tuning, the odds are excellent that these multiple strings will not all be tuned to the exact same frequency, which gives a natural chorusing effect and accounts for some of the piano's inherently rich sound.

Unfortunately, if you try to loop a single cycle of a chorused sound, there will usually be an unsettling change in pitch and richness when the sample transitions from the body of the sound to the loop. First, the chorusing effect will disappear, making it really obvious that you've hit a loop and second, the pitch will tend to sound slightly sharp or flat.

In this issue

Here's a workaround to this problem that's particularly well-suited for the EPS and the EPS-16 Plus since they let you fine-tune loop lengths in fractions of a sample. We can take advantage of this to get a looped piano sound that's a lot more convincing than the average single-cycle loop. The basic idea is to create a copy of the piano waveform that only appears during the looped portion of the sound. This copy is "tuned" so that if, for example, the original loop goes slightly sharp, the copy goes slightly flat. This creates artificial chorusing, thus minimizing the timbral difference between the body of the sound and the loop; the equal and opposite pitch offset for the copy restores the sense of proper pitch.

Here are the step-by-step details:

1. Loop your piano sample by grabbing a single-cycle wave as close as possible to the end of the sample. In most cases the further into the sample you go the easier it is to find a good loop, but of course, this also uses up more memory. I've found that four to six strategically-chosen samples can do a reasonable job of covering a five-octave keyboard, but if you have the memory to allow for more multisamples, by all means use them.

The most important point about this loop is to minimize the pitch variation as much as possible compared to the body of the sound. Be diligent and spend the time necessary to find a good loop point.

2. Create a copy of the looped sample and layer it with the original sample.

3. Move the copy's sample start point to just in front of the loop so that the copy consists solely of a low-level looped sound (low-level because, remember, we're grabbing that cycle as close to the end of the waveform as possible).

4. Add a delayed attack, and then a slight-to-moderate attack time, to the copy's envelope so that the the copy fades in a little bit before the main envelope's loop kicks in. There is one complication here: If you transpose the main sound over a fairly wide range because you don't have enough memory for lots of multisamples, the time it takes before the loop appears will increase at the lower end of the transposition and decrease at the upper end. Therefore, you will probably want the copy's envelope to track the keyboard so that the copied loop will come in at the appropriate time (i.e., when the loop on the main sample appears.)

5. Tweak the copy's loop end point using the loop fraction parameter (the middle parameter on the loop end edit screen.) If the loop on the main sample goes slightly sharp, then increase the copy's loop length ever-so-slightly so that its pitch goes a bit flat to compensate. This tuning offset should be kept to a minimum, otherwise you may get some buzzing in the loop. This is why it's so important to have the main sample's loop be as close to the correct pitch as possible — that way the copy's pitch doesn't have to be offset too much.

If you get the tuning just right, it's often possible to match the chorusing caused by the two loops interacting with each other with the natural chorusing that's part of the main sample. In some cases I've been astonished at how seamless the transition between the main body of the sound and the loop becomes. If you have a good sample to begin with and spend a lot of time getting the loop points just right (and of course, if the moon is in the right phase!), it can be very difficult to tell exactly where the looped portion begins in the overall sound. This is especially true if you can match the "rates" of the chorusing on the natural piano sound and the artificial chorusing caused by the loop offsets.

This approach also works with other complex waveforms, such as 12-string guitars although I still think the best way to generate a 12-string sample is to layer two 6-string samples and add an octave tuning offset. But hey, that's another story for another time. Meanwhile, I hope you get a chance to check out this particular piano looping technique. It has worked really well for me.

Addendum to MIDI Guitar Article (TH #72)

In Issue #72, I wrote about how I had finally found MIDI guitar EPS-16 Plus and Quantar MIDI guitar. However, there is one caveat: If you play while switching sounds, or do something else that generates a note-on without a note-off, you'll get a stuck note that appears to be unstickable. Stuck notes are particularly troublesome in mono mode because notes will mysteriously disappear and reappear as you play. Furthermore, since the keyboard is in mono mode, you can't just slam your arm down on as many keys as possible to use up voices and unstick the note.

A workaround for the EPS-16 Plus (suggested by Ensoniq's Bill McCutcheon) is to press Effects Select/Bypass, change the setting, and then return to the original setting (Effect=Instrument to Effect=Bank and back again). This clears any sustaining notes. On the original EPS, there's a clumsy but workable option for stuck notes: Press the sample button, select an unused instrument, press "yes" and "no" in quick succession, press any keyboard key, and finally, select the desired instrument. Apparently initiating sampling cancels all notes that are currently sounding.

A couple times I've encountered stuck notes while playing, but these have (fortunately) been few and far between. Mostly the problem happens if you have a note sustaining and switch sounds. I recommend lightly muting all strings on any MIDI guitar whenever you switch sounds on the EPS.

Finally, I would like to commend Ensoniq for not giving up on us crazy MIDI guitarists, and encourage them to continue making instruments that are designed to work with MIDI guitar. ▬

Bio: Craig Anderton is Editor at Large for Guitar Player *magazine, West Coast Editor for* EQ, *and a regular contributor to* Keyboard *and* Sound on Sound *magazines. His latest CD,* Forward Motion, *is distributed by MCA.*

RND (♪♫♪)

Ensoniq News

The SQ-R PLUS (suggested retail $995) is now available. This rack-mount synth module has all the features of our SQ-R, with the addition of the same 1 Meg of 16-bit acoustic piano waves found in the SQ-1 PLUS, SQ-2, and SD-1 synthesizers.

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New Sound Libraries

EPS-16 PLUS/EPS: *SL-5 Pianos (Vol. 2)* – Large and small versions of a Kawai grand piano and a Yamaha C-7 studio grand. *SL-6 Brass Ensembles* – (trumpet and trombone sections), both open and muted. *SL-7 Dance grooves* – (drum loops, assorted hits, and other dance sounds) from one of LA's top remix engineers.

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ESS-16 Marcus Miller Signature Series, with artwork by renowned artist Peter Max. Superstar bassist/producer/composer Marcus Miller provides some of the cleanest bass sounds ever to come from a sampler. The demo sequences are actual transcriptions of Marcus' playing during the sampling session! Includes 3 disks and a sound manual. Suggested retail price: $39.95

SD-1/VFX-SD: *ISD-4 British Collection.* This is the next disk in our ongoing International Collection, featuring 60 Sound Programs/20 Performance Presets created by British (natch) programmer, Adrian Thomas. This disk includes some very evocative "vector-style" sounds. Suggested retail price: $19.95.

SQ-1 PLUS/SQ-2/SQ-R PLUS: *SC-4* – 160 new sound programs created for Ensoniq by Sound Source Unlimited. Suggested retail price: $99.95. *ISC-1* – This collection takes the best sounds of the SD-1/VFX International sounds and converts them for use on the SQ series. Also includes new programs created by our favorite German programmer, Arnd Kaiser. Suggested retail price: $99.95

Be sure to visit your local Authorized Ensoniq dealer and ask for your free copies of our new Applications Guide, "*The Musical Perspective.*" These highly informative booklets deal with a variety of topics that will be of interest to any Ensoniq owner. Volume 1 is a guide to choosing a Synth versus a Sampler, written by Craig Anderton. Volume 2 is an explanation of the benefits of the Ensoniq Drum Map, written by Howard Massey.

Hacker News

Well, we've got our first Hacker Glitz column in this month's issue. It's something a little different for the Hacker. We hope you find it to be *useful* glitz.

Writer Sam Mims (godfather of Syntaur Productions and grandfather of the Hackerpatch) has been touring with saxman Richard Elliot for the past year and has recently completed the recording of Elliot's sixth album, *On The Town* (September, Capitol EMI's Manhattan label). Mims, Elliot, and bassist Naoki Yanai also made an appearance as a jazz trio on an episode of Lifetime cable's series, *Veronica Clare*. Mims has also recently completed work on guitar virtuoso Richard Smith's new album, *Bella Firenza* (Tokuma), and was responsible for much of the sound programming on Fishbone's recent release, *The Reality of My Surroundings* (Columbia). (And he still manages to get the Hackerpatches to us on time!)

Third-Party News

Latter Sound has moved to 2617 Ridgeway St., Tallahassee, FL 32304. Their phone number remains: (904) 575-5561.

TRANSONIQ-NET
HELP WITH QUESTIONS

All of the individuals listed below are *volunteers*! Please take that into consideration when calling. If you get a recording and leave a message, let 'em know if it's okay to call back collect (this will greatly increase your chances of getting a return call).

ALL ENSONIQ GEAR — Ensoniq Customer Service. 9:30 am to noon, 1:15 pm to 6:30 pm EST Monday to Friday. 215-647-3930.

HARD DRIVES & DRIVE SYSTEM — Rob Feiner, Cinetunes. 914-963-5818. 11 am — 3 pm EST.

EPS/EPS-16+ QUESTIONS — Erech Swanston, Maestro Sounds. 718-465-4058. Call anytime. (NY) If message, 24-hr callback.

VFX QUESTIONS — Sam Mims, Syntaur Productions. 818-769-4395. (CA). 10 am to 11 pm PST.

SEQUENCING — Larry Church, Danlar Music, 503-692-3663. Call anytime.

SQ-80 QUESTIONS — Michael Mortilla, 805-966-7252 weekends and after 5 pm Pacific Time.

EPS & EPS-16 PLUS QUESTIONS — Garth Hjelte. Rubber Chicken Software. Pacific Time (WA). Call anytime. If message, 24-hour callback. (206) 242-9220.

ESQ-1 AND SQ-80 QUESTIONS — Tom McCaffrey. ESQUPA. 215-830-0241, before 11 pm Eastern Time.

ESQ-1 QUESTIONS — Jim Johnson, (503) 684-0942. 8 am to 5 pm Pacific Time (OR).

EPS/MIRAGE/ESQ/SQ-80 M.U.G. 24-HOUR HOTLINE — 212-465-3430. Leave name, number, address. 24-hr Callback.

SAMPLING & MOVING SAMPLES — "Mr. Wavesample" — Jack Loesch, (201) 264-3512. Eastern Time (N.J.). Call after 6:00 pm.

MIDI USERS — Eric Baragar, Canadian MIDI Users Group, (613) 392-6296 during business hours, Eastern Time (Toronto, ONT) or call MIDILINE BBS at (613) 966-6823 24 hours.

MIRAGE SAMPLING — Mark Wyar, (216) 323-1205. Eastern time zone (OH). Calls between 6 pm and 11 pm.

SQ-1 QUESTIONS — Pat Finnigan, 317-357-3225. 8:00 am to 10:00 pm EST.

ESQ-1, MIDI & COMPUTERS — Joe Slater, (404) 925-7929. Eastern time zone.

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KORG M1 & T1

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TS-1: Keyed Chorale, Ambrosia, Dance Daze

TS-2: Grand Organ, Magic Flutes, Desert Dust

E-mu PROTEUS/1

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PR-3: Glasnost Men, Opera Chorus, Fanfare

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MS-1: China Sea, Piano Stack

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SY-2: XPander Brass, Moog Lead I, Moog Lead II

SY-3: VS Pads I, VS Pads II, Oberheim Pads

SY-4: Multi-Stack I, Multi-Stack II, Multi-Stack III

EG-1: Les Paul - Clean, Les Paul - Drive

EG-2: Strat - Clean, Strat - Distort

EG-3: Scholz Rockman, Gibson ES-335

EG-4: Telecaster Rock, Telecaster Metal

X-2: Steinberger BS Dlx (requires memory expander)

X-4: Takamine 12-Strg (requires memory expander)

WB-1: Shakuhachi, Koto, Temple Bells

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DC-1: Rock Kit, Simmons Kit

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LP-1: Agogo Bells, Timbales, Conga Drums

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SS-4: Solo Bass, Pizzicato Bass

WW-1: Bassoon, Bass Clarinet

WW-2: Clarinet, Flute/Piccolo, Bass Flute

WW-3: Oboe, English Horn

KB-4: Clavichord, Celeste

WB-3: Pan Flute, Gamelan

GB-1: Classical Guitar, Nylon String Guitar

GB-3: Jazz Bass, Bowed Bass

BR-1: Flugelhorn, Cornet

BR-2: Trumpet, Mute Trumpet, Tuba

BR-4: Sharp Brass, Bugle

X-3: Royal French Horn (requires memory expander)

X-5: Concert Grand Piano (requires memory expander)

OP-1: Marimba, Glockenspiel, Gongs

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OP-3: Tubular Bells, Timpani, Hell's Bells

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A-5: Gregory, Ambrosia, Bottle Breath

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Demo Ammo

— The Polarization of the Reviewer

Daniel Mandel

Tape: Demo Ammo.
Artist: Donnie Ellison.
Contact: 1896 Cartersville Rd. Goochland, VA 23063.
Equipment Used: EPS, Mirage, SQ-R, DX-100, CZ-101, Fender Stratocaster, Gibson LesPaul, Old 1954 Tweed Fender Concert Amp, SM-57, Tascam 4 track Reel to Reel w/dbx type 1, Nakamichi cassette decks, Alesis micro-stuff, Alesis drum machine, Yamaha and Digitech reverbs, DBX-163.

Donnie sent this tape in a while back, and I'll let you in on a little reviewer's secret — I listen to these tapes to and from work on the bus. At first listen, as the first song rolled by, I thought, yeahh, another sequence guru, more of the same. I got to work before I was able to hear the other songs on the tape and mentally I started preparing what I was going to write.

On the way home I listened to a little more. This was a bit more interesting; a song called *ATTITUDE*. The idea is a great one, about having a positive attitude and doing your finest. It starts out sort of Rap-esque, kinda funky. Donnie uses very synthetic drums, a good bass riff, and then throws in some sweeping analogs for breaks. He talks/sings his way through the lyrics with a strong emphasis on the chorus. Some of the sweeps evolve as they work, adding interest, and one of them ends in an "Oh, my God!" which he sampled from "a stolen moment in my wife's conversation with her mom." I was trying to think about what else I could say about Donnie's tape when I arrived at home...

The next day on the bus to work I got to the third song, *WRESTLIN' WITH THE DEVIL*. Now this was sort of different. More realistic drums. A nice bass patch. Good blues guitar riffs. The lyrics here are all about dealing with the devil, good verse, chorus song structure type stuff and a wild break in the middle where after an instrumental section, a sample of dogs barking weaves its way into the song. It wasn't what I expected and it kept the song alive. The highlight here is the guitar playing. Maybe, for some, a little raw and unpolished in places, but nice work!

Song 4, *BRIAN THE MECHANIC*, I listened to the same morning, having missed my transfer and barely getting to work on time, I might add. This one has a fatter sound in the percussion as well as a nicely tuned percussion and cowbell session. Then, a very well executed break where the music stops, a motorcycle engine starts, a woman moans very provocatively, and the music kicks in again. Donnie then returns to the main theme and ends the song with the same type of break, the music stops and a car engine zooms to a fade out.

All of this sounded, well, nice, sorta nondescript. Some good ideas. Nothing that really grabbed me. What would I write about? Then on the way home I popped the cassette in and listened to the last two songs. *REEFER* (Donnie says, "Relax, it's the dog's name.") is a great mellow song with a good solid beat using a shaker and a realistic drum sound. An upright bass, vibes and acoustic guitar carry the chord progression. The lyrics are very personal about this brand new baby girl who is about to enter the world, and all the things she will encounter; Mama, Daddy and Reefer being some of the folks she'll hafta deal with right away. There is a definite hook in the chorus. Donnie really sings on this one and he's got a good voice! The lead is a ringing synthy sound creating a pleasant contrast on top of the other instruments. This song is very, as they say, accessible. It is easy listening music and it kept running through my head long after I put the tape down.

HOW SHE'D SMILE is another very mellow, immediate-type song with a wonderful chord progression. Here, too, another good hook — couldn't turn it off in my brain. Not only did the lyrics hook but the intro/bridge section musically had a hook as well. The guitar work is excellent, with that characteristic strat sound. This almost has a country/blues flavor to it and Donnie's imagery here is powerful as well as familiar. He sings this song with conviction.

My dilemma was that I was so polarized by the first few songs, and so taken by the last two that I really didn't know what to say, but here goes! Also as I write this I realize that I have my own likes and dislikes and my own bias, but, then again, Donnie wanted some advice.

If I were Donnie, I would really concentrate on the strong points of this tape. There is an area of songwriting in the last two songs that he excels at and that appear to be *very* marketable! He may want to get some how-to books on taking on the challenge of marketing the material. Maybe put together a demo of songs of only one style and send it to a specific artist (preferably one who doesn't write his own material) and/or send in a demo to an A & R department of a recording label. And, of course, another option is independent production. Lots of tradeoffs here — lots of potential articles.

Donnie, thanks for sending in the tape and I would be very interested in hearing the next generation. ▬

Bio: Daniel Mandel is a songwriter, sound designer, and has sold pro audio and keyboard equipment and produced demo tapes for local bands.

Pair O' Reviews

Clark Salisbury

For: VFX or VFX/SD and Macintosh Computer.
Product: VFX Ed/Lib.
Price: $139.
From: Interval Music Systems, 12335 Santa Monica Blvd. #244, Los Angeles, CA 90025, (213) 478-3956.

VFX Ed/Lib is a combination editor/librarian program for the VFX series of instruments and the Macintosh computer. The program requires 1 megabyte of RAM, system version 6.03 or higher, and either two 800k floppy drives or a hard disk drive. The program is copy protected; if you are using a hard disk drive, you are allowed to install the program up to two times. Installed versions can also be removed from the hard drive. Also included is a small desk accessory called "VFX Loader" — this is used simply for sending banks saved in the VFX Ed/Lib format to your VFX, but without having to run VFX Ed/Lib to do so.

Overview

Load up VFX Ed/Lib, and you'll find yourself looking at the "Program Edit" window. In all, there are 7 windows that you might find yourself working with, each of which contains (and gives you access to) groups of related parameters. The "Preset Bank," "Preset Edit," "Program Edit," "Effects," "Pitch Table," and "Rand-O-Rama" windows round out the collection.

Up to six VFX banks (containing both sounds and presets) can reside in memory at once — if you have enough memory, that is. 2 megabytes of memory is recommended if you plan on having more than three banks loaded. VFX Ed/Lib is Midi Manager-compatible (although you don't need to use Midi Manager to run the program), and claims to be System 7.0 "friendly."

Banks

As mentioned, up to six banks of sounds can reside in VFX Ed/Lib at a time, providing you have enough memory. The bank editing page functions pretty much as expected. Programs can be easily copied, pasted, and otherwise re-arranged. Up to eight programs can be moved to temporary buffers, leaving them "on call" regardless of which bank you are currently in. One nifty feature is the inclusion of an "attributes" function. Sixteen "attributes," such as "piano," "strings " "air," and "metal" are listed to the left of the bank. You can assign any or all of these attributes to any program by simply clicking on the program, and then clicking the check boxes for any of the attributes that you feel should apply. Then when you want to select all the programs that you have assigned the "piano" attribute. for example, simply click the word "piano" in the attributes section. All the piano sounds in the current bank are then selected. These could then be easily copied and pasted to a new bank of all "piano" sounds — a real slick feature.

Editing

If you're planning on doing a lot of sound editing, you'll probably find yourself spending a good deal of time working in the "Program Edit" window. This window groups together parameters that would normally be used to create or edit a single "Sound" in the VFX — primarily, the functions and parameters found in the "Programming" section of the VFX.

The "Program Edit" window does a reasonable job of cramming a lot of VFX parameters into a pretty small space — it's pretty easy to navigate without too much trouble. The window is composed of a number of smaller "panes," each of which contains a group of related parameters, such as all the filter parameters, or all the output section parameters. You can select a sound for editing from a pop-up menu, and select a voice from within the sound to edit. Voices can be muted and soloed, and the sound can be named.

Along the bottom of the screen is a graphic keyboard which will send MIDI notes when clicked on with the mouse — this is to give you an easy way to hear the sound that you're working on without having to leave the computer. The keyboard can be scrolled up or down to give you access to the upper and lower MIDI note ranges, and there's a chord function that allows you to lock in chords that can be played in place of single notes. A minor quibble, though. In a couple of places in the owner's manual, Ensoniq is mildly taken to task for "mis-numbering" its keyboard MIDI notes. The manual states that "when the VFX manual says "C4" it really means "C3" (MIDI Note 36). VFX Ed/Lib always labels its MIDI notes correctly...." Well, I got news for you. The onscreen keyboard in VFX Ed/Lib labels MIDI note 36 as C1. It's no big deal, really, but it seems to me that if the manufacturer of a product labels his notes in some idiosyncratic way (and a lot of synth manufacturers label their notes with the same numbers as Ensoniq), wouldn't it be easier for the end user if the software he or she plans on using with that manufacturer's product labeled its notes in the same way? Just a thought.

The confusion about note numbering isn't the only inconsistency to be found in the owner's manual or the program itself. For example, selection of some numeric parameters "pops up" a software slider on screen. This slider can be dragged left or right to enter new values for the selected parameter. It seems odd that this slider is available for some numeric entries but not others. Another example; page 3-2 of the owner's manual describes a method for copying patches using the "left" mouse button — on the Macintosh, there is only one mouse button. Fortunately, the copy routine works fine using the standard mouse button. And the introduction to the program recommends clicking on the on-screen keyboard and checking the

VFX LCD display for an acknowledgement that MIDI data is received. Unfortunately, the VFX does not acknowledge reception of MIDI data in this way. These, obviously, are minor problems, however, and not worth dwelling upon.

To make edits, you click on the parameter that you wish to change. Depending on what type of parameter it is, one of a couple of different things might happen. If the parameter involves selecting from a list of possibilities, such as with selecting a wave or an effect, you'll be presented with a pop-up menu listing your choices. To make a selection, drag the mouse to the item you wish to select and release the button.

If the parameter you wish to change has a numerical value, such as filter cutoff or LFO rate, clicking on the parameter "pops it up" like a button (selecting it), and values can be entered directly from the Mac keyboard. Alternately, you can change a numeric parameter value by clicking on the parameter and dragging the mouse up or down, depending on the direction you want the numbers to go. This works a bit differently than I've encountered in other programs, such as those by Opcode. Dragging the mouse up, for example, starts the numbers incrementing. The farther up you drag, the faster the numbers increment. The numbers will continue to increment, however, until you either release the mouse button, or bring the mouse back to its original position — and if you overshoot, and move the mouse too far down, the numbers will begin decrementing. I found it somewhat difficult to enter values precisely using this method, although I'd probably become more adept with practice.

The methods available for entering parameter values are not used consistently, however. Some (but not all) of the list selections can be made from pop-up buttons in somewhat the same way as numerical entries, although it took me a while to figure it out. A number of these list parameters, such as pitch mod, voice priority, and LFO rate mod (but not LFO depth mod, for some reason) can be popped up with a single, quick mouse-click. It took me a while to figure out how to enter values, though. They can be incremented or decremented using the + and - keys on the Mac — a fact mentioned in the beginning of the owners' manual, and one which could bear repeating later.

The program editing page I found to be generally well laid out. Most parameters were fairly easy to find and edit. I particularly liked the treatment given envelopes — each of the three envelopes used in a VFX voice is displayed graphically in a small window. Clicking on the window zooms it out to a size that makes detailed editing comfortable. But you can also option-click to rough-edit an envelope directly in its "mini-window" without causing the window to zoom out — a nice touch. One quibble, though. There are only five preset envelopes available. The VFX itself has 17 preset envelopes available — it would have been nice be able to select among these. Or better yet, to design and store one's own favorite preset envelopes. Also, there seems to be no way to copy envelopes. At least I couldn't find reference to it in the manual, and the copy and paste procedure that was outlined in the manual didn't seem to work with the envelopes. This is unfortunate, considering the complexity of envelopes in the VFX.

And that's kind of the way it goes throughout the rest of the program — generally adequate, and in some cases exceptional, features, but a lack of consistency and follow-through. The effects page, for example, functioned well enough, but selecting a new effect type would generally reset all the effect parameters to some unpredictable, and often unmusical, setting. The pitch-table page I found unnecessarily complicated, and I couldn't make the random and interpolitive patch generation pages function consistently at all. Indeed, I experience a number of problems transferring data back and forth to the VFX, as well as a number of MIDI error messages, even taking into account the numerous warnings in the manual about how to avoid error.

The bottom line, I think, is that VFX Ed/Lib is long on conceptualization, but a bit short on execution. It's a bit frustrating, because this would be an easy program to recommend if it performed a bit more consistently. As it is, I'm afraid it's potentially a good program that's crippled by inconsistency and glitching. I hope the folks at Interval Music Systems decide to iron out the problems — this could be a good program.

For: VFX or VFX/SD and Macintosh Computer.
Product: Voice Shaper and Omni Librarian.
Price: $55 each.
From: intelligence Artisans (iA), 11301 Olympic Blvd. Suite 405, Los Angeles, CA 90064.

iA Voice Shaper and Omni Librarian

Voice Shaper and Omni Librarian are a pair of Hypercard stacks from intelligence Artisans in California. The programs require an Apple Macintosh computer running Hypercard version 1.2 or higher.

Omni Librarian makes a stab at providing a Hypercard-based librarian for the VFX series of synthesizers, but as such it has a couple of major problems.

First, it takes too darn long to receive a bank of 60 programs from the VFX. Programs are apparently transferred one at a time, with each individual program taking 5 to 6 seconds to

Tested and Approved Hard Drives for the EPSs

Note: The drives listed below are known to be compatible with the EPS and EPS-16 PLUS *at the time of testing.* Changes in firmware or hardware by drive manufacturers may make later versions incompatible (with the exception of **PS Systems**, **Eltekon**, and **Frontera** whose drives are configured to work specifically with Ensoniq products). Drives *not* included on this list may also work just fine. For up-to-date information about specific drives call Ensoniq Customer Service: 215-647-3930.

MANUFACTURER	MODEL
Frontera	All Models
PS Systems	All Models
Eltekon	All Models
Rodime	45plus, 60plus, 100plus, 140plus
Microtech	R45, N20, N40, N80, N100, N150
PL1	45 Meg Removable
Mass Micro	Datapack 45

transfer. This adds up to 3 – 4 minutes to transfer an entire bank — a length of time that I think is unacceptable.

Secondly, programs can be sent back to the VFX individually, but not in banks. This means that to send an entire bank back to the VFX, you'll need to select and send each program individually to the VFX's edit buffer, manually writing each program into memory. It would almost be quicker to list the program order that you want on a piece of paper, and use the panel controls of the VFX to manually write the programs to their new locations.

Another problem lies in the fact that while you can copy programs to new locations, Omni Librarian only displays 12 of these programs at once, forcing you to flip back and forth through the Hypercard cards if you want to do any serious re-arranging. However, there's not much sense in doing any re-arranging of the sounds, since you still have to manually write the sounds back into the VFX anyway. I'm afraid it's a definite thumbs down for this stack.

The other Hypercard stack provided, Voice Shaper, isn't much better, I'm afraid. Basically, Voice Shaper allows you to get a program from the VFX, and then display and edit it.

The display, however, is bare bones, consisting of listings of VFX parameters in plain text form. The only graphics used are for envelope displays. Unfortunately, envelopes must be edited numerically. You can't click and drag a point on the envelope display to input new values — although numeric values entered are used to update the graphic display.

Edits are made by selecting the area to the immediate right of a parameter listing, and entering the value you want to send to the VFX. The problem here is, you have to know what values are allowed — there's nothing in the program that shows you the range of legal values for any of the parameters. For parameters whose range of values are not numeric, such as waves, or modulation sources, you can call up a listing of legal settings, from which you can pick the one you think most appropriate. But it strikes me that to use this program effectively you'd have to be pretty familiar with the VFX already. And at the level of familiarity I think you'd need, this program would not provide you with a faster or easier method for creating sounds. ▬

Bio: Clark Salisbury is a freelance writer, consultant, sound developer, recording engineer/ producer, educator, and guitarist. His latest project is as script developer and technical consultant for a series of instructional videos, many of which will feature Ensoniq products.

Bob Ostertag

John Bolles

One of the most memorable experiences in my college career occurred while I was in an audio production class. One of my classmates was Bill Mauchly, who now works for Ensoniq. Our first assignment was to produce an audio representation of some significant event in our lives. Bill's tape consisted of numerous spoken phrases, juxtaposed and distorted in varying ways, all backed up by a cheesy electric guitar playing *"Louie, Louie."* The end result sounded like a zillion scraps of tape someone stayed up all night for a month editing. When the tape was finished, the instructor shut off the machine and, mildly exasperated, asked Bill, "Okay, how did you do it?" Bill's response: "I used a Mellotron."

The Mellotron, for those of you who do not know, was a keyboard instrument that worked by activating little tape players. Stored on carts inside the instrument were tapes of real instruments playing the various notes. You could select brass, strings, or flute. Pressing middle C would trigger a tape of the selected instrument playing that note. What Bill did was substitute the tapes in the carts with some tapes of his own (no easy task, by the way). When Bill depressed the middle C key, he didn't get a string section, he got *I'm so-o-o-o stoned.*

Keep in mind, this was long before sampling made this kind of thing easy, and such tricks became commonplace. Bill's first project, like all the rest he did, were very impressive. What made Bill's work stand out? Obviously, he had the raw creativity to think of it in the first place. Secondly, he had access to an advanced technology and knew how to use it. Thirdly, he thought outside of the instrument's typical role and created a new application.

Everywhere I look — in articles, editorials, letters-to-the-editor — people are expressing the opinion that modern music is dead, and MIDI is to blame. Maybe the writers don't come right out and say it (and maybe they do), but the message is there: The current stasis of music is the direct result of MIDI technology. Take, for example, this sentiment recently expressed in a letter to Electronic Musician magazine:

Manufacturers of electronic music instruments have designed out most of the 'non-conventional' things that one was able to do with an older product. Now, it is all sequencing, quantizing, and MIDI.

First of all, as *Electronic Musician* pointed out, some of the most interesting experimental music did not use electronics at all. Secondly, sequencing, quantizing, and MIDI (I assume this means connectivity) are all options: There is nothing in the equipment forcing anyone to use any of these functions. If you want to plug in and record straight to tape, there is nothing preventing you from doing so. And would anybody agree that non-conventional applications have been *designed out* of electronic musical instruments? If anything, manufacturers are constantly increasing our options. Simply compare the number of programming variables in the ESQ-1 to those in the VFX. And consider samplers, which are virtual blank canvases on which an artist can paint any sonic landscape he or she desires. How does that possibly inhibit non-conventional uses? If anything, it should encourage them.

It has always been my opinion that the major deciding factor in the application of any technology is the person using it. Every musical style over the last few hundred years, from classical, to be-bop, to avant garde, was created using the same families of *conventional* instruments. One music experimentalist randomly punched holes in player piano rolls to create some interesting effects. Jimi Hendrix used a Fender Stratocaster and a Marshall amplifier — conventional technology in his day. Silver Apples, a pretty weird '70s duo, had a conglomeration of oscillators which Simeon, the *keyboard* player, triggered with his hands, feet, elbows, knees, whatever.

It is ironic that when experimentation was at its height, music technology was quite limited. Rarely did an experimental musician invent a new technology to produce art. Such work was almost always the result of a new or unorthodox application of an existing technology, sometimes not even strictly *musical* technol-

ogy. Now we actually have technology created specifically for music and people are complaining that it is inhibiting creativity! The results produced with any technology will be influenced the most by the person in whose hands it lies. Why do people think MIDI is any different?

If you need further persuasion that MIDI technology is not to blame for the current state of music, I present to you the work of Bob Ostertag. Bob Ostertag would probably best be classified as an avant garde or experimental artist. His medium is sound and his tool is the Ensoniq EPS.

Listening to Bob Ostertag's use of the EPS, *conventional* is the LAST word to come to mind. This is partially due to the fact that he never learned how to play a keyboard. *What I'm doing is more about manipulating sounds than keyboard playing, per se,* says Ostertag. Bob started out as a guitar player, and then began to augment his sound with electronic devices like fuzz boxes and filters. In time he just became more interested in the devices. He attended the Oberlin Conservatory and completed their entire electronic music program in one year. *It's not that it was a bad program; it was a great program. I was just real enthusiastic and blew right through it. The instructor got in trouble for letting me do that, because the Dean thought it made the school look bad. Like a lot of educational institutions, they discouraged real enthusiasm and learning.* Year two at Oberlin was frustrating for Ostertag until avant garde composer/performer Anthony Braxton passed through and hired him for a European tour. When the tour ended, Ostertag settled in New York and became part of what was later referred to as the *downtown* music scene (also described as *below underground*).

His early equipment included an ARP 2600, a Serge modular synth, and a tape loop system. First, he formed a group called Fall Mountain, then teamed up with two musicians who remain collaborators — guitarist Fred Frith and reed player John Zorn. In 1980 Ostertag and Zorn recorded on Rift Records, and the label subsequently sent Ostertag to Nicaragua to record indigenous music. For nearly a decade after that, Bob forsook music altogether and immersed himself in politics as an organizer and journalist. When Ostertag moved with his family back to the states, old friendships were renewed quickly. Soon, he had hooked up with Frith and was busy bringing himself up to date with the new digital technology.

Given Ostertag's experimental approach, especially his early fondness for tape loops, a sampling instrument seems a logical progression. The versatile sampler keyboard provides a way of capturing several diverse sound packages which can be controlled from a single source. Ostertag completely eschews the traditional concept of sampling. Usually, sampling strives to make sounds pitched and *musical* and playable in a (typically) twelve-tone scale context. Instead, Ostertag samples whole sound events — complete phrases played on a saxophone or guitar, the impassioned, grieving cries of a 9-year-old Salvadoran boy burying his father while a fly buzzes mercilessly in the background — then edits them and modifies them using the EPS's extensive modulation capabilities. When the sound events are tailored to his liking, he plays them live in a sequence that I suspect only he understands fully. He performs in this manner both alone and in conjunction with Fred Frith on guitar. The interaction which results — between man and machine, between man, machine, man, and instrument — is about as *non-conventional* as things get. As the Rift Record press kit states, the stuff he puts in is the clay he works with.

Rift Records has released two Bob Ostertag CD's which feature the EPS. The first of these was *Attention Span,* recorded in the fall of 1989. The second, *Sooner or Later,* was recorded in January through June of 1990. A third album project is in the works.

Attention Span consists of two programs, *Slam Dunk* and *Sleepless. Slam Dunk* is a series of 26 short statements which are as volatile and abrupt as, well, a slam dunk. Each is a live improvisation using samples of John Zorn's saxophone playing. *Sleepless* consists of six statements, somewhat longer and mostly mellower than those in *Slam Dunk. Sleepless* is a live improvisation between Ostertag on EPS playing samples based on Fred Frith's guitar playing, and Fred Frith himself playing along. Each statement has a title (for example, *Marketing Research* and *Bone*), and the liner art includes a graphic corresponding to each title.

Sooner or Later also consists of two programs, untitled. The first is an evolutionary audio process which begins as a recording of Chaquito, a 9-year-old Salvadoran boy, in the act of burying his father, who was killed in the struggle. As the boy speaks, you hear his voice crack with sorrow and passion, expressing his love for his late father and his vow to avenge his death someday when he is grown. You hear the shovel enter the dry soil, and a fly buzzing in the background. This is the starting point from which Ostertag extracts snippets of sound, then modifies them and develops them as thematic and rhythmic elements. For me, it was at once both moving and disturbing. The boy's anguish is so real and so evident, you cannot help but feel it with him. Yet, it almost seems degrading to deal with the groanings of a young boy's soul and use them in such a detached fashion. Yet, you learn from the liner notes that it was Ostertag's intent to redeem a tragic situation which otherwise had virtually nothing redemptive in it. However it strikes you, it is not something you are likely to forget.

The second program is an improvisation based on samples of electric guitar as played by Fred Frith. The raw material is seldom recognizable as guitar, and develops into a complex droning, full of motion. A few minutes into Program 2, Chaquito returns, in numerous vocal incarnations. This is not machine-gun repetition of spoken phrases like you may have heard a lot of people use the sampler to do. This is using the sampler to elicit strong emotional responses from the sound of the human voice.

Bob Ostertag is now living in California with his wife and daughter. He spoke with me by telephone to answer a few questions for the *Transoniq Hacker* readership.

JB — Is *avant garde* a fair term for classifying what you do, or would *experimental* be better?

BO — I guess I'd prefer *experimental.* A lot of what is called *avant garde* music I don't like (laughs), so I'd rather stay away from that term. *Lower eastside music* is the most descriptive term for me, since there were a bunch of us playing music on the lower eastside and this is what it sounded like. But I guess *experimental* is fair.

JB — In a general sense, what are you trying to accomplish with your sound manipulations?

BO — With *Sooner or Later*, what I was trying to accomplish was pretty well spelled out in the liner notes.

JB — Yes, I had a lot of mixed emotions about that one.

BO — Well, I can understand that. It was a pretty upsetting subject. Having stayed in El Salvador for such a long time, and having seen all that was going on in that country, I felt pretty strongly about it. It doesn't really bother me that you have mixed emotions about it, because it is an upsetting piece. But I wouldn't say that my goal in everything I do is to upset. *Sooner or Later* was a political statement, and it came out just the way I wanted it to. I wanted it to be right on the edge of being music, and I think that's how it came out. What I was trying to say with that was... I lived there for eight years, and everybody had an agenda. The political people had an agenda, and to them, everybody who died in the fighting was a hero. And this boy's father was, in fact, a hero. He was a leader in the revolution to overthrow the government. But even the people who were trying to win their freedom got caught up in their own agenda. And the religious community had its own point of view and agenda. All I was trying to do was point out that, underneath all the politics and the religion, is a little boy crying. That's what I wanted to get across, that this is the reality of it.

JB — Is all your playing improvisational?

BO — *Sooner or Later* was originally improvised on the EPS and recorded into a Mac-based MIDI sequencer. For performance, I can actually play that whole thing, from start to finish, live on the EPS. I use a Lexicon LXP-1 reverb and LXP-5 effects box. I also use the Lexicon MRC Midi Remote Controller for a lot of things. *Attention Span* was all improvised. For Mac-based sequencing, I use Vision and Beyond.

JB — It seems to me that, coming from your background in tape systems, a sampler is a logical progression. What made you choose the EPS?

BO — Without a doubt, the extensive modulation matrix. The PolyKey polyphonic aftertouch is like having 61 knobs, one for each key, and no other sampler has it. The performance interface is brilliant, with the layering and patch select features.

JB — Am I correct in saying that you edit the sounds using the EPS's editing capabilities, or do you edit them beforehand?

BO — Both, really. I use Mac-based editing programs like Alchemy and Turbosynth a lot. I can manipulate sounds extensively using those programs, then load them into the EPS and program the modulators. I edit sounds in software if I want to do very specific kinds of mixing. The rest of it, I do in the EPS.

JB — Specifically, what are some of the things you do in the EPS to modulate your sound events?

BO — Basically, every sample makes use of every available modulator. This is the main reason I got the EPS. The new EPS-16 Plus is even better. For example, I may assign the foot pedal to the filter. Then I'll have patch 1 routed to low pass, high pass on patch 2, band pass on patch 3, and band reject on patch 4. Patch 1 might be forward without looping, patch 2 might be forward with looping, patch 3 bi-directional or backward, whatever. Another thing I might do is stack two samples on the same key and use poly pressure to modulate pitch, and set one to raise the pitch and another to lower the pitch. That way, I can produce in real time a phase effect just by finger pressure. I may have the mod wheel routed to looping. Something else I may do is take, say, a 10-second sample and find 30 possible start points in it. I'll assign each sample to its own key, then turn off the pitch table, so I get the same sound at the same pitch, but each with a different start point.

JB — There are certain sounds which are reminiscent of other sounds. I am often reminded of a radio tuner moving from station to station. Bubbling sounds... Are these intentional evocative sounds, did they come about by accident?

BO — Whenever anybody listens to something, they usually try to relate it to something they've heard, so descriptions like bubbles or radios are understandable. Actually, *Slam Dunk* is all based on idiosyncrasies in the EPS operating system. I was familiar enough with the EPS that I knew what kinds of patches would make it go nuts. But I didn't necessarily know what the EPS was going to do in response. So I designed patches specifically to throw at the EPS and make it confused and see what it would throw back at me. The whole thing was semi-controlled and semi-random.

JB — What is your favorite thing about performing with the EPS?

BO — Just about everything about it. Stacking, layering, SCSI implementation, the user interface — brilliant. I use a removable hard drive with it and I use macros all the time. Every sound I use for a whole gig I can get to in two button pushes. Sometimes I do wish they would use better components. The data slider is great if you're working in increments of eight instead of one! The mod wheel is somewhat inaccurate. A lot of times I'll just program the MRC to do something instead. But I realize this is all part of keeping the cost down. I'm one of those people who would be willing to pay more for an Ensoniq product with better components, but I realize I'm in the minority where that's concerned. The Ensoniq people are great, too. They've been very helpful; I've spoken with them a lot and they've helped me out a great deal.

JB — Any parting comments for the *Transoniq Hacker* readership?

BO — There is one point I feel very strongly I should make, and that is that you don't need a lot of gear. I am a professional musician, and the equipment I listed earlier is all I use. I've done two CD's with it, and I'm working on a third.

Experimental music — you may love it, you may hate it. However you feel about it, it proves that the highest technology we have is still creativity, and the most powerful feature of any electronic keyboard instrument is the person playing it.

Sooner or Later and *Attention Span* are available for $20 each, from Rift Records, PO Box 663, New York, NY 10002. ▬

Transferring ESQ-1 Sequences Between Sequencers

Brian Rost

At the time of its introduction, the sequencer of the ESQ-1 was a quantum leap in the state of the art and Ensoniq has added features to it over the years, but it is still limited by the hardware it runs on. There comes a time for many users when they need to use the ESQ-1 in conjunction with another sequencer, transferring sequence data in one or both directions. It may be as simple as taking drum patterns entered on your drum machine and loading them into the ESQ or as complex as collaborating with someone using another sequencer to develop their part.

There are only two ways to get sequence information in and out of the ESQ; the first is to do a bulk dump to tape, Mirage, disk (in the case of the SQ-80) or over MIDI to a computer or data filer, while the second is playing the sequence in real time over the MIDI ports. Using the first for transferring between sequencers has obvious technical hurdles which are insurmountable since the ESQ uses a unique format for storing sequence data. The only device that can actually edit the data dumped out over MIDI is another ESQ. So that leaves us with moving the data across in real time.

At first glance, the transfer is as simple as hooking MIDI OUT of the source sequencer to MIDI IN of the destination sequencer and playing the sequence. It is almost that simple, but we need to look at some limitations of transferring by this method first and how that affects the transfer process.

The ESQ-1 sequencer has a number of limitations when it comes to recording and storing sequence data. Depending on the other sequencer being used in the transfer and the nature of the sequence data, some of these limitations may not be a problem.

Maximum Storage

An unexpanded ESQ-1 holds 2400 events. Expanded units and the SQ-80 can hold up to 20,000 events. Notice that I said events and not notes. Like all sequencers, the ESQ has to allocate storage for controller information as well as notes-on and notes-off. If you have lots of pitch bend, control pedal, mod wheel or aftertouch activity in a sequence, even if the overall note count is low, it may use up significant memory space. In any case, any single sequence you wish to transfer into the ESQ cannot exceed the maximum storage space. Going in the other direction there is a similar limitation, but in the case of computer-based sequencers, this is seldom a problem, since most can store considerably more than 20,000 events. Be careful with small hardware sequencers, though. Some older units like the Roland MSQ-100 or the Yamaha QX-7 can only hold about 6000 events.

Quantizing

The resolution of the ESQ sequencer is 24 parts per quarter note (ppq). This corresponds to a resolution of a single MIDI clock. Many other sequencers have much higher resolution. The EPS has a resolution of 48 ppq, the VFX-SD, SQ-1 and EPS-16 have resolution of 96 ppq, and I have seen computer-based sequencers with resolution as high as 384 ppq. Some may go beyond that. This means that when transferring data from a sequencer with higher resolution to one of lower resolution, some notes may end up with quantizing errors. Since 24 ppq allows notes as short as 1/32 triplets, you may think that you have nothing played fast enough to cause a problem. Unfortunately, the issue is not speed but timing. If there are parts that ride subtly ahead of or behind the beat, they may be a problem.

Controllers

The ESQ sequencer can record all MIDI controllers that it can generate itself. These are pitch bend, mod wheel, control pedal, MIDI volume and sustain pedal. It records note-on velocity but not note-off velocity (sometimes called release velocity). Both channel and key pressure (aftertouch) can be recorded. It can record one additional MIDI controller, determined by the setting of XCTRL at the time of recording. If the source sequence has more than one controller other than the default set, the ESQ cannot record all of them.

System Exclusive Messages

The straight synth portion of the ESQ-1 can generate and receive sys-ex messages, but the sequencer cannot. Some people embed sys-ex messages into their sequences to update patch parameters or to control synth functions which respond only to sys-ex. If the source sequence has embedded sys-ex messages, the ESQ sequencer will not record them.

The MIX/MIDI Page

Every ESQ sequence has control data stored in the four mix/MIDI pages. These are the track status (local, MIDI, both or SEQ), the track mix, the track program number and the track MIDI channel. Every time a sequence is selected, the ESQ sends out the patch change and MIDI volume data to all tracks except those that are local only. Many other sequencers send out this same type of data at the top of the sequence playback, before any notes-on are sent. This requires care when doing transfers to insure no data is actually lost, as we will see below.

Pattern Based Sequencing vs. Linear Sequencing

The ESQ sequencer is a pattern based sequencer. That is, songs are made by chaining together short patterns, which in ESQ terminology are called sequences. Most drum machines are also pattern based. However, many sequencers are linear based, that is a song is the same thing as a sequence. This is crucial to understand when making transfers. When moving a song from the ESQ to a linear based sequencer, the sequence boundaries that exist in the ESQ will be lost in the other sequencer. Similarly, any song transferred from the other sequencer to the ESQ will be one long sequence. If there is a need to maintain sequence boundaries after the transfer, you will have to manually cut the long sequence up into smaller pieces.

It's impossible to go into detail on how to do this for every possible type of sequencer you may want to use. In general, if after the transfer the sequence or song will be played only and not edited further, it's mostly a moot point. One exception is when a long song will be transferred into the ESQ and there are repeated sections such that breaking the song into sequences and then chaining them will conserve memory. In this case, it will be necessary to manually break up the song into smaller sequences.

Tempo

The ESQ-1 sequencer has a tempo range of 25 to 250 beats per minute (bpm). Other sequencers may have different tempo limits. The tempo of any sequence to be transferred must be within the range of both sequencers. As far as the tempo to transfer at, there are three possibilities: transfer at the tempo that the sequence is to be played at, faster or slower. The idea of transferring at a faster tempo is to save time. However, some sequencers may have trouble tracking dense sequence data at elevated tempos, so that timing of the sequence is corrupted. Because of this, some people advocate transferring at slower than the actual tempo. I typically transfer at actual tempo myself, so experiment and see what works for you.

Another issue with tempo is that many sequencers, drum machines in particular, do not store tempo information with the sequence. Many also will not allow tempo changes in mid-sequence (the ESQ does not allow tempo changes in mid-sequence, but in songs, the tempo and time signature may change at sequence boundaries). If you use lots of tempo and signature changes, you will need to check the other sequencer to see if such changes are allowed.

Preparing The ESQ For Transfers

OK, now let's get our ESQ ready for a transfer. The first thing to do regardless of the direction of transfer is go to the MIDI page and set the ENABLE parameter. The minimum setting should be KEYS+CT+PROG CHNG, which will allow all note, controller and program change data to be transmitted and received over MIDI. Enabling of song selects and sys-ex is not necessary. If for some reason you want to actually ignore controllers or program changes, you can disable them, but there are few applications where that makes sense.

Connect the ESQ's MIDI out to the other sequencer's MIDI in; then connect the ESQ's MIDI in to the other sequencer's MIDI out. Next decide which device will provide the master clock. If the ESQ will be master, go to the CONTROL page and set SYNC to INTERNAL, then set the other sequencer to accept an incoming clock. If the ESQ will be the slave, set SYNC to MIDI CLOCK and make sure the other sequencer will generate the clocks. The tempo setting on the ESQ is meaningless when used as a slave, since it will track the incoming clock.

While on the CONTROL page, check the setting of COUNTOFF. If set to either CLICK or QUIET, there will be one bar of silence before the sequence starts. In the case of the ESQ being the master, the clocks will start immediately, but the sequence will start one bar later. In the case of the ESQ being the slave, it will accept one bar of clock before starting the sequence. Depending on how the other sequencer is set up to do countoffs, this may cause one or more bars of the sequence to be lost during the transfer. My recommendation is to set COUNTOFF to NONE and set the other sequence to not use countoffs.

Transfers From The ESQ To Another Sequencer

Select the song or sequence you wish to transfer. If the other sequencer can record on all MIDI channels separately, you can transfer the data in one pass. If the other sequencer can only record on one channel at a time, or you wish to maintain track boundaries and the other sequencer cannot separate multiple MIDI channels from a single track, you will need to make one pass per track. Go the MIX/MIDI Page and mute all the tracks except the one(s) you wish to transfer in the current pass by double- clicking on the track in the MIX subpage (this should put brackets around the mix level in the display). Don't forget to set tracks which are LOCAL to BOTH in order to transfer the track information.

If the ESQ is the master, initiate the record mode on the other sequencer, then hit PLAY on the ESQ to initiate the transfer. If the ESQ is the slave, hit PLAY, then start up recording on the other sequencer. When the song or sequence has ended, verify it transferred correctly by playing it from the other sequencer.

If it's important to pass across the MIX/MIDI information, here's a tip. In a song, the MIX/MIDI information for each sequence is transmitted on the sequence boundary during playback, except for the first sequence. The information for the first sequence, or for any single sequence outside of a song is sent when that song/sequence is selected, which may be well before you start to actually transfer it. So add a dummy sequence of one bar to the front of the song, and the MIX/MIDI information will be transmitted at the beginning of bar number two. You can then delete bar one in the other sequencer.

Transfers From Another Sequencer To The ESQ

Transfers in this direction are a bit more complicated. The ESQ can only record one track at a time. If the transfer is from a drum machine, for example, then all the data will be on one MIDI channel, but in a typical multi-channel sequence, you will need to make one pass per channel. In addition, there is some cleanup work required after the transfer, such as configuring the MIX/MIDI page, setting tempos, etc.

Go the CREATE/ERASE page and create a new sequence. The ESQ acts differently when recording the first track than when recording all others. It initiates recording only when detecting a key event or the stop/start footpedal being switched. It will not start recording when it sees notes-on arriving over MIDI. Therefore, we must set up an empty first track by going into record, using the footpedal to mark bar one, then hit STOP at the end of the last bar. An alternative method for long sequences is to make a short sequence of one or more bars and then use the bar append feature to make the sequence the required length. If the ESQ is the slave, you may want to temporarily switch back to using the internal clock to do this.

We also need to set the track to either BOTH, MIDI or SEQ. My recommendation is that if the track will be LOCAL when played from the ESQ, set it to BOTH (the ESQ does not record from MIDI input when the track is in LOCAL mode). Prepare the other sequencer to send the sequence. If the ESQ is the slave, hit RECORD, then start the other sequencer. If the ESQ is the master, set the other sequencer to play, then hit PLAY and RECORD on the ESQ. Again, verify the transfer is good before going to the next track. Once you have transferred all the tracks for the sequence, set TEMPO to the correct value, go the MIX/MIDI page and make needed corrections to track status, mix, program and MIDI channel, then save the sequence. Once you have a song transferred, you will need to go into the CREATE menu and create a new song pointing to the sequence(s).

As a final note, I suggest you study the features of the other sequencer as much as you can. There are literally dozens if not hundreds of other sequencing devices out there, and each one has idiosyncrasies that will affect data transfers in real time over MIDI. Most users will find that a few attempts are required before all the kinks of the transfer related to the other device are worked out. Be patient and you will be rewarded by the enhanced utility of your ESQ-1's sequencer. Now, let's go jam! ▬

Bio: Brian Rost spends his evenings either hunched over his SQ-80 or playing bass with the HUBCAPS, a Boston-based roots rock band. To unwind during the day he designs computers.

More Synths and Drums for the EPS/EPS-16 PLUS from 3D Sounds

Bryce Inman

For: EPS/EPS-16 PLUS.
Product: Sound Disks.
Price: $6 per disk.
From: 3D Sounds, P.O. Box 114, Station C, Kitchener, Ontario, Canada N2G 3W9.

If you've heard enough bad economic news to last you a lifetime, you're in luck! 3D Sounds has dropped the price on their hot synth and drum sounds. When I first reviewed sounds from 3D their disks were selling for $8 (less if you bought in bulk). Now all of their disks are a mere $6. What makes this news even better is the fact that the price does not reflect a drop in the quality of the sounds.

Let's take a look at the synth sounds first

Two disks containing samples from the Roland D70 were included for review this time. Disk #6 contains four sounds: CLICK LESLY sounds like a pseudo organ mixed with a synth pad, NITE SPRITE is sort of a wah synth with some high overtones mixed in for a very subtle effect, SWEEP SPACE is a synth with a filter sweep and MOTHER PAD is a fat, brassy analog synth.

The D70 disk #7 contains WOW JET, a spacey, breathy synth, SPACE DREAM, a lush vocal/string mix in fifths, and BIG GUITAR, a punchy, kickin' electric guitar-type sound.

From the Yamaha SY22 disk #1, FULL STRINGS sounds like an organ with a little strings mixed in. I noticed a rather annoying click when the keys are released. GENESIS begins with an orchestra hit followed by an analog/vocal synth with a few metallic clanks thrown in for good measure. ITOPIA is a mellow vocal synth that works beautifully across the keyboard.

Disk #6 from the SY22 contains ZOMBIE — a very complex sound. It begins with a percussive synth that sounds like it's been run though a digital delay splashing into water, followed by a wood flute and a swirling synth. Due to the character of the sound, the loop isn't very useful. INCA is a beautiful mixture of a breathy bottle and a synth pad. I particularly like this sound because it has three distinct characteristics in different

areas of the keyboard. In the upper registers it sounds like a bright caliope, in the middle it provides a warm pad and in the lower registers it becomes a dark, spooky synth. EVOLVER is true to its name — it begins with a thin analog synth which is then fattened with a bit of phasing, then joined by a lower octave and finally a bell-like figure.

DEMO DISK #3 (which is only a demo of the sounds — there's no demo sequence) contains 5 sounds. The drums are from the VFX but I don't know whether or not the other sounds are also from the VFX. IMPRESSIONS is a brassy analog sound that sounds as if it was sampled through a phase shifter. RAINY DAY is a mellow synth pad mixed with a descending wooden mallet. PLATINUM sounds like a ring modulated synth and GOD-SEND has a mushy anvil-like attack on top of a dark synth/vocal. The final sound is a drum kit sampled from the VFX. It's hard to describe these drums, but they're some of the coolest drums I've ever heard! Unfortunately, the lower samples are rather noisy. I like these drums so well, however, that I'm going to borrow somebody's VFX and sample these sounds myself!

Which brings me to the drum disks

By my count, DR-550 KIT contains a total of 48 separate drum samples. There are several bass drums, snares and clean, bright cymbals from which to choose along with a number of other percussion instruments. These drums are generally quite good although a few of them sound a bit clipped at the end as if they were truncated a bit too closely (I know that this is the way a lot of drum machines sound, so this may be the fault of the source) and a few of the others are a bit noisy.

The second disk contains two separate kits — both the TR-808 and the TR-909. The 808 is generally clean and crisp except for a few noisy toms. The 909, on the other hand, is pretty bad. The cymbals are dull and quite noisy and once again there are a number of noisy toms.

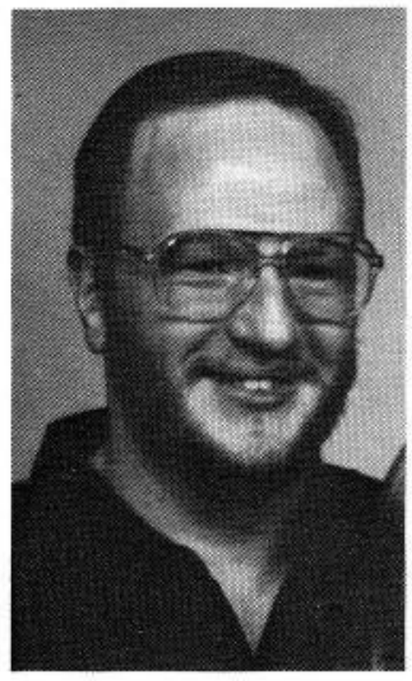
Finally, R8-ETHNIC PERCUSSION contains a plethora of wonderful percussive sounds (I counted 24 in all). Included are bongos, bells, tambourines, stacked percussion and more. This is a great set of sounds!

Conclusion

The synth sounds from 3D are great. They have selected some interesting sounds to sample and have done an admirable job of adapting them to the EPS. Most, if not all of the sounds contain a single sample spread across the entire keyboard. Although this isn't optimum for some of the sounds, it doesn't present a problem for most of them. Most of the sounds are programmed in stereo and supplied with a generous dose of second release to provide spacious, rich textures. As they have advertised, all of the sounds are programmed with variations for the patch select buttons, though the variations don't strike me as being especially imaginative.

I'm quite surprised, however, by the excessive noise found in their drum kits (usually the toms). These guys obviously know the business of sampling, so it puzzles me that each set of drums contains at least a few noisy samples. Don't get me wrong — they aren't awful. In many cases you have to boost the volume a little to pick up the noise; in a live performance or when mixed with other sounds, this noise would be difficult or impossible to detect. However, it's bad enough that I wouldn't take these drums into a studio to use in a professional recording situation.

In this day and age, it's a rare and welcome sight to see prices going down rather than up. At $6 a disk these sounds are a steal! Go ahead — buy some disks from 3D, load them into your EPS and have fun, fun, fun 'til daddy takes our keyboard away! ■



Bio: Bryce Inman is a free-lance music editor and arranger for Word, Inc. in Irving, TX. Although he has decided to make Texas his permanent home, he refuses to say "y'all" or "fixin'."

You & I Look at Ensoniq's SC-2 Soundcard

Jeffrey Rhoads

For: SQ-1 Synthesizer.
Product: SC-2 Soundcard.
Price: $99.95.
From: Ensoniq Corp., 155 Great Valley Parkway, Malvern, PA 19355, Accessories Order Line: (800) 553-5151 — or order from your local dealer.

When you see the SC-2 hanging from a wall-peg at the local music store, you may notice something a little confusing. On the front of the box there's a sticker that says, "All sounds designed by Eye & I Productions; The Voice Crystal People." Voice Crystals are third party sounds, aren't they? So then, is this new Ensoniq soundcard really a third party product?

In a word: YesNo.

Yes, Eye & I Productions is the third party responsible for the sounds we hear when we plug the SC-2 into the host SQ-1. But, no, they didn't provide the package or the ROM card on which

those sounds live — Ensoniq did. Perhaps more importantly, Ensoniq has the final say on this soundcard since they are the distributors. So, through the miracle of modern communications (modcomm), these two companies have worked together to give us the SC-2. Is there a benefit to having Ensoniq distribution with the allure of a third party developer? Does it matter? Is there life on Pluto?

Like the SC-1, the SC-2 comes with a nice little booklet that chronicles and describes the sounds on the card. Unlike the SC-1 however, the sounds on the SC-2 are neatly organized into banks: a bank for keyboards, a bank for pads, a bank for sound effects and so on. This not only is very helpful in a real time pinch but also makes it easier to reorganize the sounds in the internal memory; one from column A, one from...

I'm using an SQ-1 for this review, not an SQ-1 Plus, so the first sound on side A, "Baby Grand," isn't very much different than the factory "Grand Act" in the SQ-1's ROM. It is one octave higher and, interestingly, uses only one voice instead of three. Because there's not a whole lot of "piano wave memory" in the original SQ, "Baby Grand" tends to wither and take on a harp-like quality in the middle registers. There's a lot of reverb used here, perhaps in an attempt to better emulate a piano sounding board. What we're left with is more like a digital blanket. Like most SQ-1 pianos, "Baby Grand" sounds best when it's cranked up.

The SQ-1's strengths are better revealed in the next bank; pads. This nicely varied group culminates with "Red Moon," an ethereal square wave pad that gets brighter as the mod wheel is pushed forward. With the current rage of retro, I expected "'70s Mellotron" to be a real killer. It's a passable string pad but it doesn't bring a Mellotron to mind. But, while exploring this card, I found a sound that did. "Orch Strings," seems to more closely capture early Moody Blues and King Crimson. Also, try slapping a high D — E flat combo using "Psychostrings."

"Resonator" is another back-to-the-'70s sound. Remember that resonating wah-wah synthbass that permeated so many R+B recordings back then? They nailed it here. For a more modern approach try "Euro Bass."

If you like sound effects then the last bank on Side A should please you. The sounds are rather inventive and primal. "Impact" is a surprising hit that causes unwanted relatives to vacate the building. "911" and "Monster in Tokyo" speak for themselves and probably should not be used around the elderly.

Side B opens up with a couple of very good Hammond B's. "Click Organ" capitalizes on that dirty contact noise that used to drive new Hammond owners crazy (new, those things were *expensive*). The very Hard Rock B3 (a.k.a. Deep Purple, Vanilla Fudge) is nicely embodied in "Dirt Organ 1." You can almost hear the amplifier frying.

"Future Choir" is one of the better 'breathy' pads you're gonna hear. Besides, it allows the SQ-1 to do what it does best: Fill up a room. This patch is more than a bunch of breath waves tagged together. It makes use of Transwaves and bass waves as well. The result is an almost overdriven Choir that may help to define future trends in vocal sound design. Experiment with "Blown" for the original *Star Trek* theme.

The remainder of side B offers more banks of brass, reeds, synths and effects. Most of these sounds are competent as is the rest of the soundcard: plenty of Analog-style ideas too. (See number B57 for that Prophet 5 Poly Mod.) There's a definite trend toward Retro here and, though there are some things I like about this card, that may be exactly why I prefer Ensoniq's first soundcard; the SC-1. When I review a new card the first thing I look for is craftsmanship. Does the Hammond really growl? Is there sufficient realism and depth in the string pad? Or does the piano thin out in the middle? (As it most certainly does on the first incarnation of the SQ.) Questions like these are fairly obvious ones to ask, granted. Please, though, consider the hexadecimal age in which we currently reside: coming up with the perfect Clavinet for example, should be no big deal. The SC-2 does come across in the meat + potatoes aisle with plenty of usable representations.

Secondly, and perhaps more important, I find myself searching out consistent originality in a patch's character. Who thought of that? Where did that idea come from? How did that sound begin? As technology leaps forth so does our level of expectation. It takes more and more to excite us. The SQ-1 is a new instrument, searching for a personality. Thus, new sounds developed for it need to be bold, helping to promote exploration and experimentation (as they do on the SC-1). Here the SC-2 falls short; it's been done before. But, Retro's what's happening right now and there's good workhorse stuff here. So, this card probably will find a large market.

And what of this third party business? Simple; the third party Cat has been creating sounds for the hardware manufacturer for a long time. Now, it's becoming more fashionable to make that fact public. The person who really should gain the most from having wide-scale distribution is the individual developer. There are people who swear by third party sounds alone. But a good patch depends on the machine and a talented programmer. As long as that programmer has a place to display his wares, we all win.

And thanks go to Kip at Medley Music in Bryn Mawr, PA for his assistance. ■

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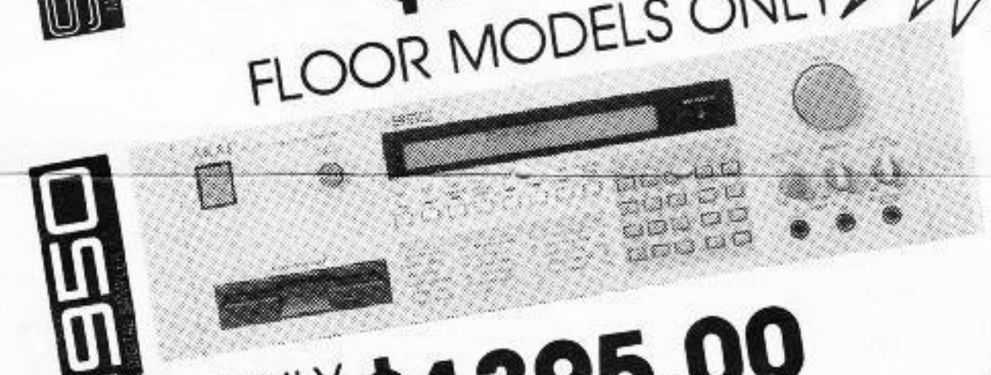

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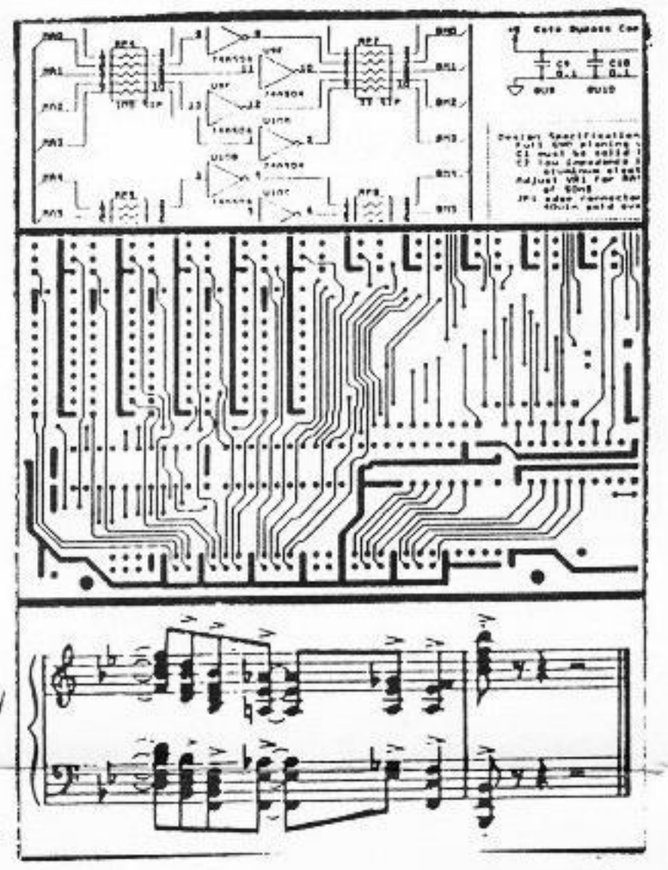

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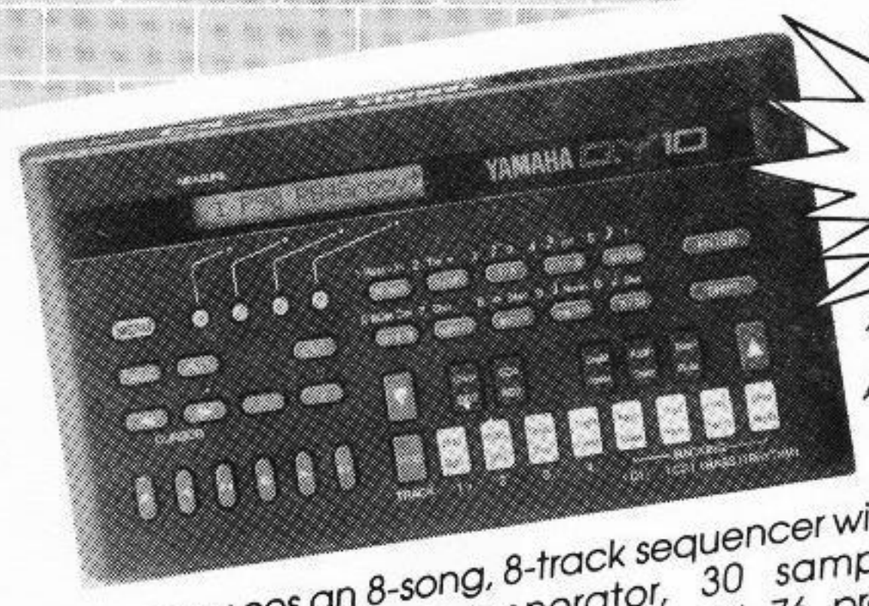

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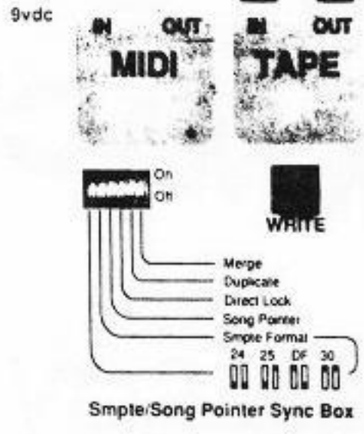

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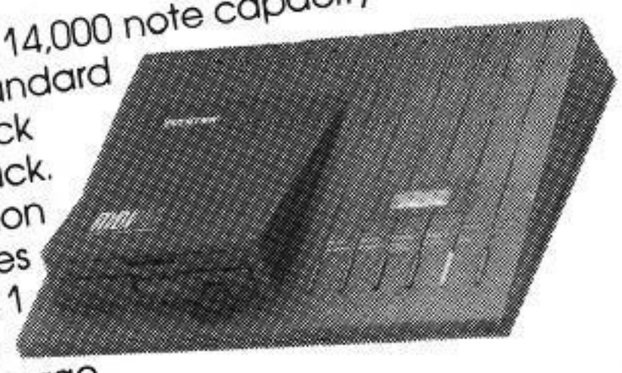

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8/91

VFX/SD-1 Questions from the Transoniq Net

Sam S. Mims

Before tackling the questions, let me point out one thing about asking them. If you make a long-distance call to anyone on the Transoniq Net and get an answering machine, feel free to leave your number and ask that the person return your call. But there's one other important consideration — you should state in your message whether you'll accept a collect call. The T-Net is operated by volunteers who donate their time — don't expect them to volunteer their phone bills as well.

My VFX/SD-1 suddenly started acting wacky when _____ (fill in the blank with your ailment of choice). What can I do?

Regardless of how the blank is filled in, the answer is probably reinitialize the board. Power surges, static electricity, cosmic rays, negative biorhythms, and mysterious visits by the Goofa Man can all glitch out the keyboard's operating system (O.S.) in such a minor way that you won't even notice it until you're doing 16th-note quantizing of track 5 on a Tuesday. But when you do come to that bit of altered code, all of a sudden the keyboard may play stuck notes, refuse to save a track, give an error message or even shut down completely. Fortunately, the cure is simple. But before doing anything, save all your data. On a VFX, this means saving internal banks to a cartridge, or to another device via sysex. On a VFX-SD, save to disk 60 SEQ/SONGS, and save the 60 internal programs with this. You'll probably want to then save your SYSTEM-SETUP as well. Now, press the PRESET button, and while holding it down, press the upper left soft button. The keyboard will ask ERASE ALL MEMORY AND REINITIALIZE? When you press YES, the board will reboot and put a fresh version of the operating system in memory. Hopefully, your woes will be over at this point. Now you can reload your data, and go about making some more noises. (With the VFX-SD, don't forget to reload the sequencer O.S. at this point.)

When I change the TOUCH parameter on the MASTER page, does this affect outgoing MIDI, or does it only affect the keyboard's response to my playing?

This affects outgoing MIDI signals as well, so other keyboards and modules being played from the VFX/SD will indeed respond to the different touch sensitivities.

On my VFX when I adjusted track volumes in a song in Mixdown mode, then tried muting certain tracks, they would frequently un-mute themselves suddenly. What's going on?

Apparently, you've found a bug in sequencer O.S. 2.10 (Ensoniq has been notified). Whenever a track is muted within the song, it un-mutes itself when it encounters a Mixdown volume change. There is, fortunately, an easy way around this. Press SONG, then EDIT STEPS, then TRACKS, and you will see a MUTE TRACKS display for all 12 sequence tracks. Changing any of these from P (Play) to M (Mute) will do the job for you.

Can the Mega-Piano option be retrofitted to a standard VFX or is it for VFX-SD's only?

The Mega-Piano can only be retrofitted into VFX-SD's — it is not compatible with VFX's. The extra 1 Meg of waveform memory requires a replacement of the main circuit board; the whole conversion will cost about $550.

When running my VFX/SD's sequencer from a Syncman SMPTE-to-MIDI synchronizer, if I start the tape in the middle of a song, my drum machine locks in after about a second, while it takes the VFX/SD three or four seconds to lock in. Is such a long delay normal?

Yes, it is. When the sequencers in the drum machine and the VFX-SD are started in the middle of a song, synched to an external device such as the Syncman, they chase through from the beginning until reaching the current point in the song. This catch-up is done at a very high speed, and once the current point is located, the instrument locks in and begins playing. With the drum machine, this is a fairly simple operation, and lock-up occurs quickly. With the VFX-SD, the machine has to chase every track of the sequencer, and perform all program changes, controller moves, etc. for each before it can lock in. If this were not done, you could end up with the wrong patches playing, with notes out of tune (if lock-up occurred halfway through a pitch bend), and that sort of thing. So, depending on the complexity of the song, it can take the VFX-SD (or any sequencer, for that matter) several seconds or more to find the groove and start jammin'. ▬

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LATTER SOUND announces *Volume II*, 60 sounds and 20 presets for the SD-1 and the VFX-sd. *Volume II* is grouped according to synthesized, acoustic, orchestra, and special effects and is divided into 10 banks. The banks cover synthesizers, tiners, pianos, woodwinds, space effects, brass, hybrid brass and woodwinds, organs with Leslies, orchestras, lead guitars and percussion including triangle and timpani. Available disk formats are VFXsd and SD-1, SQ-80, and MC 300, 500, 50. Will load VFX ram cartridges. *Volume II* retails for $40. Contact: Latter Sound, 2617 Ridgeway St., Tallahassee, FL 32304. Phone: (904) 575-5561.

Ensoniq's SQ-2; The SQ-1 on Steroids?

Pat Finnigan

Ya know, you gotta respect a company that puts so much musical power in your hands for such an affordable price. You'd think with all the kudos the Malvern kids have pulled off since '84 they'd sorta fall back and smell the roses. Not so! They're driven by some alien force to not get complacent with their successes: I guess they figure if they haven't come out with a new piece by the time you've come to grips with the OS and architecture of your latest Ensoniq gear they're behind schedule. The operative word here is driven...

So let me state for the record, in as unbiased and subtle manner as I can, that the new SQ-2 is a monster!

First, you look at it and if it didn't say ENSONIQ on it, you'd likely walk by thinking it's a D70 or an unknown Italian MIDI keyboard controller. Then you'd do your doubletake, thinking, hey, an Ensoniq keyboard with 76 keys? Wait a minute! The SP1 was discontinued years ago. Nonetheless, here's a *big* Ensoniq, a VLSI genetic experiment gone awry. And you had better inoculate yourself against it before you take it home with you.

I'd forgotten just how much more keyboard 76 notes is over the standard 61-note kind. People, that's almost TWO more octaves; no more bass/piano splits fighting over middle C, no more scrolling to the octave page and up-cursoring from -1 to 0, having a solo instrument over the top of your upper keyboard split, having a drumkit underneath the bass split.

The new meg of piano waves, well, it's disquieting to have a sampled piano sound like that and not have "Kurzweil" written all over it. Before you ask, yeah, there's a patch with no dampers from G7 up; hell, there's five (5) grand piano programs that cover any piano you've ever heard or ever will. Names have been changed (like U-20, RD-1000, Steinway) to protect other unfortunate manufacturers. A little Polonaise and you'll see what I mean about the "Grand Piano." The "Jazz Piano" is perfectly balanced between meaty and deeply resonant like a Baldwin M, the "Rock Piano" is as bright as a Yamaha C and they they sure don't seem like mere tweaks of the same waves — this is where "Dynamic Component Synthesis" really comes in. The other sounds in the wavetable are carried forward from the SQ-1 Plus, the program locations appear to be identical to to other variants of the SQ series with the exception of the piano programs occupying some locations in Programs 10-15. Architecturally, the same menu pages and sub menus remain unchanged, so you can roam about the same way as you would on any other SQ instrument...

I will seriously consider the SW-5 dual footswitch for this beast, since if it looks like a piano, walks like a piano, quacks like a piano, it probably is a piano. Besides, since my hands are discovering newfound territories, why shouldn't my feet. (How 'bout 2 1/2 octaves of AGO midipedals? Hello, Malvern?) And, of course, the SQ-2's other programs are just a good as always, the Burnin' Sax is still burnin', the Pedal Steel is still steelin'. Effects are unchanged, the Leslie still spins way too fast at full mod, the "Distort Guitar" still howls after 4 seconds, but if you push that key down a little harder the note starts to waver pitch, just like vibrato, just like...

AFTERTOUCH! The monster has *aftertouch*! Wait a minute, the 8 1/2" by 11" original full color glossy lead sheet/spec sheet didn't say word one about aftertouch; lemme try this again. Press key, feedback in 4 seconds, press harder, vibrato! For the first time in Ensoniq history, a keyboard with mono aftertouch! You slydog engineers; ya give us this quality of piano samples, this number of keys, and then throw in aftertouch? Pressure is a modulator that "entry-level" users can enjoy without having to buy the SD or VFXish high-priced spread. They pulled a ringer on us...

The feel of this new keyboard is unlike any previous Ensoniq offering; it's light and fast, to be sure, but it rebounds with a little more kick to it, as if the return springs are variable rate or something. Maybe Ensoniq will comment or otherwise explain in the near future.

I really have to hand it to Ensoniq this time; a really powerful synth/sequence/controller engine with 76 keys at a breakthrough price. When I finish converting my old B-3 pedals to a MIDI pedalboard and hook them up to my soon-to-be shipped SQ-2, you probably won't hear from me for awhile.

A few articles ago I wrote something to the effect that Ensoniq was planning to take over the world. I certainly didn't know they planned on taking it over one bank account at a time, so be warned. They just took over about $1795 of mine. Mark my words, these things are gonna be scooped up as soon as they hit the dealer. The operative word is presold; if you even THINK you want one, put a deposit on one or otherwise reserve your SQ-2. They'll be hard to get because demand is gonna outstrip supply in about 2 weeks. If you're one of us who already has an SQ-1 and can't afford the SQ-2, consider the Plus motherboard swap. At $499 installed, you'll get that Meg of frighteningly accurate piano samples.

Yeah, they've done it again. The most powerful 76-key synth/sequencer/controller on the market also happens to be the cheapest, and by a helluva wide margin. I wish these kids would slow down just long enough for me to keep SOME balance in my savings.

Yeah, they're taking over the world. One keyboard at a time. ▬

Bio: Pat Finnigan is a service tech turned musician. His latest composition, The Ensoniq Suite, *has been banned by Hans Solo, but is available on EPS disk since it isn't an audio medium and violates no community standards.*

Ensoniq Floppy Diskette Formats

Part III

Gary Giebler

[Ed. – This article won't make much sense if you haven't read Parts I & II in the last two Hackers. In Part I, Gary gave an overview of the disk formats used by the various Ensoniq keyboards and introduced a software program for PCs that will read, copy, format, and display EPS, EPS-16 Plus, SD-1, and VFX-SD diskettes on the PC. Contact: Giebler Enterprises, 8038 Morgan Road, Liverpool, New York, 13090-2009. Parts II & III continue with descriptions of the disk formats of the various instruments...]

Reading A File Using The File Allocation Blocks

To read a file from the disk, the system must first read the directory entry for the file to locate the beginning of the file. The directory entry points to the first block of the file. If part of the file is contiguous, the system would start reading the file at the first block and continue until all the contiguous blocks (as specified in the directory entry) have been read. After reading the last contiguous block, the system would read the corresponding entry in the file allocation block and read the block the entry points to. This process would continue until the file allocation entry equals one signifying the end of the file. Refer to Alan Smith's two articles in the *Transoniq Hacker* for more information on reading Ensoniq DOS files. (Issue #45, page 11; Issue #70, page 9)

To write a file to the disk, the system must first check to see if the file name is already being used. If so, the system should prompt the user to see if the existing file should be deleted. If so, the system should delete the file and then determine if there is enough free blocks on the disk to hold the new file. On the VFX-SD, the system must also make sure there is an available file number for that file type. If so, the system should read the file allocation table (FAT) from the disk. If the disk has enough contiguous free blocks to hold the file, the system should store the file as one contiguous file. This speeds up access to the file since the system doesn't have to keep looking at the FAT to locate the next block. However, the FAT is maintained and updated even if the file is contiguous. If there isn't enough contiguous free blocks, the system should locate the first free block and start storing the file. After writing each block, set the FAT entry for that block to point to the next free block. This process would continue until the last block was written to the disk. Set the FAT entry for the last block to 01 to indicate the end of the file. Write the updated FAT back to the disk. Subtract the file size (in blocks) from the number of remaining free blocks and rewrite the system information block on the disk. Finally, write the directory entry to the disk.

File Allocation Table Example

```
End File | End File | End File | Next Blk |  Empty   |  Empty
00 00 01   00 00 01   00 00 01   00 00 23   00 00 00   00 00 00
```

The first three entries in the above FAT indicate that the end of the file has been reached after reading the corresponding block. The next entry indicates the system should read block 23 (hex) after reading the corresponding block. The next two entries indicate that the corresponding blocks are empty and available for use. Again, refer to Alan Smith's articles for more information on the file allocation tables.

SQ-80 Disk Format

The SQ-80 has a completely different format than the keyboards mentioned above. The disk contains data on both sides with 80 tracks numbered 0 - 79 on each side. However, each track has five 1024 byte sectors numbered consecutively from zero to four followed by one sector of 512 bytes with a sector ID of five. I will refer to the two sides of the disk by referring to the disk drive head used to read each side. The heads are numbered 0 and 1. Data is stored on both sides of each track before moving to the next track. However, when switching tracks, the system remains on the same head as the previous track. The following examples should clarify this.

```
T H S
0  0 0-5  data is first stored on Track 0, Head 0, Sectors 0-5
0  1 0-5  data is next stored on Track 0, Head 1, Sectors 0-5
1  1 0-5  data is then stored on Track 1, Head 1, Sectors 0-5
1  0 0-5  data is then stored on Track 1, Head 0, Sectors 0-5
2  0 0-5  data is then stored on Track 2, Head 0, Sectors 0-5
          this process continues until....
79  0 0-5  the last track - Track 79, Head 0, Sectors 0-5
          (Track 79, Head 1, Sectors 0-5 were written first)
```

SQ-80 Sector Information

Finding your way around an SQ-80 diskette is not an easy task. Some of the files (and the directory) are stored on the smaller sectors, while others are stored on both! All files on the SQ-80 are stored in fixed locations eliminating the need for a file allocation table. The format allows for ten (10) large data files (any combination of one-sequence, all-sequence, or system-exclusive files). Each file occupies 64 contiguous large sectors (sectors 0-4) of the diskette. In addition, each of the ten files occupies one small sector (sector 5) located on the same track and head as the last large sector. (Simply set the sector number to five after reading the last large sector). This small sector is only used to store header information for the all-sequence files. It is not used for the other two types.

The format also allows for 40 program bank files. These files occupy four large sectors each starting at Track 64, using the remaining large sectors on the diskette. The diskette directory occupies the first four small sectors of the diskette as shown below. The remaining small sectors are used to store the 128 individual programs (sounds) with each program occupying one sector. However, the program files are not on alternating sides. The first 64 are stored on head 0, and the last 64 are stored on head 1. The ten program locations which conflict with the small sectors occupied by the large data files are stored in the small sectors starting at Track 66, Head 0, Sector 5. (I'm not making this up - this is really the way it works!)

```
T  H  S
0  0  5  Directory (First Sector)
0  1  5  Directory (Second Sector)
1  1  5  Directory (Third Sector)
1  0  5  Directory (Last Sector)
```

2	0	5	Program # 1
3	0	5	Program # 2
4	0	5	Program # 3
5	0	5	Program # 4
7	0	5	Program # 6 (Program # 5 stored at 66,0,5)
8	0	5	Program # 7
			Continues until....
65	0	5	Program # 64
2	1	5	Program # 65
3	1	5	Program # 66
			Continues until....
65	1	5	Program # 128
0	0	0	Large Data File # 1 (First Sector)
6	0	3	Large Data File # 1 (Last Sector)
6	0	4	Large Data File # 2 (First Sector)
6	0	5	Large Data File # 1 (Small Sector)
12	1	2	Large Data File # 2 (Last Sector)
12	1	3	Large Data File # 3 (First Sector)
12	1	5	Large Data File # 2 (Small Sector)
19	1	1	Large Data File # 3 (Last Sector)
19	1	2	Large Data File # 4 (First Sector)
19	1	5	Large Data File # 3 (Small Sector)
25	0	0	Large Data File # 4 (Last Sector)
25	0	1	Large Data File # 5 (First Sector)
25	0	5	Large Data File # 4 (Small Sector)
31	0	4	Large Data File # 5 (Last Sector)
31	0	5	Large Data File # 5 (Small Sector)
32	0	0	Large Data File # 6 (First Sector)
38	0	3	Large Data File # 6 (Last Sector)
38	0	4	Large Data File # 7 (First Sector)
38	0	5	Large Data File # 6 (Small Sector)
44	1	2	Large Data File # 7 (Last Sector)
44	1	3	Large Data File # 8 (First Sector)
44	1	5	Large Data File # 7 (Small Sector)
51	1	1	Large Data File # 8 (Last Sector)
51	1	2	Large Data File # 9 (First Sector)
51	1	5	Large Data File # 8 (Small Sector)
57	0	0	Large Data File # 9 (Last Sector)
57	0	1	Large Data File #10 (First Sector)
57	0	5	Large Data File # 9 (Small Sector)
63	0	4	Large Data File #10 (Last Sector)
63	0	5	Large Data File #10 (Small Sector)
64	0	0	Program Bank # 1 (Sector 1 of 4)
64	1	0	Program Bank # 2 (Sector 1 of 4)
65	1	0	Program Bank # 3 (Sector 1 of 4)
65	0	0	Program Bank # 4 (Sector 1 of 4)
			Continues until ....
79	0	0	Program Bank # 40 (Sector 1 of 4)

Ensoniq SQ-80 Directory Sectors

The SQ-80 does NOT use its directory for the 128 individual programs stored on the disk. These files are stored in a fixed location on the disk and must be read directly to obtain the names of the sounds. Banks of sounds and the ten 64K files are listed in the regular directory but the position of the directory entries is fixed. This eliminates the need for a file allocation table since the files are in fixed locations. The first 10 entries are for the ten large data (64K) files for sequences, all sequences, and system exclusive files. The next 40 entries in the directory are for the 40 bank files.

Ensoniq SQ-80 Directory Entries

Each Entry contains 13 bytes of data.

Byte	Information
01	File Type - see list of types
02-11	File Name (10 Bytes)
12	Type-dependant Information
13	Type-dependant Information

The SQ-80 File Names can contain some unusual characters since the keyboard used some non-ACSII characters. See Joe Slater's article (Issue #70, page 13) to find out the meaning of these characters. In fact, Joe's entire series of articles on the ESQ-1 are valid for the SQ-80 as well.

Ensoniq SQ-80 File Types

00 (00) = Unused (Blank)
01 (01) = Operating System
02 (02) = Program Bank File
03 (03) = All Sequence File
04 (04) = One Sequence File
05 (05) = System Exclusive File
06 (06) = Single Program File

Mirage Disk Format

The Mirage has a format similar to the SQ-80 keyboard mentioned above. However, the disk only contains data on one side of the disk with 80 tracks numbered 0 - 79. Like the SQ-80, each track has five 1024 byte sectors numbered consecutively from zero to four followed by one sector of 512 bytes with a sector ID of five. The following examples should clarify this.

```
TK  SC   SIZE
0   0-4  1024  data is first stored on Track 0, Sectors 0-4
0    5    512  data is next stored on Track 0, Sector 5
1   0-4  1024  data is next stored on Track 1, Sectors 0-4
1    5    512  data is next stored on Track 1, Sector 5
              this process continues until...
79   5    512  the last track - Track 79, Sector 5
```

The diskette may contain the Operating System, six sounds configured as 3 lower-half keyboard sounds and 3 upper-half keyboard sounds and either eight short sequences or three long sequences. The first 11K of the Operating System is stored on both small and large sectors from Track 0, Sector 0, to Track 1, Sector 5. The remaining 5k of the Operating System is stored only on small sectors (Sector 5) from Track 2 to Track 10. The configuration parameters are stored on Track 11, Sector 5. The directory and the sequences are only stored on the small sectors (Sector 5) and the sound files are only stored on the large sectors (Sectors 0-4).

TK	SC	
2	0	Sound # 1, Lower Half, Parameters (1 Sector)
2	1	Sound # 1, Lower Half, Data (64 Sectors)
15	0	Sound # 1, Upper Half, Parameters (1 Sector)
15	1	Sound # 1, Upper Half, Data (64 Sectors)
28	0	Sound # 2, Lower Half, Parameters (1 Sector)
28	1	Sound # 2, Lower Half, Data (64 Sectors)
41	0	Sound # 2, Upper Half, Parameters (1 Sector)
41	1	Sound # 2, Upper Half, Data (64 Sectors)

54	0	Sound # 3, Lower Half, Parameters (1 Sector)
54	1	Sound # 3, Lower Half, Data (64 Sectors)
67	0	Sound # 3, Upper Half, Parameters (1 Sector)
67	1	Sound # 3, Upper Half, Data (64 Sectors)
20	5	Short Sequence # 1 (4 Sectors)
35	5	Short Sequence # 2 (4 Sectors)
55	5	Short Sequence # 3 (4 Sectors)
24	5	Short Sequence # 4 (4 Sectors)
28	5	Short Sequence # 5 (4 Sectors)
39	5	Short Sequence # 6 (4 Sectors)
43	5	Short Sequence # 7 (4 Sectors)
59	5	Short Sequence # 8 (4 Sectors)
12	5	Long Sequence # 1 (16 Sectors)
35	5	Long Sequence # 2 (16 Sectors)
55	5	Long Sequence # 3 (16 Sectors)

Mirage Directory Sectors

The directory information for the Mirage is contained in three bytes which are stored in three sectors of the diskette. Each sector contains 512 copies of the directory byte for that sector. This was done because there wasn't any buffer space to read a whole directory sector. Therefore, the Mirage would read (or write) the sector and would use the last byte of the sector as the valid value for the directory byte. Track 32, Sector 5 contains the Sound Directory Byte. Track 33, Sector 5 contains the Short Sequence Directory Byte and Track 34, Sector 5 contains the Long Sequence Directory Byte. The directory bytes are defined as follows:

SOUND DIRECTORY BYTE	SHORT SEQUENCE DIRECTORY BYTE	LONG SEQUENCE DIRECTORY BYTE
Bit 0 Not Used	Bit 0 Seq. 1	Bit 0 Seq. 1
Bit 1 Sound 1 Lower	Bit 1 Seq. 2	Bit 1 Seq. 2
Bit 2 Sound 1 Upper	Bit 2 Seq. 3	Bit 2 Seq. 3
Bit 3 Sound 2 Lower	Bit 3 Seq. 4	Bit 3 Not Used
Bit 4 Sound 2 Upper	Bit 4 Seq. 5	Bit 4 Not Used
Bit 5 Sound 3 Lower	Bit 5 Seq. 6	Bit 5 Not Used
Bit 6 Sound 3 Upper	Bit 6 Seq. 7	Bit 6 Not Used
Bit 7 Not Used	Bit 7 Seq. 8	Bit 7 Not Used

If the Sound or Sequence exists, the appropriate bit is set to one (1). If not, the bit is cleared (0).

As the various formats suggest, Ensoniq has come a long way since the Mirage single-sided drives. If new formats are introduced, I will try to include their formats in future issues of the *Hacker*. If you have questions concerning the formats, please feel free to contact me. I have used the information in this article to restore files on diskettes which had been trashed by some glitch in the keyboards. If you have a disk you thought was forever lost, you may be able to recover the files using this information. In my next article, I will cover the format used for the VFX-SD Sequencer. ▬

Bio: Gary Giebler is the Manager of Computer Engineering for Eagle Comtronics – a cable TV manufacturer. Gary owns and runs Giebler Enterprises where he produces computer software, records, tapes, and compact disks. Gary still has over 800 copies of his first album in his bedroom closet.

ESQ & SQ-80 Hackerpatch

By Sam Mims

Hackerpatch is intended to be a place where patch vendors can show their wares and musicians can share their goodies and impress their friends. Patches designated "ESQ-1" will also work on the SQ-80. The reverse is not always true. Once something's published here, it's free for all. Please don't submit patches that you know to be minor tweaks on copyrighted commercial patches unless you have permission from the copyright owner. All submitted patches are subject to consideration for mutilation and comments by Sam Mims–our resident patch analyst. If you send in a patch, *please* include your phone number. Requests for particular patches are also very welcome.

The Patch: SPCPNO

Dan Romeo, Middlebury, VT

Seemingly a normal piano sound, but a flick of the nearest mod wheel and it's a...SPACE PIANO! This is from the RomeoSounds SQ-80 collection from R & D Sight and Sound.

The Hack

For a bit more expressive control I wanted to separate the brightening that's controlled by the mod wheel from the "shimmer" effect that it also controls. This was an easy task — I simply changed the modulator of LFO1 to PEDAL so that the CV Pedal controls the shimmer. The patch works nicely as well with the AM (MODES page) turned on. I also liked turning the filter resonance up to about 17.

ESQ users can easily enter this patch by simply ignoring OSC3 (turn DCA3 to OFF) and by ignoring the Ls and Rs in the envelope parameters.

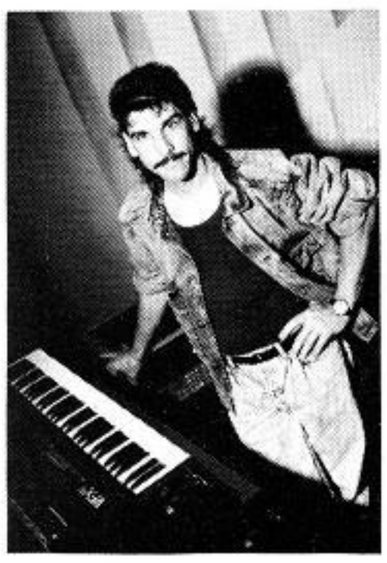
The Patch: BASOU

A.R.T. Gven, Paris, France

This is an acoustic bass sound for soul music.

The Hack

I like the timbre of this bass patch but it might ring a bit too long for certain applications. To rectify this I changed the value of T4 on the ENV4 page to 26. I also wished for a bit of dynamic control via key velocity and I got it by setting LV on this page to 30. Finally, to add a subtle vibrato with the mod wheel, set up LFO1 with the following parameter values: FREQ=20, RESET=OFF, HUMAN=ON, WAVE=TRI, MOD=WHEEL, other values = 00. I then applied LFO1 as a modulator to all the oscillators with DEPTH=+04. For some nice timbral variations experiment with the value of the filter resonance.



Bio: Sam Mims is a studio session player and programmer in Los Angeles, and is keyboardist for Richard Elliot. He owns Syntaur Productions, a company that produces music for film and TV and markets sounds for Ensoniq keyboards.

SQ-80 PROG: SPCPNO — **BY: Dan Romeo**

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	+1	0	1	PIANO	LFO1	+2	*OFF*	-
OSC 2	+1	0	0	PIANO	*OFF*	-	LFO1	+1
OSC 3	-1	9	0	THUMP	*OFF*	-	KYBD2	-60

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	61	ON	LFO1	-45	*OFF*	-
DCA 2	61	ON	LFO1	+45	*OFF*	-
DCA 3	45	ON	KYBD2	+4	VEL X	+19

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	17	3	23	ENV3	+43	WHEEL	+40

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	KYBD2	+63

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	16	OFF	ON	NOISE	0	2	0	WHEEL
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	+63	+30	+6	63L	0	0	39	57	25	53
ENV 4	+63	+35	0	50L	0	0	45	62	40R	38

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	OFF	OFF	0	OFF	OFF	ON	OFF

SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY
OFF	-	OFF	-	OFF	-	-

ESQ-1 PROG: BASOU — **BY: A. R. T. Gven**

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	SAW	ENV1	+2	*OFF*	-
OSC 2	-1	0	3	SAW	*OFF*	-	ENV2	-1
OSC 3	-1	0	6	SAW	*OFF*	-	*OFF*	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	ON	*OFF*	-	*OFF*	-
DCA 2	63	ON	*OFF*	-	*OFF*	-
DCA 3	63	ON	*OFF*	-	*OFF*	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	52	16	0	ENV2	-14	KYBD	-30

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	11	KYBD2	+5

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	-	-	-	-	-	-	-	-
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	+25	+8	+20	0	0	14	50	63	22	9
ENV 2	+63	+49	+45	0	0	5	50	63	35	9
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	+63	+63	+6	0	46	6	0	47	30	29

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	ON	OFF	OFF	4	OFF	ON	OFF	OFF

SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY
OFF	-	OFF	-	OFF	-	-

SD & VFX Hackerpatch

SD & VFX Prog: REAL STRINGS By: Jim Grote

NOTES: This is an example from my collection of 60 patches that I offer. It is a full string section. A light touch yields a slow attack. Playing with a heavier touch gives a responsive fast string attack that is very usable and realistic.

The STRINGS wave has three multisamples stretched across the keyboard. The middle sample is kind of weak, while the high sample is quite good. In particular, it has a very good attack. Therefore, I stretched the high sample down way below the original split-point. The left patch select cancels two oscillators for more polyphony and a thinner sound. The Timbre slider sweeps the filter cutoff frequency, muffling the sound.

The Hack: Very nice! I prefer controlling the brightness with the mod wheel rather than the data (Timbre) slider, since it's easier to reach and not doing much anyway. To do this, change all the TIMBREs (FILTER 2 pages) to WHEEL, and change the MOD SRC of the LFO (voices 3 and 6) to PRESS.

It's easy to get new pad sounds by double clicking the SELECT VOICE button, calling up the WAVE page, and selecting different waveforms. (The SELECT VOICE double-click puts the VFX into Group Edit mode, where parameter changes affect all voices simultaneously.) My favorite alternate waveforms were CLAVPIANO, GTR-HARMO, EL-GUITAR, FRENCHORN, CHIFFLUTE, VOCAL-PAD, DPNO-TINE, and BUBBAWAVE.

– Sam Mims

SELECT VOICE

	1	2	3	4	5	6
00	1	2	3	4	5	6
0*	1	2	3	4	5	6
*0	1	2	3	4	5	6
**	1	2	3	4	5	6

WAVES	1	2	3	4	5	6
Wave	Strings	Strings	Strings	Strings	Strings	Strings
Wave Class	StrngSnd	StrngSnd	StrngSnd	StrngSnd	StrngSnd	StrngSnd
Delay	0	0	1	0	0	16
Direction	Forward	Forward	Forward	Forward	Forward	Forward
Start	2	0	43	0	2	43
Vel Start Mod	0	0	-57	0	0	+17

MOD MIXER	1	2	3	4	5	6
SRC-1						
SRC-2						
SRC-2 Scale						
Shape						

PITCH	1	2	3	4	5	6
Octave	+2	0	0	+2	+1	0
Semitone	+10	0	0	0	0	0
Fine	-10	+6	0	0	0	+11
Pitch Table	System	System	System	System	System	System

PITCH MODS	1	2	3	4	5	6
MODSRC	Env1	Off	Off	Env1	Env1	Off
MODAMT	-85	-	-	-74	-62	-
Glide	None	None	None	None	None	None
ENV1	0	0	0	0	0	0
LFO1	0	0	+4	0	0	+4

FILTER 1	1	2	3	4	5	6
Mode	3LP	3LP	3LP	3LP	3LP	3LP
Cutoff	124	111	72	124	124	72
KBD	0	0	0	0	0	0
MODSCR	Press	Press	Off	Press	Press	Off
MODAMT	+16	+16	0	+16	+16	0
ENV2	0	0	+76	0	0	+76

FILTER 2	1	2	3	4	5	6
Mode	1LP	1LP	1LP	1LP	1LP	1LP
Cutoff	127	127	127	127	127	127
KBD	0	0	+97	0	0	+99
MODSCR	Timbr	Timbr	Timbr	Timbr	Timbr	Timbr
MODAMT	-99	-99	-99	-99	-99	-99
ENV2	0	0	0	0	0	0

OUTPUT	1	2	3	4	5	6
VOL	89	86	99	89	89	99
MODSRC	Press	Press	*Off*	Press	Press	*Off*
MODAMT	+7	+7	-	+7	+7	-
KBD Scale	Zone	Zone	0	-98	Zone	0
LO/HI Key	G#2/F4	F#5/C8	D5/C7	C2/C7	F#4/F5	D5/C7
Dest Bus	FX1	FX1	FX1	FX1	FX1	FX1
Pan	50	50	32	48	52	81
MODSRC	Off	Off	Off	Off	Off	Off
MODAMT	-	-	-	-	-	-
Pre-Gain	On	On	Off	On	On	Off
Voice Prior	Medium	Medium	Medium	Medium	Medium	Medium
Vel Thresh	0	0	0	0	0	0

LFO	1	2	3	4	5	6
Rate			34			34
MODSRC			*Off*			*Off*
MODAMT			-			-
Level			0			0
MODSRC			W1+PR			W1+PR
Delay			3			3
Waveshape			Triangle			Triangle
Restart			Off			Off
Noise SRC RT			-			-

ENV1	1	2	3	4	5	6
Initial	96			99	99	
Peak	97			99	99	
Break 1	96			99	99	
Break 2	96			99	99	
Sustain	96			99	99	
Attack	46			99	46	
Decay 1	23			99	23	
Decay 2	0			99	0	
Decay 3	0			99	0	
Release	99			99	99	
KBD Track	99			0	0	
Vel Curve	Linear			Linear	Linear	
Mode	Normal			Normal	Normal	
Vel-Level	0			0	0	
Vel-Attack	0			0	0	

ENV2	1	2	3	4	5	6
Initial			99			99
Peak			99			99
Break 1			50			50
Break 2			31			31
Sustain			0			0
Attack			1			0
Decay 1			65			65
Decay 2			59			59
Decay 3			71			71
Release			51			51
KBD Track			0			0
Vel Curve			Cnvx1			Cnvx1
Mode			Normal			Normal
Vel-Level			34			35
Vel-Attack			1			0

ENV3	1	2	3	4	5	6
Initial	88	0	55	0	0	55
Peak	99	99	92	99	99	92
Break 1	99	99	98	99	99	98
Break 2	99	99	95	99	99	95
Sustain	86	86	83	86	86	83
Attack	8	6	31	4	6	31
Decay 1	32	32	41	32	32	41
Decay 2	19	19	49	19	19	49
Decay 3	62	62	56	62	62	56
Release	17*	26*	42*	17*	17*	42*
KBD Track	0	0	1	0	0	0
Vel Curve	Cnvx1	Cnvx1	Cnvx1	Cnvx1	Cnvx1	Cnvx1
Mode	Nrml	Nrml	Nrml	Nrml	Nrml	Nrml
Vel-Level	30	20	8	17	17	8
Vel-Attack	24	31	39	28	29	39

PGM CONTROL

Pitch Table	Off
Bend Range	**
Delay	x1
Restrike	55
Glide Time	0

EFFECTS (1)

Effect	Concert Revb
Decay	37
FX1	54
FX2	25

EFFECTS (2)

Pre-Delay	87
Early Refl Level	21
Early Refl Time	29
Diffusion	77

EFFECTS (3)

FX2 Mode	Normal Stereo Send
HF Damping	34
LF Decay	+2

PERFORMANCE

Timbre	0
Release	0

Pressure Key

SQ-1 & 2 Hackerpatch

Jeffrey Rhoads

Prog: Analog Hell #2

By: Charles R. Fischer

Notes: Here's a patch for the SQ-1/SQ-2 that emulates an analog synthesizer pad (sort of a pseudo-Prophet or Oberheim). The mod wheel adds vibrato, while pressure opens up the filter slightly.

WAVE	1	2	3
Select Voice	On	On	On
Wave Class	Waveform	Waveform	Transwave
Wave	Sawtooth	Sawtooth	Pulse 1-X
Delay Time	000	000	000
Wave Direction	-	-	-
Start Index	00	00	44
MODSCR	Off	Off	Noise2
MODAMT	00	00	-23
Restrk Decay	00	00	00

PITCH	1	2	3
Octave	-1	-1	0
Semitone	00	00	00
Fine	00	-02	+01
ENV1	+04	+16	+00
LFO	+02	+02	+02
MODSCR	Noise2	Noise2	Noise2
MODAMT	+00	+04	+03
KBD Ptch Track	On	On	On
Glide	Off	Off	Off
Glide Time	00	00	00

ENV1	1	2	3
Initial	99	99	99
Peak	00	00	00
Break	00	00	00
Sustain	00	00	00
Attack	00	00	00
Decay 1	04	04	04
Decay 2	00	00	00
Release	00	00	00
Vel-Level	00	00	00
Vel-Attack	00	00	00
Vel Curve	Linear	Linear	Linear
Mode	Normal	Normal	Normal
KBD Track	+00	+00	+00

LFO	1	2	3
LFO Speed	34	34	34
Noise Rate	53	47	59
Level	00	00	00
Delay	00	00	00
MODSRC	Wheel	Wheel	Wheel
Wave	Sine	Sine	Sine
Restart	On	On	On

FILTER	1	2	3
Filter 1	2LoPass	2LoPass	2LoPass
Filter 2	2LoPass	2LoPass	2LoPass
FC1 Cutoff	033	038	050
ENV 2	+057	+048	+032
FC1 KBD	+12	+07	+04
MODSCR	Press	Press	Press
MODAMT	+18	+12	+18
FC2 Cutoff	068	068	068
ENV2	+32	+27	+27
FC2 KBD	+08	+08	+02
FC1MOD-FC2	On	On	Off

ENV2	1	2	3
Initial	99	99	99
Peak	50	50	52
Break	00	00	00
Sustain	00	00	00
Attack	00	00	00
Decay 1	15	15	12
Decay 2	24	24	33
Release	00	00	6
Vel-Level	26	19	26
Vel-Attack	0	0	11
Vel Curve	Convex	Convex	Convex
Mode	Normal	Normal	Normal
KBD Track	-14	-14	-14

AMP	1	2	3
Initial	99	99	99
Peak	99	99	99
Break	99	99	99
Sustain	99	99	99
Attack	00	00	00
Decay 1	23	23	23
Decay 2	67	67	67
Release	73	73	73
Vel-Level	33	33	33
Vel-Attack	0	0	0
Vel Curve	Convex	Convex	Convex
Mode	Normal	Normal	Normal
KBD Track	-14	-14	-14

OUTPUT	1	2	3
VOL	87	87	99
Boost	Off	Off	Off
MODSRC	Off	Off	Off
MODAMT	00	00	00
KBD Scale	0	0	0
Key Range	A0-C8	A0-C8	A0-C8
Output Bus	fx1	fx1	fx1
Priority	Med	Med	Med
Pan	+56	-56	+00
Vel window	>000	>000	>000

Standard Sound Programming

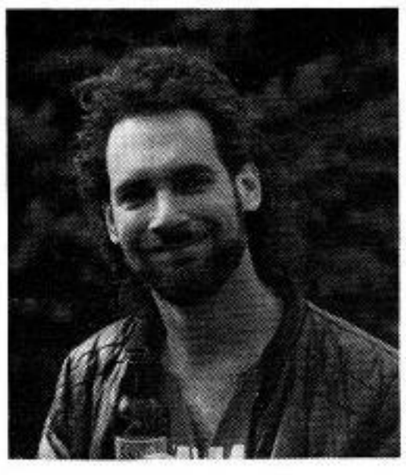
Effects Programming

(To save space, only those effects utilized are listed. A complete blank form was published in Issue #68.)

CHORUS AND REVERB	
FX-1	62
FX-2	00
Decay time	27
HF Damping	40
Chorus Rate	16
Chorus Depth	86
Chorus Center	50
Feedback	-32
Chorus Level	53
MOD (Dest)	Nothing
BY (MODSRC)	Off
MODAMT	+00

The Hack: Charles has developed a very nice digital-meets-analog style sound. It has a nice warm pad at its base and a biting, almost pizzicato string attack at the top layer. There's a slight pitch shift via Env 1 that gives the attack portion of "Analog Hell #2" an almost Oriental flavor in the higher registers. To smooth "Hell" out a bit, call up Wave PLANET-X (instead of PULSE 1-X) for Voice #3. This kills some of the attack and lessens the "overdrive" some. (Analog Heaven?) For those who desire a faster release, in the Amp Section change RELEASE to 30 for all voices. Thanks, Charles, for reminding us that not every analog-like patch has to sound like an... Analog-Like Patch.

Jeffrey Rhoads



Bio: Jeffrey Rhoads has been a keyboardist/composer on the Philadelphia Jazz and R + B scene for a period of time resembling forever. He has an interest in cinema and has developed some film courses. Jeff still believes in magic and longs for city lights.

SQ-1 & 2 Hackerpatches are published with the same constraints and understandings as the ESQ, SQ-80, and VFX patches. The hacking and mutilating part is being handled by Jeffrey Rhoads.

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For sale: ESQ-M+ modified ESQ rack. Call for details. $500. Evenings after 6:00pm EST. (215) 363-8493, ask for Neil Taylor.

EPS sampler keyboard, 2X expander, 45 disks. Like new. $995. 503-257-8246.

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Roland TR505 drum machine: $100, Mirage SXQ-1 Sequence Expander: $30, Realistic 4-Ch mixer: $20. Jane, (503) 227-6848.

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SQ-80 + extras: $795. EPS + extras: $995. Ensoniq/ Bose Piano: $895. You won't be sorry. (215) 444-6124.

2X Expander for EPS Classic: $50. Come on! Somebody buy this thing - I'm not going to give it away! Dr. T's ESQape Editor/Librarian program for the ESQ and IBM-PC, a steal at $25. SongWright IV MIDI Notation Program for IBM-PC - great looking dot matrix output, only $25. Steve Vincent, 3615 66th Ave W, Tacoma, WA 98466. (206) 565-4701.

SQ-R $600. Great condition. Alan, (303) 778-6547.

My ESQ-1 was stolen, so I'm selling: Eye & I Voice Crystals #1 & 3; 2 Ensoniq RAMs; Ensoniq ROMs #1, 2, 3, 5, 11; Valhala ROM 801; A-Spectrum Vol. 1 through 16; ESQ-1 and SQ-80 manuals and Advanced Programming Guide. MAKE OFFER. Joe, (215) 459-0920.

EPS-4x Expander & 20 sound disc $230. Guaranteed. Tony, 4726 Pebble Creek, Pensacola, FL 32526. Phone: 904-944-6012, Tony, after 6 pm.

Upgrading studio, must sell: VFXsd $1500, ESQ-1 $650, IVM diskdrive $200, HR-16 $250, Yamaha 802 mixer $200. Buy it all $2500!! David (919) 247-1058 / 726-7345.

For sale (trades considered): Ensoniq VFX/SD version II, excellent condition, lotsa sounds, $1400.00; Ensoniq SQ-R, w/RAM card, $650.00; E-mu SP-12 Turbo sampling drum machine w/library, Mac librarian, $375.00; IVL Pitchrider 7000 guitar/MIDI interface w/2 pickups and footswitch, $250.00; Southworth Jambox 4+ MIDI/SMPTE interface for the Macintosh, $250.00; Rackmount Mirage w/Midicaster - all the functionality of the Alesis Datadisk, and it samples, too! - w/library, $400.00. (503) 245-3752.

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WANTED

Wanted: VFX-sd patches and TX16W samples for trade. Mike, (708) 427-1615.

Selling your EPS or VFX/SD? Why not sell your sound library separately and pocket the extra rubles? I'm looking for any of the available EPS and VFX/SD libraries for my new setup. Call 401-431-2963, leave message.

Patch-poor ESQ-1 owner with a Macintosh wants to buy high quality sound patches, all types. Call or write to: Teitzell, PO Box 1499, Venice, CA 90294, Phone: (213) 450-8846.

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Wanted: EPS-M in excellent condition. Please write to: Cowgill, PO Box 2639, APO, NY 09179.

Wanted: Mirage VES for IBM-PC, and MASOS manual. Rich, (908) 766-0284. PO Box 3256, Easton, PA 18043.

I need EPS 16+ samples of drum machines, stacks, Fairlight sounds, punchy synth basses, aggressive synths, industrial sounds, etc. Send your list with descriptions and prices! I'm also looking to correspond with other industrial/techno dance musicians. Tom Shear, PO Box 271, Lyme, NH 03768.

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40 Powerful analog type patches for ESQ-1 on data cassette. Pgm sheets included. If you want Big Fat Sounds send $17.95 to Dave Kelly, 900 Princeton Terrace, Glen Burnie, MD 21060.

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Electronic mail - GEnie Network: TRANSONIQ, CompuServe: 73260,3353, PAN: TRANSONIQ, Internet (via CS): 73260.3353@compuserve.com.
This is probably one of the most open forums in the music industry. Letter writers are asked to please keep the vitriol to a minimum. Readers are reminded to take everything with a grain of salt. Resident answer-man is Clark Salisbury (CS). Letter publication is subject to space considerations.

TH:

I just found courage enough to attempt to extrapolate what Clark Salisbury has been teaching in his series on the **SQ-1** to my **EPS-16** and wanted to express my appreciation for his work. His style is clear as well as informative. The exercise of extrapolating from the SQ-1 to the EPS forces me to think (for what that's worth). So, many thanks, and keep it up!

On another subject – there seems to be an irregular correspondence between page numbers in the index of my EPS-16 PLUS Musician's Manual (Version 1.0) and the actual text. For example, there is no mention of "Keystrike" on the pages 1-17 and 2-3 as cited in the index. "Line conditioning" is listed for 1-4, which is sort of correct, but the topic really begins on 1-3. "Diffusion" is listed on pages 4-8 and 10-13. There is no page 10-13. What are the chances of getting the correct index to my manual?

Richard Rawson [73607,3354]
Sacramento, CA

[CS – I appreciate the kind words, Richard. I'll do my best to keep the SQ-1 stuff happening. And by the way, most of this stuff applies to the VFX and SD series of synths, too, for those of you using any of those instruments. Thanks for writing.]

[Ensoniq – The topics you mention (with the exception of the section 10-13 error) are all listed correctly. For instance key-strike is found on page 1-17, second sentence. We use a computer program to help generate indexes on all our manuals, and then we go through and correct and augment what the program creates. Please contact Ensoniq directly at (215) 647-3930 if you desire an updated version.

Please note that the Hacker *doesn't provide owner's manuals or documentation for our products. People should contact us directly when you have this sort of request/question – you'll get a much faster response than waiting to see your letter in print.]*

Dear Sir/Madam,

Now that Ensoniq has replaced the **VFX-sd** with the SD-1 is there any upgrades available for existing VFX-sd owners. I have been told that no upgrade is available in the UK.

Yours faithfully,
Alan Whitelaw
Edinburgh, Scotland

[CS – Yes, Alan, there is an upgrade for your VFX-sd. The good news is the upgrade makes your VFX-sd virtually identical to the SD-1 – you get a bunch of new waves, including the now famous 16-bit piano, a new slap bass, a couple of solo violin waves (yay!), a vibes wave, a timpani, and a new synth bass wave. In addition, you get a bunch of new drum samples, including the sorely needed sidestick snare and handclap samples. Not to mention a bunch of TR-808/909 drum machine samples, suitable for the ever popular dance, top-40, and rap type music. And you get drum mapping – the ability to assign any drum sound to any key or group of keys on the keyboard – another critical feature, in my opinion. Oh yeah – and the overall fidelity is improved as well – cleaner and crisper than the standard VFX-sd.

The bad news is that (in the US) the cost of the upgrade is $699.95, including installation and return shipping from Ensoniq. (Your cost will be set by your distributor.) But considering the good news, the bad news probably isn't all that bad. You get a lot for the money.]

[Ensoniq – As Clark mentions, you can get a new mainboard for your VFX-SD that will give you all the benefits and features of the SD-1. You should contact our distributor for England/Scotland, Sound Technology, Letchworth Point, Letchworth, Hertfordshire SG6 IND England. Phone 011-44-462-480000, FAX 011-44-462-480800.]

Howdy Jane, Eric, etc.,

Thanks for being so supportive of my little band. Yesterday I got my copy of #73 (July, '91) with the *Basement Tape* article about the Sponge Awareness Foundation. Today, three orders for the tape came in just because of the review! As a side note I got NO response from the classified ad that appeared in Issues 70 and 71 – oh well.

Mr. Mandel raised some questions to which I'd like to respond.

1. Our word choices are weird because we're weird – many of the lines being inside jokes and obscure personal references.

2. No movie plans as of yet – although we've done computer animations for "Cannibal House Guests" and "The Clam Guy."

3. "Naked 36 Times" was done with the Casio SK-1. Boy, do I wish I had an EPS. This vital instrument was only used once on the tape and that's it. We used tape speeds to fix up "Dance the Onion." Incidentally, I do the vocals on both of those tunes and we distorted my voice for a good reason...I can't sing.

4. I'm sick of the sax solos too. When I got my VFX, I loved my ALTO-SAX patch so much I used it in almost every song I wrote. Then I got bored and started using other instruments for solos/leads. Thus the sax problem.

5. The blurpy heartbeat in "Cannibal" is from the September, '90 Hackerpatch by Carlos Macias.

Later dudes,
ED Lecuyer
Wrentham, MA

[CS – guess I won't be waiting to see you guys on American Bandstand anytime soon. Good luck, and thanks for writing.]

Dear TH and Ensoniq,

Just when I think I've grokked some audio/synthesis concept along comes some weird information which causes me to shake my head and make that Wile E. Coyote adeeah-adeeah noise. Earl Peach's article on creating FM timbres on the **EPS** and **EPS-16+** just didn't make sense to me.

Although my DX dinkering is pretty limited it is my understanding that FM synthesis requires ring modulation. In Earl's article he described phenomena which are almost identical to those associated with ring modulation ("tones tuned to the sum and difference of the carrier's frequency and the modulator and its multiples") but bear no resemblance to what happens when you simply mix some sine waves on your EPS. You simply can't make the complex FM tones without ring modulation. Isn't that right?

Hey, but maybe the folks in Malvern could work a RING MOD command into a future OS upgrade. Here's how I envision it.

<COMMAND LFO>
RING MOD <YES>
SAMPLES LAYERED? <YES>
SOURCE WAVE # < LAYER # WS #>
DEST. WAVE # < LAYER # WS #>
VOLUME MIX <-99 – +99>
SUM/DIFFERENCE MIX <-99 – +99> Like on the Quadraverb Plus where you can adjust the balance between the upper (sum) and the lower (difference) tones of the ring mod.

Maybe this wouldn't be used that often but it would really be fun. Well, that's my spew for now.

Sincerely,
Jon Stubbs
Boulder, CO

[Earl's response – Sorry for creating a misunderstanding. I'm not suggesting you can perform actual ring modulation on the EPS. However, ring modulation produces characteristic timbres and I intended to describe how you can analyze those timbres and produce them through "additive synthesis" as described in my previous articles.

I can't really comment on your proposed user commands for ring modulation. Suffice it to say,

of course, that if Ensoniq came up with some magical process to produce true or simulated RM, I would be the first to tear off my clothes in ecstatic frenzy.]

[Ensoniq – It wouldn't be possible to implement a ring-modulator on a per-voice basis. However, a ring-modulator algorithm for the effects processor is technically possible. It would end up being a global setting for all the voices, not a per-voice function, so it might not be the answer you are looking for. We are not about to release such an algorithm so Earl, please keep your clothes on (you never know what brings out the beast in a man!).]

Dear Transoniq Hacker,

I presently own an **EPS-16 Plus** and would like to sample. Can you recommend a professional microphone? And besides sampling on my EPS I also want to record acoustic/nylon-string guitar music on my multi-track tape recorder. So I'll need a dual/general purpose mic. I'm thinking about the $100 range.

Also can you recommend good headphones for my 16+?

Thanks,
Peter Farrett
Boca Raton, FL

[CS – Peter, $100 or so represents the low-end of professional mics, but it is possible to find some relatively good sounding units in this price range. I am by no means an expert in this field – my best possible recommendation is that you do some serious discussing with a dealer who you trust, and let your own ears play a part in whatever decision you make.

One mic you might check out, though, is the ubiquitous SM-57 made by Shure – it's one of the most popular mics around. This can be a good general-purpose mic, although it's not really optimized for recording acoustic guitar. On the other hand, a mic that's particularly suited to those types of instruments may not give you the flexibility you need to sample other kinds of sounds, such as drums, or maybe bazooka fire.

You'll find other good mics in your price range made by Electrovoice, Audio-Technica, and others – take the time to check these out as well.

As far as headphones go, I don't have a specific recommendation – I use an old set of Pioneer 'phones that I've had for a good 10 years. The model is SE-305, and I don't know if they're still manufactured or not. Ensoniq uses AKG model K240's in their engineering department, and also has had good results with the Sennheiser model 414 'phones. And Bill McCutcheon (I like to think of him as "Mr. Answer Man" at Ensoniq – he's the Hacker's main technical liaison with the company) particularly likes a Sony set – he thinks the model is either MDR5 or MDR6. If this doesn't give you enough to go on, there are a couple of things you can do to

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help narrow the field a bit.

First, determine your price range. Professional headphones can run anywhere upwards of $60 or so, and easily into the three figure range. Once you've determined price range, think about whether or not you want the headphones themselves to seal around your ear. The advantage to this type of unit is that it helps to block out unwanted environmental sounds, and helps to prevent "leakage" of sound from your 'phones into any nearby microphones – an important consideration in a recording studio environment. On the other hand, if you're a house-husband, for example, and need to be able to hear what the kids are doing in the next room while you're working on your concerto, perhaps the more open headphone design would be more suitable.

All else being equal, pay attention to how comfortable a set of 'phones is to wear. During long sessions, you may find that you have them on for long periods of time. And a good way to evaluate the sound of a set of 'phones is to use them to listen to music that you're very familiar with – it can be very difficult to evaluate the sound of any monitoring system while listening to unfamiliar material. Perhaps you can take a Walkman, or at least a familiar cassette or CD to the dealer's when you go shopping.

Also, be aware that different sets of 'phones will produce different volumes under the same set of circumstances – while some sets will sound good, they may not be sensitive enough to produce the kind of output you might want from your EPS-16 Plus, especially if you like to monitor at relatively high volume.]

[Ensoniq – We feel obliged to comment that monitoring at high volumes can be damaging to your hearing, especially with headphones. They bring the speaker so much closer to your ears that you can easily damage your hearing without realizing it (have we all forgotten Pete Townsend already?). We urge all Hacker-ites to be careful and preserve your most important musical instrument, your ears!]

Dear Hacker,

After one year of ownership of an EPS I can tell you in no uncertain terms that this instrument is the answer to all my dreams. Thank you, Ensoniq!

Just received my second issue of the *Hacker* and ten back issues from a friend and I wish I'd gotten it a year ago. However, I still suffer from a problem many of us non-computer oriented players have (mostly guitarists like myself, I presume), which is who knows what the hell "Scale Data" does, etc. Once told, we too could be using these pages of seemingly meaningless fluorescent letterings...Can't ANYBODY find it to be cost-effective to print a Hacker-like guide that says "If you want to do this – do this" and "This command is used to..., etc." Sam Mims seems to have the wherewithall and communication skills to help us guys on our first com-

puters. What the hell is this stuff?

And on a more serious note, has anyone measured the electromagnetic fields emanating from all these toys we work in such close quarters with all day and night? Sometimes I go 13 hours with my EPS and the 4-track and the DBX's and the cassette deck...

Paul Santa Maria
Miami, FL

[CS – I'm afraid that I haven't seen any books that I could recommend that will give you the kind of information you're looking for. This is not to say that they don't exist, just that I haven't seen them. I'm more than willing to listen to recommendations, or to take a look at anything out there that might fall into this category, and to pass along my findings.]

[Ensoniq – We would hope that our manuals are a help in understanding and using the main functions of any our instruments. But we do realize that a tutorial-based instruction can help make things clearer, and we intend to deal with a variety of educational subjects in our "Musical Perspective" booklets (see "News from Ensoniq" in Front Panel). We'll certainly take your request into consideration.

The fields generated by modern synthesizers are no different than those generated by video games, computers, or any other microprocessor-based devices. They are considerably less than the fields generated by TV, radio, and power transmission which surround us everyday. Suffice it to say that we wouldn't recommend sleeping on your display during lulls in your marathon sessions, but you shouldn't experience any ill side-effects from your electronic music-making.]

Dear Transoniq Hacker,

I have a couple of questions about using the **EPS-16 Plus** and the **SQ-R** together. I am using the 16+ in send on instrument channel mode to play the SQ-R multi-timbrally. The SQ-R is in multi mode. I would like to be able to select presets on the SQ-R over MIDI while it is in multi mode. The manual says the while in multi mode presets can be selected by sending a program change on the base channel, however I can't figure out how to do this from the EPS-16+ while in the send to instrument channel mode. Could you help me out? Also, is there any word on a 4x memory expander for the EPS-16+, before I run out and buy a SCSI interface for my 2x memory expander?

Thank You,
Jay Bromley
Pasadena CA

[CS – When the SQ manual says that a program change needs to be sent on the base channel, it means that you need to send the program change from the EPS on the same channel that the SQ is using for its base channel. It doesn't matter if the EPS is sending that program change from an instrument or from its base channel – as long as the program change comes in on the same channel that the SQ is using for its base channel. In addition, the SQR needs to be in "preset" mode (the "Select Preset" LED is lit), and "Preset Prog" (accessed from within the System menu) needs to be turned "On." Also, you need to make sure that the SQ is using a base channel that's not also being used as a track channel – in other words, if your SQR is in multi mode, and the eight tracks are set up to receive on MIDI channels 1 through 8, set the SQR's base channel to something else – channel 9, for example, or channel 16. If you are using, say, channel 16 for the SQR's base channel, then sending a program change from an EPS instrument set to send on MIDI channel 16 will cause the SQR to select the corresponding preset.

As far as the 4X memory expander goes, the official word is that there are no plans to expand the EPS memory beyond what's currently available. I wouldn't sweat it – Ensoniq has assured me that they would not produce any sort of add-on that would make their existing SCSI port obsolete.]

[Ensoniq – We have no plans for a 4x memory expander for the EPS-16 PLUS, but keep in mind that you can have 2 Megabytes 1 Megaword) of RAM and an additional 1 Megabyte (512k word) of FLASHBANK programmable ROM memory for your instrument.]

Dear Interface friends,

First, I've come up with a maddening **EPS 16+** anomaly that I would appreciate any help with. I use my 16+ in a fairly extensive MIDI system that uses C-Lab's Notator as sequencer and a Yamaha SY77 as the master keyboard. The problem is this: When using an organ sample in the 16+ with the Leslie speaker effect, I have only had occasional success changing speeds with the SY77/Notator. I have the speed change controlled by the sustain pedal, and it always works perfectly with the EPS itself, but often a sustain pedal off/on from the sequencer will do nothing. I know the sustain pedal is being recorded because the pedal messages are right there on the computer screen and the score. I know the sustain pedal messages are being received because, if held down long enough, the MIDI controllers switch or the MIDI XCTRL number. Oddly enough, loading the factory organ sample into another instrument slot will often get my samples to respond to incoming sustain pedal speed change commands. This strikes me as odd because the factory organ disk does not use the sustain pedal to change Leslie speed, and the 'fix' continues to work even after I delete the factory organ. Any ideas?

Second, speaking of the Rotating Speaker effect and assuming that the effects are controlled by the software O.S., I have a suggestion. Being an old organ player, I was especially pleased to find this effect in my new EPS. The only complaint I have (and I've heard it from others) is that the effect is simply too intense; the original Leslie was a bit more subtle. I've found a viable way around this by using two layers of the same organ samples. One layer goes through the Leslie/Reverb bus, the other just the Reverb bus. It is then easy to mix the two layers to get the sound you want. This is less than ideal because it doubles the polyphony and uses up voices. I would sure like to see some kind of intensity control or at least a dry/wet control as part of this effect. If you look back at the old Leslies, you will also remember that the bass speaker played through the bottom rotor that changed speed quite slowly while the treble speaker shot through the top rotor that changed speed almost instantly. These two rotors also spun a slightly different speeds and in different directions. It sure would be neat if (by using some kind of crossover, two inertia controls, for speed controls etc) these effects could be implemented.

Third, I'd like to thank Ensoniq for making such neat samplers; I use my EPS 16+ and Mirage all the time. I'd like to thank the Hacker for printing all this kind of stuff. I'd like to thank all the kind folks with kind words about the Minotaur Mirage and EPS samples, and I'd like to thank Garth and the men and women of Rubber Chicken for giving the Minotaur EPS disks a new home.

Barry Carson
Canton, N.Y.

[CS – Congratulations, Barry! You win the bug-of-the-month award!

Yes, you have discovered a bug in the EPS 16+ – at least it seems like a bug to me. I tried it out, and was able to duplicate your sustain pedal/ rotating speaker switch problem exactly – including the part about being able to clear the problem up by loading in the "Multi Organ" instrument from factory disk ED-002. As a matter of fact, until I loaded in the aforementioned "Multi Organ," I couldn't get the rotating speaker switch to respond to any incoming MIDI controller – modwheel, patch selects, external controllers – nada.

You can take pride in the fact that you have helped make life just a little better for future generations of Ensoniq users by pointing out this bug for Ensoniq. I'm certain that this will be corrected in an upcoming OS version, making the world a better place in which to use Ensoniq gear – for us and our children.

I know what you mean about the Leslie effect – but count your blessings! At least the EPS 16+ has a Leslie effect, and a pretty good one. This isn't to say it couldn't be better, but at least you don't have to try to sample your organ sounds with the Leslie effect built in, and then have to sort out how to switch between slow and fast Leslie samples, or worse yet, to try to simulate the rotating speaker effect using LFOs and detuning and so on.

Your tip on how to make the effect more subtle is a good one – I'm sure a number of our readers will appreciate it. Thanks for writing.]

[Ensoniq – Good find! It turns out that in Multi-Mode, Effects cannot be modulated by controllers received on the MIDI channel of a given Instrument/Track location unless an instrument has been loaded into the next highest location. Once you have loaded an instrument into the next highest location, MIDI modulation will work properly, even if you delete that instrument.

For example, to modulate the Effect with a Sustain Pedal message transmitted on Instrument 5's MIDI channel, you must first load an instrument into location 6. Instrument 6 could subsequently be deleted and controllers sent to instrument 5 would continue to work. This holds true for all Instrument/Track locations except for Instrument 8, which works normally.

To work around this problem, make sure that the instrument you want to modulate the Effect on is either loaded into Instrument location 8, or that there is an instrument loaded into the next highest Instrument location. Pretty weird, but we're looking into it!

Regarding the Rotory Speaker Effect; it was designed to simulate a real speaker and, as such, it doesn't provide a wet/dry mix (with a real rotory speaker, the sound is either coming through the speaker or not). However, we agree that your suggestion is the simplest way to achieve a wet/dry mix so we'll certainly keep it in mind. Thanks for the input!]

Dear Dudes and Dudettes at T.H. Interface:

I have a question regarding use of the original **EPS** for direct-input sampling. What if any particular microphone makes and models do you recommend for all-purpose use with this unit? Thanks tons.

Sincerely,

Anthony Ferrara
Philadelphia, PA

[CS – What is it with mics this month? Look, as I've said before, I'm no expert. There's a really good article, though, in the July '91 issue of Mix magazine, *wherein they compare mics in the $500 (considered moderate) price range. Even if you're not into spending this kind of money, the article's worth checking out just to get a handle on evaluation techniques and criteria. An interesting sidelight – they tested and liked the Shure SM57 – the only mic in the article that you can buy for around a hundred bucks!]*

Dear TH,

I purchased a new **VFX-sd** about eight months ago, as I was favorably impressed with the sounds, the onboard sequencer and features to strain the imagination – but for me there's on catch – reliability.

My unit is plagued with a variety of glitches – it crashes repeatedly, in a variety of ways under various conditions, but not at the dealer's store, just at my home. This would seem to point to system anomalies like outboard gear or power line problems. But even with all MIDI devices disconnected and using a regulated filtered power line conditioner it "locks up," refuses to respond to any controls and gets stuck on the recalibrate page. Crashes are foreshadowed by some random notes (triggered by themselves w/sequencer off!) and the keyboard going dead.

Usually I can save my work on disk if I'm sequencing, but not always before it's completely stuck on recalibrate/ignore? Time for a hard reset.

The main circuit board was replaced when I was having the same problems this spring and all was well for about six weeks. Now it checks out at the dealer's, running great for hours to our mutual dismay.

My gut feeling is that there's some heavy RFI in the neighborhood. Maybe the hams, the cellular telephones and business band 7M users are getting the VFX confused? I am already using good, heavily shielded audio cables though – so what do I do now?

Puzzled on the prairie,
Paul Glaspie
Greene, IA

[CS – The problems you describe sound suspiciously like the symptoms of a flaky poly-pressure keyboard. I'd bet good money that a replacement keyboard will clear everything up just fine. Your VFX-sd is still under warranty, so there should be no cost to you to have this taken care of, and it's a very quick and painless procedure. You might want to get directly in touch with Ensoniq Customer Service at 215-647-3930.]

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