

TRANSONIQ HACKER

The Independent News Magazine for Ensoniq Users

Programming the SQ-1

Clark Salisbury

This month we begin a new series of articles specifically meant to teach the novice how to program the SQ-1. We'll be starting right at the ground level, so if you already have some programming chops, you may want to just skim this column for a couple of months.

But if you're a new SQ-1 owner, and you've been wondering how all those neat sounds are created, this column is meant for you. We're going to start out pretty basic here, but by the time we're done you'll be a po-grammin' foo.

Some of this material is covered in the SQ-1 manual already, but our approach will be a bit different. It'll be much a much more hands-on, applications-oriented approach meant to take you step by step through all the programming functions of the SQ-1, including voice, sound, and sequencing programming, as well as effects programming and MIDI applications.

So let's get busy.

VOICES, SOUNDS and PARAMETRIC EDITING

The basic building block of sound in the SQ-1 is called a voice. A voice is a collection of parameters that go together to make up part or all of a sound—the basic wave used, its filtering and envelope settings, its output routing, and its keyboard range. Up to three voices (along with a digital effect program) can be combined to make what's called a 'Sound'—the one exception to this is drum sounds, which we will deal with separately.

The three voices that make up a standard sound can be used in a number of dif-

ferent ways—they can be layered or split on the keyboard, or modulators or program parameters can be used to control them in a number of ways. Up to eight of these sounds can then be layered and/or split on the keyboard to create a 'Preset', of which there are up to 80 available in internal memory at any one time.

Anyway, the point is that when editing or creating sounds on the SQ-1, it's relatively easy to become confused about which specific voice (of the three available) you might want to work with, so we'll be looking at voice select functions presently. But first, we need to establish a basic comfort level with regard to page driven parametric editing—the user interface that drives all SQ-1 functions. RC030826

The basic idea behind parametric editing is quite simple, really. When you want to make changes to a sound, you must first decide which part of the sound it is you are going to change, select the parameter dealing with that specific part of sound in the SQ-1, and make the changes. If, for example, you want to make a sound higher in pitch, you might decide to make changes to the octave of one or more of the voices. The octave control is one of the parameters available for making changes to a sound in the SQ-1.

One thing is important to note, however. If you are playing a note while making changes to a sound, in many cases you will not hear the changes that you've made until you play a new note. In other words, holding a key down on the keyboard while changing the octave of a sound may lead you to believe that the octave control has no effect—nothing seems to be happening! However, you

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will hear any changes you have made once you play a new note. So it's a good idea to get into the habit of playing and releasing notes on the keyboard in a repetitive fashion when trying to hear the changes you are making to a sound.

Let's try getting a feel for parametric editing by trying out an example. Select the SQ-1 ROM sound #03, "Bassoon." Play a few notes to get an idea of what the sound is like.

The first thing let's do is brighten it up a bit using the filter (don't worry if you don't understand what the filter does—we'll cover it later. For now, the only thing we're concerned with is getting an understanding of how to make changes to a sound using the parametric editing facilities of the SQ-1).

The first thing we'll need to do is determine which of the three SQ-1 voices are being used, and select one for editing. This is accomplished by pressing the 'Edit Sounds' button (labelled simply 'Edit') located directly to the right of the display window. Pressing this button should take you to the first page of the 'Edit Voice' menu (each of the programming buttons in the SQ-1 takes you to a 'menu' of choices, and each of these menus has a number of separate 'pages', each of which list at least a couple of selection options). Anyway, you should be seeing the following in the display window:

```
EditVoice=ONE
ON OFF OFF.
```

If you see something other than this in the display, press the "Wave" button again (to scroll through the menu's pages). You may need to press it a few times, but eventually you will arrive at this display. This is the first page of the 'Edit Voice' menu, and it is here that you select a voice for editing. The upper line of the display is showing that one voice is currently selected for editing (as opposed to 'ALL' voices—the other possible setting). The lower line is showing that the current sound uses only voice 1—voices 2 and 3 are turned off. Let's try making a couple of changes.

First we must make sure that voice 1 is selected for editing (if you select a voice that is muted and attempt to edit it, the SQ-1 will tell you "SORRY! Current voice is muted." and return you to the Edit Voice page). Select voice 1 by using the left/right arrow buttons to scroll until the word 'ON' in the display begins flashing. If you scroll too far, or in the wrong direction, don't worry—simply scroll the other direction (still using the left/right arrow buttons) until the word 'ON' starts flashing. At this point, voice 1 is selected for editing. Note that this method of scrolling to get to the parameter that you want is used consistently throughout the SQ-1—whenever you want to select a parameter for editing, you will use this method (with a couple of minor variations which we'll get into later). So now we're ready to go to work on the filter.

To select the filter parameter, we'll use the same method we used for selecting voice 1 as the current edit voice. To do this, press the button labeled "FILTER" (this button also doubles as the Bank 4 select button). If the display of the SQ-1 is now showing "FC1 Cutoff=064, Envelope2= +23," you're home free. If not, you can scroll to this page of the filter section using the left/right arrow buttons, or simply by repeatedly hitting the 'Filter' (bank 4) button to scroll to this page.

Make sure that the 'FC1 Cutoff=' parameter is selected. This is indicated by the number '064' flashing in the display—note that

'FC1 Cutoff' is the parameter we've selected, and the value for this parameter is 064. Since the value is what we can change (not the parameter itself) we can tell that this (or any) particular parameter is selected for editing when its corresponding value is flashing.

You can now make changes to the sound's overall brightness by adjusting the data slider and Yes/No buttons; move the data slider—you should see the number next to 'FC1 Cutoff=' changing, getting larger as you move the slider up, and smaller as you move the slider down. Set the slider so the number reads "40." A little difficult, isn't it? It's a bit easy to overshoot or undershoot the number you're trying to hit. But that's what the up/down arrow buttons are for. Press the 'Yes(up)' arrow button once. Your number should now be "41." Press the 'No(down)' arrow button twice. The number should now be "39." So you see, the 'Yes/No' arrow buttons are best used for fine tuning, where the data slider is more useful for making larger changes. Listen to the sound as you make changes (you will hear changes to the filter setting in real time as you hold a note, which isn't the case with all parameters). Notice that higher settings for FC1 Cutoff make the sound brighter, while lower settings make the sound darker. For now, set the value for 'FC1 Cutoff=' to '127'.

The method used here, namely that of selecting a voice for editing, then selecting a parameter, and making changes to that parameter's current value, is the method used whenever you wish to make changes to a voice (or to any editable parameter in the SQ-1, for that matter). Let's reinforce this idea by making a couple of other changes, first, to the octave of the 'Bassoon' sound.

Select the 'Pitch' menu by pressing the button labeled (logically enough) 'Pitch' (this button also doubles as the Bank 1 select button). Note that voice 1 remains selected as long as another voice hasn't been selected, so we needn't return to the 'Edit Voice' menu to re-select voice 1. RC030826

We're now looking for the page that shows 'Oct=0, Semi=0, Fine=0'—if you're not already there, you can get there by repeatedly pressing the 'Pitch' button, or by scrolling using the left/right arrow buttons. Since we're out to change the octave of the sound, we need to make sure that 'Oct=0' is selected—indicated by the '0' following 'Oct=' flashing. You can now use the data slider and the Yes/No arrow buttons in the same way that you used them when we were on the filter page and set the octave to 'OCT=2'. Notice that the sound is now two octaves higher in pitch than it was before we started. The range for the octave control is four octaves in either direction—a total of nine octaves available for any given key on the keyboard. For now, set it back to 'Oct=+0', and let's make another change.

Notice the fairly subtle vibrato that creeps into the sound as you hold a key down? Vibrato is the domain of LFO's, and that's what we're going to change next. So select the LFO menu by pressing the button labeled (you guessed it!) LFO. The first thing we'll play with is the LFO level control. Scroll to the page showing 'Level=28, Dlay=53, Mod=WHEEL', and make sure that the level parameter is selected (the number '28' should be flashing). Using the data slider and Yes/No buttons to raise this value will increase the level (depth) of the LFO effect, while lowering this value will decrease the LFO's effect. For now, set this value to '00'. Now select the 'Mod=' para-

(Continued on page 5)

Front Panel

RND (♪♪♪)

Better Late Than Never Dept.: Well, we should have mentioned this last month but at the time of writing it was the middle of November (Duh)—To all our merry techno-freak musician friends—readers, advertisers, beloved Ensoniq, interfacers, and ever-droll writers: **Happy Holidays!**

— Eric, Jane, & the Hackers

* * *

And in a similar spirit...

A Note from Ensoniq: We'd like to take this opportunity to wish all of you a Merry Christmas, Happy Chanukah, and a Happy New Year from everyone here at Ensoniq. We look forward to another year of great products, great music, and communication in that "time-honored" Hacker tradition!

* * *

TRANSONIQ-NET HELP WITH QUESTIONS

ALL ENSONIQ GEAR - Ensoniq Customer Service. 9:30 am 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.

HYPERSOBIQ NEW PRODUCT RELEASES

First Generation announces the release of 16 disks for the EPS and EPS-16 PLUS. All disks contain over 1400 blocks and every instrument has four pre-programmed patch selects. These instruments are 100% digital—no analog sources whatsoever. A large variety of sounds, from purely synthetic to startlingly realistic imitations, have been meticulously edited for the maximum in economy and performance nuance. Categories covered in this premiere release are Modular Synths, Sound Effects, Hybrid Synths, Unreal Synths, Modern Keyboards, Analog Synths (I), Strings, Percussion and Brass & Woodwinds. Features such as velocity switching, velocity crossfading, velocity controlled sample start points or true stereo samples enhance many of the instruments. The disks sell for \$12.00 each. Demo disk: \$6.00 (post paid). For more information, contact: First Generation, PO Box 748, Cocoa, FL 32923. RC030826

Keith Thomas, specializing in orchestral and synth samples for the EPS, (see TH review by Bryce Inman, Nov. '90) announces a 30% price cut for demo tape and disk package, from \$17 to \$12. (Free shipping.) Contact: Keith Thomas, PO Box 174, Stratford, ON, N5A 6T1, Canada.

Music Labs has announced the formation of *Music Labs Mail Order* to handle national distribution of their performance-quality line of EPS sequences. To speed onstage use, all sequences operate from a single "Sound Setup Disk" which is supplied FREE with a client's first order. In cases where special sounds are required, they load automatically as part of the sequence, keeping downtime between songs to a minimum. A 24-hour "Audition Line" is running at 206-474-3463 featuring segments of several sequences. New address: Music Labs Mail Order, 505 Broadway, Suite 211, Tacoma, WA 98402. Voice: 206-272-7352, Fax: 206-627-5429.

Two new programs from **Intelligence Artisans** give you total control of your VFX or VFX/SD. *Voice Shaper* is an editor for all program, envelope, and effects parameters. *Omni Librarian* stores programs, presets, Multi setups and SD sequences. \$55 for each or only \$100 for both. For any Macintosh computer running HyperCard (v1.2 or later). Contact: Intelligence Artisans, 923 Westwood Blvd., Box 16, Los Angeles, C 90024.

BACK ISSUES

Back issues are \$2.50 each. 5 - 20: \$2.00 ea. 21 & up: \$1.75 ea. (Overseas: \$3 each.) Issues 1-9, 11, 13-23, 27, 29, 30, 36, 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. The original VFX patch sheet was published in Issue #55. Permission has been given to photocopy issues that we no longer have available—check the classifieds for people offering them.



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meter—you'll notice that this is set to 'WHEEL'. This means that the level of the LFO can be MODulated (changed) by the wheel. Indeed, if you move the modwheel forward while playing a note, you'll find that the LFO level (vibrato) increases, even though LFO level is set to '00'. Just for fun, try setting the 'Mod=' parameter to 'VELOC' (velocity). You'll now find that the amount of vibrato depends on how hard you play the keys of the keyboard. Playing softly yields little or no vibrato, while playing hard gives you a great deal. For now, leave this parameter set to 'WHEEL'.

Let's do one more thing, as long as we're here. Let's play with the waves a bit (and we don't even have to go to the beach!).

Hit the button labeled 'Wave' to select the wave menu. You should now find yourself at a familiar display—it's the same one that we started with when we first selected voice 1 for editing. Now press the 'Wave' button again—you should see a display showing 'Wave=WAVEFORM WOODWIND' (if you're not seeing this display, scroll to it using the left/right arrow buttons, or by repeatedly hitting the 'Wave' button). The upper line of the display is indicating the category of the wave that we're working on (the SQ-1 has 11 categories, or 'Wave Classes' to choose from) and the bottom line is showing the individual wave selected. In this case it's a 'Woodwind' wave from the 'Waveform' wave class. If it isn't already selected, use the arrow buttons to select 'Wave=WAVEFORM' (as usual, it should start flashing once selected), then scroll down through the list until you arrive at the first wave class, 'STRING WAVE'. The display should now be showing 'Wave=STRING WAVE STRING ENSEMBLE', indicating that the first wave in the first wave class has been selected. Now scroll once to select the wave—the words 'STRING WAVE' should begin flashing. Each time you press the up arrow button, you'll move to the next wave in the SQ-1. The program that we've developed is a fairly good one for auditioning most waves, although some may sound a bit strange using these settings—primarily the percussive instruments like pianos and guitars. But don't worry—we'll soon see how they can be programmed to sound the way they should. For now, just check out the waves, and make a note of any you particularly like.

Once you're through listening to waves, select one to keep in this new program. I'm going to suggest using the first wave, 'STRING ENSEMBLE', simply because it's at the beginning of the wave list, and we're going to be using this program as a starting point for other sounds later on. So scroll back to the beginning of the list so that the display is showing 'Wave=STRING WAVE STRING ENSEMBLE' again.

At this point, you may wish to compare the new, edited sound with the sound we originally started with. Press the 'Compare' button now, and play the keyboard. Notice that the original sound is back. Now press the 'Compare' button again, and the new, edited version of the sound is back. If you get confused as to which one you are listening to, note that the Edit Sound LED will be flashing whenever an edited sound is the current sound, and will remain steadily lit when you are listening to the unedited original.

Finally, let's write this sound to memory somewhere so that we can come back and use it again later. Press the 'Enter/Save'

button. The display should be showing 'Save SOUND Bassoon'. Now let's name this sound "My Strings." Press the right arrow button three times to place the underline cursor into the fourth space in the display. Use the data slider and Yes/No buttons to select the letter 'M' (both capitals and lower case letters are available). Press the right arrow button once, and use the data slider and Yes/No buttons to select the letter 'y'. Continue with this procedure until the sound is named. Once the sound is satisfactorily named, press the 'Enter/Save' button once. The display will show 'Save to INT 03 My Strings'. At this point, pressing the ENTER/SAVE button again will save the sound to internal memory, location 03. Since the new sound will replace whatever sound is currently residing in internal location 03, you may decide you don't wish to save the new sound to this location—that is, if you want to keep the sound that's currently in location 03. You may now use the bank and screen buttons (the 10 buttons located directly beneath the bank buttons) to select a different location to store the new sound. If you're not sure about whether or not to overwrite a particular sound, you may go ahead and play it to see if you like it enough to keep it. Once you've located a likely spot for the new sound, simply press the Enter/Save button again, the display will momentarily show 'Saved.'—and your program will be immortalized within the memory of the SQ-1, safe and sound. At least until our next installment. ■ RC030826



Bio: Clark Salisbury has been actively involved in the composition, performance, and recording of electronic music for over 8 years and is now producing his own pop-oriented compositions. His favorite color is chrome.

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VFX Questions (and Answers) from the Transoniq Net

Sam S. Mims

Q: *When I boot up my VFX-SD, I get the message “KEYBOARD CALIBRATION ERROR.” What does this mean, and what can I do about it?*

A: This is by far the most common question that I've been asked, and unfortunately, it results from hardware problems that have occurred in a number of VFX-SD's (also in a few VFX's and EPS's.) Normally, when the keyboard boots up, the “rest” position of each key is read into memory; this information is then used when a key is depressed so that the velocity and aftertouch information can be calculated. If a key is moved during the calibration “DO NOT TOUCH” period, the unit recognizes this, and the calibration procedure fails.

During the manufacturing process, a fair number of the circuit boards that scan the keys left the factory with excessive solder flux residue on the ribbon cable connectors. (Ironically, this was because Ensoniq switched from acid bath cleansing of the boards to water bath cleansing in order to eliminate their only source of toxic waste.) The resulting poor connection causes the synth to think that keys are being moved during the calibration process, and thus it fails. Sometimes, the calibration will eventually work correctly, but at some point it will probably fail forever, and a replacement of this circuit board—along with the entire keybed—will usually be necessary. Both parts and labor are covered by the 12-month warranty, so you'll just have to suffer the inconvenience of living without the synth for a few days. (Don't expect an on-the-spot repair, as service centers don't normally stock replacement parts.)

There are, however, a few other things that can cause the same calibration error—all of them hardware related—so your repair tech will need to first diagnose the problem to find the exact culprit. Fortunately, since the problem is with the keyboard and not with the sound generation circuitry, you can answer the error message with “IGNORE” rather than “RECALIBRATE,” and the unit should at least play correctly from an external keyboard via MIDI.

Q: *What is the difference between the REV+CHOR.1 and REV+CHOR.2 effects?*

A: Nothing really—they are simply two different presets using the same algorithm. Like the others of the same name (ROOM REVERB 1 and 2, etc.), they were included so that those who aren't into programming could have more preset options.

Q: *When driving my VFX from my computer, using the Cakewalk sequencer program, adjusting a VFX volume track on the keyboard itself sometimes shuts off the sound completely. What's going on?*

A: The problem arises anytime the VFX (or VFX-SD) is set up in a MIDI loop with an external sequencer, with the keyboard's MIDI OUT plugged to the computer's IN, and the computer's MIDI OUT plugged to the keyboard's IN. The VFX and VFX-SD are set up with two hierarchies of volume control—the foot pedal (MIDI Controller #7), and the volume track of the Multi (on the VFX) or the sequencer (on the VFX-SD). Within the keyboard, the values of these two parameters are separate entities, but with outgoing MIDI, they are both converted to Controller #7 messages. So, when the volume track parameter is adjusted, it sends out a Controller #7 message, which, via the MIDI loop, ends up back at the keyboard's MIDI IN. Here, it is interpreted as a foot controller message, and is applied once again, creating a “volume vortex.” If the track volume is lowered enough, it will drop the actual volume down to nothing, and the only way to get your sound back again is to reboot the keyboard. The solution to the problem is simple—upgrade to O.S. version 2.1 on the VFX or 2.0 on the VFX-SD, and turn off the MIDI LOOP parameter; this stops the volume changes from being sent out over MIDI.

Q: *I'm sequencing a song in 4/4, but it has one 2/4 measure in it. Can I create a one-bar 2/4 sequence and append it onto a 4/4 sequence?* RC030826

A: No—a sequence can only have one time signature; trying to append the 2/4 sequence onto the 4/4 sequence gives a “BAR SIZE ERROR” message. (Note, however, that a 4/4 sequence can be appended onto a 2/4 sequence; the VFX-SD automatically converts it all to 2/4 time.) You can always use the 2/4 sequence on its own chained after the 4/4 sequence, but this can be limiting in that you can't hold a note, such as a sustained string line, over the sequence boundary. The most obvious way around this is to sequence the string line as a song track, rather than a sequence track (the great benefit of this “two-mode” sequencer). Another way, more workable in some situations, is to just sequence everything in 2/4 rather than 4/4 time. Or, if you're doing some really odd time signatures, do it all in 1/4 time.

Q: *When I play my VFX-SD from an external sequencer, every time I hit Play, it throws the keyboard into its sequencer mode. How do I keep it in Sounds mode?*

A: This happens whenever the VFX-SD receives a Locate command, and is something that was fixed in O.S. version 2.1. But a working solution with earlier systems is to simply create a new sequence with the sound you want to use on one track, but with no recorded data. Then, it won't matter which mode you are in. (Be sure the sequence's effect is the same as the sound's effect.) ■

The Phoenix and the Circle © Ranch

Michael D. Mortilla

For: EPS, EPS-16 PLUS.
Product: EPSQ-80 Resynthesis Sound Disk, Vol. 2.
Price: \$19.95 US (\$29.95 for volumes 1 & 2).
From: Phoenix Audio, POB 534, Moorpark, CA 93021, (805) 529-2006.

It was another sleepy day at the ol' Circle C Copyright Ranch. We heard a little stir in the barn (where we keep the old synth sounds), but those old SQ-80 patches had been safe for years and we figured we'd just go and re-initialize that sucker and quiet them puppies down. We set out for the coop, but before you could say "re-synthesis" that darn Phoenix was flyin' off with two banks of patches in its digital talons! Darn that bird! Where's my double barrel disk eraser...?

Now what in tarnation does all this have to do with the latest disk from Phoenix Audio? Well, it's taken me an unexpectedly long amount of time to review this little disk. The product is straightforward enough on the surface. But I'm in a bit of a quandary about what exactly I'm reviewing here and the legal implications of what they're offering.

On one level, the disk is simply a compilation of SQ-80 sounds sampled into the EPS format. With very few exceptions, the sounds are an improvement over the SQ-80 originals (no doubt due to the improved fidelity of the EPS). There are several patches per EPS instrument with the patch select buttons allowing access to different sounds. The only problem with this arrangement is the controller #70 bug in the current EPS OS. But if you need or want SQ-80 sounds to play on the EPS, I don't think you'll be unhappy with the disk from Phoenix Audio and at about twenty bucks each, it's fairly priced and cost effective.

On another level (warning: major digression alert), there are some serious questions about the legal aspects of selling "re-synthesized" sounds. Under copyright law, intellectual property is copyright as soon as it is created. Synth sounds may be copyright as a bank and the copyright notice does not need to appear for a work to be protected. *I am not a lawyer and this information should not be construed as legal advice. If you have a question about copyright you should contact the Library of Congress and/or a lawyer.*

Ensoniq sells sounds with their synths and also as separate disks. It is the work of their programmers and I assume that Ensoniq is the copyright owner. By sampling these sounds, is Phoenix technically "copying" protected material and, in theory, in violation of copyright law? Fortunately, these remain theoretical questions, unless the copyright owners pursue legal action. This is not only true of sounds created by Ensoniq, but also other synth manufactures and third party sound programmers. We've all seen the ads for M-1, DX, D-50 sounds, etc., for the EPS and other samplers, and I have not heard of any legal action regarding re-synthesis. It is an important point to keep in mind, however, when sampling protected patches or you could be in for more excite-

ment then you bargained for!

I spoke to an anonymous representative at Ensoniq and was told (unofficially) that Ensoniq considers the practice of "re-synthesis" to be unethical. This person felt that the third party vendor would better spend his time developing new SQ-80 sounds and sampling them for the EPS. That would, of course, mean that the sampler could not capitalize on the success of a particular programmer's sound, and that is, in fact, the reason we have copyright laws.

Now let's get back to reality.

As a composer/writer, I can appreciate the position of the copyright owner in wanting to protect his work. As a performer, I also want to buy samples of sounds without having to buy another synth. My suggestion is simple: Have the person doing the sampling devote part of his profit as a "users fee" to be paid to the copyright owner. Not only will the original programmers work be more widely distributed, but another person is given the chance of staying in business.

As far as Phoenix Audio's new EPS disk is concerned, my suggestion is simple: Buy it, you'll like it. ■ RC030826

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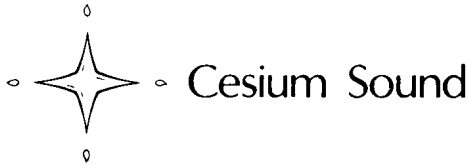
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The Ensoniq EPS-16 PLUS

A Preview Review

Garth Hjelte and Mark Rensel

That sneaky Ensoniq company. Right when we were getting used to our EPS's, they come out with a new and improved one, the EPS-16 PLUS.

Hard to resist, though. 16 PLUS is a very accurate name, for Ensoniq upgraded the EPS to exactly that—a full 16 bit sampling/playback unit with internal effects and lotsa other cool features. RC030826

Before We Begin

The EPS-16 PLUS started shipping early September with Operating System 1.0. Recently they upgraded the OS to 1.10 and have been improving the poly-pressure keyboard. A rack version has been available since early December, and includes as standard the extra solo outputs and doubled memory (4091 blocks). SCSI has been available since early December and 1.10 is required to run the soon-to-be-produced Flashbank (more on that later). 1.10 also implements Multi-Track recording on the sequencer, a SCSI disk copy, and further refinements, but doesn't include the promised front-panel-instrument-load-while-the-sequencer-is-running function.

Since the Plus is actually an advanced upgrade version of the EPS and there are so many similarities, we'll just concentrate on the new additions of the Plus. If you'd like information on the original EPS, check with some back issues of the Hacker or your local dealer.

16 Bit Background

Let's talk about the inside of the instrument for a second. Basically, Ensoniq took the chip developed for the VFX (DOC III) and dropped it back into the EPS. DOC III was developed from DOC II, which is in the original EPS, adding an onboard effects processor (DSP) and dropping the onboard D/A converter. Ensoniq then added a separate D/A section which enabled 16 bit linear output resolution. So, by doing all this, we have a true 16 bit keyboard (through and through, for real).

So how does it sound? Just a brief analog hearing test immediately tells you the highs are notably crisper, the midrange punchier, and the low end and warmth that was somehow missing in the original made a credible appearance. We hooked the Plus up to our scope, and sure enough, things have been cleaned up considerably. And after playing it for awhile, it gets addicting. We did the usual test samples and found 1) better transposition, 2) much less clock noise in the upper register, and 3) still some low bit distortion, but a great improvement. We think p'raps we heard it just 'cause we wuz lookin' for it.

Ensoniq really responded in spades to the primary objection to the original EPS, designing an brand new output section. If you don't watch it, this thing could blow up your mixer/speakers! If you crank up the right parameters, you'll have enough output to get great signal-to-noise specs.

But, at the same time, the Plus is quiet. We hooked up our Plus

next to our EPS, and ya know that original one always let's you know it's on (buzzzzz...). The Plus...well, we always had to check the display to see if it was turned on. Bravo, Ensoniq!!

New Functions And Parameters

Ensoniq really went to town implementing our most asked for features. After all, I'm sure they want us to upgrade (beside just being nice guys). We really would like to go into detail on some of these, but there just isn't space. Keep reading the Hacker—you'll find more here! Here we go—

- Envelope Soft Vel Curves—OFF, VEL, VEL1, VEL 2
- Filter Cutoff Frequency improved to 150 (increase of 30 for headroom)
 - Volume A-B-C-D ranges—selectable curves (linear or crossfade)
 - Dynamic panning—pan modulation (yeah!)
 - Boost—selectable extra +12 db on the output stage Six extra outputs—three stereo pairs or six mono; tied to the effects busses
 - Rotate effects—this is a cool parameter
 - LFO rate modulation—you can speed up or slow down tremolo or vibrato, for example
 - New wave point modulators—LOOP START, LOOP END, LOOP START w/ pitch transpose, and TRANSWAVE (this simulates the wave shifting in the VFX; some super possibilities here)
 - Layer delay—up to 5 seconds; you can modulate this, too
 - New play modes—TRIGGER (true monophonic; multiple triggering) and MINIMODE (true monophonic; single triggering; cute name)
 - Sequencer—96 ppq (which is double the resolution), velocity scaling, quantizing within the bar measures, real-time panning, MIDI in assignable, multi-track recording (which is even more useful than you might think), separation of SONG tracks to sequence tracks)
 - Disk labeling scheme—this allows intelligent bank loads and better organization
 - Patch Selects can be defaulted to OO, O*, *O, or ** (as of 1.10, this crashes the unit, though)
 - Ensoniq Cafeteria Coffemaker On/Off—we tried this, and afterwards we got a nasty call from Ensoniq, telling us to cut it out

Now, if I'm not mistaken, most of these additions were suggestions written to the *Hacker* interface in the last couple years since the original EPS came out. Ensoniq is listening!

The Effects

Oooo, scary. Real scary. Since the effects are hooked up digitally within the unit, they sound nice. Real nice. Scary nice. 24 bit, too. The reverbs are simply wonderful, the dual pan delays caught our ears, and the Wah+Dist+Rev combination is really effective (the Dist Guitar takes great advantage of this, check it out). There are a healthy array of effect combinations that are great for bussing different effects to the samples (bass dry,

strings w/reverb, chorused synth pads with lots of echo, for example).

Ensoniq has placed everything about the effects (algorithms, parameters, etc.) in software and on disk. This means you can custom-design your effects to each instrument you program, and Ensoniq can put together new effect combinations (and possibly effects creations) for us to use! Anything is possible when your architecture is open!

Effects are not a panacea, however. There are some tradeoffs that come with these, all related to the fact that the individual instrument effects are not available multi-timbrally. What this means is that if you are playing, let's use Dist Guitar for example, and you switch to another instrument, perhaps a string sound that uses chorusing, the Plus will cut off your Dist Guitar if you are still playing it. Ensoniq chose this scheme to offset the inherent limitation of the effects set-up. So if you're used to switching around a lot, stacking instruments, or sequencing different instruments that will have different effects on them, you'll find yourself with a built-in restriction.

Ensoniq's way out of this problem is incorporation of Bank Effects, in other words, to set up an effects configuration available to all the instruments onboard. It's a good solution, but as a user, you'll have to put some forethought into how you want to do things. This is a subject that is ripe stuff for another Hacker article.

We found Plus to be a bit touchy when we loaded instruments while playing, hanging notes and cutting some off. This is because of the Plus switching in and out of the effects. They fixed some of this with OS 1.10, but it is still there (especially when you load into Inst slot #1 at the same time as you're playing). Just some early instrument jitters.

Winners

This is the review segment of our show—here's some roses and dandelions—

- No more loud thump when you turn power on or off
- Faster and more responsive envelopes
- Front panel instrument loading when the sequencer is running (not yet implemented, even on OS 1.10)
- Create New Wavesample now produces a much cleaner square wave
- Dynamic panning is very transparent with not much "zipper noise"
- Much better keyboard—no more audible clicking
- Polyphonic aftertouch pressure sensors improved (either in software or hardware), better resolution (no noticeable quantization)
- Some internal heat sinks moved off of the chassis (back panel gets less hot)
- Most common OS 2.4 EPS bugs solved (diskcopy, incoming MIDI patch selects)—Now if only they could make this available to original EPS owners. What has been the problem, Ensoniq?
- Cool racey chassis design—we had girls swarming all over us as soon as we started playing
- Improved sampling VU meter—it makes use of the entire display
- No audible noise when you're not playing
- Non-wimpy Headphone jack

- Output expander jack that doesn't let the plug slip out
- Flashbank—sounds great, but it's not available yet—this will allow 2037 blocks more memory (even in addition to the maximum 4024). It makes sounds reside in the machine (and they don't get erased when you turn off the machine). Current price seems a little high, but if you got the bucks...
- Stock 2X memory (2037 blocks)
- Coffeemaker parameter

Losers

- Display panel is unchanged—still only 22 characters, practically unreadable from a below level slant
- Under-quantized pitch wheel resolution—we counted only 10 steps either way, compared with 22 steps either way with the original EPS (NOTE: we did this with our ears, not with the analog test provided in the machine.)
- All yellow instrument lights (even the disk drive light)—the girls took off when they got bored with the lack of color
- Master volume slider digitally based—in other words, when you turn down the volume slider, you're actually cutting the resolution of the sample playback. Ensoniq recommends you control volume from an outboard mixer, but hey, what are onboard volume sliders for?
- Bad data entry slider response—this drives us nuts. You have to move the slider a ways to get it to respond, and when it does, it jumps a greater distance than what you want. Getting a correct parameter is now a much harder task.
- VU meter still doesn't display when you are actually sampling (when you really need it)
- Hidden cost alert—no standard SCSI port on the rack-mount version RC030826

Bugs And Crashes

Since the Plus is actually an outgrowth of the EPS, most of the software has been thoroughly tried and tested to be good. It doesn't crash much at all (and we tried pretty hard). The one sure crash is when you use the Patch Select= function, and you're bound to crash it sooner or later if you plan on using SONG tracks to some degree. All in all, we saw Error 56, Error, and Error 129. These are, for sure, early instrument jitters, and will definitely be ironed out soon.

Compatibility

Getting a consistent answer concerning EPS and EPS-16 PLUS sound compatibility was a real task (almost everyone told us something different). We put all the pieces together, and this is what we found.

Mirage conversion is retained, for starters. With original EPS disks, the 16 Plus reads all files, and adds a complimentary default Hall Reverb to instruments (and increases the size by 3 blocks).

For you original EPS owners who want to scam on 16 Plus sounds, the situation is a little different. The EPS does not recognize nor read Plus bank files, Song or Sequence files (because of the 96 ppq resolution), or Plus effect files, so you certainly can't load them in. But the EPS does read the Instrument files, though it ignores all the extra parameters the Plus implements. So you can load 16 Plus sounds, but depending on the sound, they won't sound the same. Some Plus instruments (the best example again is the Dist Guitar) rely extensively on the

effects for their sound, so they're kind of weak in the EPS. (NOTE: the Steinway does work with some simple modifications, and the Bosendorfer works too, but with more extensive mods)

Conclusions (A Consumer Guide)

Are you an EPS owner? Or are you looking for a great sounding keyboard, perhaps specifically a sampler? Will this new EPS-16 PLUS be a good value to you?

If you don't have an EPS, you'd be crazy not to check the Plus out. The crystalline 16 bit fidelity, added with onboard effects (the only sampler that has them) and a nice user interface, together with the versatility inherent in a sampler, makes this package untouchable in its price range. Nothing comes close until the six grand price point (\$1100, Roland S-770). In fact, we're always amazed why Ensoniq doesn't seem to get the credit they deserve in the innovation department (we don't get the press releases for the annual awards). But then again, they get the last laugh in the sales department. True quality always wins out somehow.

If you're thinking about trading your EPS for this new one, or thinking about adding a Plus to your already-equipped EPS studio, the decision is a bit tougher. Money isn't easy to come by. Is it worth it? The fidelity increase is certainly there, not by a world's amount, but it's definitely there. The Plus seems to reach out and "grab" you more, for lack of a better term. Playing an old EPS after playing a Plus for a while feels slightly sluggish and sounds a bit muffled. The effects (even with their

tradeoffs), and especially the new functions, are the best deals, and the new sounds are quite appealing (We loved Rock Steel —played it for hours).

On the other hand, original EPS's are available cheap, around half the price of a Plus, which means you won't get as much for your original EPS as you once would. So what about getting another original EPS, or even getting a 44mb removable hard drive + SCSI interface? These are options worth considering. And you would still profit from the new sounds being sampled on the Plus.

If you're thinking there might be a hardware update conversion for the EPS to upgrade it to a Plus, stop thinking (not completely, of course). It won't happen. The Plus is a pretty thorough internal redesign of the original.

But the final card is laid by just heading down to your local Ralph's Music Heaven and checking the Plus out yourself. Since the EPS and the Plus are so much alike, and A-B test of them together is quite revealing. Lay your card down, credit card or otherwise. Make the Right Choice. ■ RC030826

BIOS: Garth Hjelte barely manages Rubber Chicken Software Co., an EPS sampling company. Mark Rensel is a musician in the Seattle area and is a clinician for Music 6000 in Lacey, WA. Both have disgusting eating habits.

Special thanks for technical assistance provided by Joel Brazy (SkiMan), and Joe Friel and Dan Gallagher (CheeseMan) of Ensoniq Corp.

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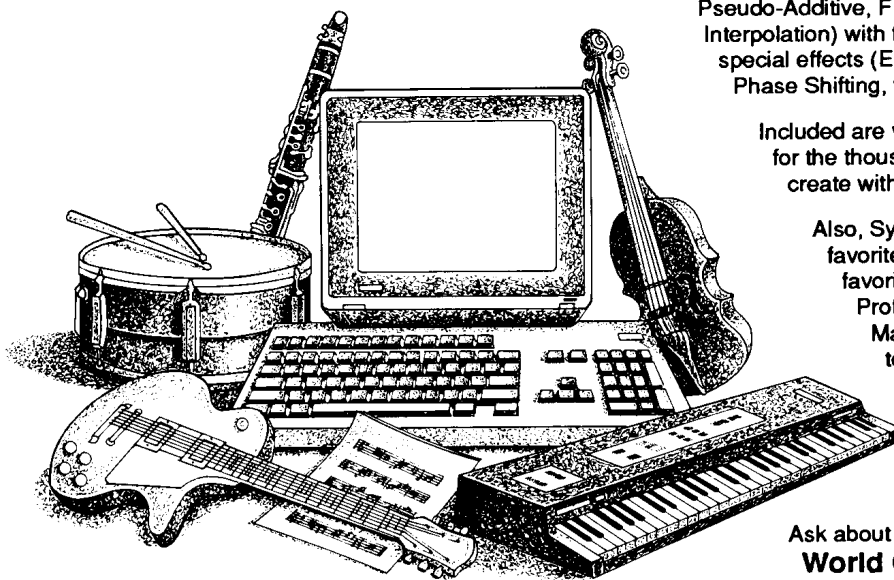
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The ESQ-1 Sequencer Internals Revealed

Part 4 (Performance Data)

Joe Slater

We continue this series of articles by continuing the discussion on the format of the one sequence MIDI dump data from the ESQ1 sequencer. For the most part, the information given should also apply to the SQ-80 sequencer (but I don't have one of those). **WARNING:** The accuracy of the information revealed here has not been confirmed by Ensoniq, so be forewarned!

The previous article (Issue #66) described the first 33 bytes of the one sequence dump, consisting of header and track information. The remaining bytes (if any) that follow is the actual performance data that has been recorded. The size of the performance data can be obtained by subtracting 33 (the size of the header and track information) from the Sequence Size parameter found in the header. Note that there may not be any performance data; such is the case for a newly defined sequence with no recording yet performed.

We know (you do know, don't you?) that the ESQ1 synthesizer can handle MIDI note values of 21..108 (A1..C8, Middle C = C4). This is also true for the ESQ1 sequencer. Simple math shows us that there are 88 different notes to be handled, and the values 0..87 are used by the ESQ1 to identify these notes. Simply adding 21 to the ESQ1 value gives us the appropriate MIDI note number.

The performance data is ordered by event times, with all track data intermixed. It consists of a series of events, with each event type having its own structure (and size). When processing an event, the event type can usually be identified by the first byte. The next event immediately follows the number of bytes used by the current event. The event types based on the value of the first byte (in hexadecimal) are:

```
00h..57h - Note ON
58h..AFh - Note OFF or Note Aftertouch
B0h..EFh - Controller Type
F0h..FFh - System
```

Event times are handled by keeping track of the running time. Delay Events (System) occur which are offsets to be added to the current running time, which becomes the new running time for following events.

Before processing the first event in the performance data, we must therefore initialize the "clock." The clock starts at one MIDI tick BEFORE the first beat of the first measure. If we use the convention of [BAR.BEAT.TICK], this can be represented as [1.1.-1]. As we will later see, the first event is always (MUST BE) a timer (System) event, since the clock is initialized to an imaginary time before the first beat.

Above I stated the System events were in the range (240..255). However, I have found only events 241, 243..245 to exist in the performance data. I BELIEVE that the other codes may be used internally as when playing songs, but these codes won't exist in the performance data. Each system event has its own structure, and let's now examine them.

System Event 241 has nothing to do with performance and is a

64-Quarter Note Event Mark. This marker MUST exist after every 1536 (64 x 24) MIDI ticks, and must be the first event to occur at that time. If the total length of the sequence contains no more than the equivalent of 64 quarter notes, this event will not exist. The event byte is followed by two bytes that form a 16-bit value. This value is an offset added to the location of the previous byte before the offset value (i.e. the System Event 241 byte), which points to the next 64-Quarter Note Event Mark. This offset value is 0 when there are no more 64-Quarter Note Event Marks:

```
11110001 - 64-Quarter Note Event Mark
HHHHHHHH - High Byte of Offset Value
LLLLLLLLL - Low Byte of Offset Value
```

In the previous article, we saw that the header contained such an offset value, which points to the location of the first 64-Quarter Note Event Mark, if any. Since this event has nothing to do with performance, you may wonder why it exists (if you don't care, skip to the next paragraph). It is a rather ingenious technique used to improve performance when locating an arbitrary position in a rather long sequence. Consider a 40-bar 4/4 sequence, and you wish to locate the beginning of bar 33. Without these special event marks, you would have to start at the beginning of the performance data and traverse through all events (possibly several thousand bytes) until you reach bar 33. With these event marks, you simply take the first offset (found in the header) which takes us to an event mark at bar 17. That offset takes us to another event mark at bar 33, and we're there! In computer science, this can sort of be viewed as a tree of level-1 nodes (or more simply, a singly linked-list) with 1536 ticks worth of events at each node. RC030826

System Event 243 is the End of the Sequence. This event must be the last event and must occur on the last MIDI tick of the last beat of the last measure. There are no additional bytes, it simply exists as:

```
11110011 - End of Sequence
```

System Event 244 is a Long Delay event. It is followed by two bytes that form a 16-bit offset value. This value added to the current time is when the next event is to take place:

```
11110100 - Long Delay
HHHHHHHH - High Byte of MIDI Ticks
LLLLLLLLL - Low Byte of MIDI Ticks
```

System Event 245 is a Short Delay event. It is followed by one byte that is an 8-bit offset value. This value added to the current time is when the next event is to take place:

```
11110101 - Short Delay
TTTTTTTT - MIDI Ticks
```

Note ON events have the following structure:

```
NNNNNNNN - Note Number to Play
VVVVVTTT - Note Velocity and Track Number
```

EDDDDDDD - Event Follow? and Note ON Duration
 <TTTTTTTT> - Conditional; Timer Ticks

28 = MIDI Controller 7 - Volume
 29 = MIDI Controller 6 - Data Entry MSB

The value NNNNNNNN (0..87) represents the note to play; simply adding 21 gives us the MIDI note number.

The value VVVVVV (0..31) is the Note ON Velocity (refer to Article 2).

The value TTT (0..7) represents which track (1..8) that data was recorded.

The value DDDDDDD (0..127) is the number of MIDI ticks the note STAYS on. The value of 0 is special; it means to play the note indefinitely, in which case a corresponding Note OFF event must follow somewhere in the performance data. If the true Note ON duration can be given here (1..127), this saves the need for an explicit Note OFF event.

The E value is 1 if the next byte is the start of another event, and is 0 if the next byte TTTTTTTT (0..255) is to be interpreted as the value of an implied System Event 245 (Short Delay).

The Note OFF event has the following structure:

NNNNNNNN - Note Number to Stop Playing
 0000TTT - Track Number

and the Note Aftertouch has the following structure:

NNNNNNNN - Note Number
 1000TTT - Track Number
 0VVVVVVV - Aftertouch Value

The value NNNNNNNN (88..175) represents the note number; subtracting 88 and then adding 21 gives us the MIDI note number.

The value TTT (0..7) represents which track (1..8) that data was recorded.

Note that the way to differentiate a Note OFF and a Note Aftertouch event is by examining the high order bit of the second byte; 0 = Note OFF, 1 = Note Aftertouch. If it is a Note Aftertouch event, a third byte exists which represents the MIDI aftertouch amount (0..127).

Controller type events have the following structure:

CCCCCTTT - Controller Type and Track Number
 0VVVVVVV - Controller Value

The value TTT (0..7) represents which track (1..8) that data was recorded.

The value VVVVVVV (0..127) represents the value associated with the controller type.

The value CCCC (22..29) represents the controller type:

22 = MIDI Message 1110nnnn - Pitch Bend
 23 = MIDI Controller 64 - Sustain Pedal
 24 = MIDI Controller 1 - Mod Wheel
 25 = MIDI Controller 4 or 7 - CV Pedal
 26 = MIDI Controller 0..95 - XCTRL
 27 = MIDI Message 1101nnnn - Channel Aftertouch

Note that Controller Types 26..29 can only be recorded externally via MIDI. Controller Type 27 may only be recorded if PRESS=CHAN on the ESQ1 MIDI PAGE. If PRESS=KEY then Note Aftertouch events may be recorded. Also note that there can be conflicts: If XCTRL=07 on the ESQ1 MIDI PAGE, PEDAL=VOL on the MASTER PAGE and a MIDI Controller 7 message is received, is this recorded as Controller Type 25 (CV Pedal), 26 (XCTRL), or 28 (Volume)? The answer: Controller Type 28 (Volume). But at the beginning of the track, a CV Pedal event is recorded with the TRACK MIX value. Refer to the ESQ1 Manual to understand more about the CV Pedal and XCTRL. Also refer back to Article 1 about Pitch Bend values of 0..127. At best, we see the ESQ1 sequencer can send out 6 different MIDI Controller messages: 1, 4, 6, 7, 64, and any other (0..95). RC030826

If a picture is worth 1K words, let's now consider the following musical passage:



Here's a sample MIDI Dump Interpretation of a 4/4 8-bar sequence of the above recorded on three solo tracks, containing 45 bytes of performance data:

Hex Data	Time	Interpretation
F5 01	1.1.-1	Delay 1 Tick
2B F8 80	1.1.00	Track 1 Note E4 ON Vel=31 Len=0
34 F1 E0	1.1.00	Track 2 Note C#5 ON Vel=30 Len=96
30 E2 00	1.1.00	Track 3 Note A4 ON Vel=28 Len=0
60	1.1.00	Delay 96 Ticks Implied (F5h)
32 F1 60	2.1.00	Track 2 Note B4 ON Vel=30 Len=96
30	2.1.00	Delay 48 Ticks Implied (F5h)
88 02	2.3.00	Track 3 Note A4 OFF
2F CA 30	2.3.00	Track 3 Note G#4 ON Vel=25 Len=48
18	2.3.00	Delay 24 Ticks Implied (F5h)
83 00	2.4.00	Track 1 Note E4 OFF
26 F8 0C	2.4.00	Track 1 Note B3 ON Vel=31 Len=12
0C	2.4.00	Delay 12 Ticks Implied (F5h)
29 F8 0C	2.4.12	Track 1 Note D4 ON Vel=31 Len=12
0C	2.4.12	Delay 12 Ticks Implied (F5h)
28 F8 98	3.1.00	Track 1 Note C#4 ON Vel=31 Len=24
30 F9 98	3.1.00	Track 2 Note A4 ON Vel=31 Len=24
2B FA 98	3.1.00	Track 3 Note E4 ON Vel=31 Len=24
F4 02 3F	3.1.00	Delay 575 Ticks
F3	8.4.23	END

Note that at [2.4.00] the events could have been stored as:

Hex Data	Time	Interpretation
26 F8 8C	2.4.00	Track 1 Note B3 ON Vel=31 Len=12
83 00	2.4.00	Track 1 Note E4 OFF
F5 0C	2.4.00	Delay 12 Ticks

This ordering takes one more byte. Let's further suppose that all tracks are playing locally (in case you forgot, the ESQ1 is 8-note polyphonic). If tracks 2 and/or 3 were actually playing and holding 7 notes since before note E4 on track 1, such a situation could cause a note to prematurely end (Voice Stealing) since track 1 sounds B3 with E4 still on (before E4 is turned off)! The ordering of simultaneous events is therefore very important. Don't expect the ESQ1 to order such events in a specific manner. It could (and will) store such events in either order.

To clarify the values of the 64-Quarter Note Event Mark, a 999 bar sequence was created, with only track 1 playing a Middle C eighth note at the beginning. To the right is the entire one sequence dump and interpretation.

Well that about wraps it up for this article. Stay tuned for a discussion of what can (and needs?) to be done with this data the ESQ1 creates, as well as a program that can interpret a one-sequence dump. ■

Bio: Joe is a proud owner of an ESQ1 (and other related unmentionables). He has been a professional Software Engineer for 10 years, and a Composer/Musician for 19 years. But the Composer/Musician side (and long hair) is definitely taking over.

Hex Data	Time	Interpretation
00 54	-----	Sequence Size = 84
03 E7	-----	Number of Bars = 999
00	-----	Sequence Number = 1
00 25	-----	1st 64-Q Offset = 37
00	-----	Time Signature = 1/8, Loop = OFF
FA	-----	Tempo = 250
02 F0 7E	-----	Trk 1 Pgm 3 Chan=1 BOTH Data=Y Mix=126
FF C0 7E	-----	Trk 2 Pgm - Chan=1 BOTH Data=N Mix=126
FF C0 7E	-----	Trk 3 Pgm - Chan=1 BOTH Data=N Mix=126
FF C0 7E	-----	Trk 4 Pgm - Chan=1 BOTH Data=N Mix=126
FF C0 7E	-----	Trk 5 Pgm - Chan=1 BOTH Data=N Mix=126
FF C0 7E	-----	Trk 6 Pgm - Chan=1 BOTH Data=N Mix=126
FF C0 7E	-----	Trk 7 Pgm - Chan=1 BOTH Data=N Mix=126
FF C0 7E	-----	Trk 8 Pgm - Chan=1 BOTH Data=N Mix=126
F5 01	001.1.-1	Delay 1 Tick
27 C0 8C	001.1.00	Track 1 Note C4 ON Vel=98 Len=12
F4 05 FF	001.1.00	Delay 1535 Ticks
F1 00 06	128.1.11	64 Quarter Note Event Mark Offset=6
F4 06 00	128.1.11	Delay 1536 Ticks
F1 00 06	256.1.11	64 Quarter Note Event Mark Offset=6
F4 06 00	256.1.11	Delay 1536 Ticks
F1 00 06	384.1.11	64 Quarter Note Event Mark Offset=6
F4 06 00	384.1.11	Delay 1536 Ticks
F1 00 06	512.1.11	64 Quarter Note Event Mark Offset=6
F4 06 00	512.1.11	Delay 1536 Ticks
F1 00 06	640.1.11	64 Quarter Note Event Mark Offset=6
F4 06 00	640.1.11	Delay 1536 Ticks
F1 00 06	768.1.11	64 Quarter Note Event Mark Offset=6
F4 06 00	768.1.11	Delay 1536 Ticks
F1 00 00	896.1.11	64 Quarter Note Event Mark [LAST]
F4 04 D4	896.1.11	Delay 1236 Ticks
F3	999.1.11	END

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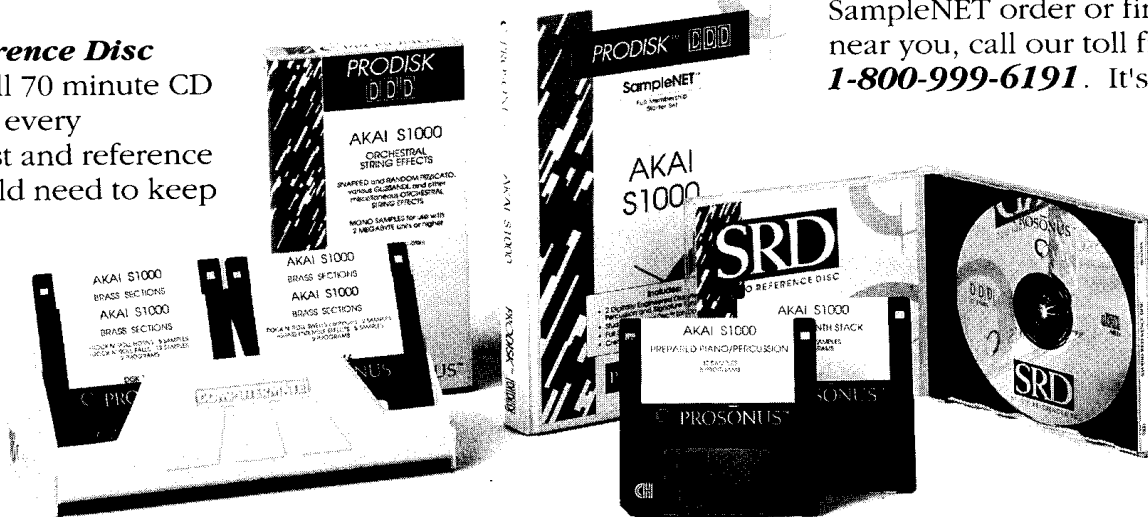
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Pitch Tables and Percussion

Bryce Inman

One of the most enjoyable and elusive challenges for the synthesizer aficionado is the art of imitating real acoustic instruments. Samplers have brought this possibility closer to our grasp. However, it doesn't take long to find out that simulating an acoustic instrument is not often as easy as loading a sample and playing a few notes. Just try imitating the nuances of a jazz saxophone and you'll see what I mean.

By contrast, drums are not nearly as difficult to imitate. Granted, sequencing a good drum track with the proper feel is an art in itself, but if you've got a good sample of a snare drum, all you have to do is hit the proper key and it *sounds* just like a real drum.

Playing flams, ruffs and short rolls on a synthesizer is a bit more of a challenge. Since this is nearly impossible to do if the drum sample you are playing is assigned to only one key, the trick to doing this is to assign several keys to play the same sound at the same pitch and then roll your fingers across the keys to get the desired effect.

Until recently I accomplished this on my sampler (first a Mirage and now an EPS) by making a separate copy of the wavesample for each of the keys I wanted to use for the "roll" and then tuning each one separately so they sounded identical. That's all fine and dandy, but I recently learned a much easier way of accomplishing this on my EPS.

It all began when I was fiddling with some drums on an Ensoniq disk I had purchased. This drum set had several sounds that were set up as I described earlier: A single sound was spread over several keys but all of the keys were tuned to sound exactly the same. I just assumed that these sounds had been programmed with several copies of a wavesample just like I had always done. However, when I started playing around with some of the parameters, I found that all the keys assigned to a particular sound were playing the same wavesample! "Well," thought I, "what have we here? How can one wavesample sound the same pitch on several different keys?" I figured there must be some new kind of modulation on the pitch of this wavesample. So, being a person of sound mind, I went to the pitch page and found—nothing. Curiouser and curiouser. I pushed buttons, scrolled through pages and searched the far corners of my mind until Jabberwocky began to make sense to me.

I finally broke down and called Ensoniq in search of the solution to this most intriguing puzzle. Like a flash of light, I learned the name of the monster that had eluded my grasp for so long: It was none other than the dreaded PITCH TABLE!

Excuse me...I seemed to have gotten a bit carried away.

Pitch tables. When I first got my EPS and read through the manuals I pretty much skipped over the section on pitch tables. The only application I could think of for these things was to set up weird 13th century Zen tunings and that just

wasn't the direction I felt my musical juices flowing. Little did I know that these would provide an easy alternative to my somewhat crude method of tuning drum samples.

The, as it turns out, incredibly simple procedure goes like this: Set up the desired wavesample (a snare drum, for example) to play across the appropriate range of keys—I usually opt for about five white keys since I have about five fingers on my hand for simulating rolls. Make sure the correct wavesample is underlined on the EDIT/Wavesample page. Now press COMMAND and then PITCH to get to the page for editing the pitch table (the EPS will probably ask you to insert the O.S. at this point). When you are asked if you want to edit the pitch table press YES. The display should read E=* O Cents. RC030826

Let's suppose the wavesample with which we are dealing has been assigned the range of C2 to G2 and the key C2 plays the drum at the proper pitch. Press the key C2 and the display will read C2=C2. This means that when you play a note on C2 it will play at the rate (pitch) you would normally expect to hear on this key. (Note: The "cents" control is for fine tuning—this is where you can set up those weird scales I mentioned earlier.) Now press the key D2 and the display should read D2=D2. Push the right arrow so that the second D2 is underlined and then press the down arrow until the display reads D2=C2. This means that when you press the key D2 it will play the pitch normally assigned to key C2. Continue this process until all of the desired keys equal C2 (black keys also if you intend to use them).

Voilà!!! There you have it. In just a couple of minutes you have your keyboard set up for practicing your percussion rudiments—and no extra memory is needed for copies of wavesamples. Using this same method you can set up several different zones across the keyboard to allow your fingers to "roll" any drums that may call for that sort of technique. The EPS also has a command that will allow you to copy your pitch table between layers or even between various instruments. This provides a quick method for setting up all of your drum kits the same way. As always, be sure to save these changes to disk.

It's times like this that I'm glad I spent all those years practicing the piano rather than the drums—even when that wasn't really the cool thing to do. ■

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The Wrath of Star Trek Sound Effects

Kirk Slinkard

In keeping with the true spirit of Star Trek, here is an article that is a sequel. Before we begin, I should mention that the cast of the sixties television series all seem to agree that their series should not be referred to as the "old" Star Trek, but instead should be called the "original" Star Trek. So anyway, on to the patches.

"SENSOR" is probably the most mandatory background sound used on the bridge. It is just a sine wave with both the volume and pitch modulated by square waves and the volume also modulated by a descending ramp on envelope 4. The hardest part of this patch was getting the LFOs synchronized like the original sound. If you have just loaded this one, you might want to play some other patch for a bit to "randomize" the LFOs. This will make the notes sound different from each other, like the original sound.

"PHASER" was originally based, I believe, on an audio test signal called "narrow band noise." Instead of covering all the audio band like white noise or pink noise, this one covers the range of just a few notes. This patch needs to be played in a very specific way to sound accurate. Go to the next-to-highest octave and play F, F#, and G simultaneously for the sound of a hand phaser. Play this along with the same notes in the highest octave to get the sound of the ship's main phaser banks.

This patch has the mod wheel set up to be used in a manner similar to the patch select buttons on the VFX synthesizers. Move the wheel all the way forward to turn off two of the oscillators at their DCAs, then play low D. This sounds a little like the background sound of the engineering room. There are also a couple of options you might want to try. Go to DCA 4 and turn the pan modulator depth up to +63 for a little stereo effect. Also try turning the Mod 2 depths on all three oscillators up to +63. This sounds like a phaser on overload while it is being fired.

"SICBAY" (Sickbay) has two separate sounds and is optimized for middle C. The first sound combines the sawtooth and bass waves for more brightness than a sine wave can give. These are pitch-modulated by an envelope. Tape echo plays a large part of the sound of many of the old (sorry, "original") show's sound effects. This patch uses LFO 1 to give an echo-like decay.

Turn the "patch select" wheel all the way forward to get the "heartbeat" sound. I have always been convinced that this sound was originally achieved by playing a bass guitar into a tape echo, so I chose the bass waveform.

The volume is modulated by a sawtooth wave and a descending ramp from envelope 4 to give an echo sound.

"TRIBBL" (Tribbles) also has two different sounds. With this patch, I tried to capture the Jekyll-and-Hyde aspect of the tribbles' personality. This one is optimized to be played on or around middle C. To get the sound of a tribble cooing, I used LFO 1 to simultaneously modulate a sine wave's pitch and volume. Envelope 1 also gives the pitch a little downward motion. Turn the "patch select" wheel forward to get the sound of a tribble who was just shoved into a Klingon's face. This one uses basically the same technique as the cooing sound but the pitch is higher, the LFO has a sawtooth wave, and the envelope has a different shape.

Well, I hope you can have some fun with these sounds. May you synthesize long and prosper.

Mod you later. — Captain Kirk ■ RC030826

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ESQ-1/SQ-80 PROG: SENSOR								BY: Kirk Slinkard		
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH		
OSC 1	+3	1	0	SINE	KBD2	-63	LFO1	+7		
OSC 2	-	-	-	-	-	-	-	-		
OSC 3	-	-	-	-	-	-	-	-		
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH				
DCA 1	0	ON	LFO2	+63	LFO2	+50				
DCA 2	-	OFF	-	-	-	-				
DCA 3	-	OFF	-	-	-	-				
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH			
FILTER	97	0	0	OFF	-	OFF	-			
	FINAL VOL	PAN	PAN MOD	DEPTH						
DCA 4	63	8	KBD2	+63						
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD		
LFO 1	18	OFF	ON	SQR	63	0	-	OFF		
LFO 2	22	ON	OFF	SQR	0	0	-	LFO3		
LFO 3	14	ON	OFF	SQR	63	0	-	LFO3		
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	+63	+63	+63	0	0	0	0	0	42	0
	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			
	OFF	-	OFF	-	OFF	-	-			

RC030826

ESQ-1/SQ-80 PROG: PHASER								BY: Kirk Slinkard		
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH		
OSC 1	+1	0	0	SINE	LFO1	+14	ENV1	+00		
OSC 2	+1	0	0	SINE	LFO2	+14	ENV1	+00		
OSC 3	+1	0	0	SINE	LFO3	+14	ENV1	+00		
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH				
DCA 1	55	ON	OFF	-	OFF	-				
DCA 2	55	ON	WHEEL	-55	OFF	-				
DCA 3	55	ON	WHEEL	-55	OFF	-				
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH			
FILTER	0	0	63	OFF	-	OFF	-			
	FINAL VOL	PAN	PAN MOD	DEPTH						
DCA 4	63	8	LFO3	+00						
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD		
LFO 1	63	OFF	ON	NOI	63	0	0	OFF		
LFO 2	62	OFF	ON	NOI	63	0	0	OFF		
LFO 3	61	OFF	ON	NOI	63	0	0	OFF		
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-63	0	+63	0	0	0	63	63	63	0
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	+63	+63	+63	0	0	6	0	0	6	0
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC		
MODES	OFF	OFF	OFF	0	OFF	OFF	OFF	OFF		
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY			
	OFF	-	OFF	-	OFF	-	-			

ESQ-1/SQ-80 PROG: SICBAY								BY: Kirk Slinkard		
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH		
OSC 1	+2	7	23	SAW	KBD2	-63	ENV1	+3		
OSC 2	+2	7	25	BASS	KBD2	-63	ENV1	+3		
OSC 3	-3	1	0	BASS	KBD2	-63	KBD2	-1		
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH				
DCA 1	63	ON	LFO1	+63	WHEEL	-63				
DCA 2	63	ON	LFO1	+63	WHEEL	-63				
DCA 3	0	ON	WHEEL	+53	LFO2	-63				
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH			
FILTER	59	0	0	ENV2	+30	WHEEL	-63			
	FINAL VOL	PAN	PAN MOD	DEPTH						
DCA 4	63	4	WHEEL	+63						
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD		
LFO 1	21	ON	OFF	TRI	0	0	0	ENV3		
LFO 2	15	ON	OFF	SAW	0	0	0	WHEEL		
LFO 3	-	-	-	-	-	-	-	-		
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-63	-63	0	0	0	0	10	14	0	0
ENV 2	+63	+63	+63	0	0	0	20	20	15	0
ENV 3	0	+63	+63	0	0	22	6	63	0	0
ENV 4	+63	+63	+63	0	0	0	0	0	39	0
	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			
	OFF	-	OFF	-	OFF	-	-			

ESQ-1/SQ-80 PROG: TRIBBL								BY: Kirk Slinkard		
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH		
OSC 1	0	9	0	SINE	LFO1	+12	ENV1	+5		
OSC 2	+3	1	0	SINE	LFO2	+12	ENV2	+18		
OSC 3	-	-	-	-	-	-	-	-		
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH				
DCA 1	46	ON	LFO1	+24	WHEEL	-63				
DCA 2	00	ON	LFO2	+63	WHEEL	+63				
DCA 3	-	OFF	-	-	-	-				
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH			
FILTER	31	0	20	WHEEL	+26	OFF	-			
	FINAL VOL	PAN	PAN MOD	DEPTH						
DCA 4	63	12	WHEEL	-63						
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD		
LFO 1	63	OFF	ON	TRI	63	9	0	OFF		
LFO 2	63	OFF	ON	SAW	63	0	0	OFF		
LFO 3	-	-	-	-	-	-	-	-		
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	+63	0	0	0	0	0	32	0	0	0
ENV 2	+52	+63	+63	0	0	21	22	22	6	0
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	+63	+63	+63	0	0	10	24	24	15	0
	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			
	OFF	-	OFF	-	OFF	-	-			

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: CHPMNK

by Joe Slater

This sound, when played in the upper registers, reminded me of the "Chipmunks"—hence the name.

The Hack

This percussive synth sound works well throughout the entire keyboard; I like the low and mid ranges best. The patch gets its character from the filter resonance, and from the attack detuning of Oscillator 3 by Envelope 1. By altering the value of the filter resonance, you can easily emphasize or eliminate the "byowww" aspect of CHPMNK, but I like Joe's setting. Still, I had fun raising RES (Q) to 31, which added laser blasts to each note. Turning the filter frequency up to 30 while doing this gave another interesting sound.

I preferred a straighter, somewhat faster vibrato, so I turned the frequency of LFO 1 up to 22, set MOD 1=LFO 1 on the OSC 1 page, and set the MOD 1 DEPTH to +04 on all three oscillator pages.

For a final bit o' fun, I added a hint of portamento, by setting

GLIDE=05 on the MODES page.

SQ-80 Patch: TOKYO

by Sam S. Mims, Syntaur Productions

This is one of my favorite creations for the SQ-80, and makes it sound very much like a D-50. Like the Roland keyboard, a transient attack wave (MALLET) is layered into a sustaining pad (BREATH and TRIANGLE). LFO 1 adds a stereo panning that makes the sound very spacious, and the long release time and the "R" value of the envelope (T4) add a large ambience. As a final D-50 trick, I turned up the filter resonance full blast (to 31), then adjusted the filter frequency to get a nice digital "sheen" on top. Key pressure gives a slight vibrato, and the mod wheel erases the breathy portion of the sound. RC030826

The Hack

With this type of sound, it is easy to get a number of useful variations simply by trying alternate waveforms, as long as the sustaining waves are used in Oscillators 1 and 2, and the transient attack waves go into Oscillator 3. For these attack waveforms, try adjusting the OCTave parameter as well—you'll find plenty of useful variations this way. The BREATH wave works nicely for



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.

ESQ-1 PROG: CHPMNK										BY: Joe Slater	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	0	0	0	SAW	OFF	-	OFF	-			
OSC 2	0	0	3	EL PNO	LFO1	+5	OFF	-			
OSC 3	0	0	0	VOICE2	LFO1	+4	ENV1	+8			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	-	OFF	-	-	-	-					
DCA 2	57	ON	OFF	-	OFF	-					
DCA 3	63	ON	OFF	-	OFF	-					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	0	9	41	ENV3	+45	ENV2	+15				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	8	LFO2	+63							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	20	OFF	ON	TRI	0	1	0	WHEEL			
LFO 2	12	OFF	OFF	TRI	63	0	20	OFF			
LFO 3	-	-	-	-	-	-	-	-			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	0	+19	0	63	0	0	10	8	0	0	
ENV 2	+63	0	0	0	0	0	7	0	0	0	
ENV 3	+63	+30	+1	59	22	0	28	47	37	15	
ENV 4	+63	+47	0	29	63	0	41	63	19	9	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	0	OFF	OFF	OFF	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				

SQ-80 PROG: TOKYO										BY: Sam Mims	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	0	0	6	BREATH	LFO2	+1	OFF	-			
OSC 2	0	0	0	TRIANG	LFO2	+1	OFF	-			
OSC 3	0	0	3	MALLET	OFF	-	OFF	-			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	63	ON	WHEEL	-63	OFF	-					
DCA 2	63	ON	OFF	-	OFF	-					
DCA 3	63	ON	ENV1	+63	VEL X	+21					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	59	31	18	OFF	-	VEL	+24				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	8	LFO1	+63							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	14	OFF	OFF	TRI	63	0	63	WHEEL			
LFO 2	22	OFF	ON	TRI	0	21	20	PRESS			
LFO 3	-	-	-	-	-	-	-	-			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	+33	+26	0	47L	0	0	17	50	34	0	
ENV 2	-	-	-	-	-	-	-	-	-	-	
ENV 3	-	-	-	-	-	-	-	-	-	-	
ENV 4	+63	+44	+7	29L	32	0	29	48	34R	0	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	0	OFF	ON	OFF	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				

VFX Hackerpatch

VFX Prog:1999, by: George Benack, Bronx, NY

Notes: This program is designed to simulate the synth used by Prince in the song 1999. I've added some percussive attack in the high end. It has a "zoom" in the lower registers that can be removed by a patch selection. The mod wheel adds vibrato and filters out treble.

The Hack: The mod wheel actually adds highs to this patch rather than filtering them out, which is fine by me. But it doesn't really add a noticeable vibrato since the LFO parameter on the PITCH MOD pages is usually set to zero. Set these to +02 or so, and set the LEVEL parameters on the LFO pages to 20 or so for a bit more action. I preferred to change the WHEEL and WHEEL+PRESSURE values on the LFO pages

WAVES	1	2	3	4	5	6
Wave	Sawtooth	PipeOrgan	Uni Brass	Sax	Uni Brass	PotLidHit
Wave Class						
Delay	0	0	0	0	0	0
Start			4	0	0	0
Direction			Forward	Forward	Forward	Forward
Vel Start Mod			0	0	0	0

MOD MIXER	1	2	3	4	5	6
SRC-1		Timbr				
SRC-2		Press				
SRC-2 Scale		0.1				
Shape		Linear				

PITCH	1	2	3	4	5	6
Octave	-1	-1	0	-1	-1	0
Semitone	0	0	0	0	0	+7
Fine	+10	0	-6	0	-13	-6
Pitch Table	System	System	System	System	System	System

PITCH MODS	1	2	3	4	5	6
MODSRC	Off	Wheel	Off	Off	Off	Off
MODAMT	0	+8	0	0	0	0
Glide	None	None	None	Mono	None	None
ENV1	0	0	0	0	0	0
LFO1	0	+1	0	0	0	+2

FILTER 1	1	2	3	4	5	6
Mode	2LP	3LP	3LP	2LP	2LP	2LP
Cutoff	0	127	90	127	127	0
KBD	0	+25	0	0	0	0
MODSCR	Press	Mixer	Wheel	Off	Keybd	Off
MODAMT	+51	+29	+19	0	-71	0
ENV2	+99	+50	+10	0	0	+99

FILTER 2	1	2	3	4	5	6
Mode	2LP	1HP	1HP	2HP	2LP	2HP
Cutoff	127	39	30	0	89	0
KBD	0	0	0	0	0	0
MODSCR	Timbr	Off	Wl+Pr	Off	Wl+Pr	Off
MODAMT	-54	0	-99	0	+99	0
ENV2	0	0	0	0	0	+99

OUTPUT	1	2	3	4	5	6
VOL	80	90	67	67	85	80
MODSRC	Off	Wheel	Wl+Pr	Off	Off	Off
MODAMT	0	+32	-5	0	0	0
KBD Scale	Zone	-23	0	Zone	Zone	Zone
LO/Hi Key	C2/C4	A0/C8	A0/A0	C2/C4	C4/C7	C5/C7
Dest Bus	FX1	FX1	FX2	FX2	FX2	FX2
Pan	99	99	50	50	50	50
MODSRC	Off	Off	Off	Off	Off	Off
MODAMT	0	0	0	0	0	0
Pre-Gain	Off	Off	On	On	On	Off
Voice Prior	Medium	Medium	Medium	Medium	Medium	Low
Vel Thresh	0	0	0	0	0	0

LFO	1	2	3	4	5	6
Rate	18	33	36	36	36	35
MODSRC	Press	Wl+Pr	Press	Off	Off	Off
MODAMT	24	+5	24	-	-	0
Level	99	54	99	0	0	0
MODSRC	Wheel	Wl+Pr	Wheel	Wheel	Wheel	Wheel
Delay	0	0	0	0	0	0
Waveshape	Triangle	Triangle	Triangle	Triangle	Sin/Tri	Triangle
Restart	Off	On	Off	Off	Off	Off
Noise SRC RT	0	0	0	0	0	0

to PRESSURE, so that key pressure controlled vibrato independently of the mod wheel's filter work.

The glide ("zoom") effect of Voice 4 is interesting for the bass notes, but is more of a special effect rather than something that should be there all the time. I therefore removed it from the 00 patch select (use Voices 3, 5, and 6 only). Another alternative is to simply switch the GLIDE of Voice 4 to NONE; this leaves the extra punch of the sax waveform without the glide effect. RC030826

The POTLID-HIT is a nice addition to the sound, in that it really helps to define the attack. But a little goes a long way here, and I felt it was a bit too loud in the sound. Turning the OUTPUT VOLUME of Voice 6 down to 60 did it for me. - Sam Mims

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

ENV2

	1	2	3	4	5	6
Initial	99	99	0			99
Peak	99	75	99			57
Break 1	85	50	85			0
Break 2	64	25	64			0
Sustain	27	0	27			0
Attack	0	50	47			2
Decay 1	24	50	44			0
Decay 2	29	50	35			0
Decay 3	57	50	32			0
Release	48*	50	48*			0
KBD Track	0	0	0			0
Vel Curve	Cnvx2	Cnvx2	Cnvx2			Cnvx2
Mode	Normal	Normal	Normal			Normal
Vel-Level	46	50	46			0
Vel-Attack	0	0	0			0

ENV3

	1	2	3	4	5	6
Initial	99	99	98	99	99	99
Peak	99	99	99	99	99	99
Break 1	99	99	99	99	99	0
Break 2	99	99	99	99	99	0
Sustain	99	99	99	99	99	0
Attack	0	0	0	0	0	67
Decay 1	0	38	0	0	0	0
Decay 2	0	43	0	0	0	0
Decay 3	0	50	62	0	60	0
Release	32*	11	28*	28*	28*	10
KBD Track	0	0	0	0	29	0
Vel Curve	Cnvx2	Cnvx2	Cnvx1	Cnvx2	Cnvx1	Cnvx2
Mode	Normal	Normal	Normal	Normal	Normal	Normal
Vel-Level	0	0	16	0	15	0
Vel-Attack	0	0	0	0	0	0

PGM CONTROL

Pitch Table	Off
Bend Range	**
Delay	x1
Restrike	0
Glide Time	35

EFFECTS (1)

Effect	Concert Reverb
Decay	55
FX1 Mix	50
FX2 Mix	25

EFFECTS (2)

Pre-Delay	50
Early Refl Level	10
Early Refl Time	30
Diffusion	58

EFFECTS (3)

FX2 Mode	Nrml Stereo Snd
HF Damping	40
LF Decay	0

PERFORMANCE

Timbre	0
Release	0

Pressure Key

Mirage Soundprocess Hackerpatch

Bruce Wallbillich

Thank goodness for electric piano sounds. I have a tremendous sweet-tooth for them in every variety and the desire to create my own is what pulled me into synth programming. Once you're familiar with the basics of programming in Soundprocess (that's the tough part), all that remains is to apply knowledge of those instruments you probably already have and let your creativity come through.

Here is a good bell piano patch to whet your appetite. It uses three waves from the original Soundprocess System disk's wavetable. Wave #52, E. Piano 2, provides most of the low and mid range frequencies and is used twice with slightly different tunings to provide chorusing. I tuned Wave #48, E. Piano 1, up an octave and combined it with Wave #43, FM Wave, to get the bell-chime sound and most of the high frequencies.

Follow these steps and you won't go wrong:

1) Create a data disk to save the finished program.

A) Load Soundprocess and inset a regular formatted Mirage disk.

B) Press P(17), press "ON" and "ENTER." The drive will kick on for a moment.

2) Set up the program and patch.

A) While on Program 1, set P(00) to 7F.

B) Set P(01) to 1. This makes Patch 1 play over the entire keyboard range - while on Program 1.

C) Set P(54) to 1. This allows us to manipulate the parameters of Patch 1.

3) Key in the program.

4) Save the results to your data disk by pressing "SAVE," "1," and "ENTER."

If you have any patches you would like to share please send them to me care of TH. Hopefully we'll be able to see a Soundprocess Hackerpatch in every few issues. ■

Soundprocess Patch: Bell-Chime Piano

Parameter	Pair 1	Pair 2
Volume Envelope		
[61] Attack	0	0
[62] Peak	11	11
[63] Decay	23	23
[64] Sustain	0	0
[65] Release	16	16
[66] Decay kbd	15	15
[67] Peak vs	31	31
[68] Sustain vs	8	8
Osc A		
[69] Octave	3	3
[70] Fine	0	1
[73] Waveform	43	52
[80] Volume	31	40
Osc B		
[71] Octave	4	2
[72] Fine	0	FE
[74] Waveform	48	52
[81] Volume	31	40
LFO		
[76] Freq	31	31
[77] Depth	0	0
[78] Switch	3	3
MISC		
[75] Algorithm	1	1
[79] Kbd Switch	3	3
[82] Vol Track	8	31
[83] Trig Time	NA	NA
[84] Trig Cntr	NA	NA
Filter		
[89] Attack	0	
[90] Peak	22	
[91] Decay	24	
[92] Sustain	11	
[93] Release	19	
[94] Decay kbd	0	
[95] Peak vs	3	
[96] Sustain vs	4	
[85] Freq	0	
[86] Q	0	
[87] Track	9	
[88] Max Freq	99	
Patch		
[97] Transpose	12	
[98] Volume	63	

Comments: None.



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SOUNDPROCESS for the Mirage. I'd prefer new, but Triton appears to be out of business. Dave Casini, 25743 Cascade St., Hayward, CA 94544.

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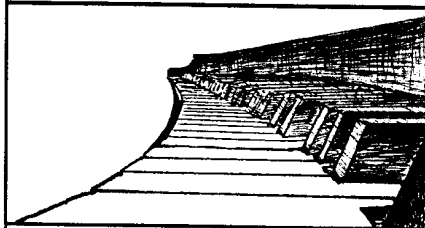
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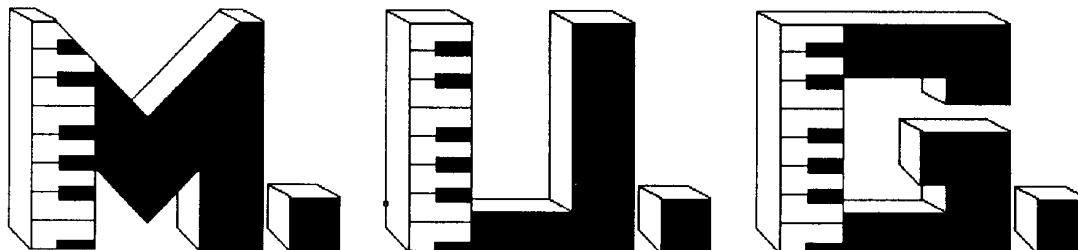
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This is probably one of the most open forums in the music industry. Letter writers are asked to please keep the vitriol to a minimum. Readers are reminded to take everything with a grain of salt. Resident answer-man is Clark Salisbury (CS).

Dear TH readers,

As a result of Bill Lewis's favorable review (TH #56), I purchased Rubber Chicken's VFX samples for the EPS. I agree with Bill that these are excellent sounds, but I'd like to expand on something he touched on briefly in his review. It's true that Garth Hjelte (the man behind Rubber Chicken and contributor to the Hacker) has done a great job of sampling, but more impressive to me are his talents as a programmer.

Sampling is by nature an extremely time consuming craft. It's not surprising, then, that most sound developers spend so much time getting their samples just right that they fail to explore the full potential of their synthesizers. For reasons of convenience, Transoniq Hacker lists its articles as being related to either Samplers or Synthesizers; but let's not forget, the EPS, like any other sampler, is a SYNTHESIZER in every sense of the word!!!

I've heard a ton of sounds from various sources, but none of them come close to the creativity that I've found in the sounds from Rubber Chicken. The 15 disks I bought ("VFX meets EPS" Vols. I and II) contain a neverending source of truly fun and interesting sounds.

The basic sounds on these disks display a wide variety of innovative techniques which take great samples and give them excitement. To go even further, Garth unlocks the power of the EPS with the patch select buttons. He doesn't settle for phased or stereo versions of the original sound; instead, he provides three unique variations that often sound nothing like the original sound. As a result, you can load these sounds into your EPS and have 24 different sounds at your fingertips rather than 8.

I highly recommend these disks to anyone who wants to breathe new life into their EPS. These disks also provide an excellent tutorial for anybody interested in learning advanced programming techniques from a master programmer.

Sincerely,
Bryce Inman
Flower Mound, TX

[CS - OK, Bryce. How much is Garth paying you? And is he looking for any other part-time help? Seriously, thanks for the input.]

Dear TH,

As a previous owner of the ESQ-1 and SQ-80 and a present owner of the VFX-SD, I've been checking out the ESP 16+ in the great line of Ensoniq products. I was confused about the vast standard difference in

the sequencer memory, VFX-SD versus the ESP 16+. Now I don't mind increasing the VFX-SD sequencer memory, which is easier to use, with more tracks, but to consider buying an EPS 16+ with a 160,000 note sequencer standard, when even with its 2 Meg memory for sounds is as limited as the original EPS expanded is hard to swallow.

I want to use the VFX-SD as the master keyboard to operate the EPS 16+ rack-mount with a hard drive. Can I access via MIDI program change, panning, release ex from the VFX-SD's sequencer to the EPS 16+ rackmount loading from hard disk? And when such a system is turned on and a sequence or sound is addressed on the VFX-SD, will the VFX-SD address the EPS 16+ via MIDI for the appropriate instrument program load from hard disk?

As for the VFX-SD, I had thought about the upgrade with the new piano waveforms since I have the original, but I feel that my request to Ensoniq to make further upgrades in adding more waveforms down the road before getting the main board changed seems more practical. How about different voices being added including a crystal glass voice?

I've heard the SQ-1's SC-1 program card and there were some great programmed sounds that I have not heard on the VFX-SD, using chorus and reverb instead of the 8-voice chorus which affects the other instruments in a sad way when in a sequence. Are these SC-1 programs in any recent VFX formats?

As for programs for the VFX-SD, whatever happened to Keel's once-advertised releases? I've called once about 10 months ago and they said they were still working on the programs.

In signing off, I must compliment T.H.; I enjoy the input.

Sincerely yours,
Richard Christman
Cincinnati, OH

[CS - First, it should be pointed out that in the EPS 16+ (as in the original EPS) sequences share memory with the sounds. The 160,000 note memory available in the EPS 16+ is the theoretical maximum available in a standard, unexpanded version into which no sounds have been loaded.

As to your second question, I'm not quite sure that I'm understanding it correctly, but I'll give it a shot.

Panning is modulateable in real time on the EPS 16+ from any of the standard controllers - pressure, velocity, modwheel, pedal, envelopes, LFO's, external con-

trollers, and so on. You will need to pick a controller on the VFX that you wish to use to control panning in the EPS, but there should be no real difficulty in setting things up to work the way you want.

Release time controls in the EPS 16+ are not modulateable, however. As for controlling release time on the EPS 16+ from the VFX, the best thing I can think of would be to program separate layers in the EPS 16+ instruments in question with the release times you want to use, and control these layers via patch selects. This would give you up to four variations of release times (and any other parameters you may wish to vary). Also, by combining the use of patch selects with a modulator (such as the mod wheel, velocity, the mod pedal, etc.), and using that modulator to control the relative volume of various layers within an instrument, you could control up to eight variations of any sound in the EPS. Naturally, this control information could be recorded into the VFX sequencer right along with the note information, yielding automated brightness, release time, pitch control, and so on. As long as you feel comfortable doing the tweaking to the EPS 16+ patches to make it respond in these ways, I see no reason why this shouldn't accomplish what I think you are after. RC030826

Yes, you can send program changes to the 16+ to cause it to load a sound of your choosing from hard disk into the location of your choosing. The one thing I will warn you about, however, is that once the EPS 16+ has initiated the loading of a sound, it will not respond to other program changes (i.e., load requests) until it has finished loading the current sound. Therefore, if you wish to load a number of EPS 16+ instruments, you will need to stagger your program change messages from the host machine - in this case, the VFX-SD.

As for the addition of new waves to the VFX-SD, I think that there's about as much chance that Pat Boone will start covering Madonna songs. But before you run out and spend a bunch of money on the Piano upgrade for your VFX, check out the new piano samples for the EPS. In my opinion, they are among the best pianos that I have heard for any instrument.

I don't really know if any of the sounds from SC-1 are available for the VFX-SD - although it is a relatively simple matter to re-create most SQ-1 sounds on the VFX, and vice versa. If you are having problems due to using the 8-voice chorus in sequences, it's a simple enough matter to change the sequencer effect to either of the chorus+reverb settings. Simply press the 'Effects' button (in the 'Performance' section) twice, and scroll 'til you reach the desired effect. Pressing the 'Effects' button again

(three more times) will take you to the effects routing section. From here, you can assign any voice to FX1, FX2, Dry, Control, or Aux outs.

Kevin Elliot is the brains behind Keel Productions. He can be reached in Canada at 403-762-8737. My understanding is that he is pretty busy with a number of projects and that Keel has taken a bit of a back seat. Keel products have gotten a number of favorable reviews in these pages, though. Perhaps if there is enough interest, Kevin may decide to spend more time supporting Keel customers.]

[Ensoniq – As Clark explained, EPS-16 PLUS sequencer memory is shared with sound memory. Since you already have the VFX-SD, you should probably evaluate the EPS-16 PLUS based on its fidelity, performance features and extensive library of sounds. You already have a powerful sequencer; by adding an EPS-16 PLUS to your system you would get additional polyphony and a very different type of sound source (i.e., sampling) to your set-up. Also, keep in mind that you can expand the EPS-16 PLUS memory to 3 meg with the addition of the optional FB-2 flashbank.]

Fellow Hackers:

I am a victim of Massive Disk Failure. I recently found that 50 of my Mirage disks were corrupted, including samples, ESQ sequences, Soundprocess, and Midicaster sys-ex loads. Anyone living in a climate that has high humidity should take note; this could happen to you and I wouldn't wish it on anyone else.

Some kind of tropical fungus or mold is visible on some of the corrupted disks. Something similar grows on camera lenses, color slides, and audio tape. It is also growing on the backup disks because I had them stored in the same location. Even if you live in an area without high humidity, if your disks are stored with your backups, move one or the other. My problem here in the tropics can be solved by controlling the climate where I store my disks (when I get some new ones) either by using air conditioning or a dehumidifier box.

Second, be aware that corrupted disks can cause hardware problems in the Mirage as well as computers. I will have to return my Mirage again for yet another disk drive, and attempt to acquire some good disks before it returns. Which brings me to the bitch part of this letter regarding customer service.

Any businessman who has an answering machine that says "we'll get back to you" has an obligation to do so. Contacting a customer directly is a vote of confidence for the consumer's product he has purchased, even if they return the call collect. Mark Cecys, aka Triton, whose name is printed in the Hacker's Transoniq-Net every month, won't take the time to call me collect. Why even print his name if he is so unwilling to help? Ditto for Scott Verret of Synthware.

I choose to live out here 5,000 miles from

the closest authorized service center, and I don't mind paying for phone calls for help. I would like to thank Gordon at MUG for his assistance and also, Bob Spencer of Soundprocess (though I am not any longer a Soundprocess user) for his concern. I would appreciate any feedback from anyone about any misunderstandings I might have about anyone I have mentioned in my letter.

P.S.: Maxwell disks seem to resist this fungus more than other brands. Are there any Hackers willing to send a copy of Soundprocess to an original purchaser of the program? I did not get the promotional freebie.

And Ensoniq: Thanks for the new disks you sent, but I feel it is a small consolation for the 8 months it took for me to figure out the cause of my problem, for sending my Mirage to Honolulu three times, and for my phone calls to Malvern and Honolulu. RC030826

Sincerely,
Michael Siegel
Talofoto, Guam

[CS – Oh God – the greenhouse effect, Iraq's going to have the bomb, Star Trek's into reruns, and now this. Is nothing safe? Is nothing to be trusted in this world anymore? Maybe I'll get out my Milli Vanilli record collection – that ought to make me feel better.

By the way, you might note that Mark Cecys has gone on to other things and is no longer involved with Transoniq-Net.]

[TH – Actually, we probably should have removed Mark's name some time ago – but you know how boilerplate is. Thanks.]

[Ensoniq – We're sorry for the difficulties in diagnosing your problem, but you are in a very special situation, living in an environment that is hostile to electronic equipment and quite a distance from a service center. We had never actually heard of "disk fungus" before.

Most disk manufacturers warn against storing their disks in an excessively humid environment. It stands to reason that any contamination on a floppy disk can in turn damage whatever disk drive it's inserted into.]

Dear Mr. Salisbury:

First of all, I would like to thank T.H. for their magazine; I think we all agree about the reason. In my opinion T.H. contributes a lot to Ensoniq's synth products' value.

I would like to know what's happening with Keel Productions. I've been trying to contact them since summer. I know their new address (I read the recent review) and want to buy some sounds and ask about EPS programming and sampling. I've sent a few letters but have gotten no response. Nobody picks up the phone. Also, I would like to know how it could be possible (or why this is not possible) that VFX-SD workstations could have more than one effect simultaneously. Since effect is a part of timbre,

it's difficult to use the workstation multi-timbrally. Is there any hope that, in the future, VFX-SD can be upgraded to multi-timbre effect unit?

Sincerely,
Y. K.
New York

[CS – The VFX-SD uses a single fancy-schmancy signal processing chip. This chip is fancy enough to do more than one effect at a time and the signal routing capabilities found in the tracks section of the VFX gives you a way to route some sounds through one of the multi-effects, and other sounds through another of the multi-effects, allowing for things like having reverb on the guitar patch, and chorusing and reverb on the electric piano patch, and all at the same time. To dedicate a separate effects processing chip to each track in the VFX (which would allow you to have multi-timbral effects of the kind you mention) would drive the price of the VFX up astronomically, and you'd have ended up buying a Yamaha keyboard, or something else instead of the VFX. So count your blessings.

And as far as Keel Productions is concerned, see Richard Christman's letter above.]

[Ensoniq – We might point out that no competing product offers separate effects for each track for the same reason – based on today's technology it would make the product prohibitively expensive. The VFX-SD is considerably more flexible in the area of effects routing than many competing products.]

Hi Hackers,

I'm a student at the Massachusetts Institute of Technology and a proud owner of a VFX. I'm using it in connection with my work in the Music and Cognition Group at the Media Lab. I bought the VFX because it was the only machine that had all of the capabilities I needed for my project in a price range I could afford.

I'd like to share the results of the project with other people who own VFX's and have them connected to a Macintosh. I have devised a dynamic tuning system allowing the VFX to play all perfect intervals, instead of using a static temperament system. This isn't a hack into the pitchtables voices, or a neat sound program. This is a piece of software, running on a Macintosh, changing the temperament system in real time by some clever processing MIDI data.

The result is an incredibly warm, rich sound from all intervals and chords. None of the thirds have beats, no matter where they are played. For that matter, even dissonant intervals don't have the same quality. You have to hear this sound to believe it. There has never in history been a sound like this out of a machine. With the right patches, the illusion of playing a group of physical instruments is stunningly realistic.

I believe that nifty ideas like this should be

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shared with other artists, so they can be widely used, not sold to a corporation for licensing, for a fraction of the money. That's why I am writing to other people who are in a position to use my creation. If you send me your address and \$5.00 to cover the cost of a disk, I'll send you the software with instructions. You are welcome to share it with your friends down the street or with your studio buddies. For those of you who are C hackers, I may be willing to share my source code if you want to twiddle around trying to improve on my ideas. Of course, I'd be interested to learn about improvements so I could use them too.

A note about VFX sound programs. I've been amazed at the number of programs out there that don't use the VFX's ability to modulate the pan in real time. So many programs can be given an extra sense of presence by modulating the pan a little bit with the LFO, especially if it is triggered by afterpressure and also used to make a vibrato. If there are two voices in the sound, it's a good idea to affect one positively and the other negatively to avoid having the voice split into one side that is sharp and one side that is flat by the amount of the vibrato. In general, programs that utilize this have a much more sensitive sound than programs that have a static place in the stereo field. RC030826

Thanks to the *Transoniq Hacker* for providing this creative forum, and Happy Hacking.

Jim Hansen
34 The Fenway
Boston, MA 02215-4092

[CS - Thanks for writing. Your ideas about panning are excellent. I think I may even begin to use some of them in my own work.]

Dear Hacker:

I felt I must write after noticing in the San Francisco Chronicle a number of EPSs and EPS-Ms for sale, no doubt because of the recent debut of the EPS 16+. I must say that I wish Ensoniq would have considered combining ALL their technology into such an innovative product. Why doesn't the EPS 16+ contain the superior VFX-SD version II's sequencer? Those of us who use hard drives are aware that the EPS is not compatible with all Syquest drives. Why not have an internal hard drive ala AKAI S-1000 or Roland S-770 or, better yet, a 40 Meg removable Syquest drive.

And finally, it would be very desirable to include a ROM section of VFX sounds ala Roland's W-30. I know this would drive the price of the new EPS 16+ up considerably. It truly would become a lifetime investment that way (maybe that's why it hasn't been done.)

Sincerely,
Gary Egger
Hanford, CA

[CS - First of all, Gary, try not to think of the VFX's sequencer as superior. Aside from having step entry, more tracks, and a bigger

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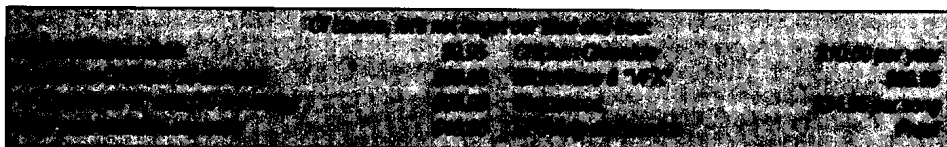
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display, the two sequencers are really not that different. So try to think of the VFX's sequencer as "just maybe a teensy bit better, as if it mattered all that much," not "superior," OK?

While I tend to agree that a built in hard drive is more convenient than an external unit, experience has shown that it is usually much less expensive to buy a hard drive from a company that specializes in producing them, rather than from a musical instrument manufacturer. Perhaps the most persuasive example I can think of is the proprietary 80 megabyte hard drive made available from a major electronic instrument company, and offered as an optional add-on for its then current sampler. For a mere \$2000 or so. I don't know about you, but that seemed a bit expensive to me, even at the time (about 3 1/2 years ago). In addition, Ensoniq doesn't seem to want to get into the hard drive manufacturing business. As flaky as some hard drives seem to be, I'd just as soon not buy one from a company that didn't really want to build it in the first place.

The good news is, though, that Ensoniq does include a ROM section for sounds in the EPS (though it's optional). And it goes the ROM section of Roland's W-30 one better by allowing you to load in any samples you want, not just those on relatively expensive ROM cards (like the W-30, as well as a number of other sample playback machines). It's called Flashbank memory, and it comes in two flavors - 1/2 meg and 1 meg. You can load any samples you want into the Flashbank, and they will remain there - accessible at any time, instantly - even if the power is turned off! This is a very good thing. Now you can have pretty much whatever sounds you want available, whenever you want them. And I'm all for that.]

Dear Sirs:

I own a **Mirage** rackmount driven by a Roland GR 700/707 guitar synthesizer controller. Are there any products available that can transpose the location (not the pitch) of the notes on the fretboard/keyboard? I have the Livewire OS that does MIDI transpose, but it is the pitch that gets transposed, not the location of the wavesamples on the keyboard. Is there a product that can re-map/reassign the location of the existing MIDI number/note map on the fretboard up or down by octaves? For example, I would like to be able to access Mirage notes below the low E string, with corresponding notes higher up on the fretboard/keyboard, without having to do complex wavesample moving and editing.

Thank you for your help.

Very truly yours,
Ron Lemos
West Covina, CA

[CS - There are probably a number of products that will accomplish what you want. The least expensive one I can think of is the Anatek Pocket Transpose, which you can

probably find at your local dealer's. I believe it retails for around \$100.]

Hello:

I'm writing to let you know about the existence of my editor/librarian profile for the Triton "Soundprocess" operating system and Dr. T's XOR (universal editor/librarian). It is a full featured program which allows on-screen editing of all parameters, as well as, librarian functions which make moving wavesamples, patches, programs and waves between sound bands snap.

I have spent a good deal of time using and testing it with both my **Mirage** and my **Mirage** rack, and it presently seems to be bug-free.

It is available free to registered XOR users and is presently located in the "User Upload" area of the Dr. T section on the MUB-BBS (Mac users Berklee). Although I programmed this profile for use on my Atari ST, I believe that XOR profiles are also compatible with the IBM XOR version.

I think this program really brings "Soundprocess" to life. Previously, my attempts at creating new sounds on that wonderfully versatile synth have been frustrated by the primitive 2-digit display on the Mirage. I resigned myself to using the Bob Spencer and Triton sound disks, but even though the programs on these disks were swell, they were still sort of hard to manage on a library level. Anyway, it sure is nice to be able to scroll through a bank of sounds with the mouse, change an envelope or parameter with a click, and hear it immediately. The "harmonic wave create" screen makes the additive synthesis capabilities of Soundprocess a joy. RC030826

Have fun,
Doug Szlompek
Port Washington, NY

[CS - Many Soundprocess users offer their most excellent expressions of appreciation, Doug. Thanks for writing.]

Dear TH,

I became a green-thumbed owner of a used **ESQ-1** a couple of years ago. The choice was between spending only a couple hundred dollars on a cheaply made imitation or a few more dollars for an unlimited adventure - the **ESQ-1!** I've devoured every Hacker article pertaining to the **ESQ-1** or **SQ-80** from the back issue to the current one. You've educated me in my growth from a synth rookie to a mainstream MIDI nut. The unique partnership you have with Ensoniq as an independent forum makes you the best publication of its kind in the world. For Ensoniq's good fortune, you provide the deciding edge over all of their competitors. You simply can't have one without the other and I recommend both to my friends.

My recording studio now revolves around my **ESQ-1** as a controlling backbone including another sound module and effects. I also used a computer (40 Meg Hard Drive

IBM) to backup programs and sequences. I have noticed the **ESQ-1** and **SQ-80** understandably have taken a backseat to the **VFX** and **EPS**. The **EPS**, however, appears to be maintaining a great level of attention. I've become very familiar with the **ESQ-1**'s functions and abilities but know very little about the **EPS**. I'm considering upgrading so I have a few questions concerning their differences.

(1) Since the **EPS** is a sampler, won't it be able to have all the sounds my **ESQ-1** now has (over 3000 programs)? Once sampled into the **EPS**, will I "lose" anything at all like sound quality, timbre, sustain, etc.? If it does the same thing, is there really any reason to hold onto my **ESQ-1**?

(2) What exactly ARE the major improvements the **EPS** would offer me over my relished dinosaur (like 24-note polyphony, storage, disk access, 16 bit, window displays, etc.) and what do these options do?

(3) The third-party sounds I've accumulated for the **ESQ-1** are usually good and fairly inexpensive (about \$20 for a data tape of 40 sounds). It appears the third-party **EPS** sounds are much more expensive. Why? And how much more should I expect to spend for a good set of, say, 40 sounds?

(4) What will the **EPS**'s SCSI port allow me to do? Will it work with my IBM? Would it be faster or better somehow than simply using an editor/librarian program on my IBM?

(5) Do you expect the **EPS** will ever become overshadowed like the **Mirage** and **ESQ-1** apparently have? Or will it instead simply be modified with programmable upgrades? I wouldn't mind spending money on modifications but I hate the thought of winding up with an outdated keyboard and faced with the dilemma of having to come up with \$2500.00 to get the improved Ensoniq product.

Concerning my current **ESQ-1** problem: Using my CV pedal while recording, I know I can alter the volume for that track and when I play that sequence back the track volume will fade in and out the same way (as long as the pedal setting = volume). But is there a way to adjust the sequence volume changes manually after they've already been recorded initially using the CV pedal? When I've tried this using the soft-touch fader buttons, the sequence still always goes back to the original levels and level changes created by the CV pedal in the first place. How about somehow merging the unwanted CV'd track onto a new and improved CV'd track?

Finally, how about offering a list of contact phone numbers or addresses of other Ensoniq users by their areas in which they live? I know there's got to be other Ensoniq users in my area who would like to get together with me and vice versa, but I don't know how to contact them. If you can print my phone number and/or address I'd love to have other Ensoniq Enthusiasts share some ideas.

Thanks for your great gift of help.

Kevin L. Cooter
4819 S. Zeno St.
Aurora, CO 80015
Phone: 303-690-1266

[CS – Kevin, you ask too many questions. But I'm going to give short, concise answers that will only partially have anything to do with anything, anyway, so don't feel bad. No, don't thank me. It's what I'm paid for.

1) – Yes, you can sample any of your ESQ-1 sounds into the EPS, and if you take a reasonable amount of care, they should sound pretty much like the original sounds. They will be in mono (since the EPS samples in mono), rather than stereo, (as they are on the ESQ), though they can be "stereo-ized" through processing in the EPS. Sounds with a lot of harmonic movement, or sounds with heavy chorusing, may be difficult to loop, but don't let that stop you. One approach might be to sample the individual waves from the ESQ, then loop them (which should be pretty easy, since these waves are pretty static) and then try to re-create the ESQ sounds using the processing functions available in the EPS. This may be time consuming, though. Especially if you are planning on converting a large sound library.

You are likely to find, though, that the library of sounds for the EPS is both excellent and extensive. I think that in nine cases out of ten, you'll find an EPS sound already available that equals or exceeds the quality of any given ESQ sound. I'd suggest spending some time with the EPS library if you are having difficulty making a decision. Make a list of all the ESQ sounds that you feel you can't live without, and then look for similar sounds in the EPS library (hopefully, your local music dealer will be of some help). If you find that there is a group of ESQ sounds that have no equivalent in the EPS library, then you could think about whether you want to get involved in sampling them – rather than just hanging onto your ESQ.

2) The major improvements are; it sounds better, it plays more notes at once, it has a disk drive, it has polyphonic pressure, and it samples.

Let me elaborate. The EPS can play up to 20 notes at a time, not 24. This is still a lot of notes, though, especially as compared to the eight available on the ESQ.

The EPS has 16-bit resolution, as compared to the ESQ's 8-bit resolution. Without going into a lot of messy details, this means that sounds will be smoother, quieter, and cleaner from the EPS.

Disk storage means that the EPS provides a place to store unsightly disks – namely into a handy slot directly to the left of the keyboard, right above the pitch and mod wheels. One useful feature is that while a disk is in this slot, sounds and sequences can be saved to or loaded from the afore-

mentioned disk. Disks also are smaller and cheaper than the cartridges that you use for storing sounds on your ESQ, and are a lot more reliable and faster than cassette tapes. Which doesn't really matter, as ESQ tapes and cartridges won't fit into the EPS disk slot anyway.

Disk access means that the EPS knows what to do with disks that are inserted into this slot.

The display window in the EPS functions similarly to the display window in your ESQ – it gives you visual feedback about which buttons to press to accomplish a given task, or reports on the current status of the machine.

Other improvements include the availability of additional audio outputs (primarily of interest for professional and studio applications) significant improvement in the MIDI implementation (particularly if you wish to use the EPS as a keyboard controller), more flexible splitting and layering capabilities, and in the case of the EPS 16+, superb on-board effects (such as reverb, chorusing, distortion, and phase shifting) and the addition of optional Flashbank memory (see Gary Egger's letter above).

There are many, many other differences between the two machines. Your dealer should have spec sheets available, if you need more detailed info.

4) EPS sounds are more expensive primarily because they are more costly and time consuming to produce. The going rate for EPS sounds seems to be hovering around \$5-\$12 per disk. A disk may contain as few as one sound, on up to 10 or more sounds, depending on the nature of the sounds. My guess is that you'll average about 4-5 sounds per disk. Be aware, also, that there are a lot of public domain (i.e. free) samples out there for the EPS – check with your local dealer or user group to see if you can locate a supply.

5) The SCSI (small computer systems interface) is a computer interface that allows for data transfer at high speed – much faster than MIDI, for example. It's two primary uses in the EPS are for connecting to SCSI equipped hard disk drives (which would allow you to store and retrieve large amounts of sample and/or sequence data quickly, since hard drives are much faster and have a great deal more storage space than floppy disks), and for use with sample editing programs running on PC's which are also SCSI equipped. The only sample editing program I know of for IBM-type machines is 'Sample Vision' from Turtle Beach Softworks. I'm afraid I don't know if support for SCSI is implemented in this program.

5) Eventually, everything will become obsolete. What's the lifespan for the EPS look like? Well, considering the recent introduction of the EPS 16+, I'd say not too good. On the other hand, you might find some pretty happenin' deals out there on original recipe EPSs.

The EPS 16+, however, is a brand new machine, and should fare well, as those things go. I personally feel that it's the coolest Ensoniq product to date, but I've always been partial to sampling instruments.

Should you buy one? Only if it makes you happy, or otherwise improves the quality of your life or the lives of your fellow ticket holders on spaceship Earth.

As for your ESQ volume change problem, there is no way to go back and adjust the level of a track manually after you have recorded volume data from the pedal into that track. The best bet is to erase the volume controller data from the problem track and try again. To erase controller data, select the track you wish to work on, press the 'Edit' button, press the button above 'REM-CTRLS' ("remove controllers"), then press the button above 'Yes'. Unfortunately, this will remove any other controllers you may have recorded into the track, so caveat emptor! Now you can overdub volume controller information onto a new, unused track, and then merge this track with the original music track. Unfortunately, you won't be able to hear your volume changes until the two tracks are merged, so it may take a couple of tries to get it right. RC030826

Finally, anyone that we know of who doesn't mind being contacted by strangers interested in schmoozing about Ensoniq products is already listed in Transoniq-Net. If you want to start a user group in your area, we might consider running a free classified for you in the classified section of TH.

Anyway, good luck, and thanks for writing!]

[Ensoniq – 1) We should point out that there is another good reason for keeping the ESQ-1, in addition to the difficulties involved in sampling all its sounds. Keeping the ESQ-1 gives you eight more voices to work with; nobody has ever had too many voices to work with! You also seem to be very familiar with the ESQ-1, why give up an old friend?

5) Of course no manufacturer can promise unlimited upgrades and improvements for an existing product. At some point technology progresses beyond the design structure of any given product. What Clark doesn't mention is that we are still in the process of testing another O.S. upgrade for the EPS, we have stood by the EPS and developed many new functions since its introduction. And ALL sounds developed for the EPS-16 PLUS can be played by the regular EPS. We don't know of any other sampler manufacturer that is still developing new sounds for a product that is over 3 years old.]

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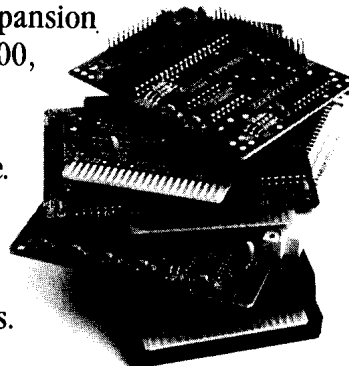
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