Transoniq Hacker

The Independent News Magazine for Ensoniq Users

Envelopes and Oscillators, Oh My!

Part 8

Clark Salisbury

Welcome back, SQ-1 fans. As no doubt you'll recall, last month we spent some quality time with envelopes and filters, and a couple of issues back we looked at envelopes and the amplifiers. This time out, let's check out one of the more overlooked applications of envelope generators, the control of oscillator pitch.

Now why would anyone want to control oscillator pitch from an envelope generator? A couple of reasons, actually. One is that many acoustic instruments exhibit a slight pitch shift at the attack of a note, particularly plucked instruments like the guitar and banjo (as well as many drum and percussion sounds.) You can recreate this effect by using an envelope to modulate the pitch of a voice, allowing you to control how much pitch bending takes place, whether the pitch bends up or down, and how long it takes for the pitch to return to its normal, unmodulated value. For an example of this technique as it applies to a more synthetic texture, select the program called "Super Pad" (ROM sound #40) and examine the Pitch menu for each of the two voices used. You should find that voice 1's pitch is being modulated by envelope 1, with an amount of -60. This gives the sound a rather ethereal, otherworldly attack, as the two voices start out rather heavily de-tuned, but gradually come closer together, pitchwise. You might want to examine the parameters associated with envelope 1 to see the values the programmer used to achieve this effect.

As a matter of fact, noting what the various programming pages are doing in a sound can be an exceptional tool for learning about how other programmers approach the task of creating sounds — definitely one of the best ways to learn a lot of cool tricks for sound programming. So whenever you hear something on the SQ that you like, make a point of browsing through the parameters to get an idea of how the sound is created. Solo each voice to hear what its contribution to the overall sound is — check out filter and envelope settings — pay attention to what waves are being used, and so on. You might be surprised at the nifty ideas you can pick up by doing this simple thing.

At any rate, let's work with an example of envelope controlled pitch shifting. We'll start by creating an "analog" (synthesizer) brass sound in the old-fashioned way — using the sawtooth wave, rather than any of the brass waves.

First, select ROM sound 07, the "L.A. Brass" sound — we might as well start with something that's not too unlike what we want to end up with. Hit "Edit," then "Wave," then button "0" — you'll note that the sound uses two voices — 1 and 2. Voice 1 is assigned the "Brass Ensemble" wave, and voice 2 is assigned the "Trump Variation" wave (as you'll recall, you can inspect and edit wave assignments by selecting one of the voices and hitting the number "1" button).

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First, change the wave for each of the voices to the "Sawtooth" wave, located within the "Waveform" waveclass. You now have a rather raw-sounding analog brass patch. Let's class it up a bit.

First, make sure "ALL" voices are selected for editing, hit the "Filter" button, and then button "1." Bring FC1 (filter 1 cutoff) down from "012" to "000" — this will mellow the sound out a touch. And as long as we're fooling around, let's de-tune the two voices slightly. Now back at page "0" of the "Wave" menu, select voice 1 (make sure that the "SelectVOICE:" parameter is set to "ONE" now instead of "ALL"), hit "Pitch" and button "0," and set "Fine" tuning to "-04." Likewise select voice 2, but set its fine tune parameter to +04. Now that we've made a couple of basic changes to this patch, let's get on to the matter at hand, which is a look at the use of pitch envelopes.

Select voice 1 for editing, and move to the pitch modulation page (press "Pitch," then the number "1" button). Set the value for "Env1=XX" to "+99." Envelope 1 is always "hardwired" to control the pitch of a voice, but in most cases the modulation amount is set to "00," so no pitch modulation occurs. What we've just done is set envelope 1 pitch modulation to its maximum positive amount — "+99." (Pitch modulation can also be negative.)

You'll notice, however, that changing the modulation amount has no discernible effect on the sound — not yet, anyway. Let's head on over to the "Env1" page — press "Env1" and then button "0."

It should become immediately apparent why envelope 1 seems to have no effect on the sound — all of its times are set to "00." Even though level 1 is set to 53, the envelope runs its course, and ends at a level of 00, in 00 time — Why, that's no time at all!

Ah, but try setting time 1 to a value of, say, 50, and the effect becomes immediately apparent, with voice 1 swooping down in pitch to match voice 2.

This is all very well, but perhaps not too useful a sound — especially if you need to play anything faster than about a whole note. But try setting time 1 to a fairly short value — say 10 or so — and the effect becomes interesting. Now instead of hearing that rather seasick downward pitch bend at the onset of a note, the pitch change will happen so quickly that we won't necessarily hear it as a distinct pitch sweep, but more as a "blip" at the beginning of the note's attack. This can be a useful effect when you need to punch up the attack of some types of sounds, including those in the brass family. You might try shortening time 1 even a bit more — I prefer a value of around 4 or 5 for this type of thing. Now the pitch bend becomes very subtle, but notice that the attack of the sound has a good deal more bite than it did when we began.

This same sort of little bend at the beginning of a sound can be used very effectively to punch up lots of different kinds of sounds. As I've already mentioned, many of the plucked-string family of sounds, such as guitar, bass and banjo can benefit from this technique, as well as a number of drum-type sounds. And many horn and other wind instrument patches can be made to have a bit more "bite," as we've just seen in our analog brass patch.

And this just about wraps up our discussion of envelopes, at least for now. However, before I sign off, I'd like to leave you with a few tips and ideas regarding the use of envelopes in your day-to-day existence.

The first tip is really a caveat, and that is this. You need to keep track of what all the envelopes in a program are doing. Why? Because when you're using multiple envelopes, it is possible for one envelope to sabotage what another is doing.

Let's say that you're working with envelope 3 (the AMP envelope) and you decide it might be nice to set up a rather long release time. So you head over to envelope 3, select [time 4], and set its value to a fairly high number, "40." But nothing happens. As a matter of fact, no matter what you set [time 4] to, the envelope always seems to decay much too abruptly. So what gives, here?

Chances are that if you head over to envelope 2, (the envelope that's normally routed to the filter), you'll find that [time 4] on this envelope is set for some relatively low value, and that this envelope is being used to control filter cutoff — you can check out the latter by hitting "Edit," then "Filter," and scrolling. If one or both of the filters' (FC1 or FC2) cutoff points is set to a relatively low value, and either or both of them have the "Envelope2=XX" parameter set to a relatively high value, then bingo! Envelope 2 is "closing down" the filter(s) (allowing the filter's cutoff point to return to a low value) before the sound has had a chance to go through the complete release cycle set at Envelope 3. Since the filter is removing most or all of the sound's harmonics, there's no sound left after envelope 2 has run its course — so the effect of envelope 3 on the release time of the sound is not audible.

Once you have a handle on what all the envelopes in a sound are doing, you might want to try a couple of things out. For example, since envelopes, like most of the modulators, can be applied with a negative or positive value, there are some interesting effects you can achieve by routing similar or identical envelopes (or LFO's or whatever) to similar or identical voices, but with opposing polarities. You might try modulating two similar voices from two similar envelopes, but give one a positive modulation amount and the other a negative modulation amount. The effect will be that of the pitch of one voice moving up while the pitch of the other is moving down — this can be particularly spooky using the "Vocal Ooohs" or the "Vocal Ensemble" waves and lots of slow envelope modulation.

By the way, don't forget the "LevV" (velocity control of envelope level) and AtckV (velocity control of envelope attack time). These parameters allow you to control how the envelope responds to velocity, allowing you to control how much pitch-shifting takes place by how hard you play the keyboard, for example, or at what rate the pitch shift happens.

Another idea might be to use one "Amp" envelope to fade a voice out, while another "Amp" envelope is fading another voice in. This gives you a way to control cross-fades between to different sounds, or to create stereo panning effects if the two voices are panned differently in the stereo field.

Anyway, that should give you enough to keep you busy for a while. See ya next time! ■

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.

RND (♪♪♪)

Hacker News

Seems like everyone's so busy sending in Basement Tapes that they're forgetting all about Hackerpatches. We could really use some more reader patches for *all* the Ensoniq synths.

Third-Parties News

L.B. Music now has an 800 number (for orders only): 1-800-3-LB-MUSIC or 1-800-352-6874. L.B. is also now supporting Alesis Data Disk for sequencing with Proteus or other sequencer formats.

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 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.

HYPERSONIQ
NEW PRODUCTS

Giebler Enterprises announces the release of the *Ensoniq Disk Manager* — a software program that will read, copy, format, and display EPS, EPS-16 Plus, SD-1, and VFX-sd diskettes on the IBM-PC. The disk copy feature formats the disk while copying and can be used to make multiple copies of Ensoniq diskettes — useful for third party sound or sequence developers. Giebler also announces the release of several utilities that can be used with the *Disk Manager*. *VFXSMF* transfers VFX-sd and SD-1 sequences to and from Standard MIDI files. *EPSSMF* will transfer EPS and EPS-16+ sequences to and from Standard MIDI files. *SQ80SMF* will transfer SQ-80 sequences to Standard MIDI files. *SQ80VFX* transfers an entire diskette of SQ-80 sequences and songs to VFX-sd sequences and songs. As a special introductory offer, anyone who purchases Version 1.0.2 of any of the utilities or the *Disk Manager* will be granted unlimited software upgrades for a reasonable handling charge (currently $5.00). An IBM-PC or compatible with a 3 1/2" diskette drive is required. During the introductory offer, the *Disk Manager* is available for only $18.00, each utility is available separately for $29.00 or combined with the *Manager* (which is required) for only $39.00. (Free shipping in the U.S.) New York residents add appropriate sales tax. Contact: Giebler Enterprises, 8038 Morgan Road, Liverpool, New York, 13090 or call (315) 652-5741 (Monday – Friday, 10 am – 9 pm).

Talking Owner's Manuals, the California/New York company that produced the Talking Owner's Manual for the VFX-sd (*TOM-1*), announces the release of *MICI*, Musical Instrument Cassette Interface, an audio cassette look-alike with connecting cable that allows you to use the amplifier in your car's cassette stereo system or boom box for playing battery-powered keyboards. *MICI* is available for $25 + $2 s/h by mail order or through select dealers. Talking Owner's Manuals is also working on audio manuals for the EPS-16 PLUS, the SD-1 and the SQ2/SQ1. Watch for future announcements. Contact: Talking Owner's Manuals, 1159 Aviemore Terrace, Costa Mesa, CA 92627.

The Michael Ford Archives announces the release of *TRIVIA-TOONS Vol. 1* — a bank of sequences on a disk for the VFX-sd (Vers. 1 & 2) and the new SD-1. These are authentic recreations of TV and movie themes conveniently displayed on the keyboard for a quick impulsive push of a button. Volume 1 contains 12 selections including two Looneytunes themes, *Twilight Zone*, the *Tonight Show*, *Peter Gunn*, *Leave it to Beaver* and more. Michael Ford is well known in Ensoniq circles as the person responsible for most of the demo sequences for the Mirage, ESQ-1 and SQ-80. Introductory price is $99.95. To hear a demo, call 215-889-9746 anytime, 24 hours a day. For further info or to order, call 215-889-9744.

Syntaur Productions has announced the beginning of a new sound effects library for the Ensoniq EPS-16 PLUS and EPS samplers and has marked the occasion with the release of the first eight floppy disks. The disks are designed for use in audio/video post production. Sounds were sampled at 44.6 kHz (16 bit) from digitally recorded source tapes. Every disk is set up in a similar format. Mod wheel controls volume, patch selects offer mono, right channel only, left channel only, and stereo. Disks are $5.95 each, or $5.45 for orders of six or more. The collection will soon be available on Syquest 45-Meg removable hard drive cartridges. Contact: Syntaur Productions, 11116 Aqua Vista #2, North Hollywood, CA 91602. Phone: (818) 769-4395.

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"VFX meets EPS" III	10	$49.95
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Microwave Chicken II	15	$59.95
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The Plus Pak II	5	$39.95
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The Plus Pak IV	5	$39.95
The Plus Pak V	5	$39.95
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Minotaur Ren/Med II	5	$49.95
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UA Best Synths	5	$19.95
UA Best Brass/Horns	5	$19.95
UA Best Woodwinds	5	$19.95
UA Best Keyboards, E-Piano	5	$19.95
PIANO!	-	$6.95
EPS-Sense	-	$45.00
Chicken Chronicle	-	10.00 yearly
Blank 3.5 DS/DD Floppy Disks	-	$ .59 ea.
Blank 90 min tapes	-	$1.35 ea.
Blank 44mb Syquest Cartridges	-	$85.00 ea.
Chicken Drive (44mb Hard Drive)	-	$699.00 w/ cart
Chicken 44mb Cartridges I - III	-	$259.00 ea.
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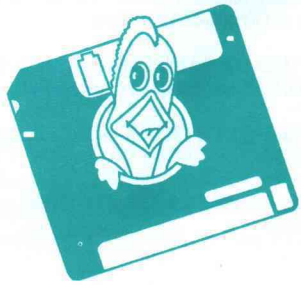

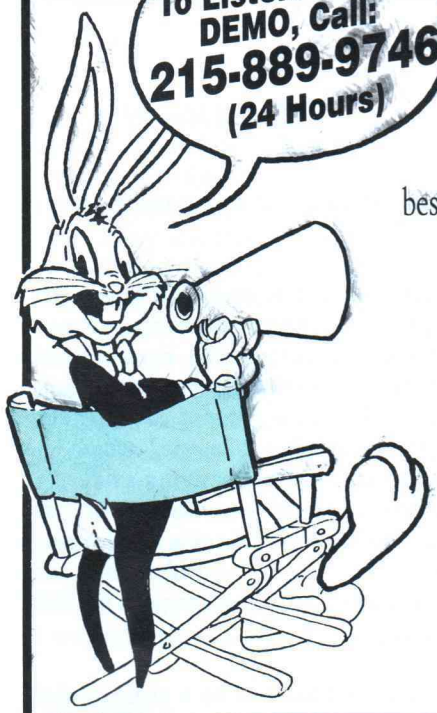

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NOT AVAILABLE IN STORES

Aperture, David Bell

Daniel Mandel

Tape: Aperture.
Artist: David Bell.
Contact: Blue Palm Productions, 404 Mansfield Parkway, Morehead City, NC 28557.
Equipment: VFX-SD, Emu Proteus 1, Alesis Microverb, and a Yamaha 802 Mixer.

This independently produced tape is one of four complete projects that David Bell has produced. It is entirely instrumental and, as you can tell from the equipment list, only (!) uses a few pieces of equipment. Sometimes I am amazed when I read how many synths a band uses to create the sounds on their projects, and it is still seems strange considering that one synth can generate so many hundreds of usable sounds.

Most of the songs David has created are centered on a piano sound. The piano patches were very realistic. David didn't say which keyboard the piano sounds came from, or if they were layered, but I'm guessing they were Proteus patches. The cassette contains 15 songs all having very slick production values and proven songwriting techniques. The opening song, "*Jasa*," explores a repetitive note pattern without ever sounding repetitive. David does this through finding different emphasis, highlighting alternately the beat, the melody and then just jammin'. "*Michigan Ave*" is a good rocking romp through some standard chord progressions. His lead licks are all very polished, and on this particular tune you get the feel of a real band — horns, piano, drums, and bass. "*Joe's Crusade*" is an example of adding one instrument at a time until you have everybody cookin', and then the jam session followed by everyone dropping out one by one.

These songs almost seem a little too polished, a little too something to be true, that is until your tape rolls onto "*Aperture*." While the other material on this tape is quality stuff, it doesn't compare to the unique atmosphere captured by this piece. The song begins in rather spacey vein, low strings, scattered percussion and a long dramatic build that lulls you into a false sense of security. Descriptions are possible here, but the only real point is that this song took me somewhere (but it's OK, I'm back now). One interesting technique is how he kept the momentum of the song alive, no matter what else he did within the percussion itself. There is a section within the song where the drums s-l-o-w w-a-a-y d-o-w-n, but you can tell that lurking back in the string section this groove is still playing itself out. David really explored the feel of this piece and made the dynamics work for him. Just goes to show you that a background part can be just as dramatic as something that's in your face. He knew what he was doing when he labelled this project after this tune.

"*My Dad's Shoes*" sets up a very loose groove and jams away. "*Nu Groove*" was the only real shock to my system because at first it seemed so very POP!, starting out with a really blurpy keyboard patch.

One of the things that I was bothered by on David's tape was that a couple of the songs didn't appear to have a planned finale. The song was great, the jam really kicked, but it seemed that when it was time to pack up and go, the easy way out was taken. The song would just stop or fade, instead of a planned ending. Also on side two, there is a song, "*Omatia*," which intros with a most amazing string section chopping away. So there I was, poised for what was coming next, when the strings just cut out and another jam took off in the same key leaving the strings completely behind. To my ear the excellent intro and the music that followed were not tied in together and no link was provided. It sounded strange.

A little background on David. He used to be a professional photographer, until he opened his own music production company, Blue Palm Productions, in Morehead City, NC. He's been putting his stuff on the line for a while and as a result he's been reviewed in *Music Technology* and *Electronic Musician*. His other tapes are "*Ultraglide*," "*Visions!*" and "*In the Dark*."

I am personally amazed at the quality of independently produced music and soon I will be reviewing my first independently produced CD that was recently sent to the *Hacker*! I know from talking to the boys in the bands from the demos I've done that it can be gruelling enough just to get the gigs, the practice space and the equipment together without going bust, or going crazy. When you add to that trying to push your way through the recording industry maze of bureaucracy, it can end up being quite a headache.

Personally I am of the opinion that as the evolution of computers, electronics, and MIDI continues to develop, we will see some very interesting changes in what is now merely a cottage industry of home-produced music. I can't help but be optimistic when I hear the kind of music that is being generated from just us folks! ▬

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

Arpeggiation and the EPSs

Erech Swanston

Reading the article by John Bolles (May, '90) about achieving appreggiator-like effects with an Alesis HR-16 and an SQ-80 got me reminiscing (as I often do) about the early days of synth technology and how they changed the way we make music. Specifically, the song that kept coming to mind was the theme song from the movie "*Midnight Express.*" Those of you who aren't familiar with it, do yourself a favor and rent the video, if only for the music. This song, which featured a thick, sequenced synth bassline, is probably what got me hooked on synth music. In addition to the appreggio-like effect achieved through sequencing, the very sound of the notes being played changes, subtly but radically over time. This effect very effectively removes the potential monotony from something that's purposely repetitive.

I'm not really certain how the original effect was achieved, but I was determined to find a way to duplicate it on my EPS.

To Start

You'll need a sound with a lot of punch (preferably a bass sound) and, more importantly, a single cycle loop. The single cycle loop is the key. Basically, a single cycle loop is a tone generated by a very small loop, then adjusted to match the pitch of the original sample. As anyone who has ever created a single cycle loop knows, there are hundreds, if not thousands, of possible loops hidden within your sample, each one with the same pitch but a slightly different timbre. The following procedure will allow you to change the harmonic structure of your sound without changing the pitch of the notes being played.

Select the wavesample you want to edit. Now go to the edit/wavesample page. Scroll right until you find the loop position page. This is a tasty feature which allows you to move your loop intact to any point in your sample. Set this for zero, or as close to zero as you can get without making the sound too harsh. Now, when you play a note, instead of hearing your sample gradually fade into your loop, you will hear the loop immediately. Next, scroll right once to get to the wave modulator page. Select loop as your source and wheel as your modulator. Now scroll right once more. Set the amount for +99. The range will depend on the size of your sound, but lower values make for a smoother transition. Try a value of around 512B to start. On the edit/LFO page, turn the LFO modulator off or select any source other than wheel.

Now hold a note down. If you move the mod wheel, you should actually hear the loop position move through move your sample. You can now use the mod wheel to access any of the possible timbres in your sound, even while you are playing.

Now For The Real Fun

Create an appreggiated sequence, using either the technique described by Bolles in the May, 90 article, or my own personal method: playing real slowly, setting your click track to 1/8, and quantizing to 1/16. Now, set your record mode to add. While your sequence is playing, slowly move your mod wheel back and forth. You will need at least an eight bar sequence to achieve smooth results. Now, in addition to the pseudo-mechanical effect created by the appreggio, you have a sequence in which no two notes are playing quite the same sound!

There are lots of possible variations for this technique. Try setting your modulator source for pressure or for random. Or try layering your sound in fifths, or octaves, and setting the wavesample pan for random. I'm not going to give away all of my secrets (a programmer has to keep some things to himself), but this is one I'm sure you hackers will have fun toying with (and improving on). ▬

Bio: Erech Swanston is the Creative Director of Maestro Sounds, an EPS sound development company, and an up-and-coming songwriter/producer in the NYC area.

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VFX^{SD}, EPS, SQ-80, Galaxy, Super Lib, Voyetra MDF-1, Alesis Data Disk, Q-80, MC-50, MC-500, MC-300, W-30, or loader disk (no librarian necessary) for Atari ST, Mac, or IBM compatible.	$40	$70	$90	$110	$120

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2. Analog
3. New Age, Space
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Review: SIGNALS

Jim Johnson

Product: 60 VFX-SD programs, on disk.
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From: Jim Grote, 3721 Frances Ave., Cincinnati, OH 45211, (513) 661-8885.

The art of programming synthesizers is very personal. A program that sounds wonderful to its creator may be a complete turn-off to someone else. Similarly, a patch that is programmed to respond to a particular player's style may sound terrible when played by another musician.

These factors make it hard to review synth patches. Still, there are certain criteria that any commercial set of sounds should meet. They should be consistent, both individually and as a group. They should make good use of the synth's special capabilities, while minimizing the effects of its weaknesses (every instrument has them, even the VFX). Performance notes should be copious, and banks should be organized in a logical fashion. Acoustic instrument simulations should sound like their counterparts, and synthesized sounds should be something special — mundane sounds are just too easy to do to be worth spending money on.

Signals, Volume 1, is a mixed collection of interesting and uninspiring sounds. While many of the sounds are quite good, there is little use of the VFX's enormous expressive capabilities, a lot of inconsistencies, and plenty of just plain strangeness.

In the latter category, consider BAG-PIPES. In this program, the upper half of the keyboard is dedicated to a very convincing, monophonic bagpipe sound. The lower half of the keyboard, however, is a polyphonic sound, where each key plays a very electronic-sounding major sixth. According to the performance notes, this is intended to duplicate the bagpipes' characteristic drone. To my ears, though, this interval doesn't sound right (I'm no bagpipe expert, so I can't swear to this), and doesn't seem to fit with any key. Bottom line: it doesn't sound like bagpipes.

Other major and minor programming gaffes crop up throughout the set. In CHURCHBELLS, an otherwise magnificent program, the envelope modes are all set to NORMAL. Thanks to this, hitting the keys quickly (which is how I tend to play bell patches) often results in an incomplete sound, as the delayed envelopes never trigger. Simply setting the envelopes to FINISH rather than NORMAL would alleviate this problem. The BASSOON sound is drenched in reverb, and thanks to its use of several voices spread across the keyboard, is polyphonic in some sections of the keyboard and monophonic in others. The HARP is good by itself, but moving the mod wheel just slightly results in a serious vibrato problem — as it does to CRYSTAL, a pretty sine wave concoction. A little subtlety would help both these sounds.

All of this is not to say that there are no good sounds in this collection, however. GOON SQUAD is a wonderful pulsating sound that reminds me of why I fell in love with synthesizers in the first place. It also makes very good use of the patch select buttons. ZITHER is flawless. DISEMBODIED will make you think you've died and gone... someplace. FIREBIRD is an exceptionally potent orchestra hit, especially when played as suggested in the performance notes. All five brass patches are distinctive and quite nice. CATHEDRAL is a beautiful pipe organ. PLASMAFLUTE is a wood flute that dissolves into an ethereal vocal shimmer when the keys are released. HAMMOND B3+ and BASS GUITAR are both faithful renditions of their namesakes. Many of the synth sounds are quite good, but there are several variations on the generic "buzzy sawtooth" pad sound, when one would have been plenty.

The organization of the sound banks is odd. Banks 0 to 9 are named BIG STUFF, STRINGS, BRASS, CHURCH STUFF, METAL, SAW, BELLS, MORE SAW, OTHERS, and SPACE. Yet BASSOON appears in STRINGS, and BASS GUITAR in BIGSTUFF. Methinks the bank names were slapped on the banks after the sounds were created.

To my ears, though, the real problem with these sounds is the inconsistency of Jim's use of the VFX's expressive controls: the mod wheel, timbre slider, patch select buttons, aftertouch, and CV pedal. In some patches, for example, the mod wheel performs its "traditional" vibrato function; in others, it does nothing at all. And in many (too many) sounds, the mod wheel is wired directly to the PITCH MOD page, with an AMOUNT of 99. You move the mod wheel slightly, and the pitch shoots to the stratosphere. Cute, once; useless, overall. The TIMBRE slider is used in strange ways; in many programs, moving it up closes the filters, which is unusual but kind of nice. In at least one program, however, it reduces the volume of all voices to zero. Huh? What for? Some of the programs have good patch variations under the patch buttons, yet there are holes: in some patches, certain combinations yield silence. The CV pedal is not used at all, as far as I can tell. A fair share of the sounds are not even velocity sensitive! (And I'm not just referring to organs and Minimoog patches here; there are several otherwise nice electronic sounds that don't do anything special when they're played hard.)

In wrapping up this set, I'm reminded of Sam Mims' comments on another set of VFX sounds a few months ago: they seem incomplete. Most of these sounds are fundamentally okay, but have not received complete attention to details such as the use of the controllers. Combine this with the dearth of third-party VFX sounds on the market, and maybe we can make a little sense of it: the VFX's palette is so extensive that no one can afford to take the time to craft a set of sounds that makes full use of its capabilities. This is a challenge that I hope someone will rise to soon. Perhaps Jim will be closer to the mark with *Signals, Volume 2*. ▬

Bio: Jim Johnson, an electrical engineer, has played synths in several Phoenix, AZ bands. He's written for Electronic Musician, KCS, and co-wrote Dr. T's Algorithmic Composer package. He is owner of JAMOS Music, a MIDI programming and consulting firm.

The EPS & The 16 PLUS as Drum/Percussion Modules — Part I

John Greenland

The EPS modulation options make it an extremely versatile source for drum and percussion sounds in the studio and on the stage. Its ease of programming and open voice architecture provide opportunity for the performer and recording artist to capture expression and nuance with a minimum of effort — though as with all good things, some patience and fortitude are invaluable.

Although they can also benefit the digital (as in *finger*) drummer, the techniques mentioned in this article are really designed for the musician with some ability with drumsticks, as I believe that, with percussion, more life and drama are created when something actually gets *hit*.

For these examples I will use the humble-but-oh-so-reliable Octapad, a piece that has served me through better or worse, in the studio and on the stage. Many of the tricks and tips discussed here were used on ***Soft Robot.***

Connect the Octapad's MIDI OUT to the EPS MIDI IN. The settings are, of course, dependant upon playing technique, taste and project requirements but for defaults, set them up as follows:

Octapad

Sensitivity_____13
Curve_____1
Min. Vel_____0-60 Generally, sounds that you will want to stand out consistently, like rock snares, kicks and some crashes will use a higher value, around 40-60. This shortens the curve from soft to hard velocity levels. Sounds usually played more expressively, like toms, ride and hi-hat cymbals should be set to 0. In jazz or other forms that make use of a broader dynamics palette, the whole kit would be set much lower for more nuance.

Gate_____9 (to start) This gate overrides the envelope times set at the EPS. Sometimes I find it to my advantage to gate the sound at the pads so that I can have a copy of the sound on another pad with a different release without having to program a copy on the EPS.

EPS / ('16 PLUS)

System The EPS should be set up to receive in MULTI mode for the greatest degree of flexibility. This enables you to take full advantage of the Octapad's ability to simultaneously trigger different MIDI notes on independent MIDI channels from each pad.

Amplitude *Softvels* in **Env 3** should be set around +20. The Octapad will not deal realistically with values much lower because they send only 16 velocity steps as opposed to the 127 that the EPS will receive. In my experience a value of +20 has proven to be the best one to maximize expressive options while minimizing limitations. Because of the flexibility of the EPS however, it is possible to work around this effectively through the creative use of modulators.

I have found that the overall amplitude of crash cymbals often needs a boost from its out-of-the-box starting point. This is done from the **Edit Amp** page. The EPS-16 PLUS has a *boost* parameter that is useful here. Be sure to lower the wavesample volume to ~75 when the *boost* is used. The standard EPS has no boost, but there are several ways to achieve the desired results. One is to take advantage of psychoacoustics. The perceived amplitude of a sound is often related to its placement in the stereo field. Try panning the sample different ways and amounts and see if you can boost its apparent amplitude that way. Or you can copy the sample in question and move it to another layer, then pan the two copies away from each other. Hard panning is sometimes needed to eliminate the phase problems that can occur when two identical copies of a sample are played simultaneously. I would try detuning one of the two by a few cents, to give it a little space. Because tuning a sample's pitch down will effectively lengthen the sound's playback time, its final release time may need to be shortened to match the original, unedited version. However, some interesting pan effects can be achieved by taking advantage of this difference (see **panning** below). All wavesample volumes should be adjusted to suit your specific project needs and don't forget to *save your edits.*

Using the **CV Pedal** to control amplitude is a good way to segue from one set of sounds (an Octapad "program") to another and can add much flexible control to your performance. For example, suppose you have "Drum Kit-X" playing on layer 1 and a percussion set-up on layer 2. Having selected *all* of layer 1 on the **Edit** page, next go to the **Edit Amp** page and scroll to *volume mod.* Select *pedal*, with an amount of +99. Now back to the **Edit** page to select *all* of layer 2. Again on the **Edit Amp** page, set the *pedal* to modulate volume as before but this time with a value of -99. Make sure that both layers are play enabled (**Edit Inst** page). You can now ease out of "Drum Kit-X" into your percussion set-up and back again with the pedal at will, or play with blends of the two for a no-hands crossfade. Experiment with the A-B Fade in and C-D Fade out parameters for variations.

Filters A lot of work can be done here to add color and realism to your sounds and consequently to your performance. For example, a very basic trick is to knock the *cutoff* of your favorite snare sample (or tom, or log drum etc.) down to ~ +70.

(see *matrix*) Then use **ENV 2** with a velocity curve to modulate that filter by the same amount with a positive value. Simply using a velocity curve on the *F1* or *F2 mod=* page to modulate the filter will work for shorter sounds. Your playing style will dictate which is the best mod to use. If the sound has a long duration like a crash cymbal, gong or special effect, use **ENV 2**, so that you can tailor the release to suit the natural hi-frequency decay of the sound.

Another way to use the filter section is to run your rides, hats, and if desired, crashes through a *hi-pass* filter for added clarity. This is particularly advantageous when recording as it allows you to clean up a section of music that is too dense with similar frequency content. Judicious use of the *hi-pass* will lift your cymbals above the problem, add apparent sparkle and leave a frequency niche for other sounds. I got out of a potential mess on the "Air Mosaic" cut on Soft Robot by using the timbre slider (MIDI controller #71) to raise the hi-pass cutoff on my rides as the music changed. This was done from Performer after I laid the track down. For starters though, simply set *filter 2* to *hi-pass 1* with a value of ~ +60, raising it as needed. There is a point of diminishing return that you want to avoid, where your sound will lose too much of its fundamental or its timbre. Done correctly, it may sound a little skinny when soloed, but it will "borrow" some fullness from its surroundings when mixed, without muddying up the sound.

If you're using a sequencer, either the one resident in the EPS or one external to it, you can overdub the desired change through time by routing the hi-pass cutoff through the mod wheel or other continuous controller, as mentioned above.

The *hi-pass* can be used many other ways to help control nuance. With negative velocity it can filter out some lows in a snare on softer hits, and bring it back with gusto on harder ones. This can very convincingly recreate the fundamental frequency behaviour of a real snare which changes in amplitude with the force of attack. This also works with rides.

Put a little *random* modulation on either or both filters for almost any drum sound, or route it to your **CV pedal** for real-time change. Use it in conjunction with *filter 1*. Experimentation is the key.

Pitch Here's an important and often overlooked ingredient in drum and percussion programming. Since the amount of resonant volume inside a drum with a flexible head changes with the pressure and force of the beater or drumstick, the resulting pitch also changes. A smaller volume yields a higher pitch and a larger volume a lower pitch. These changes can be so subtle as to be almost undetectable as with a piccolo snare, or so noticeable as to be considered a fundamental part of the sound, as with a bayan drum.

Select your snare sample and go to the **Edit Pitch** page. Scroll to *pitch mod* and select a velocity curve. I recommend one of the exponential curves (vel 1 or vel 2) to avoid unnatural or unwanted pitch anomalies. Try a value of ~ +8. Do the same with the toms and even the hats and rides. Or scroll to *random freq* and set to 0. Set the *amount* to ~ +35. This will add a very subtle random element, and can help to overcome "machine- gunning," but more on that later.

A sure sign of a low-budget drum track is the absence of different cymbals. I get more out of my pads by adding a good deal of *random* to my crashes. With a *random frequency* of 0 and an *amount* value of + or — 99 you can get a different crash with each successive hit on the same pad. A very small amount of *random* is good for rides, too.

Here's an easy trick with a pitch envelope. First select your wavesample candidate. Create a short pitch envelope in **ENV 1.** Scroll to *Envelope* = and select *short blip* for starters. Make sure that *soft vel curve* = *VEL2*, and that *envelope mode* is set to *cycle*. Now zero out all of the *soft vel* values. Go to **edit pitch** and scroll to *ENV 1 amount.* Set it (+) or (-) according to taste. With softer hits you will have the unedited sound, and when you whack it you get the pitch envelope. Adjust the ENV 1 times as needed. Some editing of the pad velocity curve may also be desirable.

I sometimes route the pitch to a **CV pedal** for real-time pitch pyrotechnics. This is great for many so-called "ethnic" sounds (talking drums, bayans, etc.) as well as for variations on "standards." With copies or variants on other layers you can have the pedal bring the pitch up on one as it takes it down on the other. These can be panned if desired. On the '16 PLUS you can have the pan itself change through the pedal at the same time (see below). With a little fancy footwork you can have all sorts of stuff flying around in interesting ways, and you retain complete control.

Vel Layers If you have the available memory and voices, **vel layers** are a great way to add life and special effects to your drumming while getting much more out of a limited number of pads.

For example, put a dry hard-hit snare on layer 1 and a resampled gated or bright reverbed copy on layer 2. Set layer 1's *layer velocity lo* to 0 and the *hi* to 125. Set layer 2's corresponding parameters to 126 and 127. (These settings are arbitrary and can be widely varied). You may need to play around with some Octapad parameters to find the perfect combination of vels and gates to suit your needs and taste. On the EPS-16 PLUS resampling can be done in the EPS itself by using the *resample with effect* feature found on the **Cmd Wave** page. Or if memory is a factor, the layer 2 sound can simply be a copy of the layer 1 sound routed through another FX buss and/or re-filtered for a different accent.

Sometimes I've found it useful to have a detuned copy of a sound on a **vel layer** so that I have an unchanging, predictable alternative to the original sound. For example, I may want a tuned-up cymbal copy or even a different sample like a splash available through *hard vel* that will be there any time I need it, as opposed to a randomly pitch-modulated copy. This again al-

lows one pad to play several sounds.

Panning As most home-studio owners know, placement of drums and percussion in the stereo field can make or break the finished product. I'm not going to discuss the popular theories concerning that here, but will instead limit myself to the options specific to the EPS-16 PLUS.

'16 PLUS owners can make good use of dynamic panning. As mentioned above, it can be done real-time with a pedal. It is also possible through the use of envelopes. These can be set up to let the envelope velocity determine placement rather than the *velocity* itself when used as a modulator. The advantage of using an envelope over static velocity panning becomes clear when programming a longer sound such as a crash, a gong, or the like. With envelopes you can control placement of the sound in the field *over time*. So if you want a gong to creep in to the mix on the left and disappear on the right, you can set up an envelope accordingly.

For example, on a long sample (an approximately 1.75 second gong) after selecting the appropriate wavesample on the **Edit Page**, go to the **Edit Amp** page and set *pan mod* to ENV 1 and the *amount* to +99. Scroll to the *pan* parameter and set its value to -99. Now go to **ENV 1**, scroll to *ENV mode* and select *cycle*. On the next page, *envelope=* select *ramp up*. Now scroll to the *times* and zero them all out to start. Try setting the first two *times* to ~44. These are merely reference suggestions and are meant only as a place to start. The final release should be set to 99. Hit the *Effect/Select/Bypass* button and turn the current FX off so you can better hear the effect ENV 1 is having on the panning of the sound. Sometimes monitoring on headphones is best. Raise or lower the *times* for **ENV 1** according to taste and timing requirements for the piece.

The trusty **CV Pedal** is ideal for real-time panning, and when combined with some of the above mentioned volume, crossfade, FX and filtering tricks, the total effect of your performance or recorded tracks is truly limited only by your imagination.

On the standard EPS, panning is limited to non-dynamic modulation. Make use of *velocity* as a mod for accent sounds. *Random* can add some drama to crash cymbals. Always keep the *random freq* to 0 unless you want the sound to jump around *as* it plays, which can be disconcerting.

There are ways to get apparent dynamic panning. One is to take advantage of the fact that playback time is directly affected by playback pitch, as mentioned earlier. Make copies of a sample on two active layers that are tuned differently from one another and hard-panned to opposite sides of the field. The degree of difference in their tuning will determine the "travel time" from one speaker to another. You will want to program amplitude envelopes (ENV 3) so that one copy fades out while the other fades in. If the sound is looped, like many ride and crash cymbal samples, there is a lot of latitude to play with in release times as well as pitch. Try experimenting with pitch envelopes. Once again, *save those edits*.

Patch Selects Patch selects offer another set of possibilities for playing lots of sounds from one pad. With the optional SW-5 dual footswitch or equivalent you can access any of the four possible patch select options in real-time. The potential here is obvious. Some customizing of disks is needed to fully realize the potential. We'll get to that in the next installment. ▬

Bio: John Greenland worked for several years as a sound designer for Ensoniq where he developed many of the factory sounds for their sampled and synthesizer keyboards. In 1988, he started Greenland Sounds, a sound design and music production company to create custom sampled and synth sounds for a variety of keyboards, artists and manufacturers. His CD, Soft Robot, was released on Scarlet Records' new "Infinity Series" this spring and was the subject of a 90-minute special on NPR's WHYY Radio last fall.

Free Tips for ESQ and SQ-80 Users

Sam S. Mims

The ESQ-1 and the SQ-80 are in rare stages of a keyboard's life. Despite a plethora of newer and fancier synthesizers on the scene, there are still thousands of these dinosaurs in daily service everywhere. (How many DX9's, MonoPoly's, and Jupiter 6's do you still see in active combat?) These first Ensoniq synths have reached the ripe old age where just about every nook and cranny of their operating systems have been explored and exploited. Here are some of the things that I've learned over the last several years.

Selective Pitch Bending

On the Master page, setting the pitch bend to HELD mode allows the keyboard to bend only those notes which are actually being held down by fingers, while ignoring notes that are being held by the sustain pedal. Using this effectively is a difficult task to master, but is a great technique for mimicking certain styles of playing. The most obvious example of this is playing pedal steel parts, where notes are frequently bent within a chord. And this can be effectively applied to just about any style of music. Try this, for example. With the pitch bend range set to 02, play the chord made up of the notes (from bottom to top) D, G, A, and C. Press and hold the sustain pedal, and let up all notes except the bottom D. Now, roll the pitch bend wheel fully forward to bend the D up to an E, making a C6 chord. This takes a bit of coordination between various limbs, but the results can be convincing.

Complex Horn Attacks

To simulate the sounds of brass instruments, a common programming technique is to create an attack "blip," where a spike-shaped envelope is used to modulate the oscillators by a wide amount, but only for the first fraction of a second. This simulates the initial unpitched "spit" at the beginning of the sound. It's easy, on the ESQ, to take this a step further to create even more complex — and hence more convincing — horn attacks. Instead of using the envelope to modulate the oscillators directly, use it to modulate an LFO with the frequency set very high. In turn, use the LFO to modulate the oscillators, but in varying amounts and directions. For example, apply the LFO to OSC 1 with a depth of +63, to OSC 2 with a depth of -46, and to OSC 3 with a depth of +30 or so.

Emotion In Motion

One of the greatest — and least used — parts of the ESQ/SQ-80's sound is the dynamic stereo panning that's available on the DCA 4 page. A good stereo motion can do wonders for an otherwise stale sound. One of my favorite effects for pad sounds is a slow back-and-forth panning with some delay programmed into the controlling LFO. When a note is played, the sound slowly starts widening, becoming bigger as the note is held. If notes in a chord are staggered, the sweeping starts going in all directions at once, and the result is big!

Splitting Splits

By applying KBD2 and/or KBD in various amounts as modulators to the DCAs, you can limit oscillators to playing only in certain ranges of the keyboard. Say you are using OSC 1 to play a piano waveform, with OSCs 2 and 3 doing sawtooth strings. You could put the piano on the bottom, and the strings in the upper range, essentially creating a split program (note that the sounds will overlap a bit in the middle). Now, by using this program as part of a real split (this time using the Split/Layer page), you can add in another sound, having piano, strings, and bells all available at once.

Envelope Addition

If you're shooting for a sound that requires more complex envelopes than the ESQ/SQ-80 can deliver, there is possibly a way around the dilemma by adding several envelopes together. Suppose you want to program a slapback digital delay effect, where a sound will have two distinct repeats after the initial attack. First program ENV 4 with the initial attack and a reasonable amount of sustain level. Next, program ENV 1 with similar characteristics, but with a delayed attack (L1=0, T1 is the delay time, and L2 is the attack level). Use this to modulate the DCAs, and set DCA levels to some value significantly less than 63. Now, ENV 2 can be programmed in the same way with an even longer value of T1, and applied as a second modulator to the DCAs. This will add the second repeat to the sound. It takes a lot of tweaking to get all the values set correctly, but the result is very nice.

Creating Extra Sequencer Tracks

Ever find that eight sequencer tracks just isn't enough? You've probably got parts that are fairly limited to specific ranges of the keyboard, such as bass or bell lines. If so, create a new patch that is simply a split program of two such sounds, such as bass on bottom and bells on top. Use this new patch to sequence the bass line in the normal way, then use it again to sequence the bell lines. When all is hunkydory, simply merge these two tracks into one. One problem with this method is that any pitch or mod wheel action on one sound will be applied to the other as well. To get around the mod wheel problem, simply modify the patch so that one sound isn't affected by the wheel.

And Even More Tracks

Sometimes, two instruments on the same MIDI channel can be combined onto one sequencer track. If you're using two drum machines, for example, assign the notes in each machine so that they both map onto one keyboard, with one drum machine

responding to the bottom half, and the other to the top half. Then, with both on the same MIDI channel, they can be played from a single track. Similarly, if you're sending program changes to an effects unit, you can put that device on the same track and MIDI channel as a drum machine, or even a sampler (if program changes are disabled, so that the sampler doesn't try to load a disk automatically). In this way, note data is used by the drum machine or sampler, and program changes are used only by the effects device.

Squeezing In More Sequences

With an entire set's worth of songs in the sequencer, it's frequently a battle to see which runs out first: sequencer locations or memory. If you've managed to conserve the memory, but have no sequences left to work with, you may be able to append certain sequences together into one large sequence — even into an entire song. This will probably cost you some memory, but then you've got some to spare anyway. To do this, you'll need to make sure that all of the original sequences use the same instruments, track configurations, time signatures, and tempos.

Squeezing More Into Memory

Conversely, if you're out of memory, listen to each of your sequences for repeating sections. If a 16-bar verse is essentially the same eight bars repeated twice, then cut the sequence in half and in song mode, play it twice instead of once. If the first and second 8-bar choruses of a song end differently, create one sequence for the first seven bars of the chorus, then a one-bar sequence for the first ending, and a one-bar sequence for the second. The result is nine bars in memory rather than 16.

Keep Sequencing Notes

The pen-and-paper kind, I mean. Once you've got dozens of songs done, it's very easy to forget what MIDI instrument was supposed to be playing on track 4, or just which sequence was the normal chorus and which was the modified chorus that leads into the bridge. I've tried to fight writing this stuff down for years, but believe me, it's worth doing.

Keep Sequencer Tracks Tidy

It's a good idea to keep each instrument on the same track throughout a song, if possible. Theoretically this doesn't make any difference. In practice, though, I've encountered some glitches during songs at the boundary between two sequences when the piano, for instance, suddenly switched from track one to track 6. Keeping the instrument tracks consistent throughout solved the problem. As an added benefit, it's easier on the old brain if drums are always on track 1, the bass is always on track 8, etc.

Different Drumming

If I'm sequencing a repetitive drum machine hi-hat pattern in the ESQ, I've found that it's very easy to get either a monotonous machine sound due to lack of dynamics, or a wildly out-of-control track with crazy dynamics. For better control, try sequencing just the accented notes on one track, and the regular notes on another track. Then merge them together. Whatever the case, never step-time sequence a hi-hat pattern unless you specifically want a robotic feel. Even when quantized, a manually recorded track will have volume fluctuations that sound much more natural.

Automate The Mix

If you're doing a studio project and you have MIDI-controlled outboard processors, even if none of the songs are sequenced, you can still use your ESQ's recorder to your advantage. Lay a sync tone (SMPTE or FSK) on one tape track and use that to control the ESQ's sequencer (a SMPTE-to-MIDI converter will be needed if SMPTE is used), into which you've recorded all the program changes for the effects processors. This will free up some hands, and allow for more complex switching. To go a step further, some effects units allow dynamic control of certain parameters via MIDI, so you could, for instance, change the reverb decay time throughout the song with the ESQ's mod wheel, and all changes would be recorded in the sequencer. Note that many effects devices shut down for a second or so when they receive a program change, so plan accordingly.

Sound Like A D-50

My all-time favorite ESQ trick is using the filter resonance to put a lush digital sheen on certain patches to get a D-50 or M1 type of sound. Start with a voice pad or something similar. On the filter page, simply crank the resonance up full blast, and remove any filter modulators (set them to OFF). Now, work through the filter frequency values until a nice edge is put onto the sound, without being too harsh. You'll find with a bit of practice that there's a happy medium with the frequency and with the keyboard scaling, so that the sound works all across the keyboard range. ▬

Bio: Sam Mims is a studio session player in Los Angeles and keyboardist for Richard Elliot. He owns Syntaur Productions — a company that produces music for television, radio, and film.

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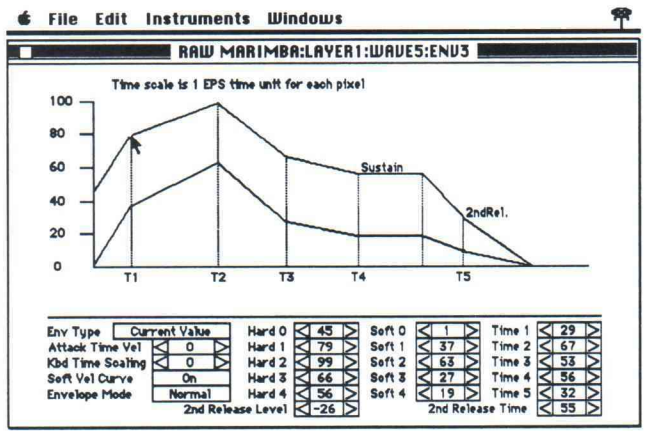

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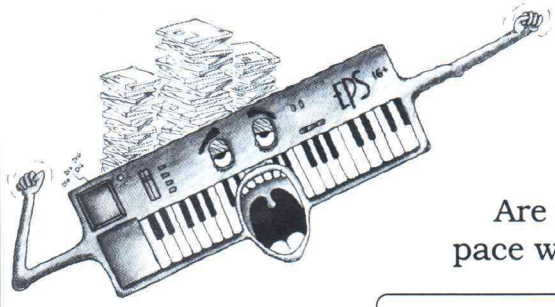

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Ensoniq Floppy Diskette Formats
Part II

Gary Giebler

[Ed. – This article probably won't make much sense if you haven't read Part I in last month's Hacker. In Part I, Gary gave an overview of the disk formats used by the various Ensoniq keyboards and introduced a software program for IBM-PC compatibles that is available from Giebler Enterprises. This program 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. Part II will continue with descriptions of the disk formats of the various instruments...]

DEVICE ID BLOCK (Block 1)

The Device ID Block contains the following 40 byte pattern (repeated to fill the entire block on a newly formatted disk). The keyboards only read the first occurrence of the pattern. In fact, they overwrite the rest of the block with unused data when storing files. Except for changing the disk label on the EPS-16, you shouldn't need to write to this block.

```
00 80 01 00 00 0A 00 02 00 50 00 00 02 00 00 00 06 40 1E 02
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 49 44
(All values in Hexadecimal)
```

The EPS-16 PLUS has a disk name stored in the first occurrence of the above pattern. For the disk name 'DISK000', the first pattern would appear as follows:

```
00 80 01 00 00 0A 00 02 00 50 00 00 02 00 00 00 06 40 1E 02
00 00 00 00 00 00 00 00 00 00 FF 44 49 53 4B 30 30 30 49 44
                              ( D  I  S  K  0  0  0 )
```

Byte	Description	
1	Peripheral Device Type	
2	Removable Media Device Type	
3	Various Standards Version #	
4	Reserved for SCSI	
5-6	Number of Sectors per Track	(10 Sectors)
7-8	Number of Read/Write Heads	(2 Heads)
9-10	Number of Cylinders	(80 Tracks)
11-14	Number of Bytes per Block	(512 Bytes)
15-18	Number of Blocks on Diskette	(1600 Blocks)
19	SCSI Medium Type	
20	SCSI Density Code	
21-30	Reserved for later use	
31-38	EPS-16 Disk Label (preceded by FF)	
39-40	Device ID Signature = "ID"	

SD-1 & VFX-SD Operating System Block (Block 2)

The Operating System Block for the VFX-SD contains the following 30 byte pattern repeated to fill the entire block:

```
00 00 06 29 00 00 00 00 00 01 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 4F 53
(All values in Hexadecimal)
```

The first four bytes represent the number of free blocks remaining on the diskette and changes as files are stored. Bytes 9 and 10 are used to indicate that the diskette is for the VFX-SD family instead of the EPS. The last two bytes are the ASCII characters "OS." The remainder of the block after the first occurrence of the pattern fills with unused data when files are stored on the diskette.

EPS & EPS-16 Operating System Block (Block 2)

The System Information Block for the EPS contains the following 30 byte pattern repeated to fill the entire block. MA, MI, RM, and RI are 00 except for the first occurrence of the pattern:

```
00 00 06 31 MA MI RM RI 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 4F 53
(All values in Hexadecimal)
```

The first four bytes represent the number of free blocks remaining on the diskette and changes as files are stored. If the operating system is not stored on the disk, MA, MI, RM, and RI are all 00. If the operating system is stored on the disk, MA is the major revision level, MI is the minor revision level, and RM & RI are the minimum internal ROM Revision level for the operating system stored on the disk. For the EPS rev. 2.40, MA = 02, MI = 28, RM = 01, and RI = 00 (hex). Bytes 9 and 10 are 00 for the EPS and EPS-16. The last two bytes are the ASCII characters "OS."

Once again, the keyboards appear to read only the first occurrence of each pattern. These patterns are for formatted disks without any files stored. Once files are stored, the information beyond the first occurrence of the patterns may change.

Ensoniq EPS & EPS-16 Directory Entries

The EPS and EPS-16 use the main directory to store file directory entries and sub-directory entries. When a sub-directory (File type 2) is created, the first entry in the sub-directory is set to File type 8 to point back to the parent directory. Each directory and sub-directory can hold 39 entries and there is no limit to the number of sub-directories that can be created. However, in most practical applications you would run out of disk space long before filling the directory.

Ensoniq VFX-SD & SD-1 Directory Entries

The VFX-SD and SD-1 use the Main Directory only to store the location of the four sub-directories. The directory entries and file information are always written into the sub-directories. Each sub-directory can hold 39 entries for a total of 156 files per disk (0 – 155). If the Sequencer Operating System is on the disk, it is stored starting at Track 1, Head 0, Sector 3 (Block 23). The directory entry for the Sequencer Operating System is stored in the last location of Sub-Directory 4 (directory entry # 155). Each directory entry contains 26 bytes of data as described below:

Directory Entry Format (EPS, VFX-SD, SD-1, EPS-16)

Byte	Information
01	Type-dependant Information (reserved on EPS)
02	File Type - see list of types
03-14	File Name (EPS 12 bytes) (VFX-SD 11 Bytes followed by 00)
15-16	File Size (in blocks)
17-18	Number of Contiguous Blocks
19-22	Pointer to First Block Location
23	File Number 0 - 59 for each VFX-SD file type, (reserved on EPS) (Multi File Index on EPS-16)
24-26	File Size (24 bit Byte Count) (VFX-SD), (reserved on EPS)

The File Number for the VFX-SD determines the bank number and position of the file when displayed on the keyboard. The first byte of a directory entry for some of the VFX-SD and SD-1 file types has the following definitions:

File Type	Definition & Possible Values
6 Programs	Bank # (0-9)
30 Programs	00 = Banks 0-4
	01 = Banks 5-9
10 Presets	00 = Bank A
	01 = Bank B
30 Sequences	00 (00 hex) = No Programs Stored Banks 0-4
	01 (01 hex) = No Programs Stored Banks 5-9
	16 (10 hex) = 30 Programs Stored Banks 0-4
	17 (11 hex) = 30 Programs Stored Banks 5-9
	32 (20 hex) = 60 Programs Stored Banks 0-4
	33 (21 hex) = 60 Programs Stored Banks 5-9
	(Bank Numbers are for Sequences AND Programs)
60 Sequences	00 (00 hex) = No Programs Stored
	16 (10 hex) = 30 Programs Stored Banks 0-4
	17 (11 hex) = 30 Programs Stored Banks 5-9
	32 (20 hex) = 60 Programs Stored
	(Bank Numbers are for Programs Only)
	The VFX-SD currently doesn't allow 30 Programs
Operating Sys	00 (hex) = VFX-SD Sequencer Operating System File
	FF (hex) = SD-1 Sequencer Operating System File

Ensoniq EPS, EPS-16, SD-1 and VFX-SD File Types

00 (00) = Unused (or Blank)
01 (01) = Eps Operating System
02 (02) = Sub-Directory
03 (03) = EPS Individual Instrument File
04 (04) = EPS Bank of Sounds
05 (05) = EPS Sequence File
06 (06) = EPS Song File
07 (07) = EPS System Exclusive File
08 (08) = Pointer to Parent Directory
09 (09) = EPS Macro File
10 (0A) = SD-1 or VFX-SD 1 Program File
11 (0B) = SD-1 or VFX-SD 6 Program File
12 (0C) = SD-1 or VFX-SD 30 Program File
13 (0D) = SD-1 or VFX-SD 60 Program File
14 (0E) = SD-1 or VFX-SD 1 Preset File
15 (0F) = SD-1 or VFX-SD 10 Presets File
16 (10) = SD-1 or VFX-SD 20 Presets File
17 (11) = SD-1 or VFX-SD 1 Sequence/Song File
18 (12) = SD-1 or VFX-SD 30 Sequence/Songs File
19 (13) = SD-1 or VFX-SD 60 Sequence/Songs File
20 (14) = SD-1 or VFX-SD System Exclusive File
21 (15) = SD-1 or VFX-SD System Setup File
22 (16) = SD-1 or VFX-SD Sequencer Operating System
23 (17) = EPS-16 Plus Bank File
24 (18) = EPS-16 Plus Effect File
25 (19) = EPS-16 Plus Sequence File
26 (1A) = EPS-16 Plus Song File
27 (1B) = EPS-16 Plus Operating System

(Values in parenthesis are in hexadecimal.)

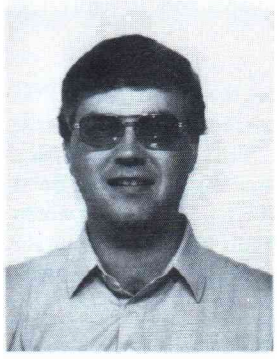
Empty Directory Blocks

The first sector of an empty directory or sub-directory contains all zeros. The second sector contains all zeros except for the last two bytes of the sector. Those two bytes contain: 44h 52h which are the ASCII characters 'D' and 'R' respectively.

Empty File Allocation Block

An empty file allocation block contains all zeros except for the last two bytes of the sector. Those two bytes contain: 46h 42h which are the ASCII characters 'F' and 'B' respectively. Each File Allocation Block contains 170 three-byte entries. Each block on the disk has a corresponding entry in the file allocation blocks. Each zero entry indicates that the corresponding block is unused. A value of one indicates the end of a file. A value of two indicates a bad block on the diskette. Each non-zero entry points to the next block in a file. The first 15 entries for an EPS or EPS-16 disk and the first 23 entries for a VFX-SD disk are set to one. There'll be an example in next month's installment for clarification.

Next month: The conclusion.



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.

Hypermega Pitch Bend on the EPS

Tim Martin, SoftHeadWare

My last article, "I've Got a THING for the EPS" (TH #72) described how to build the EPS THING, a software modification for EPSOS that allows you to view and change any byte in EPS OS RAM. For those of you who missed it, there will be an abbreviated "recipe" at the end of this article.

Let's DO it! Last time, I gave you a general memory map of EPSOS v2.20. It only showed code and data areas. This time we'll get a little more specific about one of the data areas. The first data area we'll look at starts at $0200 (or THING address 2:0). This is where the "Global Parameters" are stored. They are the same Global Parameters that are described on page 16 of the Advanced Applications Guide. These parameters can be saved and loaded as a block. On an EPSOS disk, they occupy side $00, track $09, sector $01.

The Global Parameters include one called "GLOBALBEND RANGE." Global Bend Range controls the maximum amount of pitch bend and is normally accessed by pressing <EDIT>, then <SYSTEM>, and then using the <LEFT ARROW> or <RIGHT ARROW> cursor keys. This is adjustable in semi-tone increments from 0 to 12, with 0 being no pitch bend and 12 equaling plus/minus an octave.

Boot the EPS with the THING and select the "GLOBALBEND RANGE" parameter. Remember its current value and press <COMMAND>, then <SYSTEM>. With "THING" in the display, press <ENTER*YES> to enter the byte monitor. The Global Bend Range parameter is located at $020C in EPS OS RAM. This works out to a THING address of 2:12. Select this address and cursor over to the data value field. Viola! This should be the same number as it was before.

Normally, the Parameter Editor will only allow this parameter to be adjusted between 0 and 12, but since we're using the THING, the value can be varied between 0 and 255! If you have a playable instrument loaded, select it and turn it up so you can hear it. Now, using the byte monitor, set the value of address 2:12 equal to 24. Wiggle the Pitch Bend Wheel...

This should give you approximately 2 octaves of bend range. There seems to be a problem with the intonation. Maximum flat is in tune but maximum sharp is slightly out of tune. You can increase the bend range up to 127. Subsonic to Supersonic! There is a "stepping" that becomes more audible as you increase the range.

Now, press <CANCEL*NO> and then <EDIT>. You should see the new value of "GLOBALBEND" in the display. If it's out of the legal range of 0-12, you may not be able to use the normal "GLOBALBEND RANGE" prompt to edit it. Return to the THING byte monitor by pressing <COMMAND> and then <ENTER*YES>.

If you take the value of THING address 2:12 to 128, the Pitch Bend Wheel flips over! That is, when moving the wheel away from you, the sound goes flat and when moving it toward you, the sound goes sharp. Typically, when this parameter is set to 2 it provides the ability to bend up and down a whole step. If you set it to 254, it still bends up and down a whole step, but now it's flipped over!

```
255 = 1   251 = 5   247 = 9
254 = 2   250 = 6   246 = 10
253 = 3   249 = 7   245 = 11
252 = 4   248 = 8   244 = 12
```

In the first THING article I said that changes made using the THING couldn't be saved to disk, but I lied. Here is one notable exception. Since the "GLOBALBEND RANGE" parameter is a Global, It can be saved using the "SAVE GLOBAL PARAMETERS" command.

Here are addresses of some of the other Globals:

ADDRESS HEX = THING	PARAMETER NAME	NORMAL LIMITS
$020C = 2:12	Bend Range	0-12
$0210 = 2:16	Pre-trigger Time	0-127
$0212 = 2:18	Sample Filter Cutoff	0-12
$021A = 2:26	Master Tune	0-255
$021F = 2:31	Velocity Response	0-15
$0220 = 2:32	Sample Threshold	0-20

This is a short "recipe" for making your own EPS THING. You should be able to perform these modifications with most computers that use 720k or 800k double-sided, double density, 3.5 inch floppy disks and a "disk editor" (Like an IBM PC and NORTON UTILITIES). These changes will only work with EPSOS v2.20. Don't use your only OS 2.20 disk. Make a copy.

Using a COPY of EPSOS v2.20, read side $01, track $04, sector $05 into the disk editor sector buffer. Make the changes at the indicated offsets and then write the changes back to disk.

offset	00 01 02 03 04 05 06 07 08 09 0a 0b 0c 0d 0e 0f
$0150	.. .. ED B2
$0160	ED B6 ED B2 00 00 ED AC 0B 60 A2 00 .. ..

Next, read side $00, track $07, sector $09 into the disk buffer. Make the following changes and then write this sector back to disk.

offset	00 01 02 03 04 05 06 07 08 09 0a 0b 0c 0d 0e 0f
$01a0	.. .. 4E F9 FF FF
$01b0	ED D6 ED B8 ED C0 ED C8 A0 00 00 FF ED CC ED D0
$01c0	E0 00 00 FF ED CD ED D2 C0 00 00 FF FF FF ED D4
$01d0	20 00 20 00 00 00 95 CA B0 40 4E 75 .. ..

That's it! If you would like a copy of the THING but don't have a computer, send me a COPY of EPSOS (not the original distribution disk), a stamped self-addressed return mailer and $15 to: SoftHeadWare, 1510 S 5th W, Missoula, MT 59801. ▬

Bio: Tim Martin wrote MIDIcaster for the Mirage and Miditerm for the C-64. He's been poking around in the EPS for a while and would enjoy communicating with other EPS hackers.

Wave Sequencing (Kinda) on the SQ-1

Mark Clifton

You've probably seen that kool Korg Wavestation with its vector synthesis and wave sequencing — though I think Ensoniq could do better. And, perhaps you, like me, have been wishing for the bucks to pay for it. Well, stop whining and unlock that potential in your SQ-1.

Wave sequencing is the ability to chain waveforms together into (sometimes) rhythmically complex sequences without the use of a sequencer or recording device. This allows single sounds to play many parts at a time, saving sequencer memory and polyphony. Though limited to three oscillators, the SQ-1 can come up with some pretty impressive wave sequences.

With the SQ-1 you can delay waves up to 250 milliseconds, you've got three powerful envelopes and a heap of assignable controllers. What more could you want? Well, that's a fairly loaded question. Let's just go ahead.

I can't really say much technically about wave sequencing on the SQ-1 since the technique isn't hammered out in stone. I will give you a program, though, that should give you a fair idea of what it's all about. Load it in, drive it around the block and try to mix some of those techniques with your own genius. Try using different rhythms and controllers to modulate your sound. It's a good exercise for your programming chops, especially in the area of envelopes. And the results can be pretty satisfying. Just remember, in programming you can create nothing bad, only the new and cool.

Bio: Mark Clifton is 15 years old and a composer of synthesized and orchestral works. He is the owner of a lone SQ-1 with dreams for more Ensoniq pets, so he writes articles for this magazine while his parents beg him to get a job.

Prog: VECTOR JOURNEY

By: Mark Clifton

WAVE	1	2	3
Select Voice	On	On	On
Wave Class	Bass	Breath	Breath
Wave	SynBass2	VocalEns	VclOohs
Delay Time	000	000	000
Wave Direction	Forward	Forward	Forward
Start Index	00	00	00
MODSCR	Off	Off	Off
MODAMT	-	-	-
Restrk Decay	57	57	57

PITCH	1	2	3
Octave	-2	-1	+0
Semitone	+00	+00	+00
Fine	-04	+04	+00
ENV1	+00	+00	+00
LFO	+00	+00	+00
MODSCR	Off	Off	Off
MODAMT	-	-	-
KBD Ptch Track	On	On	On
Glide	Retrigger	Off	Off
Glide Time	00	00	00

ENV1	1	2	3
Initial			
Peak			
Break			
Sustain			
Attack			
Decay 1			
Decay 2			
Release			
Vel-Level			
Vel-Attack			
Vel Curve			
Mode			
KBD Track			

LFO	1	2	3
LFO Speed			
Noise Rate			
Level			
Delay			
MODSRC			
Wave			
Restart			

FILTER	1	2	3
Filter 1	3Lo	3Lo	3Lo
Filter 2	1Lo	1Lo	1Lo
FC1 Cutoff	116	079	076
ENV 2	+99	+99	+02
FC1 KBD	-97	+00	+00
MODSCR	Wheel	Wheel	Off
MODAMT	-99	+33	-
FC2 Cutoff	064	069	127
ENV2	+99	+99	+02
FC2 KBD	+18	+00	+00
FC1MOD-FC2	On	On	On

ENV2	1	2	3
Initial	99	56	99
Peak	99	99	99
Break	99	94	00
Sustain	99	84	00
Attack	00	38	10
Decay 1	12	42	62
Decay 2	12	48	20
Release	40	48	38
Vel-Level	00	50	90
Vel-Attack	00	00	00
Vel Curve	QuikRise	Convex	QuikRise
Mode	Repeat	Normal	Normal
KBD Track	00	00	00

AMP	1	2	3
Initial	99	56	99
Peak	99	99	99
Break	99	94	00
Sustain	99	84	00
Attack	00	38	10
Decay 1	12	42	62
Decay 2	12	48	20
Release	40	48	38
Vel-Level	00	50	90
Vel-Attack	00	00	00
Vel Curve	QuikRise	Convex	QuikRise
Mode	Repeat	Normal	Normal
KBD Track	00	00	00

OUTPUT	1	2	3
VOL	77	52	58
Boost	Off	Off	Off
MODSRC	Off	Off	Off
MODAMT	-	-	-
KBD Scale	-64	+00	+00
Key Range	A0 C8	A0 C8	A0 C8
Output Bus	FX1	FX1	FX1
Priority	MED	MED	MED
Pan	-42	00	+56
Vel window	000	000	000

Effects Programming

8-VOICE CHORUS

FX-1	67
FX-2	51
Chorus Rate	13
Chorus Depth	31
Chorus Center	78
Feedback	+22
MOD (Dest)	FX-1-Mix
BY (MODSRC)	ModPedal
MODAMT	+64

Cure the Studio Blues — New SoundProcess Programs

Bob Spencer

For: Mirage with SoundProcess
Product: The Studio Set
Price $16.95 plus $2 p/h.
From: Digital Dreams, 9851 Jefferson Hwy, Hamilton 16, Baton Rouge, LA 70809.

Ol' Bruce Wallbillich of Digital Dreams has another great disk out for SoundProcessors. As before, I'll cover the bad stuff first...

TRUMPET (p. 6) has the grunge; not to worry though, that's standard with trumpets on the Mirage and when it's played chordally or as "hits" no one will hear.

P. 16, PIANO — again, not a "real acoustic" piano, but fine for background work. Sounds very similar to a RMI electric piano, last heard in Blood, Sweat & Tears' second album.

There, that wasn't too painful, was it? Now on to the good stuff...

NIMBUS — very nice ethereal breathy voices.

KICK BASS — punchy bass — if you turn the sustain up and hack a little, can become a cool organ sound.

BRUCE'S EP — Love it!

AIR ATTACK — Synth mallet combined with breathy voice an octave lower; dies away quickly.

FRENCH HORN — Bruce has come a long way on his horn sounds — this is one of my favorite horns.

JAZZ HARP — Synth harp using square wave and chorusing.

DREAM PIPES — Pipe organ that fades in — I would prefer the filter envelope release be a little longer as the name implies.

MINIMOOG BASS + EXOTIC — I love that bass! EXOTIC is the synth mallet combined with a sine wave an octave lower — pure sound.

MOOG STRINGS — Semi-slow fade in, could be useful in a variety of applications.

ACOUSTIC BASS — Bright version of what sounds like to me the standard Mirage AB. Plays the entire keyboard range.

U-220 ATMOSPHERE — Bruce, you done good. I would recommend a longer release time to emulate the original more.

AL'S ORGAN — Great fat ballsy organ.

KAWAI E.P. — Bruce KNOWS EP's.

MYSTERY PAD — Kind of like NIMBUS with the filter closed way down.

ORGAN — Delayed Modulation — He sneaks in the chorusing effect — very nice.

NASTY BRASS — Fat synth brass sound.

CRYSTAL KEYS — Kind of an EP sound with sustain. It fits its name.

ROLAND ARIMBA — Clean steel drum type sound with harmonic overtones.

JAN'S THEME — Combination of his JAZZ HARP and NIMBUS an octave lower — one of my favorites.

SYNTH KEYS — Again, a combination of JAZZ HARP and a sweet chorused mellow organ.

BLUES E.P. — A darker sounding EP with a hint of a bite.

KAWAI KICK BASS + BUZZ LEAD — Slightly mellower than the first kick bass. Lead reminds me of Yamaha's PSS Sitar — the attack is closed by the filter; nice chorusing.

SLIPPERY BASS — This is my favorite! Sounds like a DX7 fretless bass. Great!

SHIMMER — EP with a slow attack.

STRING PAD — Dark string pad, very useful.

DIGI KEYS — Shades of D-50 EP mixed with mellow sawtooth. Another favorite.

CHIFF FLUTE — More of a clarinet timbre than a flute, but still a sweet sound.

ROCK ORGAN — Another big organ sound with a nice attack.

6 STRING — Sounds like the DX7 Jazz Guitar. I hacked a little on this and put some chorusing and a little longer sustain.

TINE VOICE — Dark EP with just a hint of breathy voices.

To sum up — megabang for the buck, lots of good useful stuff here. Bruce is doing much to keep up my interest in the SP/Mirage. I'm still using it in my studio! ■

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

Classifieds

SAMPLES

3D SOUNDS. Great samples at great prices. EPS-16PLUS library ($8 per disk). EPS (special $4 per disk). TX16W, Mirage, S10/220 and FZ-1/10. Demo Disk only $2. Free shipping. Write for demo disk and listing: P.O. Box 114, Station C, Kitchener, Ontario, Canada, N2G 3W9.

Proteus and U220 sounds digitally mastered on Compact Disk (CD). 600 samples total, covering 98 individual sounds. $14.95 + $2 s/h. CA Res. add 6.25% sales tax. Digitelesis, 8667 Via Mallorca #76, La Jolla, CA 92037.

Studio Quality EPS/EPS-16 PLUS samples. Orchestral, synth, etc. For demo tape, sample disk and sound catalog, send $12 to Keith B. Thomas, PO Box 174, Stratford, ONT N5A 6T1 Canada.

Mirage samples: Plus moving wavesamples all over. 7 sounds in one bank, much more. Listings: $1.00. Demo tape: $6.00 (includes listings). Mr. Wavesample, 162 Maple Place, Keyport, NJ 07735. 908-264-3512. Make checks payable to Jack C. Loesch.

SAMPLER OWNERS! Get professional quality samples on **TDK SAX** chrome cassette! Hundreds of analog, FM, and electronic synth sounds, effects and stacks for your sampler. Each tape is a **FIRST GENERATION REALTIME TRANSFER** direct from digital. Send check or M/O for $15.95 plus $3.00 S/H to **EVENING STAR RECORDS**, PO Box 6264, Malibu, CA 90264.

SD-1/EPS-16 PLUS: Yo' Hip Hop, Grove, Down By Law Rap patterns with loops. These patterns are Def!!! From the TR808, SR16, DR550, QY10, TR626, MV30. $5.00 Demo Disk. Send $25 for 5-disk set EPS(A) or $25 for 5-disk set SD1(B). First 100 orders: 2 free bonus disks!! Orders rushed!! Check or MO to: Michael Daniels, 4007 Irvington Dr., Charlotte, NC 28218.

Creative Analog for EPS, using classic tape and analog techniques, ARP 2600 et al., Avant Garde/New Music sounds, 10 disk set, looped, layered, stereo! By Berklee graduate, 10 years programming experience. ORIGINALS that stand out! $89.95, free UPS: 1-800-622-2328.

SoundProcess/Mirage users: Any of you still out there? I have a new disk to add to your library – the Keyboard Disk. Over 100 different patches: Classikeys (Green Eyes, Time/Season, Doors, Red Rubber Ball, Wurli), Digikeys (DX7, M1, D-50,Kurz), and Newki (RhodX, VFXtine, Paradox), bunches more! $19.00 delivers it to your door – with runtime version of SP on disk – JUST STICK IT IN, BOOT, AND GO! Great disk for when you carry just one keyboard to the gig and only need keyboard/piano sounds. Also, the rest of my library – Lush, X, DeMity, Addy, Turbo – still only $15.00 each or all 5 for $69.00. Please add $1 for postage. Bob Spencer, 703 Weatherby Ln., Greensboro, NC 27406.

EQUIPMENT

Roland TR505 drum machine: $100, Alesis Microverb: $75, Mirage SXQ-1 Sequence Expander: $30, Realistic 4-Ch mixer: $20. Jane, (503) 227-6848.

ESQ-1 with case, dust cover, 5 cartridges, and small Fender amp. All excellent condition. $750 or offers. (307) 684-5714 evenings.

EPS w/4x Expander, OEX-8, 80 "new" disk library, case. Home studio use only. $1500. (212) 795-5366. Phil, anytime.

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.

VFX sound cart, VPC 102. As new. $40 U.S. funds. ORION, 604-858-8889.

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.

EPS with 2x memory and sample library, $1500. EPS 2x memory, $75. SoundProcess for Mirage (original with sounds), $60. 3D SOUNDS, P.O. Box 114, Station C, Kitchener, Ontario, Canada, N2G 3W9.

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.

10 Free Disc with Expander orders. EPS, EPS-16 PLUS, TX16W, AKAI. Best prices. Guaranteed. EPS/ EPS-16+ "Sampling Made Easy" Video - 2 hr, 6 min cassette full of stereo sounds and 2 disc. Only $29. Satisfaction Guaranteed. Wildwood Sounds, 4726 Pebble Creek, Pensacola, FL 32526. Phone: (904) 944-6012, Tony, after 6 pm.

WANTED

Wanted: VFX programmers to trade their ORIGINAL VFX CREATIONS for mine (80 HI-FI sounds, wide variety). No tweaks / copyrighted sounds please! Send patch sheet or Alesis DataDisk format to: Brad Kaufman, 11-26 Saddle River Road, Fair Lawn, NJ 07410.

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.

SOFTWARE

Midicaster is still available. The way-cool operating system that turns your Mirage into a very capable System Exclusive data librarian, a 20,000-note sequence player, a disk copier/formatter, and wave-draw synthesizer is still available for a limited time. For more information, or to order, contact the Midi Connection, 9343 SW 3rd, Portland, OR, 97219, phone: (503) 245-3752. And thank you for your support.

PATCHES/SOUNDS

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.

TX812 Owners: 64 original sounds for $9.95. Also interested in trading samples. Michael Mooney, 1741 Chariot Ct., #3A, Mt. Prospect, IL 60056. (708) 427-1615.

100 free VFX-SD / SD1 Drum Patterns with 120 Hot VFX-SD sounds. Satisfaction Guaranteed. $25. Wildwood Sounds, 4726 Pebble Creek Terr., Pensacola, FL 32526. Phone: 904-944-6012, Tony, after 6 pm.

60 VFX-SD patches created by Jim Grote. Wide variety. Documentation included. See my article "Sawtooth Tips" in Dec '90. Call for free Information Packet, or send: **$35.00** for **VFX-SD** disk to **Jim Grote**, 3721 Frances Ave., Cincinnati, OH 45211. (513) 661-8885.

NEW WAVEFORMS for the ESQ-1! Soundset 3, programmed by Sam Mims, brings a host of new waves - and 40 amazing new sounds - to the ESQ-1 using O.S. 3.5 (not compatible with ESQ-Ms, SQ-80s, or earlier operating systems). Many D-50-type ambient sounds, all outlined in accompanying 22-page booklet. Available on data cassette or Mirage-format disk for $17.95. Syntaur Productions, 11116 Aqua Vista #2, North Hollywood, CA 91602. Phone: 818-769-4395.

MUSIC

"Hollowellisms" has released its first CD done totally on the EPS at home. $10 to Tom Hollowell, 19721 Muncaster Road, Derwood, MD 20855.

INSTRUCTION

Playing String Lines On Keyboards. Perform/Record convincing lines and harmonies with extensive techniques and exercises for Ensoniq product users. Stereo cassette is $8.50. Mail check, money order, name and address to: Talking Owner's Manuals (tm), 21405 Brookhurst, Huntington Beach, CA 92646.

OUT-OF-PRINT BACK ISSUES

M.U.G. will provide Out-of-Print issues for cost of materials and postage. M.U.G. Hotline: 212-465- 3430 or write: G-4 Productions, PO Box 615TH, Yonkers, NY 10703. Attn: TH Back Issues. Phone: (212) 465-3430.

Photocopies of out-of-print past issues of the Hacker can be obtained by calling Jack Loesch, 201- 264-3512 after 6 pm EST.

Folks in the New York City area can get copies of unavailable back issues of the Hacker - call Jordan Scott, 212-995-0989.

FREE CLASSIFIEDS!

Well,—within limits. We're offering free classified advertising (up to 40 words) to all subscribers for your sampled sounds or patches. Additional words, or ads for other products or services, are 25 cents per word per issue (**BOLD** type: 45 cents per word). Unless renewed, freebie ads are removed after 2 issues. While you're welcome to resell copyrighted sounds and programs that you no longer have any use for, ads for *copies* of copyrighted material will not be accepted.

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.

Patch: ROCKBS

by Glen Gafter, Kent, OH

This is an accompaniment bass sound. The mod wheel opens up the filter, changing it to a stand-out Taurus pedal sound. Play with the envelope attacks for different Taurus sounds. This patch is beautiful in the upper range also.

The Hack

The first thing that struck me about this patch is that the release time is much too long for most applications. Therefore, the first thing I did was change T4 of ENV 4 to 19; you can adjust this to your own taste and application. It's nice having the mod wheel control of the filter. ENV 2 controls it also, but only in a very subtle manner. You can get a nice variation of this patch by setting the depth of the ENV 2 modulator (FILTER page) to +63, then adjusting the filter frequency to 20 or so. As Glen suggested, it's well worth toying with the ENV 2 parameters; I liked the very poppy bass I got with T1=00 and T2=11 (with the filter altered as above). This is a great time to experiment with the filter resonance as well; try setting it at about 08.

ESQ-1 PROG: ROCKBS — **BY: Glen Gafter**

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	2	SAW	LFO1	+3	*OFF*	-
OSC 2	-1	0	5	SAW	LFO1	+3	*OFF*	-
OSC 3	-1	0	0	SAW	*OFF*	-	*OFF*	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	56	ON	*OFF*	-	*OFF*	-
DCA 2	56	ON	*OFF*	-	*OFF*	-
DCA 3	56	ON	*OFF*	-	*OFF*	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	31	0	10	ENV2	+17	WHEEL	+63

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	LFO3	+13

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	22	OFF	OFF	TRI	0	0	20	*OFF*
LFO 2	-	-	-	-	-	-	-	-
LFO 3	14	OFF	ON	NOISE	63	63	63	LFO1

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	+63	+27	+22	21	38	14	25	25	24	15
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	+63	+58	+52	21	0	8	42	49	37	0

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

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

SQ-80 Patch: DRAGON

by Kirk Slinkard, Lakewood, CO

There were no notes with this one.

The Hack

I really like the sonic motion of this patch, and the timbral differences from playing at different velocities. Note that DCA 1 is turned off; OSC 1 is used only to sync OSC 2, and is not used directly as part of the sound. OSC 3 is never heard as well, unless it is brought in with the mod wheel for even more sonic variation. But the best part of all is the effect of the CV pedal. It changes the frequency of OSC 2, but this oscillator is synced to OSC 1; the result is not a pitch change, but a change in the waveform of OSC 2, thus giving a dragon's bite to the sound. This is quite an expressive patch.

If you don't have a CV pedal, set up ENV 2 to modulate OSC 2 instead of the PEDAL. Try the following parameters for ENV 2: L1=+30, T1=14, T2=23, all others=00. This also works nicely in the other direction – try L1=-50, for example. For the sound of an saucer landing, simply turn SYNC to OFF on Kirk's original patch, and hold down about five keys at once.

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: DRAGON — **BY: Kirk Slinkard**

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	0	0	SAW	LFO1	+2	*OFF*	-
OSC 2	-3	0	0	STEAM	ENV1	+63	PEDAL	+63
OSC 3	-1	0	5	SQUARE	LFO1	+2	*OFF*	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	0	OFF	*OFF*	-	*OFF*	-
DCA 2	63	ON	*OFF*	-	*OFF*	-
DCA 3	0	ON	WHEEL	+63	*OFF*	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	53	0	32	*OFF*	-	*OFF*	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	LFO3	+63

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	24	OFF	ON	TRI	0	0	0	PRESS
LFO 2	-	-	-	-	-	-	-	-
LFO 3	11	OFF	ON	TRI	0	32	63	*OFF*

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	+63	+49	0	63L	0	0	16	41	33	0
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	+63	+63	+63	35L	0	0	0	52	12R	0

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

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

SD & VFX Hackerpatch

SD & VFX Prog: TRANS-AM By: Steve Munro

NOTES: TRANS-AM uses nothing but transwaves to create four different sounds. With the 00 patch select, use the mod wheel to bring in more of the bell sound. With the 0* patch select, use the sustain pedal to bring in the glide (portamento). Key pressure modulates most of these transwaves, via the mod mixer.

THE HACK: This is one of those sounds that really shows the character of the VFX. It is BIG, expressive, and the timbre can be moved all over the place as a note is sustained. I found the bell components of the 00 and ** patch selects to be a bit loud, and I wanted their volumes to be velocity controllable. Changing the VEL-LEV of ENV 3 to 35, on voices 1 and 4, did the trick easily. The only other thing I could think of to do with this patch was to start playing some music...

– 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	SpectrlX	VocalX	OmegaX	ESQBellX	FormantX	VocalX
Wave Class	Transwave	Transwave	Transwave	Transwave	Transwave	Transwave
Delay	0	0	0	0	19	0
Start	0	99	0	0	0	99
ModScr	Mixer	Mixer	Mixer	Mixer	Env1	Mixer
ModAmt	+99	-99	-99	+99	+50	-99

MOD MIXER	1	2	3	4	5	6
SRC-1	Wheel	Env1	Wheel	Env2		Env1
SRC-2	Press	Press	Press	Press		Press
SRC-2 Scale	3.0	3.0	3.0	3.0		3.0
Shape	Smoother	Smoother	Smoother	Smoother		Smoother

PITCH	1	2	3	4	5	6
Octave	+1	0	0	0	0	0
Semitone	0	0	0	+7	0	0
Fine	0	0	0	0	0	-2
Pitch Table	System	System	System	System	System	System

PITCH MODS	1	2	3	4	5	6
MODSRC	*Off*	*Off*	*Off*	*Off*	*Off*	*Off*
MODAMT	-	-	-	-	-	-
Glide	None	None	Pedal	None	Pedal	None
ENV1	0	0	0	0	0	0
LFO1	+4	+4	+10	0	+10	+2

FILTER 1	1	2	3	4	5	6
Mode	2LP	2LP	2LP	2LP	2LP	2LP
Cutoff	0	0	100	127	100	0
KBD	0	0	0	0	0	0
MODSCR	Mixer	*Off*	Press	*Off*	Press	Press
MODAMT	+99	-	+99	-	+99	+99
ENV2	+99	+99	0	0	0	+99

FILTER 2	1	2	3	4	5	6
Mode	2LP	2LP	2HP	2LP	2LP	2LP
Cutoff	0	0	0	127	100	0
KBD	0	0	0	0	0	0
MODSCR	Mixer	*Off*	*Off*	*Off*	Press	Press
MODAMT	+99	-	-	-	+99	+99
ENV2	+99	+99	0	0	0	+99

OUTPUT	1	2	3	4	5	6
VOL	84	84	84	99	84	80
MODSRC	*Off*	Press	*Off*	*Off*	*Off*	Keybd
MODAMT	-	-10	-	-	-	+10
KBD Scale	0	0	0	+15	0	0
LO/HI Key	A0/A0	A0/A0	A0/A0	A0/C8	A0/A0	A0/A0
Dest Bus	FX2	FX1	FX2	FX1	FX2	FX1
Pan	60	50	26	50	35	50
MODSRC	Env1	Env1	Env1	LFO	Env1	Env1
MODAMT	-55	-10	+50	+40	+99	+5
Pre-Gain	Off	Off	Off	Off	Off	On
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	20	18	25	34
MODSRC	*Off*	*Off*	Press	*Off*	Press	*Off*
MODAMT	-	-	+26	-	+26	-
Level	0	0	0	99	0	0
MODSRC	Press	Press	Press	*Off*	Press	Press
Delay	0	0	0	0	0	0
Waveshape	Triangle	Triangle	Sine	Sine	Sine	Triangle
Restart	Off	Off	Off	Off	Off	Off
Noise SRC RT						

ENV1	1	2	3	4	5	6
Initial	0	0	0		73	0
Peak	40	70	99		0	75
Break 1	0	0	0		99	65
Break 2	40	70	99		0	50
Sustain	0	0	0		0	30
Attack	40	50	40		50	37
Decay 1	40	50	40		50	37
Decay 2	40	50	50		50	37
Decay 3	40	50	40		50	37
Release	50	50	50		50	50
KBD Track	0	0	50		0	0
Vel Curve	Cnvx2	Cnvx2	Cnvx2		Cnvx2	Linear
Mode	Repeat	Repeat	Repeat		Repeat	Normal
Vel-Level	0	0	0		0	0
Vel-Attack	0	0	0		0	0

ENV2	1	2	3	4	5	6
Initial	99	0		0		0
Peak	99	99		50		99
Break 1	0	99		0		99
Break 2	0	99		50		99
Sustain	0	99		0		99
Attack	0	20		50		20
Decay 1	20	20		50		20
Decay 2	0	20		50		20
Decay 3	0	20		50		20
Release	0	20		0		20
KBD Track	0	0		0		0
Vel Curve	Cnvx1	QuikRls		Cnvx2		QuikRls
Mode	Norml	Norml		Repeat		Norml
Vel-Level	0	0		0		0
Vel-Attack	0	99		0		99

ENV3	1	2	3	4	5	6
Initial	99	99	99	99	99	99
Peak	99	99	99	99	99	99
Break 1	99	99	99	0	95	99
Break 2	99	99	99	50	93	99
Sustain	99	99	99	90	99	99
Attack	20	20	20	15	0	20
Decay 1	20	20	20	30	20	20
Decay 2	20	20	20	30	20	20
Decay 3	20	20	20	30	20	20
Release	10	10	0	10	0	10
KBD Track	0	0	0	0	0	0
Vel Curve	Cnvx1	Cnvx1	Cnvx1	Cnvx1	Cnvx1	Cnvx1
Mode	Norml	Norml	Norml	Norml	Norml	Norml
Vel-Level	35	20	20	35	20	20
Vel-Attack	0	0	99	0	0	0

PGM CONTROL

Pitch Table	Off
Bend Range	2
Delay	x1
Restrike	40
Glide Time	8

EFFECTS (1)

Effect	8Voice
	Chorus 2
FX1 Mix	50
FX2 Mix	25

EFFECTS (2)

Rate	10
Depth	25
Delay	100
Feedback	-75

EFFECTS (3)

FX2 Mode	Normal
	Stereo Send

PERFORMANCE

Timbre	0
Release	0

Pressure Key

SQ-1 & 2 Hackerpatch

Jeffrey Rhoads

Prog: DX7 Rhodes

By: Eric Riggins

Notes: One classic sound missing from the SQ-1's ROM presets is a DX-7-style processed Rhodes Piano. Here is my warm and shimmering attempt at DX-7 Rhodes via SQ-1.

WAVE	1	2	3
Select Voice	On	On	On
Wave Class	WvFrm	WvFrm	WvFrm
Wave	DPTine	DPTine	GHarm
Delay Time			000
Wave Direction			Forward
Start Index			10
MODSCR			Veloc
MODAMT			+30
Restrk Decay	50	50	50

PITCH	1	2	3
Octave	0	0	0
Semitone	00	00	00
Fine	-05	+05	00
ENV1			
LFO			
MODSCR	Off	Off	Off
MODAMT			
KBD Ptch Track	On	On	On
Glide	Off	Off	Off
Glide Time			

ENV1	1	2	3
Initial			
Peak			
Break			
Sustain			
Attack			
Decay 1			
Decay 2			
Release			
Vel-Level			
Vel-Attack			
Vel Curve			
Mode			
KBD Track			

LFO	1	2	3
LFO Speed			
Noise Rate			
Level			
Delay			
MODSRC			
Wave			
Restart			

FILTER	1	2	3
Filter 1	3L	3L	2L
Filter 2	1H	1H	2L
FC1 Cutoff	033	035	055
ENV 2	+83	+83	+35
FC1 KBD	+37	+35	+18
MODSCR	Vel	Vel	Vel
MODAMT	+05	+05	+05
FC2 Cutoff	034	035	055
ENV2	+40	+40	+35
FC2 KBD	+08	+08	+00
FC1MOD-FC2	On	On	On

ENV2	1	2	3
Initial	51	51	47
Peak	46	46	67
Break	36	36	25
Sustain	00	00	00
Attack	00	00	00
Decay 1	22	22	50
Decay 2	55	55	55
Release	41	41	15
Vel-Level	86	86	66
Vel-Attack	00	00	00
Vel Curve	Conv	Conv	Conv
Mode	Norm	Norm	Norm
KBD Track	00	00	+14

AMP	1	2	3
Initial	99	99	99
Peak	99	99	98
Break	75	75	62
Sustain	00	00	00
Attack	00	00	00
Decay 1	52	52	66
Decay 2	80	80	59
Release	30	30	40
Vel-Level	26	26	26
Vel-Attack	00	00	00
Vel Curve	Conv	Conv	QuikR
Mode	Norm	Norm	Norm
KBD Track	00	00	00

OUTPUT	1	2	3
VOL	99	99	90
Boost	Off	Off	Off
MODSRC	Off	Off	Off
MODAMT	-	-	-
KBD Scale	00	00	00
Key Range	-	-	-
Output Bus	FX1	FX1	FX1
Priority	H	M	L
Pan	+28	-28	00
Vel window	000	000	000

Standard Sound Programming

Effects Programming

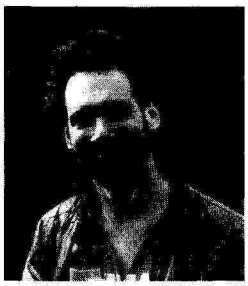
(To save space, only those effects utilized are listed. A complete blank form was published in Issue #68.)

CHORUS AND REVERB	
FX-1	05
FX-2	05
Decay time	25
HF Damping	40
Chorus Rate	14
Chorus Depth	40
Chorus Center	30
Feedback	00
Chorus Level	13
MOD (Dest)	Level
BY (MODSRC)	MdWhl
MODAMT	+99

The Hack: As the saying goes, "If it ain't broke, don't fix it." Eric's version of the '80s/'90s Rhodes made so popular by the DX Series instruments is very, very good. So good that there's little reason to change it. You can, if you like, add some vibrato. For voices 1 and/or 2: In the LFO Section set LFO SPEED to 25, LEVEL to 60, and WAVE to SINE/TRI. For the Output Section, MODSRC = LFO and MODAMT = 57. PAN voice 1 to -98 and voice 2 to +98. Assign any controller except WHEEL (which is being used to add the EFFECTS). Speaking of Rhodes, anyone care to take a shot at that Herbie Hancock compressed sound prevalent in the mid-'70s? (Hint: You may not need to use the most obvious waveforms.)

Also, if you'd like to join the legions who would like me to work harder, send more SQ-1 & 2 Hackerpatches.

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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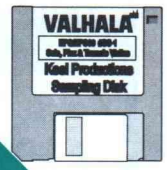

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VF-4: Ritual, Rez Trumpet, Bali & I

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

E-mu PROTEUS/1

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PR-2: Winston Piano, Lead Strings, Wind Chimes

PR-3: Glasnost Men, Opera Chorus, Fanfare

CLASSIC SYNTH

OBERHEIM & MOOG

OM-1: OB-X Strings, Emerson Hall

OM-2: Ripper, Razor

OM-3: Fog Strings, Filter Pop, TiteRope Bass

OM-4: Sass Brass, Warm Keys, Trampoline

SEQUENTIAL PROPHET VS

VS-1: Brass Tacks, Sky Diamonds, Punch Bass

VS-2: Glass Chimes, Funksichord

VS-3: Syncrete, Tine Chorus

VS-4: V-Stringz, Constellation, Hurdy Pipes, Radio Dish

CLASSIC MIDI STACKS

MS-1: China Sea, Piano Stack

MS-2: Landscape, Airimba

MS-3: Roto Float, Film Pad

MS-4: Doctor P, Crystal Court, Baal's Breath

FREQUENCY MODULATION

FM-1: 12-Op E.P., Sharp E.P., Guitar Clav

FM-2: JazzBass Clav, Troll Drops, Hand Bell

FM-3: Lastic Brass, Redwood, Rez Bass

FM-4: Ballerina, Plucked Ham, Super Bass

ADDITIVE SYNTHESIS

AD-1: Wind Chime, Barrock, Arena

AD-2: Space Vibe, Benza-Dream

AD-3: Spitfire Brass, K-5 Rhodes, Multi Clav

AD-4: It Breathes, Quartz Mallet, Toy Trumpet, Melo Waves

ROCK & POP

KB-1: Fender Rhodes, Accordion

KB-2: Yamaha DP-70, Hohner Clavinet

KB-3: Hammond B3 Jazz, Hammond B3 Rock

SY-1: VS Strings I, VS Strings II, Moog Bass

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

WB-2: Bata Drums, Log Drums, African Shakers, Talking Drums

DC-1: Rock Kit, Simmons Kit

GB-2: Fender Jazz Bass, Steinberger XL BS

LP-1: Agogo Bells, Timbales, Conga Drums

LP-2: Latin Shakers, Bongo Drums, Cencerros

LP-4: Asian Gongs & Bowls, Tabla Drums

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SS-2: Solo Viola, Pizzicato Viola, Tremolo Viola

SS-3: Solo Cello, Pizzicato Cello, Cello Harmonics

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

OP-2: Vibraphone, Xylophone, Brake Drums

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

DC-4: Orchestral Cymbals, Ant. & Fin Cymbals

SPECIAL

BN-1: PPG Keys, Temple of Doom, Bottle Blower

A-1: D50 Orchestra, Kalimba

A-2: Martin Harpsicord, Velocity Trombones, D50 Strings

A-3: Reed Organ, Pie Bass

A-4: D50 Brass, Parlour Organ

A-5: Gregory Ambrosia, Bottle Breath

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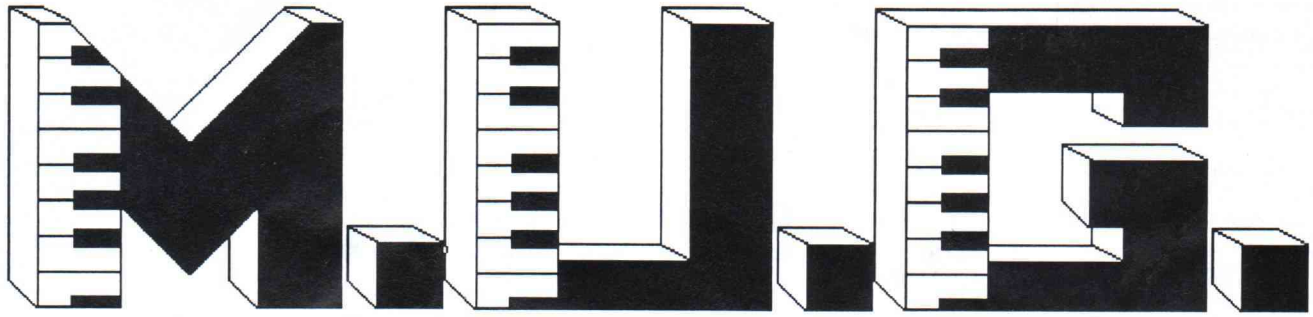

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This is probably one of the most open forums in the music industry. Letter writers are asked to please keep the vitriol to a minimum. Readers are reminded to take everything with a grain of salt. Resident answer-man is Clark Salisbury (CS). Letter publication is subject to space considerations.

Dear TH,

I would like to make a few corrections to the review about our company, NOT. First of all, some confusion probably arises from our company being different. In this light, I can understand the misconceptions.

As Bryce Inman pointed out in his review (July, '91) "As soon as you bought your sampler one of the first things you wanted to do was to acquire a large library of sounds." The same was true for me. The larger my library got, the more necessary it was for me to organize it.

The first thing you need to do is send a request for our information packet. When customers receive our list of samples, they can organize their samples according to our list. They to NOT need to send a list of their samples. If they wish to trade samples, then they need to send a list. This is clearly stated in our literature. Nowhere is it stated that we take a person's list of samples and organize them into a personal library. We already have the data concerning our library on a database. Every TRANSACTION from every customer is kept on our database and all lists and labels are printed out from this information.

What we are working toward is to get all public domain sounds into one organized library. How useful our services are will depend on the individual's need. If a person is just starting out or has a lot of disks that are not categorized, we can be very useful.

As of this time we haven't had any problems with our customers getting a grasp of what our services are about. If there are any specific suggestions about how to improve our services, we would greatly appreciate hearing about them.

We're,
NOT
Hillsboro, OR

Dear Hacker,

I have a request. Could someone at the Hacker compile an ONGOING and comprehensive list of ALL software available specifically for Ensoniq products (or, for that matter, all products that interface with Ensoniq products – I can hear someone sighing out there). Especially, in my case, for the **EPS-16 PLUS.**

And, while they're at it, any articles that may help reduce the searching time for WHAT SOFTWARE WORKS BEST WITH WHAT IN ESTABLISHING A COMPUTER MIDI COMMAND CENTRE would be appreciated.

There seems to be a rapidly growing number of software applications and a list showing computer type as well as company name and addresses, as well as identifying articles previously written in the Hacker, would be a great way of cutting through the diversity and getting what suits one's studio best.

Also, I would like to invite other EPS-16 PLUS or EPS owners (or anyone into MIDI) in my area interested in sharing new sounds and/or insights to contact me.

Thanks for your help,
Orion Engar
50625 O'Byrne Road
Sardis, Eastern Fraser Valley
B.C., Canada V2R 2P1
Tel: 604-858-8889

[TH – sigh.]

[CS – We've had a number of requests for this type of feature, and the official word from Hacker world headquarters is "maybe." The thing is, we'd love to have this type of feature in the Hacker, it's just that we don't really want to do it ourselves. But we might have to. Anyway, we're considering, seriously considering, the possibility, so stay tuned. Any volunteers?]

Dear Hacker,

A few weeks ago a problem developed with my **EPS.** I just got the new 2.49 OS and I tried the copy floppy function and got ERROR in 144 – REBOOT? I called my dealer and they put me in touch with Ensoniq. Here's what we found and maybe there are other EPS's with this problem. The ROM chip was version 1.20 (needless to say, my unit is an older model) and I don't have the SCSI port on my board. To find out if you have the old chip, do the following:

1. Press COMMAND > ENV1

2. Press the up arrow twice, at which point you'll get the software information.

3. Press YES twice. This will give you your ROM version.

If your ROM version is 1.20, the new features won't work and your board will crash. My advice here is to call Ensoniq and let them know and the they will get you a new chip. It's free and your Ensoniq dealer can put it in in about ten minutes. Thanks, Hacker, for a good job in keeping Ensoniq users up-to-date on new ideas and products.

Steve Calewarts
Green Bay, WI

[CS – And thanks for the tip, Steve. By the way, Ensoniq's customer service number is (215) 647-3930.]

Dear Hacker,

I recently got the **EPS-16 PLUS** and am quite pleased with it. As a guitarist, (and sometimes keyboardist, of course) it supplements my musical endeavors nicely. It also, however has opened up the scary world of computers, hard drives, SCSI, etc., about which I have little knowledge.

I'm very interested in getting a computer in the future and I've been stumped whether to go IBM or MAC II. I know each has its advantage (and, boy, I've found out how pricey the MACs are). Maybe getting a hard drive and then a computer later may be the answer for me. Can you help with the dilemma of their relative compatibility with my '16 PLUS?

Kevin Caputo
Travis AFB, CA

[CS – Either computer will work with your EPS, and neither one is intrinsically better than the other. It all depends on your application. And in the world of computers, another word for "application" is "software." Your best bet will be to figure out what it is that you want a computer to do for you and then take a good look at the software available that performs those tasks.

You'll probably find software for both the Mac and the IBM that will cover most of the essential applications – sequencing, sample editing, notation, and so on – as well as some of the more esoteric things. But all software is not created equal – not every software package has every feature you might want, and packages that seem to have all the features can sometimes prove difficult to use, particularly for the novice. However, the basic rule for purchasing any kind of computer system is to determine which software you'll be using BEFORE purchasing the computer.

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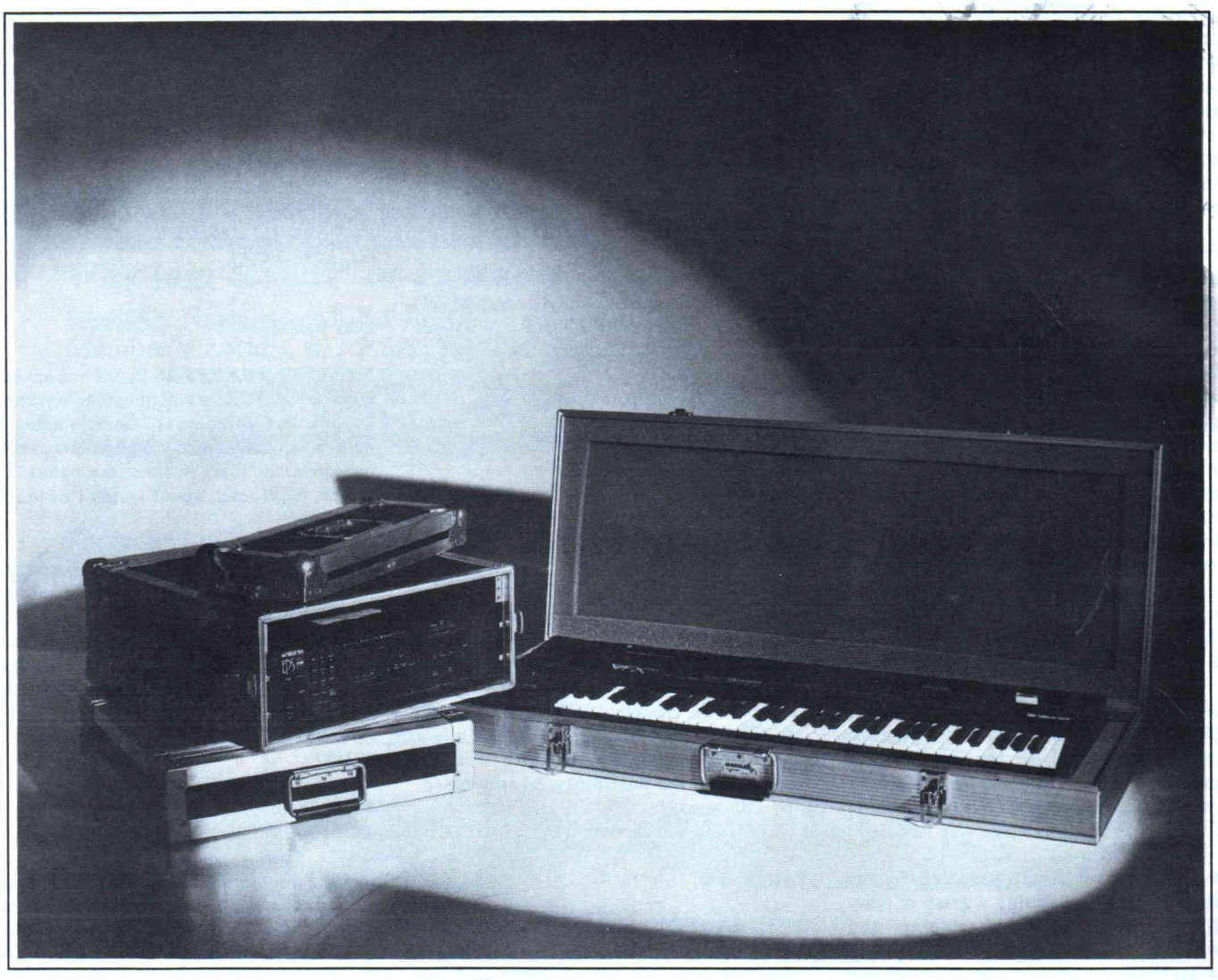
EAGLE I



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Admittedly, making a software selection before purchasing a computer can be difficult. It can be nearly impossible to determine if the software that you're considering will actually do what you want it to, and in a user-friendly fashion. You can read promotional brochures and talk to dealers, but your best bet will be to study software reviews in electronic music magazines and to talk with people who are actually using the software. If you don't know anyone using the software and/or hardware you're interested in, you might consider joining or attending user group meetings – your local music or computer dealer should have some idea about how to get in touch with local user groups.

As to the question of using a hard disk with your system, there are a couple of points to ponder.

First, a hard drive will not change the basic functionality of your EPS. It will add no new features, nor will it improve the sound quality of the basic instrument – although I'd be the last to suggest that the EPS 16 PLUS needs any kind of improvement to the quality of sound it produces.

What a hard drive will do, once it's been properly set up, is improve the efficiency of the machine in terms of saving, loading, and organizing your data. If you think that you'd like to have quick access to lots of different sounds, a hard drive can be an excellent way to go. If, on the other hand, you plan to use a limited palette of sounds, such as just piano, bass, and drums, the money you'd spend for a hard drive might better be spent elsewhere.

And no matter what anyone tries to tell you, size is important. There are literally hundreds of megabytes of samples out there that can be used with your sampler. And even though prices are coming down, big (over 300 megabyte) hard disks can still be relatively expensive and fairly time consuming to back up (you are planning on backing up your data frequently, aren't you? Good).

A couple of interesting alternatives present themselves, though. One is to look into removable media hard drives. These are hard disk drives that use removable cartridges on which to store data. The most popular of these, and arguably the best buy, are the drives that use a mechanism manufactured by Syquest. The cartridge itself holds roughly 44 meg. of data (although Syquest has recently introduced a version of the drive that will read and write up to 88 meg. of data), and once the cartridge has been filled up, you simply buy a new cartridge. Cartridges are relatively inexpensive, running anywhere from about $65 to about $85. This translates to roughly $1.50 – $2 per megabyte for storage, not including the initial cost of the drive unit.

The other advantage to the removable media systems is that different cartridges can be formatted to work with different systems. If you do eventually end up purchasing a Macintosh system, for example, you could use the removable media drive with it as well as with the EPS, by simply formatting one or more cartridges for use with the computer system and other cartridges for use with the EPS.

Another option might be to look into CD-ROM technology. CD-ROM players are becoming quite affordable, with at least a couple of units coming in at around the $500 mark.

These players are used to read data permanently stored on CDs. The data cannot be erased (at least not on the inexpensive players I'm talking about), which is their big disadvantage in comparison with hard disk drives. However, a single CD can hold a tremendous amount of data – about 650 megabytes, actually. And Ensoniq has announced plans to make almost all of its current EPS and EPS 16 PLUS library available on one of these CDs. If you want access to a lot, and I mean a LOT, of sounds, and don't plan on creating or editing your own sounds that much, this might be an excellent alternative.]

Fellow Ensoniq Fans,

In two enjoyable years of **VFX** ownership, I have programmed over 80 high-cholesterol sounds for this synth. Some of my early efforts have been featured in Hackerpatch.

Although factory and third party patches have been occasionally useful as a source of sounds and programming ideas, I have learned the most from a very few VFX users with whom I've traded ORIGINAL patches.

Most folks seem afraid to program this critter, but those who have taken the time know the amazingly wide spectrum of sounds which can be created.

I invite interested, serious VFX sound programmers to trade their ORIGINAL sounds for mine (no tweaks of copyrighted sounds, please!) As a VFX (no disk drive) user, I can only communicate by patch sheets or Alesis Datadisk sys-ex format. Please indicate any category of sound in which you have a special interest.

I look forward to sharing some good patches with you.

Brad Kaufman
11-26 Saddle River Rd
Fair Lawn, NJ 07410

Dear Hacker,

This is my first letter after several years as a reader so hang in there!

For starters how about new names for the **SQ-1** and SQ-R? Like the SQUID and the SQUIRT, maybe. Okay, on with it.

My only complaint to Ensoniq is that the flood of new equipment makes it a hair puller deciding which I should beg for. And, of course, the lack of a disk drive on the SQ-1. Nice board, nice price. I like the features but card/cartridge memory systems are a pain. With drives and disks dropping in price, why not? The drive and hardware shouldn't add that much to the price. I guess the main thing here is that the SQ-1 is a great board and is taking the slot that the SQ-80 left. When I buy a new board I expect it to have at least the same major features as the previous one. In this case, disk drive, polytouch keys, etc. Other than those minor gripes gang, keep up the good work. And how about producing a low cost offboard effects unit – the effects processor from the SD-1 in a box, more or less?

In the past I've seen letters about bad dealers and service. I'd like to take the time and toot the horn for three dealers who I have worked with. (I'm not saying abandon your local dealer, though. I'm mentioning these dealers for the benefit of those people who may not know a good dealer nearby and to let Ensoniq know that they have chosen wisely when picking dealers.) On the West coast, American Music in Seattle was very helpful and seemed to have the entire line on the floor. In the North center, Marguerite's Music in Fargo, ND is the store that got me going with Ensoniq. Don Welk and the gang use what they sell and are always ready to take the time to explain from the most difficult to the easiest things. And, on the East coast, McNeil Music in Ithaca, NY – Clyde and the boys usually have all the new equipment and a large selection of used boards as well. I have great respect for their customer relations. When equipment problems arise they have always responded quickly. When a parcel company trashed the keys on a board sent to me, I had replacement parts the next day.

And, of course, I must toot the ol' horn for the *Hacker*. After a few misguided years with a competitor and its glossy, glossy, badly written, "we only care if you bought the most expensive model" newsletter, it was great to get a new keyboard and a true users magazine. My only request to you would be to get the software dealers together and make and "End of the Year" index of all patches and samples available. This is similar to what the computer magazines do on occasion. I know it may be difficult but I think the software dealers should realize that with the amount of used equipment now floating around, there is

a growing pool of second users who may not know good products still may be for sale.

Ensoniq and the *Hacker* – keep up the superior work. To fellow Hackers, keep passing the word on. There are still too many people out there who think Mother E is a French stereo manufacturer!

Rob Romano
Mindrot, North Dakota

[CS – Yeah, yeah, yeah – so we'll consider the software listing very, very seriously (see Orion Engar's letter above). I promise.

As far as disk drives and SQ-family products goes, adding a disk drive to the SQ and keeping it at the same price would certainly have meant that some other major feature would have had to have been left out – perhaps the effects, for example. If the price of the SQ were increased to compensate for the additional cost of the disk drive, the price distinction between the SQ series and the VFX/SD-1 instruments would start becoming blurred. It is interesting to note that no company manufactures an add-on disk drive (such as the Alesis Datadisk) that retails for less than $400. Granted, you're paying something for the cabinet that the houses the unit, but the cost of that is fairly trivial. If a company such as Alesis, which is noted for products that tend to sell for far less than most of the competition, can't turn out a disk drive for less than that, it stands to reason that it just isn't all that cheap.

However, I do like the idea of a separate effects processor. Ensoniq has already proven that they can design and build great-sounding effects. So sign me up – I'll take it!]

[Ensoniq – The SQ-1 was designed to take the place of the ESQ-1, as a low-priced synth w/sequencer. The SQ-80 evolved into the VFX-SD and on into the SD-1, as a higher-priced instrument with more expressive controllers, a disk drive, and larger interface. But for only $200 more than the ESQ-1 the SQ-1 (and PLUS) give you markedly better fidelity, three times the voices, over ten times the wave memory, effects, eight additional sequencer tracks (with four times the timing resolution)... we think you get the picture. Thanks for your comments.]

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