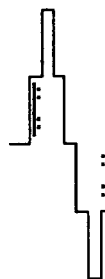


Transoniq



Hacker

The Independent News
Magazine for Ensoniq Users

The SD-1 Drum Map Feature

Howard Massey

"Pull up a chair, sonny boy, and let me tell you how we used to do things in the good old days. By cracky, in those days, we really knew how to use a drum machine..."

"What's a drum machine, Grampaw?"

"Don't interrupt me, boy! Now, as I was saying, we used to have these things called drum machines, see? And they had nothing but drum sounds in them! And they used to play all the drum and percussion parts, get it?"

"I don't understand, Grampaw. A machine that only had drum sounds? How come?? How come you didn't just use your samplers and synths for the drum parts? That's the way all my friends in first grade do things..."

Well, we may not be quite at that point yet, but we're nearly there. Any day now, drum machines will appear as antiquated as 78 RPM records (or LPs, for that matter!). The fact of the matter is that today's synths and samplers generally offer superb drum sounds as well as features that allow you to use them for all your drum and percussion parts. And I'm happy to report that the new Ensoniq SD-1 continues in this admirable direction with a new feature called Drum Maps.

An SD-1 Drum Map works something like a Pitch Table in that it replaces voices 5 and 6 in a program. However, instead of substituting a set of parameters

that define keyboard tuning, you enter a series of parameters that define how individual drum waves are assigned to individual keys, as well as allow you to specify the volume, tuning, and panning of each wave on a per-key basis. RC070107

How This Works

To create a custom drum map, you simply go to the Program Control screen just as if you were substituting a custom Pitch Table for voices 5 and 6. However, the SD-1 offers you the additional option of choosing a Drum Map for those voices instead of a Pitch Table. Once you let the SD-1 know that's what you want it to do, you're whisked off to the Select Voice page, where, initially, each voice will be assigned the Drum Map wave. You don't have to leave things that way, however. In fact, interesting results (as we'll see shortly) can be gotten if you assign one or more of the four voices to different non-Drum Map waves. In any event, soft keys located where voices 5 and 6 normally appear enable you to enter the Drum Map Editor page.

Here, you can assign each one of the SD-1's 61 physical keys (as well as a key below and a key above, making for 63 keys in all, responsive from the SD-1 keyboard and/or via MIDI) to any of 63 different drum and percussion waves. The list of available waves includes some excellent new sounds not available in previous Ensoniq instruments. You can assign as many keys as you like to the

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same wave, or you can create dead areas in the keyboard by assigning specific keys to the “* MUTED *” wave, which yields no sound.

The relative levels of each key can be adjusted by assigning each an independent volume value (from 0 to 15) and you can also alter the pitch of each key over a range of -16 to +15 semitones. And you can set the pan position of each key over any one of seven positions (hard left, medium left, soft left, center, soft right, medium right, and hard right), or you can opt to have that key utilize the dynamic pan setting of the voice being used by that key.

And here is where the plot thickens, because the SD-1 offers a very clever scheme that allows each individual key to be directed to any or all of the voices in the program (by accessing any of the Patch Selects), or to any of four preselected ROM voices (voices 1 through 4 in ROM1 program 9.6 [INDOI/AFRO], to be specific). This is the function of the Drum Map Editor PATCH parameter, a parameter that not only allows you to use the Pan values of any voice for any key, but also allows you to quickly determine the FX bus routings and envelope settings for each key. The four ROM voices are set up so that voice 1 (called “D1”, for Default 1) has a normal envelope with FX1 as its destination bus; voice D2 also uses a normal envelope but has FX2 as its destination bus; voice D3 uses a filter

envelope and uses DRY as its destination bus (no effect); and voice D4 has all waves Reversed, with FX2 as its destination bus. In effect, choosing one of these default voices is like having a macro at your command; it provides a fast and easy way to specify the Effects routings for each key as well as allowing you to instantly reverse any wave.

Remember how I mentioned that assigning one or more voices to waves other than “Drum Map” could make things real interesting? Here’s where that happens. For example, if you specify one of the Patch Selects (as opposed to one of the ROM default voices) for a particular key, and that Patch Select mutes the Drum Map voice (or voices) within the program while activating other non-Drum Map voices, you can intersperse “normal” waves with drum waves. Alternatively, if you specify a Patch Select that uses one or more Drum Map voices along with other non-Drum Map voices, you can actually layer the selected Drum Map wave with other “normal” waves. RC070107

There are many advantages to being able to create your own custom drum map. For example, you can easily customize the SD-1 keyboard to suit your particular playing style or taste (want to be able to do a snare drum roll on the bottom three or top twelve keys? No problem!). If you’re linked up to other instruments via MIDI, a Drum Map allows you to quickly match the SD-1 to other key assignments. Because you can independently adjust the pitch of each key as well as its pan position and output level, the Drum Map feature is far more powerful than just using a custom Pitch Table along with the various Output parameters for each voice within a program. And, if you REALLY want to get complex, try using a custom Drum Map in conjunction with a System Pitch Table that has been modified so it creates a microtuning. If you then place the same Drum Map wave over several adjacent keys, each will play with just a slightly different tuning. This kind of programming application, combined with the effective use of dynamics, will allow you to attain a degree of expressivity in your drum parts far beyond anything you’ve ever heard out of most other synths, samplers, or drum machines.

Did someone mention drum machines? What’s a drum machine?? ■

Bio: Howard Massey is an author and educator who heads up On The Right Wavelength, a consulting company offering professional services to the music technology industry. He is currently producing a number of Applications Notes for Ensoniq and has also written many books, including The MIDI Home Studio and A Synthesist’s Guide to Acoustic Instruments.



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Ensoniq News

From Ensoniq: "Power users of the EPS-16 PLUS will be pleased to know that we are now shipping a Turbo version of the keyboard and rack-mount EPS-16 PLUS. The Turbo includes the ME-16 PLUS memory expander (for 2 megabytes of RAM memory), the FB-2 1 Megabyte Flash memory option, and the SP-2 SCSI port installed direct from the factory. By getting these options installed at the time of purchase you can save over \$500! See your local Authorized Ensoniq Dealer for more information.

"We'd also like to clarify a point — the SQ-2 Personal Music Studio does include monophonic aftertouch, a first for Ensoniq! The early press releases and spec sheets did not call out this important feature, as it was still under development."

Hacker News

We've had quite a resounding response on our call for *Hacker Basement Tapes*. This seems to be a fairly popular feature — at least for submitters. We'd also like to hear a little feedback from the rest of you. Any comments on how this new feature stacks up — from a *reader's* point of view?

Basement tapers may also be interested in *AfterTouch*. *AfterTouch* is a new publication by the Computer Musician Coalition which displays and offers for sale electronic music compositions from home studio artists. A sample copy is \$1.00 and a one-year sub (6 issues) is \$5.00. Contact: *AfterTouch*, Computer Musician Coalition, 1024 W. Willcox Ave., Peoria, IL 61604. Phone: 309-685-4843.

Thrd-Parties News

Much-as-we-hate-to-raise-a-stink Dept. — As far as we know Eltekon is still in business and still selling hard drives for Ensoniq keyboards. However, after several months of unreturned phone calls, unpaid bills, and broken promises, we feel that we would be remiss if we didn't say *something* to our readers. At this point, it looks like there may possibly be a certain element of risk in dealing with them. We have yet to hear any complaints from their customers, so maybe it's just us. Please let us know if you have problems.

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 — Erch 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. RC070107

BACK ISSUES

Back issues are \$2.50 each. (Overseas: \$3 each.) Issues 1-9, 11, 13-23, 27, 29, 30, 35, 36, 37, and 38 are no longer available. Subscriptions will be extended an equal number of issues for any issues ordered that are not available at the time we receive your order. ESQ-1 coverage started with Issue Number 13. SQ-80 coverage started with Number 29, (although most ESQ-1 coverage also applies to the SQ-80). EPS coverage started with Number 30. (But didn't really get going till Number 35.) VFX coverage got started in Number 48. Permission has been given to photocopy issues that we no longer have available - check the classifieds for people offering them. Reprints in our "Quick and Dirty Reprint Series" are available: MIRAGE OPERATIONS, for \$5, and MIRAGE SAMPLE REVIEWS for \$4. Each contains material from the first 17 issues.

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| E | 9. Analog |
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| | 12. Metallic |
| G | 13. Bells |
| | 14. Gongs, Jars, and Glass |
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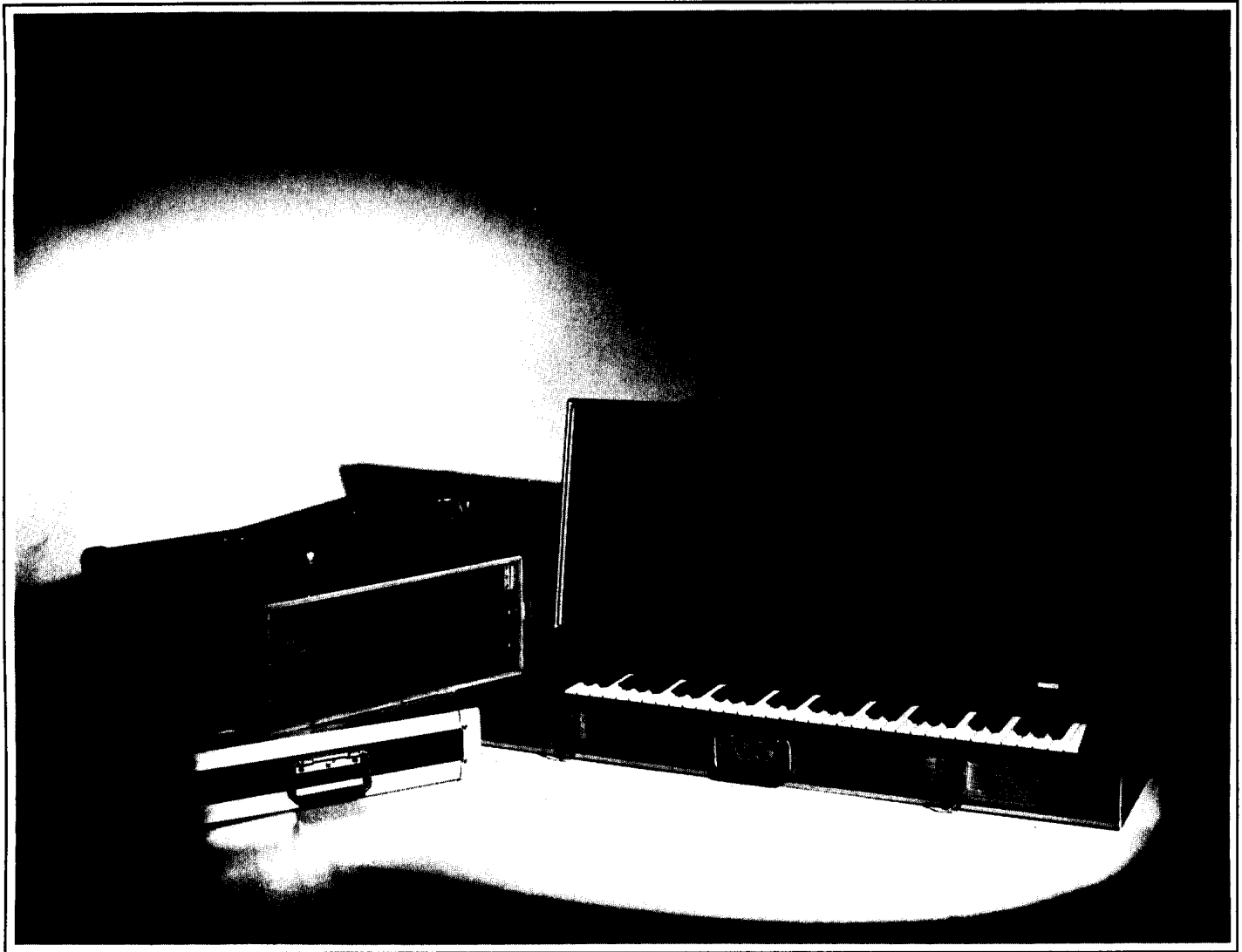
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Sponge Awareness

Daniel Mandel

Tape: Sponge Awareness Foundation's "Looks like Rain, Tastes like Chicken."

Produced by: Ed Lecuyer on Keyboards, Kevin Eldridge on vocals.
 Equipment: SQ-80, VFX, Tascam 688, Casio SK-1, Kramer guitar, Boss DR-550, wrenches, Peavey reverb, DBX Compressor.
 Contact: It can be ordered by sending \$5 to The Sponge Awareness Foundation, Edgar C. Lecuyer, P.O. Box 1084, Wrentham, MA 02093.

As you may have read in the classified ad section of the *Hacker*, there is a group out there called The Sponge Awareness Foundation. They call their music satire, and well, it is just that. These two are also very good songwriters and musicians.

This tape is a reviewer's dream. There is so much material here and it is not the run of the mill stuff! The lyrics go from wacky to bizarre to satirical. ("*Johnny Censorship*" ridicules the state of free speech in our culture. It is couched between an announcement that someone has played a practical joke and that the authorities are none too pleased.)

The first song, "*Alice*," is a piece with a very moving, developing intro that comes full circle to its beginning with the vocals then kicking in. It's written in a pop vein, but there are some very tasty breaks, fills and changes of direction. This song also has a good hook in the chorus. This is a great beginning piece as it shows off many of the songwriting talents displayed throughout the tape. These guys don't have any problem changing tempo, key or mood — and they have an excellent sense of motivation. I won't say I understood the point of what each song was saying. Actually, some of the word choices seemed to be weird for weird's sake which can get tedious especially as these guys are obviously capable of witty, well-phrased lyrics. But the tempos and the changes and the effects all made sense.

One case in point is the song, "*I'm Also a Client*," a great song about a hair loss mogul who is also losing it up top. Halfway through the music drops way back. There is a pad of keyboard chords filling up the stereo spectrum as evil wicked laughter (processed rather well) bellows up from the depths of the President of the Hair Club. Some of these pieces are so theatrical, it would be interesting to see them produced. So when is the movie coming out, guys?

"*Naked 36 Times*" is a creative exercise in manipulating tape speed using voices slowed down and speeded up. The main thing however that grabbed me about it is that this is an interesting work to listen to. One of the criteria that says that these two are not just experimenting (even though they must have been), is that they're creating some dynamic, moving pieces.

A few of the keyboard lead instruments in a couple of the songs

bothered me. A few of the sax-type leads were a bit quiet in the mix, and as we all know, it's somewhat difficult to imitate a good sax lead line with a keyboard. However, some were better than others, so I think that had the sax parts been brought more to the foreground they would have had enough emphasis to pull their weight in the mix.

Another noteworthy effect that reinforces the theme is in the song "*Cannibal House Guests*." Good title here. The song simply walks you through what it was like to have those wacky cannibals as guests. The song ends with a very gulpy heartbeat noise, and the suggestion that maybe the host has also turned into a cannibal. It's a very simple noise, maybe it wasn't even done on the keyboard but it ties the whole piece together and wraps it up in a sound that we can all relate to, a heartbeat. It's little tricks like this that make this tape, albeit unconventional, a creative work.

"*If This is Love*" is a spoof on your typical love song, a nice piece of writing. "*Zamfir's Evil Twin*" dissipates into a commercial for Zamfir's recordings. Really made me think these two should really take a stab at writing jingles. "*The Grim Wombat Parade*" is a carnival-like song which could easily be compared to "*For the Benefit of Mr. Kite*." The lyrics went way off the deep end and were difficult to keep up with, so I concentrated on the music, which was great.

This brings me to another point. All the lyrics on this tape were very clearly announced, they were up front in the mix and without a lead sheet I could have easily written them down. Yet, they did make a wonderful J-card that folds out and has microscopic versions of their lyrics. The point is that the lyrics are very important to the Sponge Awareness Foundation, so they have carefully planned out how to make sure the lyrics are understood in the recording and the cassette cover. RC070107

In their letter accompanying the tape Ed says that they've gotten national airplay on the Doctor Demento Show and won third place in a battle of the bands. He also points out that a number of the sounds they chose for "*Looks like Rain...*" were directly from the Hackerpatch section of our beloved magazine. Ed, of course, is selling this tape which he says is not on any record label and is entirely self-produced.

Thanks for an interesting tape! ■

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

More, Much More, Than a Volume Pedal

Applications of the Pedal/CV Input

Charles R. Fischer

Once upon a time the word "synthesizer" brought up the image of a huge cabinet of knobs and patchcords reminiscent of an old-time phone operator's switchboard. But for all its apparent clumsiness, the modular synthesizer was far more conducive to pure experimentation than today's MIDI instruments. Many parameters could be varied over their entire range by applying an AC or DC voltage to a control input, including pitch, brilliance (filter cutoff), volume, etc, allowing the creative user to patch in ANYTHING that could generate an appropriate voltage, musical or not. Some folks used such exotic stuff as humidity sensors and brain-wave transducers! While most of us would hesitate to call the results musical, the people doing this sort of stunt were usually more interested in sonic sculpture than a hit single.

Those days are gone forever, replaced by the more musical and specific MIDI standard. Yet one holdover from those analog days is still found in our Ensoniq axes — the seemingly insignificant PEDAL/CV jack sitting on the back of your ESQ-1, SQ-80, VFX, EPS, SQ or SD.

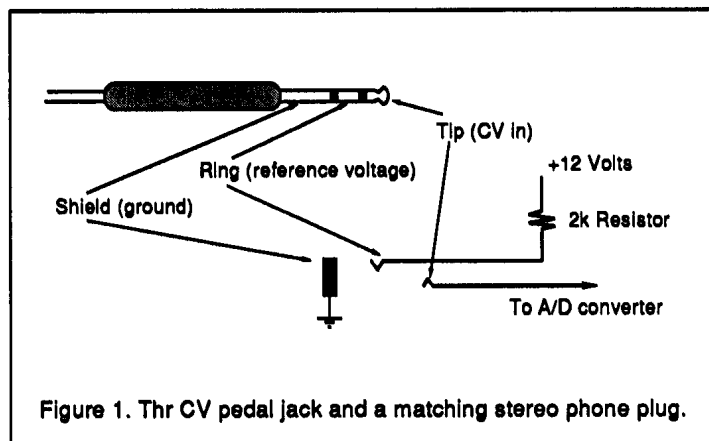
If you just think of this jack as the thingy that ya plug yer volume pedal into, you're guilty of selling it way short of its full potential. It's not just for pedals; it's a full-blown CV input that can be used to modulate the various parameters inside your synth or sampler. And it does things that even a Buchla modular synth can't, like being able to change the CV destinations and modulation depths for each patch.

It's time to explore this strange new world.

Inside the Input Jack, Jack

The basic electrical specs of our subject is covered in the beginning of your owner's manual. As many of us were more anxious to start jammin' than soldering, this information has, historically, been ignored. But if you did go back and read this handy information, you'll find that Ensoniq did a terrific job here in revealing how this feature could be used by musician and hacker alike.

The jack's wiring scheme is pictured in Fig. 1. It uses an everyday stereo phone plug for operation; no bizzaro connectors here. The shield of this jack is the ground point for any device connected to your instrument. The ring (the middle of the 3 conductors) is connected internally to +12 Volts through a 2k Ohm resistor. This voltage is used for pedals or other potentiometers to create a voltage divider. That is, by connecting one end of the pot to ground (0 Volts) and the other end to this point, you can get any arbitrary voltage between the extremes by simply turning the pot (or pushing the pedal). This arrangement is illustrated in Fig. 2; this is exactly how your volume pedal works.



The tip of this jack is the input to the very bowels of the instrument itself (if you will). If we are using a pedal with our axe, the tip is connected to the wiper of the pot inside the pedal (the wiper is the terminal of the pot that can be placed anywhere between the ends of the pot — in Fig. 2, the wiper can be varied between 0 to 10 Volts).

But there's no law saying that our jack has to be used with a footpedal. Matter of fact, you can use any external voltage as a useful input here, just as long as it obeys the following restrictions:

- 1) The voltage applied to the input must not be less than 0 V (i.e., no negative voltages allowed) and it must not be any greater than +10V. Any voltage beyond these ratings might cause damage to your instrument's circuitry, so be careful here!
- 2) The impedance of the input is roughly 500 kOhms, which is high enough so that it will not load down most external signals. If you're not up on impedances, don't be alarmed; the input has been designed to work with most electronic devices without problems.
- 3) Since our instruments are digitally based, they work by sampling the analog voltage at the input and converting the level to

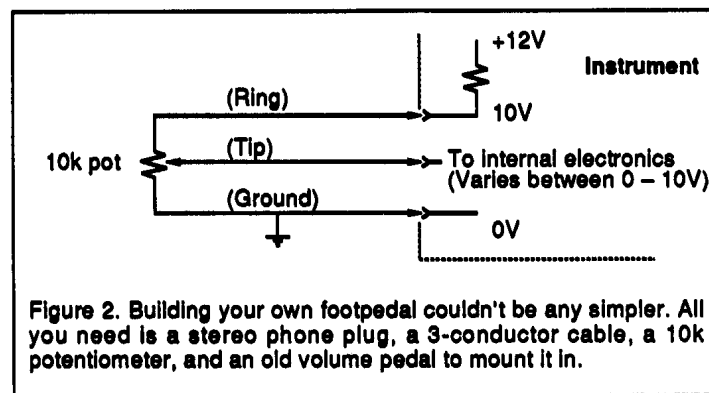


Figure 2. Building your own footpedal couldn't be any simpler. All you need is a stereo phone plug, a 3-conductor cable, a 10k potentiometer, and an old volume pedal to mount it in.

digital data that can either be utilized internally, or sent out externally via MIDI. If you've used a sampler such as the EPS or Mirage, you're probably aware of its operation. The jack itself is designed to act as a sampler itself — however, the input circuitry is restricted to frequencies of 25 Hz or less.

In other words, the electronics have been chosen to work with very low frequencies. If a signal is used that contains any frequencies greater than 25 Hz, say a little 60 Hz hum, it will be liable to Nyquist's theorem; that's right, sampler freaks! You can actually create aliasing by applying a signal that contains any frequency above 25 Hz or so...

The results of this aliasing are quite different than the nasty distortion found in poorly made samples. The results are hard to describe, as whatever parameter is being modulated will tend to jump around in an irregular fashion — somewhat like using the sample/hold module in an analog synth at a very quick rate. There's no harm caused by doing this stunt anyway; intrepid hackers might find a new patch or two with a little experimenting.

Some Suggestions

Now that we know how our input works, it's time to look for uses for the thing. Just as long as you follow the rules that we've covered, you're pretty much free to hook up anything that can produce an output voltage. Please keep in mind that just because a gadget puts out a voltage doesn't mean that the results will be musically useful!

Low Frequency Oscillators (LFO) — An external LFO is one option that many readers might find interesting. Back in the Nov '88 Hacker is an LFO project that I had designed to imitate rotating speaker effects; the LFO rate slowly shifts between fast and slow speeds similar to the real thing. Since the rate of the LFOs built into the ESQ-1 and SQ-80 cannot be modulated, using an external LFO with this feature was the easiest cure that I could think of. Another variation would be to use an external LFO that could be synchronized to the sequencer clock. This would cause your modulation effects to be locked in tempo with your music; the result seems to make the music a bit tighter. It's an interesting effect when used in moderation.

• **Envelope Followers** — The envelope follower is a fairly simple circuit that extracts a voltage proportional to the amplitude of an input signal. They're cheap and easy to build; plug your guitar into one and use its output for making your filters (or volume, or whatever) rise and fall as you pluck harder and softer. Or mic up a sax or violin to control your synthesized horn or string tracks; by recording this data as part of your sequence, it seems that you might get the synthesized instruments to take on some of the characteristics of the real axe. I haven't tried this myself, but it might be a fairly simple way to make your synthesized parts more dynamic... (somebody please try it and tell us how it works).

• **Breath Controllers** — Some time back, a reader was interested in finding a way to use a Yamaha-type breath controller with his Ensoniq keys. Unfortunately, you just can't plug the thing into the jack by itself, as the sensor has a very low level output and must be amplified in order to work. But it can be done if you'd like to do so.

• **Exotica** — There is a wonderland of strange gadgets lurking in your local surplus electronics outlet begging to be hooked up to your favorite toy. How about pressure sensors, temperature or humidity sensors, sonar detectors, or other rad stuff? Yes, the clever individual can buy these items dirt cheap in hopes of discovering new worlds; but once you hook it up, it's up to you to find out how to make the results sound like music. This is often the hardest part.

Yes friends, you can be the first one on the block to interface your VFX-SD to your local hospital's MRI. However, neither the author or this fine magazine will take any responsibility in the event your audience mistakes the results for a nuclear holocaust...

An excellent book on electronics for the uninitiated is fellow-Hacker Craig Anderton's "*Electronic Projects for Musicians*" (available from the Mix Bookshelf, 6400 Hollis St. #12, Emeryville, CA 94608). I cut my teeth on the original edition of this book. After 15 years, I still haven't seen a better introduction to the subject. ■ RC070107

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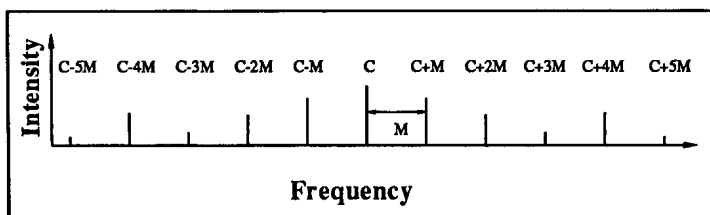
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FM Timbres on the EPS, EPS-16 Plus

Earle Peach

So here you are wondering, once again, how you can create FM-like sounds on the EPS using only a sampled sine wave and a calculator with a log function. This article has been a long time coming because my brain is slow; however, it's the logical outgrowth of my article on additive synthesis on the EPS published in October '90. I'm assuming you're familiar with the ideas in that article, so if any of the stuff about replicating, mixing wavesamples, etc. is unfamiliar, you might want to go back and check it out.

Frequency modulation as a sound tool was first described by John Chowning in an article in the *Journal of the Audio Engineering Society* in 1973 (vol. 21, pp. 526-34, in case you care). It's characterized by the interaction of two tones (usually sine waves): a modulator and a carrier. If the modulator is an LFO you get vibrato; if it's an ordinary oscillator (pitched in audio range) you get a complex spectrum of sounds made up of the carrier and sidebands. Sidebands are tones tuned to the sum and difference of the carrier's frequency and the frequencies of the modulator and its multiples. Sorry, come again? Here's the same information in a diagram taken from the *Handbook for Acoustic Ecology*, ed. Barry Truax, A.R.C. Pubs. 1978:



The more the carrier is modulated, the more sidebands there are (and the higher the ratio of the modulator's loudness to its pitch – its “modulation index”). They occur in pairs on either side of the carrier, spreading out from there. With your calculator (unless you're a fast adder, which I ain't), you can find the sideband frequencies of any carrier and modulator. For example:

c: 440 (A)
m: 622.25 (D#)

	Sidebands	Description
1st	-182.25 1062.25	c+/-m
2nd	-804.5 1684.5	c+/-2m
3rd	-1426.75 2306.75	c+/-3m
4th	-2049 2929	c+/-4m
5th	-2671.25 3551.25	c+/-5m
etc.		

The negative numbers appear as positive but 180° out of phase.

So what does all of this have to do with the EPS? Well, we have this sine wave sample, see, and by copying it to other layers, detuning and mixing, we can build an FM timbre! Simple, right? Not quite. First of all, if you're going to mix,

(I'm assuming you store your sine wave as a single cycle), you have to create a “vessel” sample, COPY DATA your sine wave into it, and REPLICATE throughout. Give yourself at least 5,000 samples to play with. Why be stingy? Now copy the layer and start tuning!

But hold on, there are some problems. First of all, how do you convert frequency into pitch and cents? Frankly, this problem hung me up for several months. Recently, however, I found out about a simple method using this formula:

of semitones + cents = 39.86 x log(i), where (i) is the ratio of the two pitches (lower / higher).

Example: c / sideband = 440 / 1062.25 = 0.4142045.
39.86 x log(.4142045) = -15.257374 = 15 semitones + 26 cents.

Since sidebands theoretically occur on either side of the carrier frequency, you'd expect the number of semitones and cents above and below the carrier to be the same. Obviously this is not the case, since the negative-number sidebands are reflected as positive frequencies out of phase, often pitched on the same side of the carrier as the positive-number sidebands.

As if there weren't enough number-crunching going on, the next question is: How loud should the sidebands be relative to the carrier? You can approach this two ways: First, you can do what I do, which is to eyeball the diagram and adjust the volume with your ear (so to speak). Or, if you're really into this stuff, you can find out the exact amplitude of each sideband by calculating the nth order Bessell function for the given modulation index and converting that into increments of 1/100. Of course, you'll have to be sure that the increments in the “volume balance” section of MIX WAVESAMPLES are linear, not exponential...on second thought, it might be easier to eyeball the diagram.^{RC070107}

By the way, why that curious constant, 39.86? It's in the book. At any rate, from here it's just a matter of mixing. If you're keen on accuracy you can put your out-of-phase sine waves out of phase by adjusting the sample start time. It does make a difference timbrally, but even if you don't bother, you'll still get some interesting sounds using this technique. ■

References: *Handbook For Acoustic Ecology*, ed. Barry Truax, part of the *World Soundscape Project*, ed. R. Murray Schafer; A.R.C. Publications, POB 3044, Vancouver B.C. V6B 3X5 Canada, 1978.

Harvard Dictionary of Music, second edition, ed. Willi Apel, Belknap Press of Harvard University Press, Cambridge, MA, 1972.

Get Your Life (or at Least Your EPS Library) Organized

NOT Review

Bryce Inman

For: EPS, EPS-M, EPS-16 Plus.
Product: Library Organization Techniques and Services, lists, advice, etc.
Price: Inexpensive — read the review.
From: NOT (Neanderthal Organization Techniques), PO Box 1238,
Hillsboro, OR 97123.

If you're anything like me (relatively normal — really!), as soon as you bought your sampler one of the first things you wanted to do was to acquire a large library of sounds. If you've had your sampler for a while, you've probably also found that the urge to expand your library never fades; I only use a fraction of the hundreds of sounds I own but I just can't resist getting my hands on more new sounds. As you begin building your sound library, you find that it doesn't take long for your library to become difficult to manage. If you've found yourself in this situation, Neanderthal Organization Techniques (NOT, for short) may be the solution to your problem.

NOT's primary service is helping you get your EPS library organized. To get started, you need to send NOT a list of all of the sounds in your library along with the number of blocks for each sound, the source of the sound (Is it Public Domain? If not, what company produced the sound?) and the type of sound it is (piano, bass, etc.). Once they get your list, NOT enters all of this information into their computer and does a number of things with that information.

Obviously, the first thing they do is help you get your library organized. Working with the list you've sent them, they figure out the most efficient way to organize your sounds onto disks. For instance, they will tell you to put these 5 basses on one disk, these 6 basses on another disk, these 3 drum sets on another disk and so on. If you follow their instructions, you'll end up with an accessible library of sounds with as little wasted disk space as possible.

Once NOT has all your information in their computer, they can provide some other services for you. For instance, they can give you printed lists of your library in several forms (\$1.50 per list). They can list your library by types of sounds, source, size, etc. They can also print labels for your the disks in your library for a nickel per label.

In addition, NOT will trade with you any Public Domain sounds they don't already have. If you send them your own formatted disks (you can send them unformatted disks but they'll charge 40 cents per disk to format them), they'll swap 1500 blocks of their Public Domain sounds (approx.

one disk) for 1500 blocks of yours. The only catch is that before they'll swap with you, you have to reorganize the sounds you'll be swapping the way they want them.

As a final service, if you'd rather have NOT provide the blank disks when you're swapping sounds, they will do so for just 65 cents per disk (you'll also have to pay them 40 cents to format each disk).

So, what's my impression of NOT's services? On the one hand, their services are extremely inexpensive; it's obvious that they're doing this to help you folks get your stuff organized rather than to make a lot of money. On the other hand, I'm not sure how useful their services are. Even if you use their services, you're still going to be doing a lot of the work yourself. By the time you put together all the information they need, figure out how to fill out their form, send the information to them, and then copy all of the sounds to disk in the manner they have specified, it seems to me you might as well just do the rest yourself. Or not.

One final note: While NOT may be very good at the job of organizing sound libraries, the literature explaining their services leaves a lot to be desired. This article is based on a packet of materials they sent for review and I found that I had to read through it a couple times before I could really get a good grasp of what they were saying. I don't think this is a result of not trying — I think, rather, they've tried too hard to explain their services and as a result made things more complicated than they had to be. A rewrite of their literature and order forms would greatly increase the value of their services. ■



Bio: Bryce Inman is a free-lance music editor and arranger for Word, Inc. in Irving, TX. Although he has decided to make Texas his permanent home, he refuses to say "y'all" or "fixin'". RC070107

More Envelope and Filter Fun with the SQ's

Clark Salisbury

Welcome back. This time out, we'll be continuing on with last month's discussion of filters and envelopes.

As we have seen, the filter is used primarily to shape the harmonic content of the voice(s) used to make up an SQ sound. There are two basic filter types in the SQ synthesizers, low-pass, and high-pass, and these can be combined to create band-pass filtering effects. Let's take a look at some applications.

First, we'll need to select a sound to experiment on. Let's try ROM sound 04, "Today's Organ."

The first thing to do is change the effects processing to something a bit more generic than the "Rotary Spkr+Verb" setting used in this patch. This is accomplished easily enough - simply hit the "Edit" button, then hit the "Effects" button. The display should be showing "ROTORY SPKR+VERB." If it's not, simply hit the "0" button. You can select among the preset effects by making sure that the effect type (in this case, "ROTORY SPKR+VERB") is selected (flashing), and then using the data slider or up/down buttons to scroll through the preset effects. For now, let's use the "Warm Chamber" effect - in its default state, it adds very little coloration to the sound, and we can always change it later.

Next, a little quick analysis of the current sound - we'll need a certain amount of information about the sound we're starting with before we can make any reasonably intelligent edits. The first and perhaps most essential thing we'll want to find out is how many voices are used in the sound, and what wave each voice is playing. So check it out.

Head on over to the "SelectVOICE" page (press "Wave" and "0"). From here it becomes apparent that all three voices are being used to create this sound. To get a quick idea of what each voice is doing individually, you can "solo" each of the voices; that is, you can listen to any one voice with the others muted by setting its status to "SOLO." Select the voice you want to solo and press the up button (or moving the data slider up). Soloing each of the three voices reveals that each is tuned to a different pitch - voice two is tuned a couple of octaves above voice one, and voice three is another fifth above that.

Selecting a voice and then pressing the "1" button takes you to the "Wave" page - here we can check out which waves are assigned to each voice. We find that voice one uses the "ORGAN VARIATION2" wave, and that voices two and three both use the "SINE" wave. Remember back at the beginning of this series, when we were talking about additive synthesis, we did a little experiment adding sine waves together to create an organ-like sound? Well, a very similar process is being used here - although the program uses a sampled organ wave as its basis, the sine waves have been added in at higher octaves to add punch and

brighten up the sound.

At any rate, what I'm after here is a two-voice sound, with both voices playing the same wave, and in the same octave. We could set the relevant parameters for each voice separately, but there's a handy shortcut we can use instead - and I'm all for handy shortcuts.

First, head back to the "SelectVOICE" page and turn voice three "OFF." Now set the "SelectVOICE:" parameter to "ALL" (as opposed to "ONE"). Now any changes we make will affect all active voices (in this case voices one and two), rather than just the selected voice. Set both voices to the "Square" wave. To do this, press the "1" button, and select the wave class (it should be reading "Waveform." Now use the data slider - not the up/down buttons - to change this to any other waveclass, and then back to the "Waveform" waveclass.

The reason that we're doing this in this particular way is that when you are editing a group of voices at one time, moving the data slider will set the current parameter to the same value for all active voices before affecting any change. In other words, if you have two voices tuned an octave apart, moving the slider will set them both to the same octave before changing the octave. You'll end up with both voices at +3, or +0, or something similar. If, however, you use the cursor buttons to change values, both values will be incremented the same amount. They'd be tuned higher or lower, but they'd still have the same relationship to each other.

So by selecting a parameter, then using the data slider to change it to something, and then changing it back to its original setting, we've guaranteed that all voices will be set to the same thing - in this case, the "Waveform" wave class. Continuing to use this technique, select the waveform ("Organ Variation 1" should be showing) and set it to "Square" - we can now be relatively assured that both voices one and two are using the "Square" wave. Next, we want to make sure that the two voices are at equal volumes. Hit the "Output" and then the "0" buttons. Use the data slider to set "Vol" to "90," and use the data slider to set "Boost" to "On," then to "Off" again - this, of course, is done to guarantee that both voices have "Boost" turned off. Now scroll to the numeric parameter associated with "Mod=" - it should probably be showing "+00." We can make sure that this is set to "+00" for all current voices by selecting it, then hitting both the up and down arrow buttons at the same time, a shortcut for setting any parameter to its center value. RC070107

Next let's make sure that we're using the same "Amp" envelope for all voices. Hit the "Amp" button, then the "3" button. This will bring us to the default envelope page.

To recall a default envelope, hit "Enter" and scroll to the en-

velope you wish to select. For now, let's use the "BASIC PAD" envelope - scroll until you see it in the display, and hit "Enter" again, and we're set. Now let's add just a touch of spice by de-tuning the two voices.

Since we want to vary the tuning slightly for each of the two voices, we'll need to head back to the "SelectVOICE" page and take the current sound out of "All" mode. Hit "Wave" and change the "SelectVOICE" parameter from "All" to "One." Now select voice one (it should be flashing).

Hit "Pitch" and then "0." Select the "Fine=" parameter (fine tuning), and set it to "+03" - this will have the effect of tuning voice one slightly sharp.

Now move back to page "0" of the "Wave" menu and select voice two (it should begin flashing). Once again, move to page "0" of the "Pitch" menu, but this time set the "Fine=" parameter to "-03." This, as you might imagine, will have the effect of tuning voice two slightly flat. Using two similar voices in tandem, but slightly de-tuned, is a common programming technique often used to "thicken up" a sound - particularly when the sound is based on the rather more static-sounding synthesizer waves.

Let's return to the "Waves" menu, and set the "SelectVOICE" status once again to "All." We want to return to global editing of all current voices for the next few steps. And now we're ready to move on to the filter.

Press "Filter" and then "0." Use the data slider to select "2LoPass/2HiPass" for the filters - this is the filter mode we'll be working with for now. Hit the "1" button to move to the next page of the filter menu. Select the "FC1=" parameter, and set it to its midpoint, "064." Select "Envelope2=" and set it to "+00," its midpoint. The display should be showing:

```
FC1 Cutoff = 064
Envelope2=+00
```

You'll note that the sound mellows out quite a bit - filter 1 is currently functioning as a low-pass filter and we've brought its cutoff point down quite a bit, filtering out a lot of the upper harmonics.

Press "2" to move to the next page of the filter menu. Using the technique of pressing both the up and down buttons simultaneously, set both the "FC1 Keyboard=" and the "Mod=" numeric values to "+00." Hit the "3" button to move to the next page and use the data slider to set "FC2 Cutoff=" to "000." The sound should get subtly thicker - remember, filter 2 is set to high-pass operation. Hit the "4" button to move to the next page of the filter menu, and set "FC2 Keyboard" to "+00" and set the "FC1 Mod->FC2" parameter to "OFF."

Don't sweat it if you're not sure what each of these parameters does - we'll cover them all soon enough, and all of this is primarily set up stuff. We're just starting to get to the meat here.

Hit the "Envelope2" button, and you should be at the default envelopes page. If not, hit "4." Press "Enter," and scroll until you

see "RAMP UP" in the display, then hit "Enter" again. This will select a default envelope that starts at 0 (minimum), and gradually moves to 99 (maximum) for envelope 2, which is the envelope normally associated with the filter.

Now head back to the "Filter" menu, page "1," and select "Envelope2= +00." Change this value to "+99," and listen to the results. This is what's commonly referred to as a "filter sweep" - the cutoff point of filter1 is being "swept" upward, under the control of envelope2. And as envelope2 moves to greater values, the sound brightens up.

We can also sweep the filter the other direction - try setting the value for "Envelope2=" to "-99." Notice that now the sound gets darker as you hold a note or chord. Now set "FC1 Cutoff=" to "000." notice that no sound is produced when you play a note. With the filter cutoff for filter1 set to "000," and filter1 in low-pass mode, all the frequencies in the sound are being filtered out. And even though envelope2 is set to sweep the filter downward, the filter's already set as low as it can go, so envelope2 has no detectable effect on the sound.

Now set "Envelope2=" to "+99," but leave "FC1 Cutoff=" set to "000." You will now have the upward filter sweep effect back, but this time the sound starts from silence, and takes a longer time to build.

Actually, the envelope sweep is occurring at the same rate as before, but instead of starting with the filter half-way "open" already, (as it was when we had its cutoff set to "+064"), we're starting with the filter completely "closed," so it takes the envelope a longer time to completely "open" the filter, having farther to go. RC070107

Now try setting "FC1 Cutoff=" to "127" - its maximum value. Sounds pretty bright and buzzy, doesn't it? Notice again that envelope2 now has no effect on the character of the sound - since the filter's already completely open, envelope2 can't open it any further. But if you set the "Envelope2=" amount to "-99," you'll hear the filter sweep downward.

The point to all this is that when you're using a modulator, in this case envelope2, with the filter, you need to be aware of the filter's initial cutoff setting. If the filter's initial cutoff point is set too high, a modulator may not be able to sweep it much higher. Or if the filter's cutoff point is set too low, you may not be able to modulate it any further downward.

As you may have guessed, filter2 can be modulated in the same way that filter1 can be modulated. Remember, we set filter2 up for 2-pole high-pass operation, so it might be worth checking it out, as long as we're on the subject. But first, let's tweak filter1 into a more-or-less generic setting. Set "FC1 Cutoff=110," and set "Envelope2 = +00." Hit "2" to move to the next page of the "Filter" menu. From here, set "FC1 Keyboard="+50" - this is the keyboard tracking parameter that you remember from an earlier discussion. A setting of "+50," as you'll recall, causes filter cutoff to precisely track the SQ-1 keyboard. Now hit the "3" button to move to the "FC2 Cutoff" page.

Looks just like the page we were dealing with a minute ago, doesn't it? And in fact, it is programmed in exactly the same way. The results will be somewhat different sounding, though, owing to the fact that we'll be sweeping the cutoff point of a high-pass filter from this page.

We can use the same envelope, envelope2, to run through some experiments with filter2 (remember, envelope2 is unchanged from the "RAMP UP" preset envelope we originally selected). First, try setting "Envelope2=+99" - this will give us an upward filter sweep. But since we're using a high-pass filter now, the effect will be that the sound gets thinner as the envelope forces the filter cutoff higher. Likewise, we can reverse the effect by setting "FC2 Cutoff= 127," and "Envelope2=-99," producing a sound that starts out real thin and gets fatter as the envelope drives the cutoff point of filter2 downward.

One other nifty thing I want to point out which is that you can create some real interesting effects by sweeping both filters at the same time. For example, we can set up a pretty cool band-pass filter sweep by setting the cutoff point for both filter1 and filter2 to "000," and setting envelope2 amount to "+99" for both filter1 and filter2. Of course, you needn't stick to these exact settings - a multitude of different effects can be achieved by varying these few parameters.

Once you're done playing with filter cutoff points and envelope2 amounts, you might want to check out what happens when you use envelopes other than the simple "RAMP UP" preset we've

been using. A good way to get some broad ideas about what's possible is to try out some of the other default envelopes for envelope2. For example, using the settings we've just developed to do band-pass filter sweeps, hit the "Env 2" button, then the "4" button to return to the default envelope select page. Hit enter, and scroll until you see "SLOW LFO" - it's at the very top of the page. Now hit "Enter" - pretty cool sound, huh? Just for fun, hit the "Effects" button, then the "0" button, and scroll to the "PHASER+REVERB" effect. Want a surprise? Hit the "Compare" button and play a few notes. We seem to have come quite a distance from the sound we started with originally.

Anyway, that's about it for this time out. See ya' next month for more digital prestidigitation and sonic pre-occupation. Until then, keep on chooglin'... ■

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. RC070107



Microtonality and Just Intonation on the ESQ-1?

Joe Slater

What? You say your ESQ-1 is equal-tempered and has only white and black keys spaced one semitone apart? Well, so does mine. But by using some simple algebra, a good sequencer and pitch bends, you can produce (controlled) microtones on your ESQ-1. *This concept can also be applied to most any synthesizer.*

For those unfamiliar with microtonality, this deals with finer pitch increments than the common semitone. An N-tone equal temperament divides the octave into N equal parts, each of which is expressible as the frequency ratio 1 : (2 to the (1/N)). Most of our instruments and music are tuned using the 12-tone equal temperament scale (12 notes per octave). The interval between each adjacent note is one semitone (also referred to as a half step).

At the turn of the century many musicians were interested in 24-tone equal temperament, which provides quarter-tones while retaining the familiar 12-tone temperament as a subset (an additional pitch between each semitone). Modifications were necessary to accommodate the quarter-tones using traditional style keyboards. One method was to supply another keyboard and tuning the two manuals a quarter tone apart. Another method

was to tune each note a quarter tone apart, which took two traditional octaves to span one octave.

These modifications made microtonal performances difficult at best. With the proliferation of computers (i.e., synthesizers) which can produce microtones more easily, composers are experimenting with this concept more and more. It takes some getting used to, but perhaps it's time for a change. Try it, you'll like it! (Maybe)

To have the ESQ-1 produce a microtone, we will need to send it a specific MIDI Pitch Bend message along with a tradition 12-tone Note On message. This can be done with a PC and most any software sequencer. Before we go on about microtones, you need to understand how the ESQ-1 handles Pitch Bends. I know all of you read my article in TH Issue #64 (kick yourself now if you didn't), but let's review it once again...

MIDI defines the range of Pitch Bend Wheel positions to be 0..16383 with value 8192 for the center (resting) position. The ESQ-1 defines the range of Pitch Bend Wheel positions to be 0..127 with value 64 for the center (resting) position. The Pitch Bend positions are simply converted as follows (division

remainders are discarded):

MIDI ---> ESQ-1 : ESQ-1 = MIDI / 128
 ESQ-1 ---> MIDI : MIDI = ESQ-1 x 128

This means the ESQ-1 can send out MIDI values of 0, 128, 256, 384, ..., 16128, 16256. The amount of pitch change is controlled by the Pitch Bend sensitivity. On the ESQ-1 GLOBAL MASTER page, the BEND-RANGE can be set from 0..12 semitones (for each bend direction).

So we see there are 128 different Pitch Bend positions, 64 (virtual) positions in a given direction. Using a BEND-RANGE of 1 gives us the finest granularity. With 64 equal divisions of a semitone (and 12 semitones per octave), that gives us 768 notes per octave (a 768-tone equal temperament)! We can also obtain any N-tone equal temperament where N is evenly divisible by 768 (384, 256, 192, 128, ...), by logically using only every (768 / N)'th Pitch Bend position.

I should state that mathematically all ODD-numbered BEND-RANGE settings also provide 768-tone equal temperament. The EVEN-numbered BEND-RANGE settings only provide different subsets of 768-tone equal temperament. But any other setting other than 1 is less intuitive, and presents no additional usefulness.

B = Bend Range (Master Page)	= 1
V = MIDI Note Number Value	= 0..127
*E = ESQ-1 Wheel Position	= 0..126
M = MIDI Wheel Position	= E x 128
P = Center Position Delta	= E - 64
C = Cents Away From Note	= P x B x 100 / 64
N = Tones Per Octave	= 768 (64 x 12)
F = Frequency Factor	= 2 to the (P / N) Power
* ESQ-1 Wheel Position 127 Does NOT Apply.	

Table I - Formulas and Variables

Since Pitch Bend can be applied in two directions (lowering or raising the pitch), there are usually two ways to generate the same pitch:

For P >= 0: "V with position P" = "(V + B) with position (P - 64)"
 For P <= 0: "V with position P" = "(V - B) with position (P + 64)"

There is an important EXCEPTION to this rule: The position E = 127 (P = 63), is treated by the ESQ-1 as if it were value 128 (refer to TH issue #64). Other synthesizers may have a similar anomaly near the maximum MIDI Pitch Bend value. To accomplish the desired effect, and to maintain compatibility with other synthesizers, I recommend you only use ESQ-1 positions 1..64 whenever possible.

E	M Note	E	M Note	C (A5)	Frequency
0	0 A5	64	8192 G#5	-100.0000	415.3047
1	128 A5	65	8320 G#5	-98.4375	415.6797
2	256 A5	66	8448 G#5	-96.8750	416.0550
.
60	7680 A5	124	15872 G#5	-6.2500	438.4144
61	7808 A5	125	16000 G#5	-4.6875	438.8103

62	7936 A5	126	16128 G#5	-3.1250	439.2065
63	8064 A5	*****		-1.5625	439.6031
64	8192 A5	0	0 A#5	0.0000	440.0000
65	8320 A5	1	128 A#5	+1.5625	440.3973
66	8448 A5	2	256 A#5	+3.1250	440.7950
.
124	15872 A5	60	7680 A#5	+93.7500	464.4839
125	16000 A5	61	7808 A#5	+95.3125	464.9033
126	16128 A5	62	7936 A#5	+96.8750	465.3231
*****		63	8064 A#5	+98.4375	465.7432
0	0 B5	64	8192 A#5	+100.0000	466.1637

Table II - Microtonality Using BEND RANGE = 1

So what about Just Intonation? Just Intonation is based entirely on harmonious tone intervals using simple ratios. This system was the predecessor (circa 1558) to Equal Temperament (in comparison, Equal Temperament is actually slightly out of tune). Converting from Equal Temperament to Just Intonation cannot be done accurately, but by selectively using our 768-tone Equal Temperament we can come close, though whether it's close enough to be useful is subjective. Table III shows the best ESQ-1 Pitch Bend position associated with each note to generate (close) Just Intonation frequencies (using BEND RANGE = 1).

Note	Just Factor	Just Frq	EQ-T Frq	Bend Frq	E
C5	1 / 1	264.0	261.6256	263.9975	74
C#5	25 / 24	275.0	277.1826	274.9402	55
Db5	27 / 25	285.12	277.1826	285.0473	95
D5	9 / 8	297.0	293.6648	297.1306	77
D#5	75 / 64	309.375	311.1270	309.4467	58
Eb5	6 / 5	316.8	311.1270	316.7940	84
E5	5 / 4	330.0	329.6276	329.9252	65
Fb5	32 / 25	337.92	329.6276	338.0637	92
F#5	125 / 96	343.75	349.2282	343.6006	46
F5	4 / 3	352.0	349.2282	352.0765	73
F#5	25 / 18	366.6667	369.9944	366.6701	54
Gb5	36 / 25	380.16	369.9944	380.1492	94
G5	3 / 2	396.0	391.9954	395.9065	75
G#5	25 / 16	412.5	415.3047	412.3168	56
Ab5	8 / 5	422.4	415.3047	422.4878	83
A5	5 / 3	440.0	440.0	440.0	64
A#5	125 / 72	458.3333	466.1638	458.2380	45
Bb5	9 / 5	475.2	466.1638	475.0833	85
B5	15 / 8	495.0	493.8833	495.2222	67
Cb6	48 / 25	506.88	493.8833	506.9806	93
B#5	125 / 64	515.625	523.2511	515.7493	48

Table III - Just Intonation Pitch Bend Positions

Before using microtonality, there are two things of which you should be aware. First, check the programs (voices, patches, etc.) to see if they are already detuned (OSC1, OSC2, and OSC3 Pages) with respect to the 12-tone temperament. If so, they will be detuned in your new N-tone temperament as well. Second, Pitch Bend messages apply to all of the notes playing on a given MIDI channel, so you will probably be limited to playing one note per MIDI channel. This can eat up those 16 available channels quickly. RC070107

If you are new to microtonality, visit your library. It may be new to you, but it's been around longer than you have! ■

Bio: Joe Slater has been a professional Software Engineer for over 10 years and a Composer/Musician for over 20. Joe owns an elaborate MIDI studio (Dream Cat Music) for demo taping, digital mastering and transcription services.

Ensoniq Floppy Diskette Formats

Part I

Gary Giebler

After purchasing my first Ensoniq keyboard, I remember grabbing the disk out of the SQ-80 and running to the nearest IBM-PC computer only to be disappointed when I couldn't list the disk contents on the computer. I made the same trip to my PC when I bought my VFX-SD only to be disappointed once again. Faced with the thought of spending hours glaring at fluorescent displays pushing buttons to scroll through files, I refused to surrender. Instead, I spent hours digging through track dumps and BIOS code to determine the formats used on the disks. My efforts paid off and I now view entire directories of SQ-80, EPS, and VFX-SD disks on my PC's monitor.

More importantly, I can format disks and copy files to my PC's hard disk for storage or examination — which has allowed me to discover Ensoniq's format for sequences. I have already written programs to convert SQ-80 sequences to Standard MIDI Files, convert SQ-80 sequences to VFX-SD sequences, convert VFX-SD sequences to Standard MIDI Files, and convert Standard MIDI Files to VFX-SD sequences. By the time this article is published, I will have completed a program to convert EPS-16 sequences back and forth to Standard MIDI Files.

If there is any interest, I could offer a program to convert EPS-16 sequences back and forth to VFX-SD Sequences. Most commercially available music publishing software can read Standard MIDI Files enabling direct transfer of sequences from the Ensoniq keyboards. (This will enable music publishers to publish sheet music direct from an Ensoniq diskette.) Also, there are literally thousands of sequences available on computer bulletin boards stored in Standard MIDI Files. You can download the sequences to your computer and convert them to VFX-SD or EPS sequences. In fact, several third party vendors are already offering demo sequences and sounds on the following computer bulletin boards:

Midium: (818) 764-4538

Sound Source Unlimited: (818) 879-9125

This article reveals the disk formats used for each of Ensoniq's keyboards and includes information on the file directories for several of the formats. This information can be used to write software to read the files on the disks, to copy files, or even to format disks on the PC. I want to thank the engineers at Ensoniq, Alan Smith, John Senior, and Joe Friel for taking the time to verify the accuracy of the MIRAGE, EPS and VFX-SD information and for filling in the blanks when necessary. However, the SQ-80 information HAS NOT been confirmed by Ensoniq so be careful when trying this at home... The software package described in this article is available for those who would rather spend their time making music instead of programming.

EPS, VFX-SD, SD-1, EPS-16 Disk Format

The EPS, VFX-SD, SD-1, and the EPS-16 PLUS share the same disk format although the directory information is slightly dif-

ferent. The disk contains data on both sides with 80 tracks numbered 0 – 79 on each side. Each track has ten 512 byte sectors numbered consecutively from zero to nine. I will refer to the two sides of the disk by referring to the disk drive head used to read each side. The heads are numbered 0 and 1. Data is stored on both sides of each track before moving to the next track. The following examples should clarify this.

Blks	T	H	S	
00-09	0	0	0-9	data is first stored on Track 0, Head 0, Sectors 0-9
10-19	0	1	0-9	data is next stored on Track 0, Head 1, Sectors 0-9
20-29	1	0	0-9	data is then stored on Track 1, Head 0, Sectors 0-9
				this process continues until....
-1599	79	1	0-9	the last track – Track 79, Head 1, Sectors 0-9

Each sector is referred to as a block of data. The blocks on the EPS, EPS-16, SD-1, and VFX-SD disks are numbered from 0 – 1599. The following formula calculates the block number from the track, head, and sector number: $Block = ((Track \times NH) + Head) \times NS + Sector$. Where NH = Number of Heads, NS = Number of Sectors per Track.

Since we know that NH = 2 and NS = 10, the formula can be written: $Block = ((Track \times 2) + Head) \times 10 + Sector$.

The track, head, and sector number can be calculated from the block number as follows:

Track = Integer(Block/20)
Head = Integer((Block - (Track x 20))/10)
Sector = Block - (Track x 20) - (Head x 10)

"Integer" refers to the appropriate integer function for the programming language used. Sample Turbo Pascal routines are included to show how to convert back and forth between blocks, tracks, heads, and sectors. RC070107

```
*****
TURBO PASCAL LISTINGS

Function Block (Trk, Hed, Sct : Word) : Word ;
begin
  Block := ((Trk SHL 1) + Hed) * 10 + Sct ;
end ;

Procedure GetTrkHedSct (Block : Word; var Trk, Hed, Sct : Byte) ;
var Temp : Word ;
begin
  Sct := Block MOD 10 ;
  Temp := Block DIV 10 ;
  Hed := Block MOD 2 ;
  Trk := Temp DIV 2 ;
end ;

Sample Calls:

FirstDirectoryBlock := Block(0,0,3) ;
GetTrkHedSct (FirstDirectoryBlock, Track, Head, Sector) ;

*****
```

Since IBM-PC disks are formatted with nine sectors per track (numbered from 1 – 9), the standard DOS functions can't be

used to read the Ensoniq disks. However, by setting up the proper parameter table and making calls directly to the BIOS, you can use the BIOS to read the disks. If you don't know what the BIOS is, there are several good books on the subject. You can probably pick one up at your local book store. I don't intend to go into the details of calling the BIOS — such a discussion belongs in a computer magazine. However, it is important to understand that it takes special programming to read these disks, and you probably should not attempt this unless you really know what you are doing.

And now for the sales pitch...

A software program for IBM-PC compatible computers 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. Individual files or entire diskettes can be copied to a hard disk drive for storage or examination. (Great for sending your latest "sure hit" to friends over modems.) The disk copy feature formats the disk while copying and can be used to make multiple copies of Ensoniq diskettes which could be quite useful for third party sound or sequence developers. Just select the correct disk file on the hard disk and make as many copies as you need. The program will also display SQ-80 directories although the program can't format SQ-80 diskettes at this time. Disk labels including directory listings can be printed for the diskettes. As a special introductory offer, anyone who purchases Version 1.0.2 of the software will be granted unlimited software upgrades for a reasonable (\$5.00) handling charge. Version 1.0.2

will also use free space on your hard disk drive to copy diskettes (EPS, VFX-SD, SD-1, EPS-16 PLUS) without the repetitive and tedious disk-swapping normally required with the Ensoniq keyboards. An IBM-PC or compatible with a 3 1/2" diskette drive is required. During the introductory offer, the software is available for only \$18.00 (free shipping in the U.S.) New York residents add appropriate sales tax. Contact: Giebler Enterprises, 8038 Morgan Road, Liverpool, New York, 13090-2009.

EPS & EPS-16 PLUS Sector Information

Blk T H S Sector Information

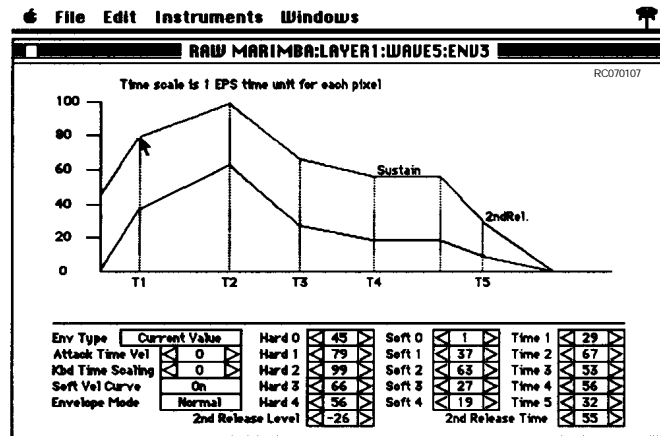
- 0 0 0 0 Unused - Repeating 2 byte pattern of 6D B6 (hex)
- 1 0 0 1 Device ID Block (similar to VFX-SD)
- 2 0 0 2 Operating System Block
- 3 0 0 3 Main Directory (1st sector)
- 4 0 0 4 Main Directory (2nd sector)
- 5 0 0 5 File Allocation Block
- 6 0 0 6 File Allocation Block
- 7 0 0 7 File Allocation Block
- 8 0 0 8 File Allocation Block
- 9 0 0 9 File Allocation Block
- 10 0 1 0 File Allocation Block
- 11 0 1 1 File Allocation Block
- 12 0 1 2 File Allocation Block
- 13 0 1 3 File Allocation Block
- 14 0 1 4 File Allocation Block
- 15...1599 Unused - Repeating 2 byte pattern of 6D B6 (hex)

SD-1 & VFX-SD Sector Information

Blk T H S Block Information

- 0 0 0 0 Unused - Repeating 2 byte pattern of 6D B6 (hex)
- 1 0 0 1 Device ID Block (similar to EPS)
- 2 0 0 2 Operating System Block
- 3 0 0 3 Main Directory (1st sector) Points to Sub-Directories 1 - 4
- 4 0 0 4 Main Directory (2nd sector)
- 5 0 0 5 File Allocation Block
- 6 0 0 6 File Allocation Block
- 7 0 0 7 File Allocation Block
- 8 0 0 8 File Allocation Block
- 9 0 0 9 File Allocation Block
- 10 0 1 0 File Allocation Block
- 11 0 1 1 File Allocation Block
- 12 0 1 2 File Allocation Block
- 13 0 1 3 File Allocation Block
- 14 0 1 4 File Allocation Block
- 15 0 1 5 Sub-Directory 1 (1st sector)
- 16 0 1 6 Sub-Directory 1 (2nd sector)
- 17 0 1 7 Sub-Directory 2 (1st sector)
- 18 0 1 8 Sub-Directory 2 (2nd sector)
- 19 0 1 9 Sub-Directory 3 (1st sector)
- 20 1 0 0 Sub-Directory 3 (2nd sector)
- 21 1 0 1 Sub-Directory 4 (1st sector)
- 22 1 0 2 Sub-Directory 4 (2nd sector)
- 23...1599 Unused - Repeating 2 byte pattern of 6D B6 (hex)

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We'll briefly go over what's in some of these blocks and also cover the other Ensoniq disk formats in Part II next month. ■

The Return of Envelopes and LFOs

A Parameter Comparison Between the ESQ/SQ-80 Synth and VFX/SQ-1 Synth

Kirk Slinkard

Back in TH Issue #66, Mr. Kefalopoulos wrote a letter expressing that it would be a good idea if somebody would do a comparison of various parameters between the ESQ/SQ-80 type of synthesizer and the VFX/SQ-1 type in order to make possible some translation of patches from one type to the other. Well, here is one step in that direction.

I don't have access to a SQ-1 and I couldn't verify that the SQ-1 is exactly the same as the VFXs, but Ensoniq informs me that even if they aren't identical, they should be very close as they share similar voice architecture. Don't forget that the VFX type of envelope has one more level and time in it. Usually this can be gotten around, but if the VFX program uses some fancy envelope shape tricks, it may not be accurately copiable to the ESQ/SQ-80 or the SQ-1. And the SQ-80 has a second release option as part of its envelopes for the simulation of reverberation (the "R" suffix on the release time). RC070107

I was able to copy the rounded-off envelope times directly from the owner's manuals, but there were no LFO frequencies listed. There were also no exact matches in frequency between the two types. So for these, I listed the closest equivalents without the actual values. To make these comparisons, I spent about half an hour listening to some rather odd-sounding F.M. beat frequencies. A word of warning: If you try this yourself, be sure that no one else is nearby or you will get strange looks for days.

The resulting list should be adequate for translation of patches, but if you want to synchronize LFOs together on a VFX/SQ-1 type, this probably won't be much help. Back in Issue #26, Jim Johnson did an article about this for the ESQ/SQ-80 type called "ESQ1 LFO Synchronization and Magic Tempi" that listed frequencies for settings 1 through 46. Perhaps he or someone else can do this for the VFX/SQ-1 type. So anyway, here are the envelope times:

Envelope Generator Times:

TIME IN SECONDS	SQ-80	VFX-SD	TIME IN SECONDS	SQ-80	VFX-SD
.00	0	0	.15		16
.01	1, 2	1	.16	21	17
.02	3, 4	2	.17		18
.03	5, 6, 7	3	.18	22	
.04	8, 9, 10	4	.19		19
.05	11		.20	23	20
.06	12, 13	5	.22		21
.07	14	6	.23	24	22
.08	15	7, 8	.25	25	23
.09	16	9	.27		24
.10	17	10	.29	26	25
.11	18	11, 12	.31		26
.12		13	.32	27	
.13	19	14	.33		27
.14	20	15	.35		28

TIME IN SECONDS	SQ-80	VFX-SD	TIME IN SECONDS	SQ-80	VFX-SD
.36	28		2.10		54
.38		29	2.28	44	
.40	29		2.30		55
.41		30	2.40		56
.44		31	2.56	45	
.45	30		2.60		57
.47		32	2.80		58
.50		33	2.87	46	
.51	31		3.00		59
.54		34	3.20		60
.57	32		3.23	47	
.58		35	3.50		61
.62		36	3.62	48	
.64	33		3.70		62
.66		37	4.00		63
.71		38	4.06	49	
.72	34		4.30		64
.76		39	4.56	50	
.81	35		4.60		65
.82		40	4.90		66
.88		41	5.12	51	
.91	36		5.30		67
.94		42	5.70		68
1.00		43, 44	5.75	52	
1.02	37		6.10		69
1.10		45	6.45	53	
1.14	38		6.50		70
1.20		46	7.00		71
1.28	39		7.24	54	
1.30		47	7.50		72
1.40		48	8.10		73
1.44	40		8.13		91
1.50		49	30.00		92
1.60		50	32.00		93
1.61	41		34.00		94
1.70		51	37.00		95
1.80		52	39.00		96
1.81	42		42.00		97
2.00		53	45.00		98
2.03	43		49.00		99

Note that the VFX/SQ-1s concentrated more on the longer times. In fact, the value of zero actually takes a long enough time that you can hear it. I believe it's actually closer to 0.1 seconds than to zero. Now for the LFOs:

Low-Frequency Oscillator Comparison:

SQ-80	VFX-SD	SQ-80	VFX-SD	SQ-80	VFX-SD
0 (Off)			8	7	17
1	0	2	9	8	18
	1		10	9	19
	2		11	10	20
	3	3	12	11	21
	4		13		22
	5	4	14	12	23
	6	5	15	13	24
	7	6	16	14	25

better than...

SQ-80	VFX-SD	SQ-80	VFX-SD	SQ-80	VFX-SD	SQ-80	VFX-SD	SQ-80	VFX-SD	SQ-80	VFX-SD
15	26	34	51	54	76	44	69	51	80	58	91
	27	35	52		77		70		81		92
16	28		53	55	78	45	71	52	82	59	93
17	29	36	54	56	79	46	72	53	83	60	94
18	30	37	55	57	80		73		84		95
	31	38	56	58	81	47	74	54	85	61	96
19	32	39	57	59	82	48	75	55	86	62	97
20	33	40	58		83		76		87		98
21	34		59	60	84	49	77	56	88	63	99
22	35	41	60	61	85		78		89		
	36	42	61	62	86	50	79	57	90		
23	37	43	62		87						
24	38		63	63	88						
25	39	44	64		89						
	40	45	65		90						
26	41	46	66		91						
27	42		67		92						
28	43	47	68		93						
29	44	48	69		94						
	45	49	70		95						
30	46	50	71		96						
31	47	51	72		97						
32	48		73		98						
	49	52	74		99						
33	50	53	75								

Of course, there was no modulation used on the VFX-SD LFOs. The ESQ/SQ-80 synthesizers have a unique zero value that stands still at a different unpredictable static value for each LFO. This is good for some interesting random effects. On the VFX/SQ-1 type, you might use an envelope with the levels all set to 99 and velocity on full to approximate this effect.

99 STEPS versus 63 STEPS

In the ESQ/SQ-80 type, the envelope levels and modulator amounts, etc. use 64 steps including zero, where the VFX/SQ-1 type uses 100 steps including zero. A simple math formula yields the following conversion chart:

SQ-80	VFX-SD	SQ-80	VFX-SD	SQ-80	VFX-SD
0	0		23	29	46
	1	15	24	30	47
1	2	16	25		48
2	3		26	31	49
	4	17	27	32	50
3	5	18	28		51
4	6		29	33	52
	7	19	30	34	53
5	8	20	31		54
6	9		32	35	55
	10	21	33		56
7	11		34	36	57
	12	22	35	37	58
8	13	23	36		59
9	14		37	38	60
	15	24	38	39	61
10	16	25	39		62
11	17		40	40	63
	18	26	41	41	64
12	19	27	42		65
13	20		43	42	66
	21	28	44		67
14	22		45	43	68

Using Envelope Generators as LFOs on the VFX/SQ-1

One thing that the VFX/SQ-1 envelopes have that is extremely useful is the "repeat" feature. This basically turns them into LFOs by making them start over as soon as they end, more or less. With these, you can get all sorts of interesting custom shapes. Also, you can actually have four LFOs running at the same time in each voice. Go to the pitch modulation page for a second. Note that when either Envelope 1 or the LFO is assigned at the selectable modulator position on the top line, they have more effect than when they are used from their permanently-assigned positions on the bottom line. For example, if you set either of them on the top line with a value of 74, you get a maximum modulation of two octaves, but if you set either of them on the bottom line with a value of 74, you get a maximum modulation of one octave. RC070107

Go over to the "ENVELOPELFO" program. The 00 patch select gives you two examples of unusual LFO shapes from the envelope. You can select between them with the modwheel. The other patch selects show more conventional waveshapes. The 0* patch has a square wave that can be increased in amplitude by velocity. The *0 patch has a sawtooth wave that increases its frequency with velocity. The ** patch has a triangle wave with no velocity effect.

There are some disadvantages in using the envelope generators as LFOs. For example, they run as if they have a restart mode that cannot be turned off. Also, velocity is the only real-time modulator you can use on them. They will not go as fast as the regular LFOs, but they can go a lot slower — you can get one cycle to last well over three minutes.

While I was writing this article, I spoke to Gary Giebler, who pointed out to me that on the front panel of the VFXs, you usually have 100 steps of modulator amounts, controllers, etc. (0 through 99), but internally, the synth generally deals in 128 steps (0 through 127). Check out his article in Issue #63 for more on this. He has also uncovered a hidden track in the VFX-SD sequencer and will soon be releasing a computer program that will take advantage of all this and more, so keep an eye out for his stuff. Also I expect that I or someone else will do a part two for this article that deals with a comparison of waveforms and more on actual application of this information.

Don't forget that modulating a frequency is not the only thing you can do with the envelope LFOs. For example, they can be pretty interesting when cross-fading waveforms or modulating a band-pass filter or Transwave. Of course, we've really just scratched the surface here. Although having your surface scratched can be a lot of fun, the main purpose of articles like this is to inspire further experimentation on the part of the reader, so maybe this will point out a new direction to go. Mod you later. ■

SD & VFX Kirk-patch

SD & VFX Prog: ENVELOPELFO

By: Kirk Slinkard

NOTES: Experimental program to demonstrate LFO function from envelope 1, used here for pitch modulation.

Author's picture:



- 00 Two unusual applications – select between them with modwheel.
- 0* Square wave with velocity-controlled amplitude.
- *0 Sawtooth wave with velocity-controlled frequency.
- ** Triangle wave, no velocity.

WAVES	1	2	3	4	5	6
Wave	Vocal-X	Woodwind	Square	Sawtooth	Triangle	
Wave Class	Transwave	Waveform	Waveform	Waveform	Waveform	
Delay	000	000	000	000	000	
Start	80					
Modscr	Env1					
Modamt	-80					

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

PITCH	1	2	3	4	5	6
Octave	+0	+0	-1	-1	-1	
Semitone	+00	+00	+00	+00	+00	
Fine	+00	+00	+00	+00	+00	
Pitch Table	System	System	System	System	System	

PITCH MODS	1	2	3	4	5	6
MODSRC	Off	Off	Off	Off	Off	
MODAMT	-	-	-	-	-	
Glide	None	None	None	None	None	
ENV1	+31	-07	+74	+74	+20	
LFO1	+00	+00	+00	+00	+00	

FILTER 1	1	2	3	4	5	6
Mode	Lopass/2	Lopass/2	Lopass/2	Lopass/2	Lopass/2	
Cutoff	106	085	127	127	127	
KBD	+00	+10	+00	+00	+00	
MODSCR	Off	Velocity	Off	Off	Off	
MODAMT	-	+06	-	-	-	
ENV2	+00	+00	+00	+00	+00	

FILTER 2	1	2	3	4	5	6
Mode	Lopass/2	Hipass/2	Lopass/2	Lopass/2	Lopass/2	
Cutoff	106	085	127	127	127	
KBD	+00	+10	+00	+00	+00	
MODSCR	Off	Velocity	Off	Off	Off	
MODAMT	-	+06	-	-	-	
ENV2	+00	+00	+00	+00	+00	

OUTPUT	1	2	3	4	5	6
VOL	99	99	85	85	99	
MODSRC	Wheel	Wheel	Off	Off	Off	
MODAMT	+99	-99	-	-	-	
KBD Scale	+00	+00	+00	+00	+00	
LO/Hi Key	-	-	-	-	-	
Dest Bus	FX1	FX2	Dry	Dry	Dry	
Pan	99	00	50	50	50	
MODSRC	Off	Off	Off	Off	Off	
MODAMT	-	-	-	-	-	
Pre-Gain	Off	On	Off	Off	Off	
Voice Prior	Med	Med	Med	Med	Med	
Vel Thresh	+000	+000	+000	+000	+000	

LFO	1	2	3	4	5	6
Rate						
MODSRC						
MODAMT						
Level						
MODSRC						
Delay						
Waveshape						
Restart						
Noise SRC RT						

SELECT VOICE

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

ENV1

	1	2	3	4	5	6
Initial	00	00	00	00	00	
Peak	38	00	99	99	99	
Break 1	00	00	99	99	00	
Break 2	99	99	00	00	99	
Sustain	00	00	00	00	00	
Attack	06	00	00	60	14	
Decay 1	09	28	17	00	14	
Decay 2	12	00	00	00	14	
Decay 3	42	00	17	00	14	
Release	40	00	00	00	14	
KBD Track	+00	+00	+00	+00	+00	
Vel Curve	Linear	Linear	Linear	Linear	Linear	
Mode	Repeat	Repeat	Repeat	Repeat	Repeat	
Vel-Level	00	00	99	00	00	
Vel-Attack	00	00	00	31	00	

ENV2

	1	2	3	4	5	6
Initial						
Peak						
Break 1						
Break 2						
Sustain						
Attack						
Decay 1						
Decay 2						
Decay 3						
Release						
KBD Track						
Vel Curve						
Mode						
Vel-Level						
Vel-Attack						

ENV3

	1	2	3	4	5	6
Initial	00	00	99	99	99	
Peak	99	99	99	99	99	
Break 1	99	99	99	99	99	
Break 2	99	99	99	99	99	
Sustain	99	99	99	99	99	
Attack	29	03	00	00	00	
Decay 1	00	00	00	00	00	
Decay 2	00	00	00	00	00	
Decay 3	00	00	00	00	00	
Release	51	13	00	00	00	
KBD Track	+00	+00	+00	+00	+00	
Vel Curve	Linear	Linear	Linear	Linear	Linear	
Mode	Normal	Normal	Normal	Normal	Normal	
Vel-Level	00	00	00	00	00	
Vel-Attack	00	00	00	00	00	

RC070107

PGM CONTROL

Pitch Table	Off
Bend Range	**
Delay	X1
Restrike	00
Glide Time	00

EFFECTS (1)

Effect	Delay + Reverb.2
Decay	79
FX1	18
FX2	26

EFFECTS (2)

Time	500
Regen	+32
Mod	00
Mod	00
Mix	07

EFFECTS (3)

Modscr	Off
Rev HF Cut	On

PERFORMANCE

Timbre	00
Release	+00

And Now, In This Corner

Hitman Review

Pat Finnigan

For: EPS-16 PLUS
Product: Sound Disks
Price: \$10 per disk.
From: Hitman Music, 304 J Street, Sparks, NV 89431, (702) 355-0709.

Hmmmm, The first EPS-16 Plus, Non-Ensoniq-Produced disks I've seen yet arrived in the mail yesterday. Looks like a very good product — 3M disks, serialized, laser printed labels, what have we got here, anyway? So, of course, I rushed over to what Mike Lunden, an Ensoniq sales rep, refers to as "your friendly Ensoniq dealer" to run these samples through a new 16 Plus. Just to make sure that I wouldn't be overly (or underly) critical, I polled the keyboard-type salesfolk at the store for their impressions as well.

And, once again, books are best judged by their contents, rather than solely by their cover. After listening to these six disks for an hour and then trying other speakers and mixers we came to the conclusion that, in all, this was a rather unimpressive offering/collection, generally bested by Ensoniq's factory samples. To be fair, it really has to be understood that we have come to expect nothing less than magnificence in sample support. A tough act to follow.

In particular...

HITM001: Traditional Instruments

Honerclavint	478 blocks
Stratocaster	594 blocks
Rotary B3	120 blocks
Steinberger1	104 blocks
M1 Drums Sml	222 blocks

This disk had the only working demo bank load, a 4-bar sequence chained under an non-inspirational organ lead song track. Chorus and reverb effect algorithm, patch selects 2 and 4 turned on the "chorus" layers on a couple of instruments. Remember Ensoniq's original "Jambox" demo for the first EPS some three years ago? — Much better and a public domain disk, no less. Like I said — this is a wayhard act to follow.

HITM002: Korg Wavestation

Ballerina Bell	619 blocks
Tine Piano	29 blocks
Bells	331 blocks
Gentle Wind	403 blocks
Soft EP	130 blocks

Now, it seems real evident to me that you just don't have enough available memory to sample a vector synth with a whole lot of accuracy without using 2 or 3 meg of memory to capture all that motion. So while these sounds were sampled from a Korg Wavestation, they ain't wavestation. I gotta say that for these particular sounds, keep on looking.

HITM003: M-1 Synths

SuperSynth M1	464 blocks
M1 Drums Sml	222 blocks
OH YEAH	266 blocks
Synth Bass 1	132 blocks
Synth Solo	253 blocks

Sounds more like the Roland Juno-106 Synth samples to me. Analog synth sounds abound on this disk. And if you're expecting the patented "Ooooooh, Yeeeah" sample, this ain't it. "Uh Huh" shows up in this sample — only two samples in 1/2 octave regions on the keyboard. No patch selects.

HITM004: Sound Effects, Etc.

RX5 Novelty	466 blocks
Knock It Off	341 blocks
Simpsons 2	567 blocks
All Right	177 blocks

Why do people buy a 16-bit sampler to sample 12-bit drum machines? Remember the original "James Brown" Mirage disk? I do. Fondly. Oh, and 1200 blocks of children's favorite role model, Bart Simpson? It is me or what? RC070107

HITM005: Korg M-1 Drums

M-1 Drums	1581 blocks
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Yeah. Got this one right, though it sounds mighty like the public domain set with some hall reverb mixed in. The whip and crack are in the correct places, but — no demo, no bank, no patch selects. No glory.

HITM006: Yamaha RX-5

RX-5 Drums	1569 blocks
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I wasn't all that impressed with the RX-5 seven years ago, but if you need it, you got it here — a 12-bit wonder in 16-bit splendor with a reverse patch select on 2 and 4 patch buttons again.

Sorry to be so hard on these samples, but this is not the finished, meticulous programming one's come to expect with EPS-16 Plus samples. No layer or patch programming and limited bandwidth samples (with the exception of the M-1 disk, which is very reminiscent of the EPS PD disk of the same name). Maybe this material is a place to start. If you're looking for raw samples to play around with, to learn the art of tweaking, these might be just what you need. ■

Bio: Finnigan is a service tech turned musician who writes "secret" messages in sequences on his EPS's, wondering how much harder he can push this Malvern silicon before it reverts back to sand. His latest composition, "The Ensoniq Suite," has been banned by Hans Solo, but is available on EPS disk since it isn't an audio medium and violates no community standards.

Classifieds

USER GROUPS

Announcing Mirage-Net; an informal and unofficial collection of Mirageusers connected via e-mail. Information is exchanged between members using e-mail messages. For more info, or to join, send e-mail to the following Internet address: mirage-request@hpdsojk.cup.hp.com. From CompuServe, mail to: >INTERNET:mirage-request@hpdsojk.cup.hp.com. Please include your e-mail address (return addresses don't always work) and your name. Also, if you'd like, include some information about your Mirage setup. You'll receive additional information, as well as instructions and guidelines on using Mirage-Net.

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.

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

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.

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.

Elitekon EX-80 rackmount 80M (Quantum) HDD, low

miles, only driven on Sundays, w/cables & original carton, \$600 obo. Yamaha V-50 workstation, disks, DSP, drums, 24-voice polyphonic, docs, access., under warranty, \$1000 obo. Mac plus, 4M, mouse, kbd, Fanny Mac, Targa Case, docs, 6.05, docs, blank warranty card, software, \$900 obo. Call Pat at 317-357-3225 FML.

E-mu SP-12 Turbo sampling drum machine. Includes sounds, manuals, and Mac librarian - \$650. IVL Pitchrider 7000 MIDI guitar interface - converts most electric guitars to MIDI controllers. Includes footswitch, pickups, all manuals. Latest software and hardware version - \$450. Yamaha TX802 16 bit, 16 voice multi-timbral FM synthesizer. Includes manuals, extra RAM cartridge. \$600. Clark Salisbury, 503-245-3752.

SQ-80 Used only in recording studio. Perfect condition. Thousands of sounds included on original master disks. \$1000. 315-720-0205.

EPS with original sound library and other diskettes, one year old, Mint condition, \$1,100. ESQ-1 with case, 2 cartridges, Mint condition, \$800. "Vintage" Crumar T-2, dual keyboard, good condition, \$350. Must sell, best offer. Jerry, 412-854-3533.

ESQ-1: \$700. ESQ-M: \$400. EPS with 4x and OEX-8, plus hard case: \$1300. TX-81Z: \$500. Yamaha DX-21: make offer, Please! Kahler Human Clock: \$300. Roland Octapad-2: \$500. Call Rick Taylor, Stage Sound, 703-342-2040.

Ensoniq FB-2 "Flashbank" memory gives your EPS-16+ 2 Megabytes of instant instruments! \$675 in stores. New, in the box, unused - \$500. Kawai K1M synthesizer module - used, great sounds! \$275. Casio VZ-10M synthesizer module - used, \$175. Call 908-389-1349. RC070107

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.

WANTED

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

Wanted: 1) Samples for Mirage. 2) SoundProcess software & patches. 3) Patches for VFX on Atari ST disk. Thomas Sowidnich, Rotdornweg 2, W2418 Ratzeburg, Germany.

Wanted: ESQ-1 acoustic patches for WX7 wind controller. Ken Beesley, 22650 Silver Oak Ln., Cupertino, CA 95014. (408) 252-2339.

SOFTWARE

Midcaster 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.

I would like to exchange sounds for the ESQ-1. I guarantee my programs sound better than today's most expensive synths. If your experience with the ESQ is similar, give me a buzz. Yaroslav, Brooklyn, NY. Phone: (718) 436-1299.

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.

Best sounds you can get for the VFX-sd. Synth & soundtracks. \$25 per 60-voice bank. All four banks: \$90. Everything is divided into categories. For additional info & list of sounds leave a message or write to: Yaroslav, 1014 45th St., Suite 3-C, Brooklyn, NY 11219. Phone: (718) 436-1299.

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, or on 80-voice EEPROM (40 voices blank) for \$59.95. 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.

SERVICES

If you know about sampling on the EPS(16+) and would like to know about programming the VFX-sd, ESQ, SQ-80, let's exchange our knowledge. I guarantee you'll be surprised by what these synths can do. Call Yaroslav, Brooklyn, NY. Phone: (718) 436-1299.

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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.

ESQ Patch: UTOPIA

by Claudio Sansilvestri, Barasso, Italy

There were no notes with this one.

The Hack

UTOPIA is a rhythmically pulsing sound that is reminiscent of Alan Parsons' instrumental pieces. It is as if you were playing through a long digital delay, but only playing notes of a fixed length. It's fun to play against the echoing notes, a la Robert Fripp's "Frip-pertronics."

The patch is constructed of BELL waveforms, but they are used more in a sustaining manner rather than in a "striking bell" fashion. If you want the sound to die out sooner, turn T4 of ENV 4 down to suit your taste. You can also vary the pulsing rate by changing the FREQ of both LFO 1 and LFO 3 — but they have to be set at identical values to get a steady pulsing. It is fun, though, to set these frequencies at different values; this gives a more complex repeating pattern to the pulsing. You can also add an interesting attack to the sound by setting the RESonance on the FILTER page to 16 or so.

ESQ-1 PROG: UTOPIA								BY: Claudio Sansilvestri									
OSC	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH	OSC	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	0	BELL	*OFF*	-	*OFF*	-	OSC 2	0	0	2	BELL	*OFF*	-	*OFF*	-
OSC 2	0	0	2	BELL	*OFF*	-	*OFF*	-	OSC 3	0	0	5	BELL	*OFF*	-	*OFF*	-
OSC 3	0	0	5	BELL	*OFF*	-	*OFF*	-									
DCA	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH											
DCA 1	0	ON	LFO1	+63	LFO1	+63											
DCA 2	0	ON	LFO1	+63	LFO1	+63											
DCA 3	0	ON	LFO1	+63	LFO1	+63											
FILTER	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH										
FILTER	0	0	0	LFO3	+63	LFO3	+63										
DCA 4	FINAL VOL	PAN	PAN MOD	DEPTH													
DCA 4	63	8	LFO2	+47													
LFO	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD									
LFO 1	16	ON	ON	SQR	63	0	0	LFO3									
LFO 2	12	OFF	ON	TRI	63	0	63	ENV4									
LFO 3	16	ON	ON	SQR	63	0	0	LFO3									
ENV	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK							
ENV 1	-	-	-	-	-	-	-	-	-	-							
ENV 2	-	-	-	-	-	-	-	-	-	-							
ENV 3	-	-	-	-	-	-	-	-	-	-							
ENV 4	+63	+19	0	12	0	0	48	47	46	0							
MODES	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC									
MODES	OFF	OFF	OFF	7	OFF	OFF	OFF	OFF									
SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY											
SPLIT/LAYER	OFF	-	OFF	-	OFF	-											

SQ-80 Patch: CUPID

by Craig Roth, Skokie, IL

CUPID is an airy bell sound. OSC 1 provides a chiff, and ENV 2 controls the volume and duration of the chiff. The chiff is not as pronounced at higher frequencies. The sustained portion of this sound is provided by the OCTAVE waveforms; these are detuned slightly to add a beating effect. OSC 3 quickly slides into pitch to simulate the bell being hit.

The Hack

I wanted to hear CUPID ring a bit longer, so I changed T4 of ENV 4 to 39R, which also added a simulation of reverb. I also wanted the sound to move a bit more, so I took one of the unused LFOs, gave it a FREQUENCY of 16 (WAVE=TRI, L1 and L2=63, MOD=OFF), and used this to modulate the panning (DCA 4 page) with a depth of +63. Finally, I thought a more contemporary timbre would work nicely, so I set the filter FREQUENCY to 19, and turned the RESonance to 31.

With either the original patch or the above modification, a nice variation is easily had by switching on the AM on the MODES page. RC070107



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: CUPID								BY: Craig Roth									
OSC	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH	OSC	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	0	BREATH	ENV3	+5	*OFF*	-	OSC 2	0	0	1	OCTAVE	*OFF*	-	*OFF*	-
OSC 2	0	0	1	OCTAVE	*OFF*	-	*OFF*	-	OSC 3	0	0	4	OCTAVE	ENV3	+8	*OFF*	-
OSC 3	0	0	4	OCTAVE	ENV3	+8	*OFF*	-									
DCA	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH											
DCA 1	48	ON	ENV2	+32	KYBD	-20											
DCA 2	0	ON	ENV1	+63	*OFF*	-											
DCA 3	56	ON	ENV2	+50	*OFF*	-											
FILTER	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH										
FILTER	100	0	63	*OFF*	-	*OFF*	-										
DCA 4	FINAL VOL	PAN	PAN MOD	DEPTH													
DCA 4	63	8	*OFF*	0													
LFO	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD									
LFO 1	-	-	-	-	-	-	-	-									
LFO 2	-	-	-	-	-	-	-	-									
LFO 3	-	-	-	-	-	-	-	-									
ENV	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK							
ENV 1	0	0	+63	0	0	0	9	0	25	0							
ENV 2	-63	+63	+63	0	0	0	5	0	11	0							
ENV 3	+14	0	0	3	0	0	8	0	0	0							
ENV 4	+63	+63	+29	15	0	0	0	31	33	0							
MODES	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC									
MODES	OFF	OFF	OFF	0	OFF	OFF	OFF	ON									
SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY											
SPLIT/LAYER	OFF	-	OFF	-	OFF	-											

Prog: Twin Peaks

By: Mark Clifton

Notes: This is a split keyboard that allows you to play the theme to the David Lynch weird-fest. The top is a soft, ethereal electric piano. The bottom is a rude, wobbly bass

sound. The modwheel removes much of the chorusing and reverb from the electric piano.

WAVE	1	2	3
Select Voice	On	On	On
Wave Class	Waveform	Bass	Bass
Wave	DgtrlPnoTine	Picked	ThumbPop
Delay Time	000	000	000
Wave Direction		For	For
Start Index		00	00
MODSRC		Off	Off
MODAMT	-	-	-
Restrck Decay	21	21	21

PITCH	1	2	3
Octave	-1	+0	+0
Semitone	00	00	00
Fine	00	00	-15
ENV1	00	00	00
LFO	00	+05	+05
MODSRC	Off	Off	Off
MODAMT	-	-	-
KBD Pch 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		32	32
Noise Rate		72	72
Level		20	20
Delay		13	13
MODSRC		Off	Off
Wave		Tri	Tri
Restart		Off	Off

FILTER	1	2	3
Filter 1	2Lo	2Lo	3Lo
Filter 2	2Lo	2Hi	1Lo
FC1 Cutoff	022	024	127
ENV 2	+60	+45	+40
FC1 KBD	-15	-20	-20
MODSRC	Off	LFO	LFO
MODAMT	-	+58	+58
FC2 Cutoff	071	000	060
ENV2	00	+10	+10
FC2 KBD	+20	00	+20
FC1MOD-FC2	On	Off	On

ENV2	1	2	3
Initial	99	99	99
Peak	78	81	75
Break	52	50	50
Sustain	00	00	00
Attack	20	26	50
Decay 1	39	42	50
Decay 2	74	56	50
Release	50	15	50
Vel-Level	33	86	26
Vel-Attack	00	00	00
Vel Curve	Concv	Concv	Concv
Mode	Norm	Norm	Norm
KBD Track	00	00	00

AMP	1	2	3
Initial	99	99	99
Peak	92	91	91
Break	52	40	40
Sustain	00	00	00
Attack	32	21	20
Decay 1	59	49	49
Decay 2	59	51	51
Release	25	30	30
Vel-Level	19	19	19
Vel-Attack	06	40	00
Vel Curve	Conv	Conv	Conv
Mode	Norm	Norm	Norm
KBD Track	00	00	00

OUTPUT	1	2	3
VOL	70	99	90
Boost	On	On	On
MODSRC	Off	Off	Off
MODAMT	-	-	-
KBD Scale	Zone	Zone	Zone
Key Range	D4-C8	C2-C4#	C2-C4#
Output Bus	FX1	FX2	FX2
Priority	Med	Med	Med
Pan	+56	-28	-42
Vel window	000	000	000

**Standard
Sound
Programming**

RC070107

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	35
FX-2	20
Decay time	35
HF Damping	46
Chorus Rate	18
Chorus Depth	25
Chorus Center	50
Feedback	00
Chorus Level	59
MOD (Dest)	Fx1-Mix
BY (MODSRC)	Modwheel
MODAMT	-70

The Hack: Diane, take this down. Hackerpatch "Twin Peaks" has a great bass, with interesting animation. You may want to bring the tremelo down a little. Adjust the MODAMT in the FILTER SECTION for voices 2 and 3; try MODAMT = +46. The El Piano is okay but needs a hair more "ring." Raise the AMP SECTION DECAY 1 to about 70. You can control tine "brightness" by changing the FC2 CUTOFF in the FILTER SECTION for voice 1. Enjoy your deep, dark, rich, hot, black coffee.

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.

The Interface

Letters for The Interface may be sent to any of the following addresses:

U.S. Mail - The Interface, Transoniq Hacker, 1402 SW Upland Dr., Portland, OR 97221

Electronic mail - GENIE Network: TRANSONIQ, CompuServe: 73260,3353, or PAN: TRANSONIQ.

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 Hacker,

I recently purchased a copy of the Bokonon Technology's Tiresias/EPS editor for the Macintosh. It's really made my life a lot easier. A project I recently finished required, among other things, that I transpose a multi-sampled instrument with 42 wavesamples down two octaves. The Tiresias editor cut my editing time and frustration by 75% by allowing me to do everything on two screens and only a couple of mouse clicks per wave sample. I would highly recommend this software for anyone with a Mac and an EPS. It's really handy to be able to view so many of the values at one time for reference. Since so many parameters are directly interactive, this makes it easier to keep track of what you're doing. I find myself more willing to try creative editing options.

Now that I've given a free testimonial, I suppose that gives me licence to make a few suggestions for improvement.

1. The biggest and most significant improvement I would like to see is the addition of fields that could be double clicked and highlighted and then a numeric value "typed in/hit return" for the desired parameter change. As it is now, except for the pop-up menus on some of the parameters, one has to scroll thru the parameters by clicking on the arrows on either side of the numeric parameter. This can be very tedious. Sometimes I even find myself reaching over to the EPS and doing the editing manually. This is the only real downside to Tiresias.

2. How about the ability to save "custom templates" and then download them onto raw sample data at a later date. This would allow the user to save his favorite envelopes and impose them on other instruments.

3. The ability to "undo" the last edit.

4. A "revert to saved" command which would get you back to the original parameters without having to reload the instrument into the EPS and then downloading it into Tiresias.

5. Faster screen redraws would be nice... or perhaps the ability to resize windows so you could fit more than one window on the Mac (SE) screen at a time. (I'm sure that a faster Mac would help in this case.)

6. The screen freezes about every five to ten minutes. Screen freezes occur more frequently

after I've been working for quite a while. When I type command/period to unfreeze it, I sometimes get a screen asking if I want to create a new wavesample. (Naturally, I don't know how much of this has to do with the stability of the EPS system/code.)

All in all Tiresias works very well, and even with some of the error message panels that pop up occasionally, neither it nor the EPS has crashed on me.

Are they planning any software updates? Will registered users be eligible for (free) upgrades?

P.S. Thanks to Steve Vincent of Tacoma, WA (I think I've seen your name in the T.H. so I'm contacting you here.) I saw your "Letter" in the June '91 issue of *Keyboard* magazine responding to my "Letter" inquiring about possible improved fidelity of samples recorded on the 16+ but played back on the standard EPS. (*Keyboard's* response was "in a word... no.") I'm glad to hear there is an improvement. I suspected there might be, but I was not sure if this was technically possible. Could the guys at Ensoniq give us the final word on this matter?

Sincerely,
Jim Piekarski
PO Box 904
Denton, TX 76202

[Chip Burwell of Bokonon responds - Jim, glad to hear you're pleased with the program. Several of your suggestions sound good and will certainly be considered for future update. The more suggestions and comments users make the more improvements there'll be in updates. You will receive information on updates if you've sent in the registration card or bought the program directly from Bokonon. Otherwise we don't know who you are. Updates will probably not be free but hopefully only about \$5 to cover mailing and disks. Users with comments can write Bokonon at 525 N Halsted #105, Chicago, IL 60622 or call 312-733-3244.]

[Ensoniq - The input chain on the EPS-16 PLUS has higher fidelity than the original EPS input chain. It maintains a full 16-bit noise level and dynamic range. In addition, the oversampling and digital filtering creates cleaner samples on the EPS-16 PLUS. As a result, even though you aren't getting all 16 bits when you play back a sample made on the EPS-16 PLUS in an EPS, it can sound better

than a sample made on the EPS.]

Dear TH and Ensoniq:

Here I am, a victim of the "JUST WHEN YOU THOUGHT IT WAS SAFE TO GO OUT AND LOOK AT KEYBOARDS AGAIN" syndrome. Ensoniq has come out with the SD-1. Wow! What incredible sounds! Maybe I should just have my boss mail my paychecks directly to Ensoniq.

Again, I have a few more questions, comments, and suggestions. Once the Ensoniq Engineers hear that I have more suggestions, I have no doubt that will cause them to break out those bottles of champagne they have been saving for a special occasion, but here goes:

1. Soundwise, the SD-1 takes all the strengths from the VFXsd (killer saxes, flutes, horns, harpsichord, and basses to mention a few) and improves on its weaknesses (the SD-1 has exceptional grand pianos, electric pianos, strings and better horns for starters).

I think the idea of the SQ-2 (76 note keyboard) is a great idea. I hope Ensoniq will do the same for the new SD-1 soon. (SD-2 anyone?) As good as the pianos are on the SD-1, it would seem like a crime and a sin to just necessarily limit them to 61 keys. RC070107

2. This brings up the SQ-1. I was very impressed with the ROM sounds on this "scale down of the VFXsd." Can you get these same basic sounds on the VFXsd or are the waveforms on these two machines very different?

3. Another suggestion for the VFXsd/SD-1 (if the SD-1 does not already have this feature), when you want to save a song or sequence you can either save No, or 30, or 60 patches with the sequence. How about modifying this so that you could save, if you wish, 6, 12, or 18 patches as well with a song / sequence? Since the VFXsd is 12 voice multi-timbral, I doubt that you would often want or need to save more than 12 patches with a song/sequence to disk. You could make more efficient use of the memory and save more song/sequences to disk.

I finally did get the EPS-16 PLUS (another incredible instrument), and have been very happy with it. I went into a music store and some of the people there thought I was an Ensoniq rep because I was raving that the EPS-16 PLUS had about a dozen very significant improvements over the old EPS.

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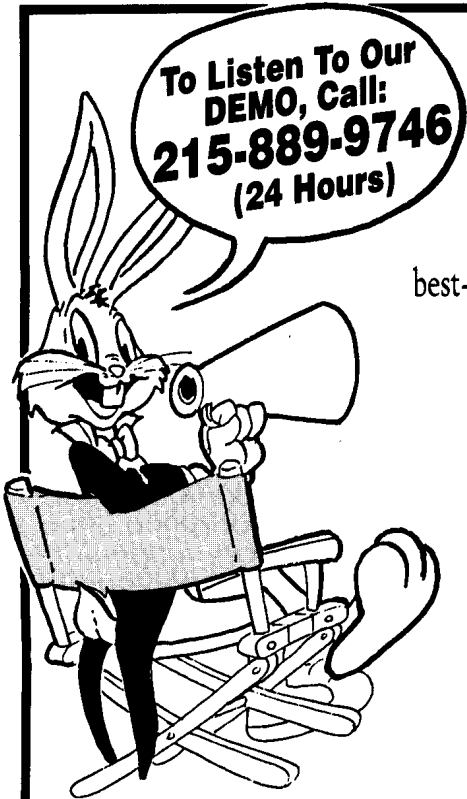
—MICHAEL FORD, DEVELOPER

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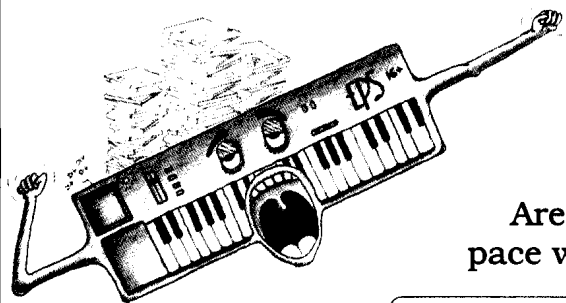
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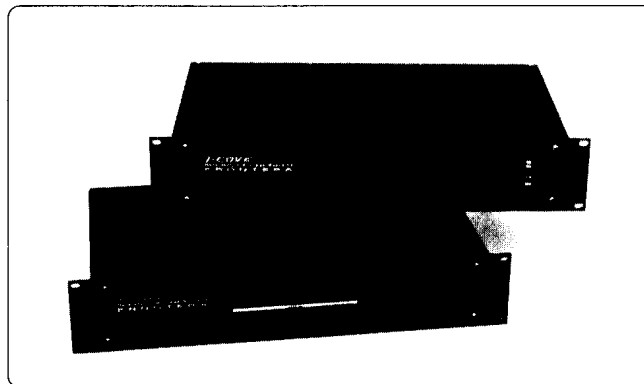
RC070107

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It is pretty scary to think of the kind of studio one could have (20 multi-timbral sequencing tracks, killer sound and editing features) with just the EPS-16 PLUS and the SQ-1, not to mention the applications. Bravo Ensoniq – you’ve done it again!

George Finizio
Patient of the Shick Center for Keyboard Control
Redlands, CA

[CS – 1) While creating a 76 note keyboard with polyphonic pressure (as opposed to the channel pressure used in the SQ-2) presents something of a challenge, Ensoniq has not ruled out the possibility. I think it would be fair to assume that they’ll be waiting to see how the SQ-2 does before making any plans along these lines. The best we can do (short of buying an SQ-2 to show Ensoniq how much we want a 76 note keyboard) is to simply keep those cards and letters coming. Ensoniq really does read the mail.

2) Most of the waves and parameters are similar enough that pretty much any sound you can do on an SQ-1 can be duplicated on the VFXsd. If you can get the two machines side by side, it’s a pretty easy (though somewhat time-consuming) procedure to duplicate parameter settings for the SQ-1 on the VFXsd. Most of the waves used in the two machines are nearly identical, with only a few exceptions – primarily in the drum waves, though the VFX has a bigger selection of transwaves, and the SQ-1 has some different electric piano waves.

3) There are no plans to change the way programs are saved with sequences in the VFXsd. Besides, if you were to try to implement a save of the type you suggest, how would you determine which six sounds would be saved, and to what locations would they load back into? The potential for confusion here is deep, my son. Be thankful for what you have.]

Transoniq Hacker,

For the last year I have owned a VFX that I’m very happy with. The versatility of this instrument has allowed me to abandon the old reliable (HEAVY) B3, Wurlitzer electric, and all of the associated paraphernalia that I used for over 15 years. Currently I use just the VFX with an expanded library giving me all the sounds I need quickly and easily. But I would probably not be writing this letter if I didn’t have a problem (few people ever do), so here it comes.

On three separate occasions I have lost the internal RAM (all 60 sounds and 20 presets). The first happened upon arrival for a performance leaving me about 30 minutes to

recreate at least reasonable facsimile of the bank I had. I suspect maybe a jolt during transit may have been responsible for this particular mishap. It was then that I discovered the importance of a back-up cartridge. The second and third occasions happened during rehearsals. As I was playing, the display screen started to flash erratically and voices were selected at random. Then the prompt “Erase memory and re-initialize?” appeared. On the second occasion I quickly responded “YES,” whipped out my handy-dandy back-up and was off and running in a matter of minutes. On the third, however, I was not so lucky. The same symptoms appeared, but after re-initializing, I could not read my back-up cartridge. Sound and presets were appearing that I did not store there.

Returning home the next day, I prepared to reprogram, once again, the bank I had lost only to find out that today I could read my back-up just fine. I am totally at a loss as to why I could not access the back-up the night before. The local music store where I purchased the VFX suggest perhaps a drain in power may cause some internal scrambling but could offer no protection or remedy for the condition. Any ideas? I do use a surge protector. Does that protect against a power drain as well? If not what does?

In closing, thanks for being a great sounding board as well as an informative publication every month.

Stan Chmura
Canterbury, CT

[CS – The problems you describe could be attributable to any number of sources, but I think a sag in line voltage is not likely the culprit. Even if such a sag were to occur, it should not damage your RAM sounds. I’d say it’s definitely time to check in with a service center, or else get in touch with Ensoniq Customer Service directly at 215-647-3930.

By the way, surge protectors will protect you (hopefully) from spikes in line voltages, but not from sags. For sag protection, you need an uninterruptable power supply (UPS). These tend to be a bit more expensive than surge protectors, ranging in price upwards from \$200 or so.]

Dear Hacker,

I let my subscription run out because you didn’t have enough on the ESQ-1. But I’ve just bought a VFXsd – so I need your information once again (aren’t I fickle!).

One thing you might be able to help me with is, I’m looking for a plastic cover for my VFXsd. My dealership doesn’t have any notion of where to find them. I’m living in

Halifax, Nova Scotia – it’s sort of near Maine. The cover of my ESQ-1 has saved my ass – oh maybe 50 times – in live performances. I also credit it for having NO failures in six years of operation. That’s due to the fact no dust or cigarette smoke has damaged her electronics. Please let me know soonest. Oh and keep up the good work. You are an exceptional magazine but I guess you must get those types of praises all the time!

Sincerely,
Malcolm Wilson
Elmsdale NS Canada

[CS – Malcolm, I could swear I’ve seen ads for dust-covers for keyboards in a number of publications, including this one. But I spent 45 minutes scanning back issues of various magazines, with no success. So you win this month’s “Stump The Interface” award. This semi-prestigious, quasi-official looking plaque, inscribed with the well known Interface motto, “Huh?”, will be sent to you as soon as I can locate one. When it arrives, you might try using the packing material for a dust-cover. Until then, maybe one of our readers might be able to offer some help. Anyone out there know where Malcolm can get dust-covers for keyboards? Or where I left my keys?]

[Ensoniq – Since the case size of the VFX-SD is the same as many of our other products (ESQ-1, SQ-80, EPS, and VFX) you shouldn’t have much trouble finding a cover. One company we know of is Sew Tec, Inc. in Shelbyville, IN (317) 392-3309.] RC070107

Dear Hacker,

Rather than list the typical bevy of technical inquires I thought that I might take this opportunity to impart some information. I have been the proud owner of an SQ-80 for over two years and am always in search of more patches for it as well as my (gasp!) Roland module. My recent acquisition of an IBM-PC has opened two wonderful worlds: Shareware and Bulletin Boards. If you own (or have access to) an IBM, Atari, or Commodore 64/128 with MIDI interface then check out The Music Software Exchange as a great source for shareware/freeware for the ESQ-1, SQ-80, and Mirage (as well as lesser brand-x synths – and no, MSE is not paying me for this plug). They have more patches and utilities than you can shake a RAM card at, and for el-cheapo per-disk prices. Their address is P.O. Box 533334, Orlando, FL 32853-3334.

If you are into telecommunications or “Board Hopping” (and you should be if you own a computer) then there are a number of good Music/MIDI boards around the country, perhaps even in your own town. A real good one is Sound Management in Chicago (modem

phone number: 1-708-949-6434). Their fees are reasonable and they have a good selection of Ensoniq share/freeware. Download their "all.files" list and check it out.

My acquisition of a used PC, Cakewalk software, and the Music Quest interface, has been the greatest discovery for me since controlled use of the patch cord, and for a total investment of less than a grand! I rough out my songs using the SQ's internal sequencer and then boot them over in real time to my IBM, slaving the SQ's clock to Cakewalk. That gives me 256 sequence tracks and microscopic editing.

You have a great mag (I wish brand X did also). Keep up the good work.

Yours,
Craig Birchfield
Lancaster, CA

[CS - Thanks for all the cool info, Craig. I'm a foo' for cool info, dude.]

To the Hackerfolk;

You have proven to be a valuable conduit of uncannily timely articles and general info. You share this distinction with one other major mag, *EM*. A month ago, I was interested in hooking up a SCSI bus but didn't know all the quirks associated with EPS-ext. drive-Mac hookups and Bingo! A thorough article on the subject is in the next issue! Many other things have come up in the same way - kudos to y'all!

One question for the venerable staff at Ensoniq. I recently bought the Sig Series ESS-14 collection of The System sounds, and although there's some throw-aways, many are good, useful items - at approximately \$35 for five disks worth, who can gripe? The problem is a few of the sounds are muffled or completely absent. I suspected the dual EPS/EPS-16 PLUS usage is getting in the way, and some parameter conversion, if any, is the culprit. Downloading the waves onto Sound Designer shows the full waveform there in all its amplitudinal glory. Uploading it back to a new instrument/layer is the only way to hear the sound, but all those programming nuances we're paying for are lost! What's the deal, guys? (I have system 2.4.)

D. Cloud
Newark, DE

[CS - There can be some incompatibilities encountered when trying to play back EPS-16 PLUS sounds on a standard EPS. The first thing to check out is filter cutoff. On the EPS-16 PLUS, filter cutoff goes from 0 to 150, whereas on the EPS it ranges from 0 to 127. Consequently, if filter cutoff is set higher

than 127, the EPS may have trouble interpreting the numbers. On the EPS classic, try moving the filter cutoff point all the way to 0, then back up to a setting that sounds good.

Another possibility has to do with the fact that the EPS-16 PLUS has a new gain boost parameter. If a programmer uses this parameter to get a bit more volume out of a sound, you may have trouble getting the sound to play back at the correct volume on the EPS classic. The solution is simply to check and make sure that the volume for any wavesample that seems to quiet is turned up.]

Hi guys,

Nice to see that the *Hacker* is alive and doing well (judging from the glossy paper - what a change from the issue that was packed in with my ESQ-1 that I bought four years ago). I should have subscribed then, but what the heck. RC070107

One comment (and this is totally without foundation as I haven't seen the *Hacker* until lately); some of us are out here pounding out the classic rock and R & B live, no sequencer, live drummer, etc. How about showing us novices some program change oriented MIDI set-ups for live set up. I have the ESQ-1 running into an SQ-R (recently purchased), a TX81Z and an ART Multiverb. What I need is "how to set up" the ESQ and the SQ-R to take the ESQ's program change and controllers, send them to the SQ-R and then use the R for split control, etc. I know it's rudimentary stuff for you guys doing programming all the time, but for some of us it's a "learn the basics" without the High Tech - put it in layman's terms - kind of thing.

Sincerely,
Glenn Metzl
Memphis, TN

[CS - There are a number of ways to set up the configuration you describe, but to get an idea of how it all works, you might try this.

Using the "retransmit" function of the SQ-R, you can create presets that will control up to eight instruments - one for each of the eight "tracks" in an SQ-R preset. Since SQ-R presets can be selected via MIDI program change commands, you can select these setups remotely from the ESQ (or any other master controller).

To set the SQ-R up so that it will work properly in the retransmit mode, you'll need to make sure that a couple of things are properly set from the System menu.

First, the SQ-R needs to be in Poly mode. Press the "System" button, and scroll to the "MIDI mode=XXX" display. Set MIDI mode

to "POLY." Also, you'll need to be sure that the MIDI channel that you are sending on from your ESQ agrees with the base channel of the SQ-R, which is also set at this page. You'll probably also want to make sure that "Controllers" is set to "ON" - this enables the SQ-R to receive and re-transmit controllers, such as the modwheel, volume, and sustain pedal - continuing to scroll through the System menu pages will bring you to the "Controller" enable page, where you can turn this function on or off. You'll also want to turn on "Preset Prog" - this allows you to select presets remotely via MIDI program changes, and you'll want to be sure that the "Retransmit" function is turned on as well. All of these settings are accessed by scrolling through the system menu pages.

As far as the actual MIDI cable routing is concerned, run a MIDI cable from the MIDI out of the ESQ-1 to the MIDI in of the SQ-R. Run a cable from the MIDI out (not the thru) of the SQ-R to the MIDI in of your TX81Z. Run a cable from the MIDI thru of the TX81Z to the MIDI in of your Multiverb. And finally, run a cable from the MIDI thru of the Multiverb back to the MIDI in of the ESQ-1. At the ESQ-1, select an unused sequence and set track one to MIDI status - this track will be used as your controller track to send MIDI data to the SQ-R for retransmission. Set tracks two and three to "Local" status, and set the MIDI channel for track one to channel one, track two to channel four, and track three to channel five. Turn the other track off for now (set their volumes to "Off" from the Mix/MIDI page). Set up the TX81Z to play two parts - one on MIDI channel 6, and the other on MIDI channel 7. Set up the Multiverb to receive on MIDI channel 8. Finally, select track one. If all has gone well, you should be able to play the SQ-R from the ESQ-1 at this point. And don't worry too much - this stuff should all start to become clear in a moment. I hope.

Now that the basic setup is taken care of, let's say you want to create a patch that plays an SQ-R bass sound from the lowest two octaves of the ESQ keyboard; a layer of ESQ electric piano piano and TX81Z maximba from the next two octaves of the ESQ keyboard; and a flute sound from the TX81Z from the uppermost octave of the ESQ keyboard.

The whole crux of the matter is to control each of these sounds from a separate track of the SQ-R. For the bass patch, for example, select a track to use (let's use track 1 for this example) and make sure that the track is "enabled" (turned on). This is done simply by hitting the "Select Preset" button, scrolling to the correct track using the "Track On/Off" buttons, and pressing the two "Track On/Off" buttons simultaneously. This will turn the selected track on if it is currently off, or turn

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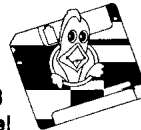
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it off if it's currently on ("Off" status is indicated by a dashed line in the display at the track location).

First, we'll want to set the track status for the bass track (press the "Edit Track" button and scroll until you see "Status=XXX" in the display) to "LOCAL" - you want the SQ-R to play the bass patch from a local (SQ-R) voice only. You can continue to scroll to the right and set parameters such as "Pressure" (which isn't applicable, since the ESQ-1 does not send pressure), "SustainPedal" (allows you to determine whether the current track will respond to sustain pedal information - you might want to set this to "OFF" for the bass patch), "Transpose" (allows you to transpose the sound up or down by octaves and/or semi-tones), and "Key Range" (set this to "C2 B3" to limit the range of the bass patch to the low two octaves).

If you continue to scroll to the right, the next display allows you to select which SQ-R sound you want to use, and from which bank. Here's where you'll actually select the bass patch for this track. Scrolling again takes you to the MIDI Channel page. Even though this track will not be sending any MIDI data (it's set to play only locally, remember?) it's a good idea to reserve a separate channel for each track. And as long as we're on the subject, now might be a good time to develop a

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set of conventions regarding which instruments are running on which MIDI channels. Developing a consistent MIDI channel assignment for your instruments at the outset will save you time in the long run, believe me.

Let's assume for the time being that you don't anticipate needing to use more than 8 MIDI channels simultaneously. This will provide you with control for up to seven instrument sounds at once, and leave a MIDI channel for controlling the digital processor. Of course, there are sixteen MIDI channels available, and nothing says that you have to use the same grouping of channels for each preset. But if you were to decide, for example, to reserve channels 1-3 for the SQ-R, channels 4-5 for the ESQ, channels 6-7 for the TX81Z, and channel 8 for the processor, and to keep track one reserved for channel one, track two reserved for channel two, and so on, you'd (a) be able to tell just by looking at the SQ-R display which group of instruments any particular preset was going to be playing (since channels that are being used in any preset would have their corresponding track turned on), and (b) have 8 channels reserved for future expansion. And this is the reason we set up the particular MIDI channel numbering that we did back a few paragraphs ago.

At any rate, setting up the tracks to control the other instruments is essentially the same

procedure as we used for the bass track, with the exception that tracks that are meant to send to the TX81Z or the ESQ-1 will have their MIDI status set to "MIDI" rather than "LOCAL," and their channels need to correspond - channels 4 and/or 5 for the ESQ-1, and channels 6 and/or 7 for the TX81Z. Also, sounds for the remote MIDI devices are selected from the "MIDI Program" page - select the program change number that corresponds to the program you want selected from the external device. Be aware, too, that you can set a track's status to "BOTH" - it will play both an internal SQ-R voice, as well as a voice from an external device. You can, of course, select an internal sound, and also set a MIDI program number for the track to send, ensuring that both the correct internal and external sounds are selected. And don't forget that you can preset track volumes, to control the overall mix of the patch, and that you can program a different SQ-R effect setup for each preset.

In this setup, track 8 has been reserved for the Multiverb. Make sure that the status for track 8 is set to "MIDI," and the only thing you have to worry about is setting the correct program change for the effect you want to use.

Once you have the parameters set up for the individual tracks, it's a simple enough matter to store the preset. It's a good idea to give it a



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descriptive name – with 70 possible configurations of these four instruments, it might not be that easy to remember exactly what each preset does.

Anyway, once you've created all the presets you can handle, it's a simple enough matter to select them from the ESQ-1. I'd recommend selecting track one of the ESQ sequence that we previously created, and hitting the "Mix/MIDI" button on the ESQ until you arrive at the MIDI program change page. From here, you can simply scroll to the correct program number to select the SQ-R preset you want to call up. Nothing to it.

And that's about all there is to that. I know it probably seems complicated on first reading, but if you sit down and follow these steps in order, it should become clear pretty quickly how the retransmit function can best be used in your own setup. There – your own personal article. Whew.]

Dear TH,

I've been an Ensoniq user for several years, but quite honestly, I'd forgotten that the Hacker existed until I bought an EPS-16 Plus. After reading the complimentary issue I realized what I'd been missing. Determined to correct a grievous mistake, I immediately ordered a subscription.

Well, the first issue I received (April, 91) had a great suggestion in the Interface from Daniel Mandel which inspired a couple of other suggestions of my own.

There's no question that affordable technology has given more creative people the power to express their musical ideas in finished form. What most of us don't have is the audience with whom we can share those ideas. Sure, we assault our friends and unsuspecting victims passing by our home studios in hopes of getting a critical reaction. But there's always a suspicion that our captive audience isn't as objective as a stranger might be. Picture an aspiring comedian practicing his act in an empty nightclub. How does he know if he's funny? He needs an audience. So do studio hermits.

Everyone, musicians and listeners alike, have a musical point of view. A review column in TH will be a great exposure opportunity for your readers' music. This will be especially true if a piece is auditioned by more than one (sensitive) reviewer, giving the composer the benefit of at least two constructive points of view.

I've lost count of the traditional record reviews I've read where the writer, on some sick power trip, trashed the music, the musicians and their legitimacy. The

reviewer's diatribe didn't tell me anything about the music, but did leave me convinced that they never wrote a note of music in their lives. So, take it a step further and limit the reviewers to those who've submitted music for review themselves. That may help keep the bloodletting to a minimum.

One last suggestion – make a point of encouraging submissions without regard for highly polished production, commercial value or commercial intention. There's nothing inherently wrong with these qualities if some of your readers have achieved them. But the basic creative statement is what should be on review. Be consistent with your grassroots readership. Don't exclude those without the means to gloss their work from participating.

Thanks for listening.
Jules Roels
Elk Grove Village, IL

[CS – My most fervent hope is that the continued proliferation of ever-less expensive electronic instruments, coupled with advances in networking technologies (telecommunications, cable-based "narrowcasting" systems, etc.) will make it possible for greater numbers of people to become involved in music at the compositional and performance levels, and will begin to make audiences more accessible to the average human being. Features like Dan Mandel's are a good start at bringing musician and listener a bit closer in what I hope will one day become a "global music village," where anyone with a desire to do so can make their music available to their (our) community.]

[TH – Our Basement Tapes section is still in its infancy. At this point, we don't know if any us know how this is going to evolve. We'll certainly keep your points in mind.]

Dear Hacker,

Thoughts and tips on the SQ-1:

Get your improvisational inspiration from layers upon layers? SQ-1's Presets are the thing!! Layer two programs and you have VFX's 6 oscillator patch – but it's woefully unable to record all 21 voices at once.

The Alesis DataDisk's SQ chip to the rescue. Create presets with as many tracks as you wish, setting one of them to transmit "BOTH," which will send data to itself, other modules and the DataDisk in realtime sequence recording mode. For reception of Disk's playback, set to MULTI and have applicable tracks set to receive on the channel used for transmission.

For editing, syncing, etc., dub the sequence onto a track of the SQ-1. For editing here,

you'll only hear the patch of the dubbed-to track, so use your memory. Dub the finished version back to Disk and set up your preset again. Now the DataDisk sequence contains the MIDI clock. Set DataDisk to External Sync. Erase the worktrack from the SQ-1 and free up those bytes! Now, with applicable tracks of Preset receiving from Disk (you didn't use all eight, did you?). Play along with and record other voices on other tracks set to other MIDI channels.

Of course the beauty of the DataDisk is its no-RAM buffer, 800k memory (modwheel mavens, take note!). So if the length and size of your improvisation exceeds the boundaries of dubbing back to the SQ-1 to obtain the MIDI clock, check this out: RC070107

I prerecorded a 30-minute cassette with FSK from Cooper's PPS-1 and was prepared to play back the tape from the beginning (containing the start command) merging PPS output with keyboard info. Datadisk begins recording with the Start command and accepts the merge flawlessly. To drive the Disk from the SQ-1 you should record a sequence (one empty track will do) of the same length and tempo as the Disk sequence. Then, from that point on you may record other tracks directly into the SQ-1.

On another note, be aware that while lock-up with Cooper's PPS-1 is quite superb, do not expect synchronization by merely going into REC in the middle of a sequence without using Auto-Punch. I've found timing errors of up to 70 clicks. So I may use Auto-Punch even if I'm starting at the beginning.

Also, you cannot expect to audition your tracks when using this external sync – it's just the way it is. Again, use your memory.

Many thanks to Joe Paschall and the boys in Customer Service for getting me hooked up.

Joe Bugenis
New York, NY

[CS – Joe, there may be some helpful tips embedded in your letter somewhere, but I've read it through 4 or 5 times now, and I'm afraid I'm not quite getting the point of what you're trying to say. Apparently, you've found some way of using the Alesis data disk in sequencer mode along with your SQ-1 to do something that you can't do with the SQ-1 alone.

We most certainly appreciate your taking the trouble to share some SQ-1/Data Disk applications with us. Hopefully, Ensoniq can shed some light on this...]

[Ensoniq – We think we have gotten the drift of your example, but you have some errors in

your explanation. You have two suggestions to make;

1) You want to be able to record while you hear the sound of layered programs. Since the SQ-1 (or SQ-2) does not have a multi-track record function you are using an external sequencer.

2) You are also showing a way to link up the Data Disk to drive the SQ-1 as a sound module to take advantage of the Data Disk's 800k of disk-based memory.

But your explanation gets a little fuzzy.

It seems to us that the best way to achieve this would be to do the following:

1) Connect the MIDI OUT of your SQ-1 to the MIDI IN of the external device (Alesis DataDisk SQ).

2) Connect the MIDI OUT of the Data Disk back to the MIDI IN of the SQ-1.

3) Create your layered Preset on the SQ-1, with one track set to Status=MIDI, and the other tracks set to Status=EXT. Status=MIDI means that a track will send data out over MIDI but not sound locally, but since you have a MIDI loop the data will come back in and play just fine. (This assumes that the Data Disk has a MIDI echo function) If you use the BOTH setting you run the risk of doubling the note On's from the keyboard and via MIDI at the same time. The other tracks will not send out data at all, but you can set them all to the same MIDI channel and they will receive the part back just fine. Set the SQ-1 to Multi mode only if you wish to record other tracks later. If you are just going to play along with an internal program you can stay in Poly mode and set the play-along track to Status=Local.

4) Now when you record a part you will hear the layered sounds and the DataDisk will receive only one track of MIDI data.

5) To edit the data you're correct, send it to one track of the SQ-1 (set to MIDI or EXT), do your edits, and then fly it back to the external Data Disk. You can link up the two devices and have some parts on the Data Disk and some in the SQ-1 and go to town.

We do question whether you will have enough voices to have the layered part play constantly and then add multiple other parts but go for it! I hope we've clarified this set-up correctly.]

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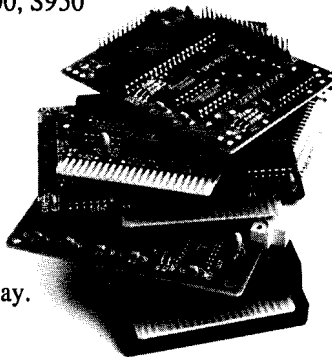
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