

TRANSONIQ HACKER

The Independent News Magazine for Ensoniq Users

Programming Without Pain

Clark Salisbury

Can you synthesize the sound of the London Philharmonic Orchestra tuning up, sneezing, and then going home to bed? Have you written a program for your Sinclair computer which allows you to use MIDI controllers to start your Mr. Coffee and open your garage door? Do you understand the 1990 tax code?

If you answered yes to any of the previous questions (or even thought about it) then this article isn't for you. This article is for the real world. The people with food processors, not word processors. You know who you are - spreadsheet is the first step in making a bed, not a way to calculate cost over-runs. Your VCR flashes "12:00" and has been since the day you plugged it in. RAM is a football player, or a truck maybe. This article is unequivocally, 100% for you.

So somehow you've got yourself involved with an SQ-1. Or maybe one of the VFX family of fine synthesizers. And you love the sounds, but you want more. More, more, more. It's the American way. So you've been spending every Saturday afternoon at your local music store, hoping the salesperson who sold you the keyboard in the first place will have some sonic tonic to quench that sound thirst. Maybe a new piano sound, maybe a pad of some sort, a bagpipe, anything. But the salesperson hides if he sees you first. Maybe you really shouldn't be spending so much time in music stores.

Enter the "Painless (pretty much) Programming Method." Not sold in stores. More fun than a barrel of lemmings.

So here's the deal. You can make up some pretty cool sounds without really having to learn synthesizer programming at all. It's almost like getting something for nothing (a favorite concept of mine). Programming without pain.

For this article, I'm going to assume that you are using an SQ-1, but these same ideas translate easily to the VFX family of synths.

Pick a sound. Any sound. As long as it's ROM sound 01, "Mystic" (on my VFXsd, this same sound is known as "Merlin," and is found in bank 0 of the internal sounds). Play a couple of notes to familiarize yourself with the sound.

I've picked this particular sound mainly because there are at least two distinct things going on - the chimy, metallic attack, and the airy, vocal-ensemble-ish sustain. What we're going to do usually works best with sounds that have at least two different components, as this one does.

Now for the fun part. On the SQ-1, press EDIT. Now press "0." The display should read "Select VOICE:ONE," and directly underneath, "ON ON OFF." Use the arrow buttons to scroll so the word "ONE" in the display is flashing, and hit the up arrow. The display should now read "Select VOICE:ALL." What this means is that any parameter changes you make will affect all active voices in the current patch - two voices, in this case (on the VFX, this same step is accomplished by simply double-clicking the "Select Voice" button).

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Now press the bank "1" button – the display should be showing "Wave=TUNED PERCS," and directly underneath, "RACK BELL." This is showing that the "RACK BELL" wave is one of the waves used in the current patch (on the VFX hit "Wave").

Now select "RACK BELL" (the words should be flashing, or underlined if you are using the VFX). As you may have guessed, we are going to change the wave, but one thing is important, and that is this: use the up and down arrow buttons to make any changes. Do not use the data slider because when you are editing a group of voices at one time, moving the data slider will set the current parameter to the same value for all voices before affecting any change. If, however, you use the cursor buttons to change values, both values will be incremented the same amount.

So what does this have to do with programming without pain? Well, in the painless programming method, we want to alter some things about the program we started with, while maintaining others at some constant. So what we're going to do is try this "Mystic" (or "Merlin" as the case may be) program out, but with some different waves. And we want to change both waves at once, but not to the same thing, so we are going to use the buttons, and not the slider.

So hit one of the buttons already. Try the down button. Play a couple of notes. Pretty cool, huh? A whole new sound, and there was hardly anything to it. Hit the down button again. Still another effect. As a matter of fact, every time you hit the button, you'll get a different sound – well, to a point. Sooner or later you'll reach the beginning (or end, depending on which direction you're going) of the wave list, and things will stop changing. If you haven't found something you like by the time you've reached this point, it's best to start over, rather than simply reversing direction. That's because you will eventually have any voices you are working with all set to the first (STRING ENSEMBLE) or last (MULTI WAVE) wave, and reversing direction to step back through the wave list in the other direction will probably not yield results that are as striking, since all voices will now be playing the same wave, rather than each voice playing a unique wave.

Anyway, this is a good technique for easily getting at a lot of different (some are real different) textures together quickly. For now, let's stop hitting the down button when the display shows "DOORBELL," and let's try a couple of other things.

First, as you are moving through these various combinations, you may hear something that you like, but it might be in an octave that's not great. This is easy enough to change.

Hit the "Pitch" button, then the bank "1" button (VFX guys can just hit the "Pitch" button). Make sure that the "OCT=" parameter is flashing (or underlined on the VFX), and use the up/down buttons to raise or lower the octave to suit. Easy, n'est-ce pas? Try raising the octave a notch on the sound we're currently working with.

Now that we have an interesting texture in an octave we like, let's have some fun with envelopes. Now I know what you're thinking – "Envelopes are complicated and boring, right?" Well, you're right. However, all the boring, complicated stuff's already been done for a bunch of preset envelopes

that Ensoniq built into the instrument, and using the preset envelopes is a snap.

Press the "Amp" button, ("Env3" on the VFX), and then the bank "3" button ("Copy" on the VFX). Press "Enter" ("DEFAULT" on the VFX). This brings you to the preset envelopes built into the SQ-1 and VFX. The envelope showing is probably the "FULL ON" envelope. To copy it into the current program, simply hit "Enter" (hit the soft button above the word "YES" on the VFX). You may want to turn down the volume some before playing anything, though. The "FULL ON" envelope can make things quite a bit louder than they were before. You'll also notice that the sound we've been working with has taken on a bit of an organ-like character, owing to the rather abrupt nature of the "FULL ON" envelope. Let's try some other envelopes.

Press the "Enter" button again (or the soft button under "DEFAULT" on the VFX). If you scroll up one notch, you'll find an envelope called "ALL ZEROS." Don't bother with this one, it'll have the effect of turning the envelope off (sorta), and you won't hear any sound. The next envelope is called "FULL VELRNG" (full velocity range), and it's similar to the "FULL ON" envelope, except that it gives you velocity control of the sound. The next envelope is "SLOW STRING" – try this one out by hitting "Enter" (or "YES"). I kinda like this one – but try some other envelopes as well. The next one is "PIANO DECAY" – hit "Enter" (or "YES") to copy it into the patch. Let's stick with this one for now.

So now that we have a sound more or less together, let's experiment with effects. Hit the "Effect" button (on the VFX, make sure to hit the "Effect" button located in the programming section, rather than the performance section), and simply scroll through the effects to hear what each one does. Of course, individual parameters within each effect can be adjusted, and you may wish to do so. But most of the effects are pretty well optimized to give a pleasing sound when called up in their default state, and since this is programming without pain, that's all we really need.

Anyway, once you've found an effect you like, you're pretty much there. You may want to mess around with the filters (which control brightness, more or less), or with the LFOs, or with any of dozens of other parameters, but remember, this is programming without pain, so try not to overdo.

Once you've arrived at a sound you like, you may want to save it. As a matter of fact, anytime you hear something you like, it would probably be a good idea to save it – it might not be easy to find again later on. A good idea is to make sure that you have your internal sounds stored somewhere, so that you can write new sounds in without fear of erasing some sound you want to keep. Or you might want to listen to the sounds in your internal memory, making a note of the locations of any sounds you don't mind losing should you find yourself in the position of wanting to write an edited sound into memory somewhere. As a matter of fact, you probably should have read this paragraph first before you even started mucking around in there. ■

Front Panel

RND (🎵🎵)

The End of an Era: For the first time in the history of the Hacker there's no Mirage-specific article in the issue. This is not to say there won't be more showing up, but... Now might be a real good time for Mirage owners to consider looking for a used EPS. There's a lot of EPS owners moving on to the 16 PLUS and we suspect it's going to be a buyer's market for used EPSs.

* * *

Error Alert: In Issue #64, Sam Mims' VFX Piano patch 0* should have had Voice 1 selected. And waaay back in Issue #58 Jim Johnson mentioned that the VFX upgrade to 2.0 was free. A reader notes that this in Not Quite The Case. More like the usual: "Send it in and pay for just the labor" type of deal.

* * *

Rubber Chicken Software wants us to mention that Matt Zimmer won the "Name the Chicken" contest with his entry of "Mick Nuggitz." (How do we get involved in these things?? But then, where else could you read news like this?)

* * *

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 - Erech Swanston, Maestro Sounds. 718-465-4058. Call anytime. (NY) If message, 24-hr callback.

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

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

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

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

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

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

MIRAGE 24-HOUR HOTLINE - M.U.G. 212-465-3430.

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.

MIRAGE OPERATING SYSTEM - Mark Cecys. West-Coast Time. Days. (408) 253-8547.

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

HYPERSONIQ NEW PRODUCT RELEASES

Bokonon Technologies announces the release of *TIRESIAS*, the first user friendly EPS editing system for use with Macintosh computers. *TIRESIAS* displays and controls editing of all instrument, layer, wave, and envelope parameters. (Not a sample editor.) Envelopes are displayed graphically with easy editing of all levels and times. Creating, copying and deleting of instruments, layers and waves is done by a simple menu choice. Available now for the introductory price of \$79.95 plus \$5 shipping. For further info: Bokonon Technologies, 1656 W Farwell Ave., #1F, Chicago, IL 60626.

Rubber Chicken Software announces a new 15-disk set of samples for the EPS and EPS-16 PLUS. "*Microwave Chicken*" contains sounds from the new Korg Wavestation. Price: \$59.95. A new product demonstration line is now in operation - a three-minute "hands-on" demo of Rubber Chicken products. The number is (206) 431-8883. For further info: Rubber Chicken Software, PO Box 428, Renton, WA 98057. Phone: 1-800-877-6377.

CHANGE OF ADDRESS

Please let us know at least four weeks in advance to avoid missing any issues. The Post Office really will NOT reliably forward this type of mail. (Believe us, not them!) We need to know both your old and your new address. (Issues missed due to late or no change notification are your own dumb fault—we mailed them!)

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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 Tibetan Bell
 Sound Effects 1 - Domestic Animals
 Sound Effects 2 - Wild Animals
 Sound Effects 3 - Cartoon FX
 Sound Effects 4 - Car FX One
 Sound Effects 5 - Car FX Two
 Sound Effects 6 - Transportation FX
 Sound Effects 7 - X-Rated
 Sound Effects 8 - Military and War FX
 Sound Effects 9 - Household FX
 Sound Effects 10 - Industrial FX
 fairlight II Soundtrax 1
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 Prophet VS --2
 Prophet VS/T8/2000
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 D-50 2
 D-50 3
 D-50 4
 M1-1 - Cloud Nine & Christmas sounds

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 M1-4 - Celestial and Stratos
 M1-5 - Ambrosia and Atlantis
 M1-6 - Galadriel, Lothlorien & Gandalf
 M1-8 - Orchestras 1 and 2
 M1-9 - Orchestras 3 and 4
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 SQ-80
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 Vocal Ensemble 1
 Vocal Ensemble 2
 Vocal Ensemble 3
 Vocal Ensemble 4
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 Rock & Roll Composition Set
 Jazz Composition Set
 New Wave Composition Set
 Rap Age Composition Set
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The ESQ-1 Sequencer Internals Revealed

Part 2 - Note Velocity

Joe Slater

Welcome back! We continue this series of articles by discussing the handling of Note Velocity in the ESQ-1 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!

Note Velocity is associated with both the pressing (NOTE ON) and releasing (NOTE OFF) of a key. The term Note Velocity deals with how quickly (or how hard) a key is pressed or released. Interpretation of Note Velocity is left up to the voice programming on the receiving instrument, but probably the most common interpretation is volume (like an acoustic piano, the harder you press the louder it sounds).

MIDI defines the range of values associated with Note Velocity to be 0..127. Generally, the higher the value, the stronger (usually louder) the velocity-controlled effect. However, a NOTE ON with a velocity of 0 has a special meaning to be interpreted as a NOTE OFF with an implied velocity of 64. This special meaning was introduced to reduce MIDI communications especially suited for instruments which ignore the NOTE OFF velocity value, such as the ESQ1 (I have yet to encounter an instrument which does implement release velocity). This leaves a range of 1...127 velocity values really associated with playing a note.

The ESQ-1 synthesizer implements the full Note Velocity range. It sends and receives MIDI NOTE ON and NOTE OFF messages with velocities of 1..127. But the ESQ-1 sequencer *does not!* In order to save memory, the sequencer defines the range of NOTE ON velocities to be 0...31, and NOTE OFF velocities are not recorded at all.

The ESQ-1 sequencer *always* sends a NOTE OFF velocity of 64. There are 32 (as opposed to 127) different NOTE ON velocities. The ESQ1 sequencer NOTE ON velocity is simply converted as follows (division remainders are discarded):

MIDI → ESQ-1 : $ESQ-1value = MIDIvalue / 4$
ESQ-1 → MIDI : $MIDIvalue = (ESQ-1value \times 4) + 2$

If all receiving instruments (such as the ESQ-1) ignore the NOTE OFF velocity, it is harmless to not record the NOTE OFF velocity. However, downgrading NOTE ON velocities to 32 values can have an adverse effect, even on the ESQ-1. To demonstrate, we will explore the versatile voice programming on the ESQ-1.

The ESQ-1 allows us to alter voice pitch using NOTE ON velocity as a modulator to an oscillator. Suppose that we set MOD1 to VEL+63 and MOD2 to VEL+1. Each MIDI Note Velocity change represents 25 cents. This would give us the following pitch changes associated with MIDI Note Velocity:

1 = + 25 cents
2 = + 50 cents
3 = + 75 cents
4 = + 100 cents (1 semitone)
. . .
120 = +3000 cents (30 semitones)
121 = +3025 cents
122 = +3050 cents
123 = +3075 cents
124 = +3100 cents (31 semitones)
125 = +3125 cents
126 = +3150 cents
127 = +3175 cents

Now suppose that we are recording a track in the ESQ1 sequencer. A given note is played four times in succession, with MIDI NOTE ON velocities of 127, 126, 125, and 124, respectively. During recording, you will hear four distinct pitches, each pitch 25 cents lower than the preceding one. However, during playback, you will hear the same pitch played four times!

This is because the ESQ1 sequencer has recorded and translated the MIDI velocities of 127...124 to internal velocities of 31 each. During playback, the four internal velocities of 31 are translated back to MIDI velocity 126. Due to the loss of precision, playback sounds noticeably different from the original recording!

So we see that the ESQ-1 sequencer does not accurately record what was played; the NOTE ON velocities are scaled down, and the NOTE OFF velocities are lost. The apparent damage done is directly related to how the receiving instruments respond to these velocities. You be the judge!

The next article discusses the long awaited interpretation of ESQ1 sequence MIDI dump data... ■

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.

Adapting Vector Synthesis Concepts to the ESQ-1

Brian Rost

Recently, you may have heard or heard about a new synth, the Yamaha SY-22, which uses a technique called vector synthesis. This is actually not a new technique. It was first marketed in the Sequential Prophet VS about five years ago. Unfortunately, due to financial problems, Sequential soon went bankrupt, causing the impact of the VS to be small. Yamaha bought up the remains of Sequential and finally has brought the technology back to the marketplace.

The basis of vector synthesis is that you take two or four sound sources (Yamaha calls them "elements") and then mix them in real time with a joystick. You can either vary the level of the elements or the detuning. This mixing can be recorded and stored as part of a patch. Essentially it allows you to create complex, multi-stage envelopes. This allows a considerable amount of timbral animation that gives the sounds more life.

Now, before you wonder why I'm bothering to talk about a Yamaha synth, let me point out that it's possible to adapt the vector concepts to the ESQ-1. Of course, the ESQ doesn't have a joystick, but it does have a DCA for each

oscillator, and two modulation inputs to each of these. By modulating the DCAs, we can effectively change the level of the individual oscillators over time, which is what the vector technique is doing. The trick is that instead of inputting the oscillator balance in real time with a joystick, we will have to calculate and enter modulator parameters to accomplish the task.

OK, now on to a patch! Program in VECPAD and play it. It is bell-like when played staccato, but when allowed to sustain, it slowly fades into a thicker pad sound which slowly changes from a square wave timbre to an organ-like timbre, back and forth as long as you sustain the notes. Try playing a block chord first, then enter the same chord as an arpeggio and notice the difference. When all the notes start at the same time, the timbres all shift together. When you stagger the notes, the timbres start to flow against each other, offering a very thick texture. Looking at the patch, we can see that we use ENVI to give us a bell tone in the sound's attack, but this fades away quickly. We use ENV2 to fade in SQUARE and ENV3 to fade in 4OCTS, each at a different rate, then use LFO1 to modulate those envelopes so that these two

ESQ-1 PROG: VECPAD										BY: Brian Rost	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	0	0	0	BELL	OFF	-	OFF	-			
OSC 2	0	0	3	SQUARE	OFF	-	OFF	-			
OSC 3	-1	11	29	4OCTS	OFF	-	OFF	-			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	0	ON	ENV1	+63	OFF	-					
DCA 2	0	ON	ENV2	+40	LFO1	-20					
DCA 3	0	ON	ENV3	+32	LFO1	+20					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	64	0	36	ENV4	+22	OFF	-				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	8	OFF	-							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	2	ON	ON	TRI	0	19	63	LFO2			
LFO 2	1	OFF	ON	TRI	0	24	63	LFO1			
LFO 3	-	-	-	-	-	-	-	-			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	63	0	0	0	0	49	0	0	0	0	
ENV 2	63	63	63	0	0	40	0	0	32	0	
ENV 3	63	63	63	0	0	52	0	0	32	0	
ENV 4	63	63	63	32	0	0	0	0	34	0	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	0	OFF	OFF	ON	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				

ESQ-1 PROG: VECLAY										BY: Brian Rost	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	-2	0	0	PIANO	OFF	-	OFF	-			
OSC 2	-1	11	29	SQUARE	OFF	-	OFF	-			
OSC 3	0	0	3	4OCTS	OFF	-	OFF	-			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	0	ON	ENV1	+48	OFF	-					
DCA 2	0	ON	ENV2	+40	LFO1	-20					
DCA 3	0	ON	ENV3	+32	LFO1	+20					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	64	0	36	ENV4	+22	OFF	-				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	8	OFF	-							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	2	ON	ON	TRI	0	19	63	LFO2			
LFO 2	1	OFF	ON	TRI	0	24	63	LFO1			
LFO 3	-	-	-	-	-	-	-	-			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	63	63	63	0	0	56	0	0	32	0	
ENV 2	63	63	63	0	0	40	0	0	32	0	
ENV 3	63	63	63	0	0	52	0	0	32	0	
ENV 4	63	63	63	32	0	0	0	0	34	0	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	0	OFF	OFF	ON	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY				
	OFF	-	ON	VECPAD	OFF	-	-				

waves slowly cross fade. To add some randomness, notice that LFO1 is modulated by LFO2, and both LFOs have HUMAN set to ON. ENV4 is set up as a gate with a long release, providing the overall envelope for the patch.

Programming the envelopes is easy. Refer to your manual and you will find a chart equating the T parameter to time in seconds. Remember, that if the level at any stage is zero, the T parameter for that stage becomes a delay. It's easy to set up fade time from this chart, tweaking them to taste by ear.

Now program up VECLAY, which is layered with VEC-PAD. It's almost a direct copy except for OSC1 and the detune parameters of OSC2 and OSC3. On OSC1 we set up PIANO as the wave and program ENV1 so that it slowly fades in after the note has sustained for a few seconds. It is tuned down two octaves to add a thick bottom to the layer. The other two oscillators are detuned to provide some chorusing. Note that we could have chosen totally different waves and envelopes for VECLAY to produce an even more complex sound. The price we pay here is pretty obvious: We are reduced to only four note polyphony. However, we get a really thick and animated sound.

You may be saying that this looks sort of like Cross Wave Synthesis as used on the SQ-80 and you would be right.

Both Cross Wave Synthesis and similar synth technologies, like Roland's L/A, use the concept of crossfading waves, but the typical application is to graft an attack sample onto a sustaining wave. Here we are using sustaining waves on all the oscillators. SQ-80 owners should check out some of the factory patches and notice the use of similar techniques. EL-GTR is a good example: the PICK2 wave is faded out and the SQUARE wave faded in. While it isn't done in the patches shown here, you can also modulate the filter and oscillator pitch to add even more timbral complexity to your sounds. The real trick with using this technique is visualizing the timbre changes you want to create. A vector synth using a joystick has the obvious advantage of allowing real time control to create the sound. For experimentation, try using the mod wheel, CV pedal, and pressure as the DCA modulators rather than envelopes and LFOs, and you can mix the oscillators in and out in real time. In fact, on the SQ-80, using the poly pressure feature can give articulation on individual notes within a chord.

So before you think that you have to sell off your ESQ-1 to get the latest and greatest sounds, delve into some creative modulation tricks and you may find that you have the tools to create those sounds already. ■

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Interview: John Greenland

The Creative Force Behind "Soft Robot"

John R. Bolles

Imagine this: A relatively unknown musician who has been working as a sound designer for an electronic musical instrument company decides to record an album. Rather than cover other people's songs, he decides to write his own music—but not just any music. Not Top-40, not New Age, but compositions, thought-out and precisely controlled, and with a rhythmic and dynamic diversity typical of the best of the classics. He has never recorded an album before; in fact, he has barely written music before. Nevertheless, he decides to produce, perform, engineer, and master the entire project himself in his home MIDI studio, using equipment which, by today's high-tech standards—is fairly modest. After completing his project, he sends a cassette copy to one of the industry's most demanding music critics, Electronic Musician's Robert Carlberg. Within a month, he has received a telephone call from a record label interested in his music, based solely on Carlberg's recommendation. The EM review is published and the project is described as "...sophisticated, fully-developed electronic music capable of being mentioned in the same breath as Wendy Carlos." In addition to having received this recognition in EM, the project will also be featured in Keyboard magazine's "Discoveries" department and will be the subject of a National Public Radio special in October.

*This almost fairy tale-like scenario is, in fact, the true story of John Greenland, owner and operator of Greenland Sounds in Phoenixville, PA. The remarkable critical response to his recording, entitled **Soft Robot**, and the astounding quality of the work itself stand as both testimony to Greenland's talents as musician and sound designer and as a tremendous source of encouragement to anyone hoping to realize the same dream. Of special interest to Transoniq Hacker readers is that John formerly worked for Ensoniq and used Ensoniq equipment extensively in the recording of **Soft Robot**. John was eager to do this interview, which he hoped would be of interest and help to TH readers.*

JB—After listening to **Soft Robot** I was immediately impressed with how challenging this music is. Although it is instrumental, it can by no stretch of the imagination be termed "New Age"—it is much too aggressive for that. It strikes me as being very orchestral in its overall sound. What have your musical influences been?

JG—Hearing the Beatles was the first thing that really made me musical. I had a little transistor radio that I used to listen to on my pillow late at night. At first, when the Beatles arrived at the airport I thought they were visiting dignitaries. I was eight years old and didn't understand that stuff. But I realized very quickly that it wasn't that be-

cause all these girls were screaming. Then I saw them on Ed Sullivan and it really, truly—as pretentious and ridiculous as it sounds—changed my life; my life veered off right at that point. I started banging on wastebaskets and lampshades—my first drum kits—and learned the songs off the old Vee-Jay album, "Introducing the Beatles"—the one where they all look like they have red hair. I finally got a drum kit when I turned 13 and started my own band. I went from band to band until the 70s when I got really turned-off by rock-and-roll. I got into ELP and synthesizers. I started *dreaming* about synthesizers. Carlos' "Well-Tempered Synthesizer" was a huge turn-on for me and I started getting posters of ARP 2500s. I listened to early Led Zeppelin, a little folk music, blue-grass, Taste, a little bit of Spooky Tooth, Jethro Tull, early King Crimson, bits and pieces of a dozen others.

JB—Do you have any formal training in classical music or scoring. Anything of that nature? Or is this all stuff you just picked up?

JG—I attended Beaver College as a painting major and took music theory for a year and a half. I hated it. I didn't get along with that mentality. I was at my most rebellious stage. I knew everything—your typical college sophomore—and they were very staid and status quo.

JB—So was the classical music by way of ELP?

JG—Really, I started listening hard-core to classical music around 1970. I sort of worked my way through Bach and Beethoven. I got into a lot of Romantic guys for a long time. I really started enjoying Rachmaninoff—a Neo-Romantic—some Brahms and Wagner—all that grandeur excited me for a while. Then I got turned off by the sentimentality of all that and got into the early 1900s and that's where I've stayed—Stravinsky, Prokofiev, Bartok—mostly Russians it seems. Those were the influences, orchestrally, in my music, but I've never "taken" anything on purpose. I'm sure that an expert might listen to Stravinsky and Bartok and say, "What do you mean? There's none of that in there." But they are all the composers that I love. I listened to them all through college. A little bit of ELP still hung over—but basically all classical. I must have bought 100 records at the school store—\$1 a piece.

JB—You said you started playing in bands when you were 13. What was your band background like? Were you always the drummer?

JG—For the most part I was. And, a lot of times, I was the guy who charted out all the tunes and taught

everybody their parts. I pretty much drifted from band to band in high school. Then during the ELP phase, a friend of mine and I spent probably 100 hours doing recording sessions together. He played B-3 and I played drums. It was all ELP-type stuff. I must have six hours of tapes from those sessions. But that was where I really *learned* drums. In the early 70s I played in a blue-grass band, as sort of a reaction against rock-and-roll. Ironically, that was the most successful band I was ever in. We played at Penn's Landing in front of 4,000 people. We had live radio coverage and we played at the Main Point a couple of times. Actually made money and "filled concert halls." That was a lot of fun. It wasn't my music, though, or at all like my music. I had just become really sick of over-produced rock. All that tight, 70s rock really turned me off. Then disco happened and I just figured I'd never play an instrument again.

Then the Sex Pistols came out and, strangely enough, that was another turning point. Even though I didn't like the darkness and the nastiness and the hatred of the music I loved the fact that they hated production, that they didn't do 24 tracks. They didn't use 19 reverbs or 52 guitar tracks. All the drums didn't have separate mics and all that. So I got into my last band, the Cadets. We all rotated instruments and I played lead guitar, which I had been doing for years, just never in a band. We did some pretty good music. Basically, take away the anger and the hate from the Sex Pistols and you'd have our stuff. We'd sing songs about killer plants. It was like power pop only slightly bizarre. When that dissolved I got a four-track and my first Dr. Rhythm and all those basic things. And all of a sudden there were no more angry wives, no more dealing with guys who would rather get high than work on music and that was the last phase. After that I started working for Ensoniq.

JB—*So you were starting to get into the home studio thing at this point?*

JG—Yeah, I had a little four-track and a couple of guitar effects and guitars. I had the whole thing set up in the baby's closet. When she was taking naps I'd go in there and play.

JB—*When did you start working for Ensoniq?*

JG—I started working for Ensoniq in August of 1985. I'd been a contractor and this guy who had been in bands with me forever starting working there as a board technician, an audio tester. He helped me get the job and I started off in the same capacity, an entry-level board technician.

JB—*You said you had been getting posters of synthesizers, so you had an interest already. But did you have any real knowledge?*

JG—No knowledge whatsoever but lots of interest. And by the time I started working at Ensoniq, I knew exactly what I wanted. I had been in a store with my friend and he was looking at the Mirage, probably the fourth one off the line and I was absolutely amazed. I was convinced that this was the way music was going to be made for the next 20 years.

JB—*So you actually became involved in electronic music during the digital era. MIDI had been developed, the DX7 was on the scene.*

JG—MIDI was still in its infancy but it was there. The DX7 came out at right about the same time as the Mirage. In fact, my friend was trying to choose between the Mirage and DX7. We were very impressed by both machines, but it was the Mirage that really turned me on. The idea of being able to record any sound and play it back in music instantly was very exciting to me...(laughs) even though that was kind of a myth with the Mirage. I mean you could do it theoretically, but the Mirage was not a friendly instrument, with its two-digit hex display. But it was a fabulous innovation for its day. So, because of the interest generated by that trip to the music store and having a friend who worked at Ensoniq, I sought a job there. I was working as a contractor during the day and was working second shift at Ensoniq.

JB—*You must have felt like you were in heaven, working at the company that made the instrument you'd fallen for.*

JG—Exactly. And then I found out you could buy things at company prices! I did really well at my job and worked my way out of manufacturing into engineering and got my own sound room—became a sound designer. That was the only time that had ever happened in that company. Initially I was selling them sounds like any other developer. And every time I'd sell them some sounds, I'd say, "Hey, I'm right here—why don't you just *hire* me to do this?" The ESQ-1 was a year old at that point and they had one cartridge for it. So they brought me in and in my first three months in engineering I designed and released probably 80% of the sounds for the first 10 factory cartridges for the ESQ-1.

JB—*So you picked up all your knowledge of programming techniques while you were working at Ensoniq?*

JG—On my own, yeah. My wife and I went to Puerto Rico for a vacation and I took the beta test manual for the ESQ-1 and studied it on the beach to learn everything there was to know about the machine. I did over 1,000 sounds for that thing in six months. Then the SQ-80 came along and I did most of the waveforms for that and all of the first 400 programs for it. Then I was really on the EPS. Tom Metcalf, an unequalled sound designer—probably one of the best in the world and who has innovated a lot of the things we all take for granted—was busy doing

analog circuitry. They needed him desperately to do that so I ended up being thrust into the EPS. I was pretty green as a sampler.

JB—*Were you making much music at that time?*

JG—No, I couldn't make any music at all. I was hanging over a keyboard 10 hours a day. I'd come home and might go up into the studio and turn stuff on, sit there and look at it and turn it off. I just didn't have it in me. So, in a way, it was a blessing that I stopped working for Ensoniq full-time, because I didn't really start writing music in earnest until then. But I've done developmental work for them ever since. I'm probably the largest single contributor to their whole library, if you spread it out across the ESQ-1, SQ-80, VFX, VFX-SD and EPS. And I've worked on the SQ-1.

JB—*Soft Robot is quite an impressive work. It sounds to me as though you have achieved many of the goals that electronic musicians have been trying to achieve for a long time. I know a lot of people would be very interested in knowing how you accomplished these goals. Why don't we talk about the sounds themselves first. What can you offer in the way of advice in that department?*

JG—Well, first of all, the interest has to be there. I really don't think very many sampler owners are creating their own sounds. Most people want to take the sounds right out of the box and start making music. Most of the time it's drums, organs, pianos, bass, Rhodes, strings and brass. And there's nothing wrong with that. But the ability to sample your own sounds is what makes these things such powerful instruments and that is what is going to make music stand out, make it dynamic and interesting and separate it from all the rest. So the interest has to be there and, also, there's a way of hearing...being tuned in to hearing the musical possibilities in natural sounds. For example, one night my wife got something out of our bathroom vanity and when she shut the door, there was this tremendous THUNK sound. And the door has one of those little child-proofing snap-locks on it, so right at the tail-end of the THUNK, there was this little snap sound. Well, here's this great, resonant wooden box that makes a big sound and this little after-noise and I just thought, "What a great sound." So, within about ten minutes, I was up in the bathroom with my DAT recorder and a mic, slamming the vanity door. I ended up using it for a kick drum sound. I really like Thomas Fuller's definition of music: "...nothing else but wild sounds civilized into time and tune." That's what I try to do; recognize musical possibilities in "wild" sounds, capture them and use them.

JB—*I take it you used few, if any, sounds "right out of the box" on Soft Robot.*

JG—There isn't a single out-of-box sound used here. The few sounds that I used that were public domain, or

Ensoniq-released, most of which were mine, I ended up diddling like crazy because I had very specific needs. Every piece would call for a string section that did this and not that, or I didn't want the wheel to do that, or I wanted the filters to be different. I wanted to re-envelope them there and so on. Everything was diddled to be very specific to the piece. If you re-did all this music with everything right out of the box you'd get that colorless, bland sound I suppose. In an in-store demo it might sound just great but if you're really trying to compose something I think it would lose most of its character.

JB—*Specifically, what were some of the things you did on Soft Robot in terms of sampling? I don't expect you to give away any of your trade secrets but are there some techniques or concepts you could share?*

JG—"Instinct" is a great bundle of home-made sounds. That piece started when my wife came down while I was playing around Alchemy, the wave-editing software. She was making butter and was shaking heavy cream back and forth in a big ball jar while we were sitting there talking. And...of course I had to sample it. Then I put it into Alchemy and slowed it down a whole lot and got a tabla kind of sound out of it. Then I edited the space between the lobs, then looped them in such a way that it was perfectly in beat. I changed it around, panned it and cut the sound in half so I could get the different aspects of the sound panned left and right, going back and forth.

Another time I brought down a big knife and a knife sharpener and made a fairly long sample of the knife sliding all the way across the sharpener. I cut that into little pieces and panned it in different ways. I EQ'ed that on the way in. That's another thing you can do with EQ and the digital EQ in Alchemy is particularly great for this. You can make a sound that is really just marginally musical more so by artificially boosting some fundamental frequency in the sound or you can just decide to make a fundamental frequency. You can make it into a "note." I did that with the knife sharpener.

A sound I used all through the first part of "Instinct" was light bulbs. I dropped, very carefully, several dead light bulbs on the floor until I got just the right sound. I used that and scraped the pieces of glass across the floor with my hand and recorded that. It gave a very brilliant, sparkly sound.

I sampled my voice doing all kinds of syllables and lots of "chiff's" and "cha's," put them on random pan and played them all from the Octapad.

When I'm using the EPS for percussion sounds I take the soft velocity values down around zero, 20 at the highest. Getting the dynamics of a drum is impossible on a sampler anyway and getting it with values that are only half of the loudest value is really impossible.

JB—How do you go about doing that?

JG—First select a layer or wavesample. Then hit EDIT, AMPLITUDE, and ENVELOPE 3. Then simply scroll to SOFT VELOCITY and knock the values way down—I think there are four or five values. Sometimes you need to do it wavesample by wavesample. A snare drum, for example, I won't take as low as some other things. And it's fairly rare with tom toms that you play light. Generally, when I'm using toms, I really beat them. But for cymbals or kick drums or just about anything else, I take the values way down. That's one of the things you can do right off the bat to an out-of-box sound and it will double or triple your dynamic range.

Another thing you can do is go to the Filter section and set ENV 2—making sure the SOFT VELOCITY is ON in ENV 2—and use it as a modulator for the filter cut-offs. In other words, drop the filter cut-offs and raise ENV 2 as a modulator. That way, when you hit it soft, it will be slightly less bright, which is just sort of copies natural acoustics. This is especially useful for percussion. A lot of times you'll find it has already been done. A lot of my sounds that were released by Ensoniq have it.

A little bit of random, in some way or another, is good for adding interest to almost any sound. You can avoid machine gun effects when you play drum rolls, you just generally humanize sounds. You can use the Humanize feature for the LFO's, use two or three increments of random in pitch. In crash cymbals, I always take the random frequency down to zero and then raise the random value in pitch up to 15 or 20. I'm firing from pads all the time, so I want one pad to be cymbals, not four or five. So, if I want different pitches, that random will do it. I'll hit the cymbal one time and it will be one pitch. The next time I hit it, it will be another pitch. For ride cymbals, the values will be way less, maybe 2 or 3, so you can tap it over and over and it won't sound looped and mechanical. The random thing is kind of an unsung feature of the EPS that can be used in vocals, strings, just about anything.

On the beginning of "Air Mosaic," that loud clanging sound is that chime clock over there in the corner, dropped on the floor from a height of about six inches. Shadowfax is using one of the sounds in that piece; it's a lampshade upstairs. They gave me credit on their last record for that one. Each note in that little theme is a separate wavesample and each is panned so that the theme pans across the stereo field from hard left to hard right, and back again. It's a slight pain in the neck but the EPS is probably the easiest keyboard to do that on. The Keyboard function for panning will also do that. Or you can use Patch Selects to pan with, by having one Patch Select at center, one left, one right, anywhere in between.

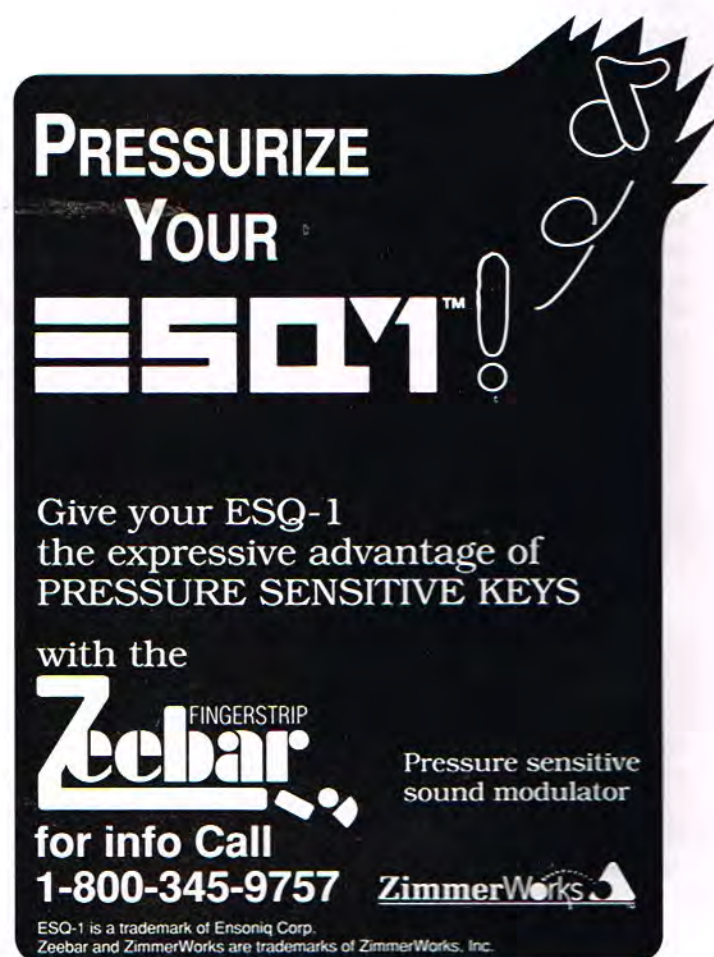
I took some samples off a CD where the entire chorus is clapping and shouting at the same time. So you have 100

guys going (claps and grunts simultaneously) like that and that's the da-da-da-da at the very end of "Instinct."

One of the things I like to do with sampling is combine sounds in such a way that one crossfades into another, like having a string sound fade into an oboe, which fades into a woman's voice and so on. Because they're all natural sounds you feel completely comfortable with it and you think, "I like that sound. That's a ...that's a ...WHAT IS THAT?" Another kind of thing I might do is take a snare drum—which has a very short duration—and combine it with a woman's voice going "AAH." The voice would be truncated so that just as the snare is cutting off, you'd get the tail end of the "AAH" trailing off. So basically you have a snare drum that exhales.

Some of the main orchestral sounds are Mirage sounds—diddled somewhat and played on the EPS. The lead oboe used on "Instinct" and the pizzicato strings—which I think were Tom Metcalf's—are both Mirage sounds. ■

Conclusion next month.



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Bearpaw Sound's Pedal Steel Guitar for the EPS

Reviewed by Ned Selfe

For: EPS, EPS-16 PLUS.
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-ANIMAL LOGIC

Remember that scene in *2001: A Space Odyssey* where the ape/man picks up the jawbone and starts bashing everything in sight? Was this the first instance of searching for the ultimate drum sample? What about when the rival tribe shows up and our aboriginal Einstein realizes that his jawbone drumstick works pretty well at crushing skulls too, even though the sound is, shall we say, a little mushy? Ever notice how these rhetorical questions can be a lot like potato chips? Betcha can't ask just one...

I'm only mentioning it to get your attention and because my reaction to this disk is somewhat philosophical, possibly based on the fact that I'm primarily a pedal steel guitar player. Oh sure, I knew this day would come, even before I patched my steel into a MIDI converter for the first time. I was sad when they finished sampling and synthesizing those "real" string players and sent them off to find piecework as music copyists or computer programmers, and hey, I'll admit I got a little nervous when Timbuk 3 showed up without a drummer, but I figured they'd never be able to replace the likes of me, right?

The good news is (for me, anyway), they haven't done it yet. The bad news (I suppose) is that they're getting closer. As noted in the helpful documentation that accompanies the disk, programmers Dave Fuchs and Eric Phelps encountered a pretty steep learning curve during the course of the project. Though the central idea is pretty simple (slide a piece of metal along a string and it changes pitch), the complications multiply rapidly for a number of reasons, most of which are beyond the scope of this review.

One major problem in translating the pedal steel to disk lies in the question of tuning. Since steel guitars are tuned to some type of open chord (E9th, C6th, B6/E9, etc.), the natural tendency is to tune it so there are no "beats" between the intervals (an untempered tuning). The lack of temperament means that the 3rds (G# in the key of E, for example) will be quite noticeably flat (3.4 to 4 cents on this particular disk), by Western standards. This works out all right with the steel since your are in fact transposing the entire tuning as you move the bar up and down the neck, but not so good for keyboards, because their underlying concept is that all notes are theoretically equidistant from each other (and who could forget Zamfir's version of Bach's "Well Tempered Clavier"...)

Bearpaw's solution to this dilemma is to sample the steel untempered in the key of E, with a little tuning tweak on the 00 patch to help smooth over the more problematic intervals. Whether or not this works well depends on your point of view - I tuned my steel untempered for many years and it seemed to work fine, but after a couple of years of working with MIDI steel, I find that my ear tends to favor a tempered tuning as being more practical and less prone to obvious tuning clashes with other instruments. Personally, I think it would have been better to sample a tempered tuning for use on a keyboard, but in the meantime, if you want to play in keys other than E, you need to transpose the keyboard or the sequencer tracks.

I should add that the steel community is far from united on this point, ranging from those who argue it is not logical or harmonious to tune the steel to a different standard than the rest of the band, to elaborate charts noting exact tuner deviations for each string, to advocates who insist that untempered is the only way to play. In my opinion, the great attraction of untempered tuning is the soul satisfying sound of a chord that is truly in tune with itself - any tampering at all destroys that unique sound, so you might as well go all the way to a fully tempered tuning and save yourself a lot of grief.

One of the key aspects to the unique sound of the steel is the ability to bend some notes while keeping other notes stationary. Bearpaw uses selective pitch bending triggered by pressure for the ** patch to achieve the basis for many of the classic pedal steel moves--the E samples don't bend, while the G#'s bend up a semitone and the B samples bend up 2 semitones, which means you can obtain a 1/6/4/5 progression using finger pressure and the pitch wheel. In this instance, the hardware advances made available with the EPS create an opportunity for programmers and players to emulate the mechanics of pedal steel more closely than ever before.

Before this turns into *2001: An Editor's Nightmare*, I'll cut to the chase. The actual samples themselves are good, although the tone is a little dark for my tastes, but they quickly lose their realism as they stretch out, especially when using pitch bend. The demo sequence was not very convincing, so I give this disk low marks overall. The bright spot is the creative approach to the patch programming, making this a good starting point for delving into the mysteries of the pedal steel. ■

Bio: Ned Selfe is a recording and performing instrumentalist and songwriter based in San Francisco. He has written articles for Steel Guitarist Magazine and Electronic Musician. He is currently exploring the concept of "New Age Steel" and is opposed to the use of the pre-frontal Lambadamy as a cure for The Forbidden Dance.

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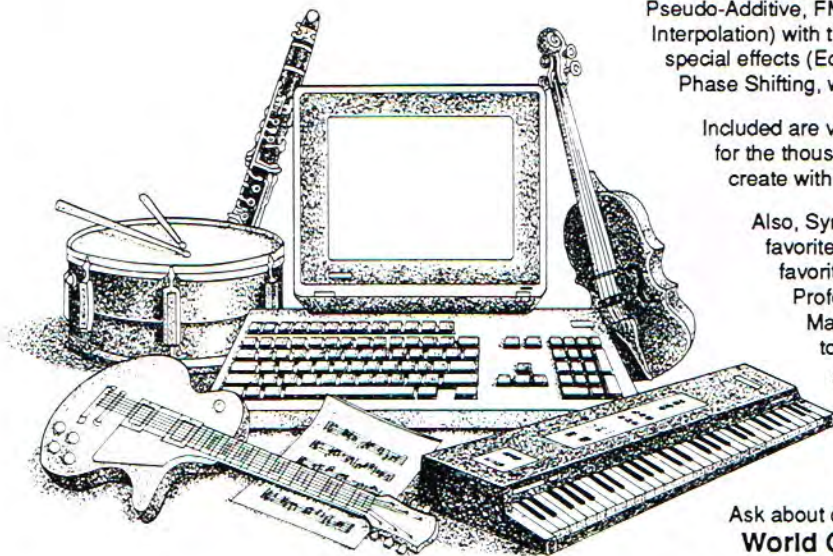
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The Basics of Transwave Modulation

Jim Johnson

In synthesis, modulation is everything.

Long-time readers of my articles have been reminded of the importance of this fundamental principle more than a few times. In most cases, I've emphasized the role of the modulation sources, yet if a synthesizer is to be capable of timbral complexity, it must also have a good selection of modulation destinations, affecting the three basic parameters (pitch, volume, and waveshape) of a wave. Of these, the first two are one-dimensional parameters; you can only raise or lower a sound's pitch or volume. Waveshape, however, has the potential to be varied in many different dimensions simultaneously. The wide range of control that a synth can provide over a sound's waveshape is one of its main advantages over other instruments, so the waveform modulation capabilities of a particular instrument are among the most important in determining its usefulness as a synthesizer.

Dynamic filters are the most common waveform modifiers found in synths. All early analog instruments had at least one voltage controlled filter and many modern instruments such as the VFX and EPS have two filters per voice. However, even in the days of the most primitive analog machines, other methods of waveform modification were used. Non-linear circuit elements were used to create a variable width pulse wave from a sawtooth, to emphasize a particular set of overtones, and for other harmonic transformations. For whatever reasons, these techniques haven't been implemented on digital synths yet, but in a few instruments, such as the PPG and VFX, many of the same effects can be created by sweeping through a series of waveform tables, in which successive waveforms are closely related to those nearby. In the VFX, these wave tables are called transwaves, and can be used to simulate many of the features of true analog synths, such as pulse width modulation and dynamic resonant filters, as well as some things that are only possible on a digital instrument.

In this article, we'll take an in-depth look at the VFX's transwaves, and discuss the best ways to modulate them for specific effects. We'll also look at a patch that shows how transwave modulation can let a single voice have the richness of a layered sound.

As always, the best way to learn about the transwaves is to listen to them, one at a time, in isolation. Therefore, our first step in exploring the transwaves should be to load the VFX's BASIC program (as described in the December 1989 issue of the Hacker), and then make the following changes on voice 1's WAVE page:

```
WAVE = SPECTRL-X START = 0 MODSRC = PEDAL MODAMT = +99
```

(If you don't have a CV pedal, substitute WHEEL for PEDAL, and set the MODSRC on the LFO page (currently WHEEL

to "OFF". If you're using the pedal, you'll also have to make sure CV PEDAL is set to MOD, on the second MASTER page.)

This arrangement lets you step through the transwaves one at a time with the data slider, and simultaneously vary each one over its entire range with the pedal (or mod wheel). By doing this, you can get a good feel not only for how the transwaves sound at any particular START setting, but also how the sound changes throughout the range.

As you listen to each transwave, move the pedal in several different ways – slowly through the entire range, quickly from one end to the other, back and forth over a limited range, etc. By doing this, you'll notice that many transwaves have abrupt transitions from one waveform to another, while others are comparatively smooth. Some transwaves may only have abrupt transitions in a few parts of the spectrum, while others are affected throughout their ranges. These rough edges are a consequence of the engineering decisions Ensoniq made as the transwave tables were being put together. In order to make all of the wave transitions smooth, and still have a wide range of harmonic change from one end of the transwave table to another, a very large number of waves would have been required in each table, which would have meant fewer waves in the other waveclasses.

Here are my impressions of the "smoothness" of the various transwaves found in the VFX. Remember that these are totally subjective judgements, intended only to give you an idea of where I'm coming from. Perform the tests on your own and use your ears as the final judge.

SPECTRL-X: Clicks throughout, especially noticeable on slow sweeps
DIGITAL-X: Smooth in upper half of range, jerky at low end
VOCAL-X: Smooth in low end, abrupt change about halfway
DOCTOR-X: Some steps, not noticeable when swept quickly
INHARM-X: Smooth when swept slowly, clicks when swept quickly
SYNCHRO-X: Pretty smooth, some clicks in lower mid range
OMEGA-X: Smooth in low range, clicks in upper mid
ESQBELL-X: Smooth in upper 2/3, clicks when moved quickly
FORMANT-X: Clicks throughout, especially noticeable on slow sweeps
PLANET-X: Clicks throughout, especially noticeable on slow sweeps
ELECTRO-X: Fairly smooth throughout
PULSE.1-X, PULSE.2-X: Smooth, some clicks when changed quickly
RESONANT1-RESONANT4: Clicks throughout, especially noticeable on slow sweeps

The transwaves that have fairly smooth transitions can be used for just about anything, from slow "animation" type effects to fast sweeps. This is especially true of the PULSE, PLANET-X and ESQBELL-X transwaves, which sound gorgeous when swept with a slow sine wave from the LFO. On the other hand, the transwaves with lots of clicks in them are best suited for sweeps in one direction with an envelope

generator. The transwaves RESONANT1 through RESONANT4 are an ideal example of this: If you sweep any of these with a moderately fast decay envelope (INITIAL = 99, ATTACK = 40, all other times and levels = 0), you'll get that classic analog "oww" sound that everyone either loves or hates. In fact, the RESONANT transwaves even sound good when swept slowly with an LFO around their center point (START = 50), as long as the MODAMT is not set too high. As always, the key here is to experiment, bearing in mind that a few types of transwave modulation just won't sound good, due to the transitions between waves.

And now, as promised, here's an example of a sound that uses a single transwave to create two separate timbral effects. The heart of the sound is modulation of the

ESQBELL-X transwave by both ENV2 and the LFO. The mod mixer is used to sum these two mod sources together and feed them to the transwave mod input; it also gives a slight boost to the level of ENV2. ENV2 provides a quick strike tone at high velocities by sweeping the transwave through most of its range at the beginning of the sound. A few seconds later, the delayed LFO kicks in, wiggling the transwave around its average low value (the START setting). The LFO's frequency is modulated slightly by the NOISE source, to add a touch of unpredictability to the sound, and ENV1 is pressed into service as an oddball LFO (using the REPEAT mode), to provide a mild vibrato. The result is a sound that is much thicker than you'd expect from a single voice. ■

Program: THWACK BELL

WAVES -----1-..	FILTER 2 -----1-..	ENVELOPE 1 -----1-..	Attack	10
Wave ESQBell X	Mode 2 HP	Initial 78	Decay 1	0
Delay 0	Cutoff 0	Peak 0	Decay 2	63
Direction	Keyboard 0	Break 1 72	Decay 3	7
Start 11	Mod Source *Off*	Break 2 0	Release	30*
Vel Start Mod	Mod Amount 0	Sustain 0	KBD Track	0
Loop Length	Env 2 0	Attack 10	Vel Curve Convex 2	
Mod Source Mixer		Decay 1 4	Mode Normal	
Mod Amount +81		Decay 2 2	Vel->Level 0	
	OUTPUT -----1-..	Decay 3 0	Vel->Attack 62	
	Volume 99	Release 0		
	Mod Source Veloc	KBD Track 1		
MOD MIXER -----1-..	Mod Amount +24	Vel Curve LateRise	PROGRAM CONTROL -----	
Source 1 LFO	Key Scale 0	Mode Repeat	Pitch Table Off	
Source 2 Env 2	Lo/Hi Key C 3/C 6	Vel->Level 49	Bend Range 2	
Src 2 Scale 1.5	Dest Bus FX1	Vel->Attack 4	Delay x 1	
Src 2 Shape Linear	Pan 50		Restrike 0	
	Mod Source LFO		Glide Time 0	
	Mod Amount 0	ENVELOPE 2 -----1-..		
PITCH -----1-..	Pre-Gain Off	Initial 99	EFFECTS (1) -----	
Octave 0	Voice Prior Medium	Peak 0	Effect Eight Voice	
Semitone 0	Vel Thresh 0	Break 1 0	Chorus 1	
Fine Tune 0		Break 2 0	FX1 Mix 37	
Pitch Table System		Sustain 0	FX2 Mix 50	
	LFO -----1-..	Attack 3		
PITCH MODS -----1-..	Rate 25	Decay 1 20	EFFECTS (2) -----	
Mod Source *Off*	Mod Source Noise	Decay 2 20	Rate 20	
Mod Amount 0	Mod Amount -5	Decay 3 20	Depth 20	
Glide None	Level 20	Release 96	Delay 20	
Env 1 +1	Mod Source *Off*	KBD Track 0	Feedback +20	
LFO 0	Delay 46	Vel Curve LateRise		
	Waveshape Sine	Mode Normal	EFFECTS (3) -----	
	Restart Off	Vel->Level 48	FX2 Mode Normal	
FILTER 1 -----1-..	Noise Rate 70	Vel->Attack 0	Stereo Send	
Mode 2 LP	SELECT VOICE -----1-..	ENVELOPE 3 -----1-..		
Cutoff 69	00 1	Initial 0		
Keyboard +25	0* 1	Peak 99		
Mod Source Veloc	*0 1	Break 1 88	PERFORMANCE -----	
Mod Amount +55	** 1	Break 2 85	Timbre 0	
Env 2 0		Sustain 84	Release 0	

Converting SQ-80 Sounds to EPS Format

William Pont

Here we are again with our favorite pastime hobby: plundering other machines of their contents to feed our ever hungry sampling toys. By now everybody seeing the word "converting..." knows what's coming – more EPS/MIRAGE mania. This time it's the EPS (what, again?).

Did you ever see the first season of MacGyver? Then you know that this crafty fellow made all kinds of nifty gadgets from other stuff he scavenged from his immediate surroundings. This is exactly what we are going to do in this session of true hacking. The difference is that we already know what we're looking for and where. You don't?? OK, we scavenge sounds and our "immediate surroundings" is the SQ-80. We are going to re-create the SQ-80 programs on the EPS. Let the games begin....

Getting Started

First, the most difficult part: Get an SQ-80. Borrow one from a friend. But since most "friends" and/or musicians don't really want to part with their toy, you can do two things: Wait until he/she goes on holiday or try your local music store. You might end up doing your antics there. I was lucky; my music store let me have one for a few days since I do a lot to promote the Ensoniq line. Get the manual and a copy of the Master disk as well.

Now that you have everything, read the manual. Yeah, yeah—I know. It's 200 pages (more than the EPS AAG). I'll guide you along. Start by saving all sequences/songs AND the internal bank onto the copy of the borrowed SQ-80 diskette.

Press the button labeled -STORAGE-. This is what you get on the display:

```
STORAGE          -SELECT TYPE-  
CARTRIDGE  DISK  MIDI  TAPE
```

Select -DISK-. You now have 5 choices: Delete, Save, Load, Copy and Format.

Press the button under SAVE. Again the display changes, offering to -SAVE NEW FILE- or -UPDATE OLD FILE-. Press the button under SAVE. The rest is pretty obvious to a seasoned hacker so I am not going to reprint the entire SQ-80 manual here. Use the same procedure for FORMAT and COPY as discussed below.

Now format a new disk. The SQ-80 takes a lengthy two minutes for this. When copying a disk, remember that the SQ-80 needs the sequencer memory to temporarily hold data. So make sure that all sequence data is saved. OK, copy the disk with the sounds and sequences. This will involve a bit of disk swapping. Then, remove the sequences

and bank from the borrowed disk; you have now got your own. Make sure you reload the bank into the SQ-80 at the time you return it. Why all this bother? Well, you see, we are going to reset the machine and restore it to optimum performance. You never know how someone else's fiddlings change the filter settings, etc.

The RESET procedure is described in detail on page 16 of the manual, but if you didn't obtain it, following me will get us there anyway.

Press SEQ – REC and while holding it, press the top-left "soft" button above the display. The display will go blank briefly and then announce ' CALIBRATING KEYBOARD – DON'T TOUCH.' After a short while the display shows the first ten instruments of its on-board bank starting with -BELTOM- -MALLET- -HAUNT-, etc.

Next, let's tune the filters. Press SEQ – REC and FILTER. If the SQ-80 is already hooked up to your amplifier, you will hear a couple of high pitched sweeps emanating from the speakers (one for each filter being tuned). As this happens, the display shows values for the filters. When the last value is entered, you are ready to get going.

Press any button. You're back at the bank display. Play some of the sounds. Just press a "soft" button above or below the display and a dotted line shows which of the ten programs is the currently selected one. To get to the next lot of ten, press the key marked INTERNAL on the left of the display, then the one marked '2' and so on. On page iii of the manual is a chart explaining all the keys and their locations.

Getting Acquainted with the Analog Section

There are three buttons in this block named OSC and three named DCA. Then there is one called FILTER and one named DCA4, the final amplifier stage. Below there are three buttons; this is the slow-motion department: the LFO. The last row of four buttons below the LFO's is the EG section. This is where the sounds get their shape or envelope.

A major difference between the EPS and the SQ-80 is that the latter's envelopes, LFO's and filter are common to the "voice" or program, whereas in the EPS, each wavesample has its own filter, LFO, envelopes, etc.

This is important to know since initially you may think that the SQ-80's combined processing power is better than that of the EPS. Look at the LFO's for example. The SQ-80 has three, and that's it. Too bad, so sad. The EPS has one per wavesample.

So even if you have one sample per layer only, you still have three LFO's in the final conversion. The only thing the EPS

doesn't have is a variable resonance (Q). I consider this to be a serious shortcoming. Even the fact that 20 Curtis filters (one for each voice) would have to be used is not excuse enough to remove this very important aspect of samplers/synthesizers. Sounds with a fat filter sweep can therefore not be emulated. An example of such a sound is -MWSWHEEL- (Modulation Wheel Sweep). This one will have to be sampled in full glory. Sounds with a Q lower than 5 in the SQ-80 are ok.

Waves And The Analog Section

Press OSC 1. The display shows:

```
OSC1 OCT=-1 SEMI= 00 FINE= 00 WAVE= BELL2
MODS = LFO1 * +02 ENV * +04
```

This is the oscillator page. You will encounter a lot of this type of page as you delve deeper into programming, in our case de-programming the SQ-80.

OSC2 and OSC3 are the same but have different settings. Before explaining what everything means, it may be helpful to find out what the SQ-80 does and how.

All the SQ-80 programs make use of all three oscillators. Each one can play any of 75 on-board sounds (in ROM). In a lot of cases two of the three oscillators play the same wave, detuned and with different modulators. The onboard sounds are divided into three broad groups:

- | | |
|-----------------|---------------------------|
| 1. Sounds 1-49 | Single cycle looped waves |
| 2. Sounds 50-54 | Inharmonic loops |
| 3. Sounds 55-70 | Attack transients |

Pages 33-39 of the manual go into great detail about each sound. They are further subdivided according to sound source:

- | | |
|-------------------|-----------------------------|
| 1. Sounds 1 – 8 | Classic synth waveforms |
| 2. Sounds 9 – 16 | Sampled waveforms |
| 3. Sounds 17 – 19 | Additive synth waveforms |
| 4. Sounds 20 – 24 | Formants |
| 5. Sounds 25 – 32 | Band limited waveforms |
| 6. Sounds 33 – 49 | Synth and sampled waveforms |
| 7. Sounds 50 – 54 | Inharmonic loops |
| 8. Sounds 55 – 70 | Attack transients. |
| 9. Sounds 71 – 75 | Multisampled drumsets. |

Sounds 1-32 are also present in the ESQ-1. The remainder are unique to the SQ-80.

What is Crosswave Synthesis?

In short: One wave starts, then fades out while the other(s) fade in, thus:

```
{VOLUME 63 31 00 TIME Attack Transient Sustain Wave}
```

Example: -SQ-STR-, a strings program. OSC3 plays the bowing of cellos and violins (multi-sampled sound). Then OSC1 & OSC2 follow after both have been "delayed" by LFO1 and LFO2 respectively to prevent them from playing

with OSC1 simultaneously. Essentially this is the same technique used in LA-synthesis (Linear Arithmetic, whatever that is supposed to mean). The D-50 has many more waveforms on board, over a hundred in fact. Some of them are really weird ones and in some cases, their usefulness is questionable. The quality of those samples leaves a lot to be desired though; they are very noisy, broken up in places and buzzy which leads us to believe that the D-50 samples were recorded at very low sampling rates indeed. Now let's do some "surgery."

Press the softswitch above 'wave' in the OSC1 display. A dotted line settles under 'wave.' Using the Up/Down arrows or the data entry slider you can change the sound currently selected. Listen to the different sounds. "Paging" through the sounds this way does not affect the parameters of the envelopes and LFO's, so you have instant access to at least 50 interesting sustain-type sounds. This is a distinct advantage over any sampler, where you have to set each envelope again for each different wavesample. In the EPS this is done by using the COPY WAVE PARAMETERS command. At best a very tedious job....Let's turn the other oscillators off. We're still hearing all three. Press DCA2. You will get a new page:

```
DCA2 LEVEL = 63 OUTPUT = ON
MODS = * OFF * +00 * OFF * ++00
```

As clever Ensoniq nerds, you have already discovered that the amplifier is turned on with its output at (unmodulated) maximum. Press the softswitch above OUTPUT. The dotted line appears. Now press the down-arrow and the OUTPUT goes OFF. Turn DCA3 off the same way. Now only oscillator 1 is playing. Press the OSC1 switch again; you're back in the OSC1 page and WAVE should still be underlined.

Using the arrow buttons, "flip" through the sounds again. This time they are distinctively different from one another. Select BELL2 for now. We're going to turn off all the modulators. Underline MOD1, move the data-entry slider all the way up and this modulator is off. Silence MOD2 as well. In fact, while you're at it, kill all modulators in DCA4, the filter page and the LFO pages. To make sure that the LFO's have no effect at all, set their frequencies to zero.

Go back to the filter and set FREQ to 127. This opens the filter completely. The sound is now very bright and steady. The last thing to do to get the primordial sound is to neutralize the envelopes. It's nice to know what task these envelopes perform. Initially, I thought that the SQ-80's EH's were assigned the same way as those of the EPS. How wrong I was... Only one of the SQ-80 envelopes is "hardwired." That is ENV4, to DCA4. The other three are freely available for whatever your nutty, little mind fancies. Having rummaged through the various programs, however, I discovered that Ensoniq's programmers use a certain 'rule' when creating those sounds. (Third party programmers unfortunately ignore this convention...)

Usually	ENV1 = oscillator pitch envelope
"	ENV2 = general purpose envelope
"	ENV3 = filter envelope
Always	ENV4 = final sound envelope

A useful aid to make sure what each envelope does is to see what modulators are employed in the OSC, DCA, FILTER and LFO pages.

For instantaneous attack and abrupt decay set the params as follows:

ENV 4	ENV1, 2 and 3
L1 = +63	L1 = +00
L2 = +63	L2 = +00
L3 = +63	L3 = +00
LV = 00	LV = 00
T1 = 00	T1 = 00
T2 = 63	T2 = 00
T3 = 63	T3 = 00
T4 = 00	T4 = 00
TK = 00	TK = 00

Setting the envelopes this way guarantees an attack and decay as described above, even if you forgot to turn off a modulator or two. The envelope should resemble a squarewave. You now have the primeval sounds as they were sampled. Note that there are some sounds consisting of more than one wavesample such as the piano (5), brass (2) and others. Listen for the subtle change in timbre as you play the keys. Your ears are of critical importance here. Another helpful hint before you sample is to set OCT in the OSC page to zero (0). All the samples will be in the same pitch, and after sampling, you play the same key on the EPS. Later when you reconstruct the SQ-80 program, you

set the pitch the same as the original. Range: -3 to +5. Another thing: Sounds 71-75 are multisampled drumsets. They consist of combinations of samples 66-70. Don't sample these as you already have them, just set them up as the manual shows. Finally, sample at 48 KHz or 44KHz; don't use a lower rate. You can always convert down later. And instead of creating a large multisample file, it is better to save individual sounds using the name that is in the SQ-80 directory. (They also load a heck of a lot quicker and you have instant knowledge of the size of your killer sound "under construction." You will end up having more than 37 files on your EPS disk, so create a subdirectory when you reach file 38.

Well, that should have taken the better part of three hours and three disks, didn't it? Those whodunnit in two hours or less surely didn't loop their samples. Do it now. Leave the Transient Attacks alone; just do the single cycle and inharmonic sounds. After looping the single cycle sounds, you can reduce the length of the sound to literally one Single Cycle, just as the name implies. The file's length will then be 4 blocks. Not bad, huh? This looping is going to keep you busy for a while, so let's meet again soon in the plunder department in the next article in this series. ■

Bio: William Pont earns a living by day as a real estate broker and at night as a sound programmer (hoping that by the next day his buyers become sellers again). His application for an entry into the Guinness Book of Records as the most atrocious noise polluter has been turned down three times.



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Is It Live or EPS?

EPS Samples from Keith Thomas

Reviewed by Bryce Inman

For: EPS, EPS-16 PLUS.
Product: EPS Sound disks.
Price: Sounds sold individually from \$3-\$18.
From: Keith B. Thomas, P.O. Box 174, Stratford, ONT, N5A 6T1
Canada.

To put the sounds I'm reviewing this month into perspective, I'd like to begin with an analogy. (I'm sure my English composition professor would be thrilled if he knew that I remembered this clever little writing device after all these years.)

A short time ago I reviewed some samples from Severe Sounds; if samples were cars, you might refer to those sounds as the VW Bugs of EPS samples – not real fancy, but they get the job done. The most attractive characteristic of the VW bug and the samples from Severe Sounds is their efficiency; they're inexpensive, easy to maneuver and don't use much gas (or, in the case of samples, they don't use much memory). To continue the analogy, the samples I'm reviewing this month could be referred to as the Ferraris of samples. They're gorgeous, high-performance samples that leave all the others in the dust. As you might expect, however, they're more expensive and they get lousy gas mileage (eat up a lot of memory, kids).

Due to the unique nature of these sounds, this review really needs to be done in two sections: samples of acoustic instruments and synthesizer samples.

Acoustic Instruments

As its name implies, the EPS was designed primarily to address the inherent difficulties of using a sampler in live performance. If you take a look at the samples currently available on the market, you'll find that just about everybody developing sounds for the EPS has done so with that same perspective in mind. There is almost always an attempt to produce samples that sound good while keeping the amount of memory used within reasonable boundaries.

Exact reproduction of a particular sound isn't as important with synthesized sounds; you can sell a sound called Martian Krybx and not too many people are going to say, "Hey, that doesn't really sound like a Martian Krybx" because few people have had the opportunity to hear the real thing. On the other hand, enough people have heard a real violin to make imitating that sound more difficult. And, due to the very nature of samplers, reproducing acoustic instruments accurately simply requires a lot of memory.

Enter Keith Thomas. He found himself in the position of needing samples that sounded like the real thing – no matter how much memory was required. He was recording in a multi-track studio, one track at a time. In this situation, there was no reason why he couldn't fill up his EPS's entire memory with one sound on the first pass and then fill it up with an entirely different sound on each subsequent pass.

The problem for Keith was that, as far as he knew, nobody was selling sounds which had been developed with an "I don't care how much memory it takes – let's get this sound right" attitude. His solution to the problem was to buy some McGill University Master Samples (M.U.M.S.) CDs and create his own samples from them. (For the uninitiated, M.U.M.S. CDs are a series of CDs containing professional-quality recordings of a wide assortment of acoustic instruments, developed specifically for samplers.) The only criterion for his sounds was that they be as realistic as possible, no matter how much memory it took.

At some point Keith decided it might not be a bad idea to try to sell some of his samples and make a little money for all of his efforts. The result? Simply put, these are by far the best imitations of acoustic instruments I've ever heard on the EPS! It's incredible to hear what the this EPS can do in the hands of a dedicated sound developer. With these sounds loaded into your keyboard, the EPS easily rivals more expensive samplers.

Be forewarned, however – these samples are memory hungry! In order to make these instruments as realistic as possible, Keith has taken multi-sampling to new limits. As he warns, you will need a 4X expander for many of his sounds.

As I played with these sounds, I underlined "Wave-sample" on the display while playing up and down the keyboard. What I found was that, for the most part, each sample only covers two or three notes. What amazed me more than the huge number of samples used for each instrument, was the consistency of each sample. As I played across the keyboard, it was incredible to hear how closely the samples had been matched. There are a few minor tonal differences from sample to sample, but this is more consistent with real acoustic instruments, whose tonal qualities vary slightly from pitch to pitch, than most sampled imitations which sound exactly the same on every note. The final result of this method of sampling is acoustic instruments which work wonderfully across the entire keyboard (or at least within the normal range of each instrument).

The first instrument I loaded into my EPS was the Double Bass (1334 blocks). I was astounded to hear the clarity and richness of the sound. I could almost sense the resin on the bow as it was pulled across the strings! The bass was sampled with vibrato (which is also true of the violin and viola) which left me with mixed feelings. At first I found this a bit disappointing because it tends to be confining: What if I don't want vibrato on some notes? On the other hand, this is the most realistic vibrato I've ever heard. Vibrato which is simulated with LFOs and envelopes always sounds a bit artificial to me. And just about every instrument I've ever heard that was sampled with vibrato sounded rather funky since each sample was stretched across several keys. When sounds are sampled this way, you end up with a slow vibrato on the lower keys and a fast vibrato on the higher keys. Since just about every sample in Keith's instruments only covers about two or three keys, the vibrato sounds perfectly natural across the range of the entire instrument.

Other solo string instruments include violin (3162 blocks) and viola (1702 blocks). Although I noticed a couple of samples in the viola that didn't loop quite as nicely as the others, these generally display the same quality of workmanship as the double bass. All three of these instruments contain both a long bow and a short attack. Each has a patch which gives control over these different bowing techniques through velocity, along with patches which contain each sound individually.

You can purchase each of these three instruments without the short attack which saves 300-400 blocks of memory. You might as well buy the version with both styles of bowing, however, since buying the version without the short attack only saves you one or two dollars. Besides, it wouldn't be that much trouble to buy the sounds combined and then simply delete the short attack layer when it's not in use.

Wind instruments which were sampled from the M.U.M.S. CDs include oboe, bassoon, flute, piccolo and both a mellow and a bright French horn. Each of these instruments sounds absolutely authentic without any signal processing. Add a little reverb (as you would do in any recording situation) and it's nearly impossible to tell these samples from the real thing.

For some time I've been looking for a good French horn and these are certainly the best I've ever heard. I was a bit disappointed (and surprised) to find, however, that, unlike the rest of the instruments in this collection, the French horns seem to have an excessive amount of digital noise. (That's the only negative comment you'll find in this review.)

Synthesizer Samples

Most of the remaining samples were derived from other synthesizers, including a group of D-50 sounds, a group of M1 sounds and several others. I've never spent a sub-

stantial amount of time with any of these keyboards (all four keyboards I have owned are Ensoniq products), so I can't say whether or not these are accurate representations of the original keyboards. I can say, however, that these sounds display the same craftsmanship as the acoustic samples. These sounds are multi-sampled (although not as extensively as the acoustic instruments) so they all work beautifully across the entire keyboard. These are not as memory-hungry as the acoustic samples (a 4X expander isn't required), but the majority are still a bit hefty, falling in the 400 to 800 block range.

This collection contains a large variety of sounds, from acoustic instruments (trumpet, vibes, Oriental instruments, drums, etc.) to synth pads and layers (Fantasia, Vox with bells, Aqua Harp, etc.) and sound effects (Elevator Smash, Big Waves, Space, etc.). My favorites are the D-50 Cathedral Organ and Kurzweil Full Stops Organ - both of which are simply awesome - and the M1 Bottle which is a gorgeous mallet-synth pad layer.

Where To Begin?

My advice to anyone interested in this collection is to begin by purchasing the demo package (\$17 including shipping) which includes a demo disk (the sounds are good but don't do justice to the best sounds in the collection) a catalog and, most importantly, a demo cassette. Of course the quality of the sounds is diminished somewhat on the tape, but the cassette does give a pretty accurate representation of what you'll be buying. As I stated at the beginning of this article, these sounds are a bit pricey (but well worth it) and this tape will help choose your sounds accurately.

Each sound is sold separately, with prices ranging from \$3 to \$18 (there is a \$20 minimum for all orders). You can save some money by purchasing a complete set (purchasing each of the M.U.M.S. sounds separately would cost \$108, but you can buy the entire set for \$85).

Okay, so you've got a sampler that runs circles around the competition in live performance. In that respect, the EPS is an awesome instrument. Now it's time to show your friends that, although Ensoniq concentrated on the performance aspects of the keyboard, they didn't compromise when it came to sound quality. Here, at last, are sounds that will make the discriminating listener take notice! ■

Tested and Approved Hard Drives for the EPS

MANUFACTURER	MODEL
Rodime	45plus, 60plus, 100plus, 140plus
CMS	43SD, 20SD, 30SC, SDU30
Microtek	Nova40
Eltelon	OVD-20, 30, 40, 50, 60, 80, 90, 120
General Computer	Hyperdrive FX/20
Mass Micro	Mass 30e
Supra Drive	MacPlus 20

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.

SQ-80 Patch: FDBKGT

by Jim Lammers, Leawood, KS

For this patch, I tried to imitate an imitation of a distorted feeding-back guitar. The oscillators are hard synced for a fuzzy tone and the frequency of OSC 2 is varied by LFO 3. This makes the waveform change with time and gives a flanged effect. This patch works well with slow, brooding playing.

The Hack

Okay, so we all realize that your SQ-80 is not going to sound like Jimi Hendrix. And I didn't think "Ah - guitar!" when I heard this patch. But it is guitar-ish in some ways and it is a good sound. I particularly like the way the timbre changes as notes are sustained (i.e. the feedback taking over). OSC 3 is the feedback sound, and ENV 1 controls its slow fade-in. I liked changing waveforms for OSC 1 for different sound variations. Try SAW and SQUARE on for size; they hint at a warm tube distortion. As always, to get closer to a guitar sound, play open fifth "power chords" in the left hand, and crank the sound through cheap stomp boxes (distortion and chorus or flanger, for instance) and a guitar amp. To get the sound of a sci-fi laboratory about to explode, simply turn on the AM mode. This patch ports

straight into an ESQ: just ignore the extra letters in the envelope parameters.

ESQ Patch: ARPEKO

by Glen Gafter, Kent, OH

This is an analog-type filter sweep.

The Hack

ARPEKO is a bit more complex than a simple sweep, as the filter starts out open, then closes rapidly, only to open back slowly. ENV 3 is doing the work here. But the sound then ends too abruptly for me. (Note that on the MODES page, CYC=ON, meaning that the envelopes go through their complete cycle regardless of whether a note is sustained or not.) To rectify this, turn off the CYC mode, and adjust the envelopes to taste; ENV 1, 2, and 4 control volumes, while 3 controls the filter.

For a bit of stereo motion, I used ENV 2 as a PAN MODulator, with a DEPTH of -63, and I set PAN=14.

Hackerpatch Request



Any good hackerpatches for CLAPS, RIM or SHAKERS for the VFX-sd? – Orion Engar

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

SQ-80 PROG: FDBKGT								BY: JIM LAMMERS									
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH									
OSC 1	-1	0	0	PULSE	OFF	-	OFF	-									
OSC 2	-1	0	0	PULSE2	OFF	-	LFO3	+33									
OSC 3	0	0	0	SQUARE	LFO2	+1	OFF	-									
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH											
DCA 1	0	ON	ENV2	+63	OFF	-											
DCA 2	0	ON	ENV2	+63	OFF	-											
DCA 3	0	ON	ENV1	+63	PRESS	+26											
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH										
FILTER	42	9	17	VEL	+30	WHEEL	-42										
	FINAL VOL	PAN	PAN MOD	DEPTH													
DCA 4	63	8	LFO1	+43													
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD									
LFO 1	10	ON	OFF	TRI	0	63	13	WHEEL									
LFO 2	13	ON	OFF	TRI	0	63	17	WHEEL									
LFO 3	7	ON	ON	TRI	63	0	63	LFO2									
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK							
ENV 1	0	+54	+24	0L	0	28	42	62	45	0							
ENV 2	+63	+49	+8	18L	0	0	47	51	20R	7							
ENV 3	-	-	-	-	-	-	-	-	-	-							
ENV 4	+63	+57	+51	0L	0	0	44	36	40R	0							
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC									
MODES	ON	OFF	OFF	0	ON	ON	OFF	OFF									
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY										
	OFF	-	OFF	-	OFF	-	-										

ESQ-1 PROG: ARPEKO								BY: GLEN GAFTER									
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH									
OSC 1	0	0	0	SAW	LFO1	+5	OFF	-									
OSC 2	0	0	2	BASS	LFO1	+5	OFF	-									
OSC 3	0	0	5	FORMT5	LFO1	+5	OFF	-									
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH											
DCA 1	3	ON	ENV2	+63	OFF	-											
DCA 2	8	ON	ENV2	+63	VEL	+15											
DCA 3	0	ON	ENV1	+63	OFF	-											
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH										
FILTER	16	21	32	ENV3	+47	VEL	+15										
	FINAL VOL	PAN	PAN MOD	DEPTH													
DCA 4	56	8	OFF	-													
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD									
LFO 1	22	OFF	OFF	TRI	0	0	20	WHEEL									
LFO 2	-	-	-	-	-	-	-	-									
LFO 3	-	-	-	-	-	-	-	-									
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK							
ENV 1	+63	0	0	0	0	0	4	4	0	0							
ENV 2	+63	+36	+29	0	0	0	23	34	23	0							
ENV 3	-11	-27	+22	0	0	17	25	31	19	0							
ENV 4	+63	+56	+38	11	0	0	36	0	23	0							
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC									
MODES	OFF	OFF	OFF	0	OFF	OFF	ON	ON									
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY										
	OFF	-	OFF	-	OFF	-	-										

VFX Hackerpatch

VFX Prog: ULTIMABASS

By: Steve Munro

NOTES: I put four of the bass sounds I use the most into one program. Pre-gain is turned on in all voices to cut through the mix. (Who needs another wimpy bass sound?) Pressure brings in vibrato.

THE HACK: There are enough basses here to get you to home plate. The effects add a lot to this sound, but I felt that the reverb was too long for a bass patch, so I turned the reverb decay time down to 33 for a cleaner sound. The *O patch select packs a mighty punch, but again, I

felt that the effects settings – in this case, the digital delay effect – would muddy the bass line during a song. My cure was to turn the delay time to 22; this left the slapback as part of the sound, but made it extremely short so that the sound has more of a double attack rather than an echo. If your music doesn't call for an upright bass (the OO patch select), you might try changing the waveform of voice 6 to PICK-BASS. – Sam Mims

WAVES	1	2	3	4	5	6
Wave	PluckBass	SynBass2	Gtr Harmo	Pop Bass	Sinewave	DoublBass
Wave Class	0	0	0	0	0	0
Delay	Forward	Forward	Forward	Forward	Forward	Forward
Start	0	0	0	20	0	0
Vel Start Mod	0	0	0	0	0	0

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

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

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

FILTER 1	1	2	3	4	5	6
Mode	2LP	2LP	2LP	2LP	2LP	2LP
Cutoff	127	127	127	127	127	127
KBD	0	0	0	0	0	0
MODSCR	Off	Off	Off	Off	Off	Off
MODAMT	0	0	0	0	0	0
ENV2	0	0	0	0	0	0

FILTER 2	1	2	3	4	5	6
Mode	2LP	2LP	2LP	2LP	2LP	2LP
Cutoff	127	127	127	127	127	127
KBD	0	0	0	0	0	0
MODSCR	Off	Off	Off	Off	Off	Off
MODAMT	0	0	0	0	0	0
ENV2	0	0	0	0	0	0

OUTPUT	1	2	3	4	5	6
VOL	90	99	99	99	75	99
MODSRC	Off	Off	Off	Off	Off	Off
MODAMT	0	0	0	0	0	0
KBD Scale	0	0	0	0	0	0
LO/Hi Key	-	-	-	-	-	-
Dest Bus	FX1	FX1	FX2	FX2	FX1	FX2
Pan	40	60	50	50	50	50
MODSRC	Noise	Noise	Noise	LFO	Off	Noise
MODAMT	-20	+20	+66	+20	0	+10
Pre-Gain	On	On	On	On	On	On
Voice Prior	Medium	Medium	Medium	Medium	Medium	High
Vel Thresh	0	0	0	0	0	0

LFO	1	2	3	4	5	6
Rate	25	26	26	26	26	27
MODSRC	Press	Press	Press	Press	Press	Press
MODAMT	+15	+10	+10	+10	+10	+10
Level	0	0	0	0	0	0
MODSRC	Press	Press	Press	Press	Press	Press
Delay	0	0	0	0	0	0
Waveshape	Triangle	Triangle	Triangle	Triangle	Triangle	Triangle
Restart	Off	Off	Off	Off	Off	Off
Noise SRC RT	0	0	0	0	0	0

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

ENV3	1	2	3	4	5	6
Initial	99	99	99	99	99	99
Peak	99	99	99	99	99	99
Break 1	75	75	75	75	75	75
Break 2	56	56	56	56	56	56
Sustain	0	0	0	0	0	0
Attack	0	0	0	0	0	0
Decay 1	45	45	45	45	45	45
Decay 2	52	52	52	52	52	52
Decay 3	70	70	70	70	70	70
Release	30*	30*	30*	30*	30*	30*
KBD Track	28	28	28	28	28	28
Vel Curve	Convx1	Convx1	Convx1	Convx1	Convx1	Convx1
Mode	Normal	Normal	Normal	Normal	Normal	Normal
Vel-Level	18	18	18	18	18	18
Vel-Attack	0	0	0	0	0	0

PGM CONTROL

Pitch Table	Off
Bend Range	2
Delay	x 1
Restrike	40
Glide Time	0

EFFECTS (1)

Effect Flange/Delay & Revrb2	
Decay 60	
FX1	30
FX2	50

EFFECTS (2)

Rate	50
Min	50
Max	100
Feedback	-75

EFFECTS (3)

Delay Time	110
Regen	0
Mix	30
HF Cut	Off

PERFORMANCE

Timbre	0
Release	0

Pressure Key

Classifieds

SAMPLES

Looking for all EPS users to swap sounds via mail. Send your sound lists to LOWER VALLEY EPS, P.O. Box 577, Prosser, WA 99350-0577.

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

Quality EPS orchestral samples. MUMS (McGill University Master Samples CD). Also M1, D50, Kurzweil, crazy original samples. For demo disk, cassette and catalog \$12 (US). Free shipping. In Canada, \$14 (Can.). K. B. Thomas, PO Box 174, Stratford, ONT, N5A 6T1 Canada.

Looking for EPS users all over the world to swap sounds. (250 disks.) Send your sound listing to: Patrick Voes, Tongersesteenweg 49, 3730 Hoeselt, Belgium.

DIGITAL DREAMS VOLUMES 1 and 2 for your Mirage running **SOUNDPROCESS**. Each uses waves/wavesamples from Korg, Yamaha, Roland, E-mu, Oberheim and Moog synthesizers. \$16.95 each + \$2.00 s/h to Bruce Wallbillich, 162 Beech St., Covington, LA 70433. Both volumes for \$29.95 + \$2.00 s/h.

Mirage samples: Plus moving wavesamples all over. 7 sounds in one bank, much more. Listings: \$1.00. Demo tape: \$6.00 (includes listings). Mr. Wavesample, 162 Maple Place, Keyport, NJ 07735. 201-264-3512. Make checks payable to Jack C. Loesch.

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EPS with 4x, SCSI, extras, only 10 hours of use: \$1675. 616-943-9936.

CZ-101, loaded: \$150. 616-943-9936.

Convert drums or pads to MIDI data, with triggers. \$190. 616-943-9936.

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For sale: EPS w/4x & SCSI, hard case, 65 meg EX-2HD, OEX-8, CVP-1, asst disks, docs, \$2595 obo. Roland W-30 w/ KW-30 SCSI kit, 50+ disks, manuals, docs: \$1895 obo. Pat Finnigan, 4817 E 17th St., Indianapolis, IN 46218. (317) 357-3225.

Mirage keyboard with disks, dustcover, & IBM VES, \$525.00 obo. Mint condition. Phone: 609-346-0943.

Mirage rackmount w/library & Midicaster. Perfect! \$675. Roland SBX-80, SMPTE to MIDI sync. The standard. \$650. Stand-alone unit. Leon Forrest, 4416 SE Hwy 101, Lincoln City, OR 97367. (503) 996-2575.

SAVE MAARTIST EPS-4X EXPANDERS with 10 free disc, T1, OMP3, Proteus, D50, VFX your choice. **SATISFACTION GUARANTEED. \$300.**

100 EPS, HR16 Drum Patterns: \$12. EPS Disc: \$3.50. Wildwood Sounds, 4726 Pebble Creek, Pensacola, FL 32506. 904-944-6012, Tony, after 6 pm.

20,000-NOTE EXPANDER for ESQ-1, \$59.95. **44MB Removable SCSI drive**, \$749. **EXPANDERS:** 4X EPS, \$294.00. VFXSD, \$279. AKAI; ROLAND, KORG & YAMAHA. **RAM CARTRIDGES:** VFX, \$99.95; ESQ/SQ80, \$39.95 (80-voice) & \$69.95 (160-voice); K1, \$49.95; ROLAND, KORG; YAMAHA. **FREE shipping. SOUND LOGIC**, 1125 Eleventh Street, Ramona, CA 92065. (619) 789-6558 (Info); (800) 753-6558 (Orders).

WANTED

Input Sampling Filter for Mirage. Ron (216) 261-1072 after 5:00 pm EST.

SOFTWARE

Omni Librarian for the VFX & SD! Saves programs, presets, multi setups, and sequences. Directory makes it easy to find your programs. You can rename programs from the Mac keyboard. Create your own libraries. Runs on any Mac w/HyperCard. Only \$50! Gary Drenan, 923 Westwood Blvd., Box 16, Los Angeles, CA 90024.

STUDIO 2 Sequencer by Syntech. 8 tracks with bounce and edit capabilities. For Apple II and IIe with MIDI interface (Passport, Sequential, etc.) Original with manual (never used). \$25 includes USA shipping. (815) 398-4477, ask for Mike.

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

EPS-Sense: IBM-PC Sound Editing System for the EPS/EPS-M reviewed in Issue #50 of TH. \$50.00 + \$5.00 s/h. Jeffrey Richter/Donna Murray, 3502 Village Bridge Apts., Lindenwold, NJ 08021. Phone: 609-346-0943.

PATCHES/SOUNDS

120 GREAT VFX-SD SOUNDS - 40, presets and 100 DRUM PATTERNS: \$40. Satisfaction Guaranteed. RAM CART loaded with sounds: \$89. Free shipping. Wildwood Sounds, 4726 Pebble Creek, Pensacola, FL 32506. 904-944-6012.

NEW WAVEFORMS for the ESQ-1! Soundset 3, programmed by Sam Mims, brings a host of new waves - and 40 amazing new sounds - to the ESQ-1 using operating system 3.5 (not compatible with ESQ-Ms, SQ-80s, or earlier operating systems). Many D-50-type ambient sounds, all outlined in accompanying 22-page booklet. Available on data cassette or Mirage-format disk for \$17.95, or on 80-voice EEPROM (40 voices blank) for \$59.95. Syntaur Productions, 11116

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SOFTWARE ENGINEER

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The Interface

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

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

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

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

To our readers:

Over the last year or so the Interface has started to consume increasing amounts of valuable Hacker real estate and resources. That same year has also seen the number of Ensoniq instruments requiring and deserving coverage. Until now we've tried to print every (yep, every) letter intended for publication grow. We are no longer able to do this. We intend to keep this forum as open as we possibly can, get everyone a response (from both us and Ensoniq) to their questions and problems, maintain an accurate representative cross-section of letters and, hopefully, raise the "useful info quotient" of the overall magazine. But - we can no longer promise that, "If we get it - we print it."

The Hackerstaff

Hacker:

Great mag! (Ensoniq: great stuff!) I'm tired of borrowing my buddy's copies, so here's my check for my own subscription. Please start ASAP.

Seems to me that the only way to get a patch into the Hacker without having Mims tear into it is to write a little article around it for protection! All seriousness aside, though - I would like to see Mims's (or somebody's) hack attached to "lone ranger" patches that show up in the various articles. That way we'd all get some idea of what somebody besides the author thinks of it. More important, though, would be the reviewer's suggestions on improving the patch. Anybody else out there agree?

Dave Camp
New London, CT

[CS - Having hacks of author's patches isn't a bad idea - but it could be a logistical nightmare. We have enough trouble worrying about deadlines as it is, without having to worry about getting patches in to the Hacker far enough ahead of schedule to allow another author time to write a hack of the aforementioned patch, and then

having to worry about him finishing up the hack with enough time left to get it all into the same issue. However, if anyone has interesting hacks or comments regarding patches that have already appeared, we'd be more than happy to provide space in the Interface, or consider publication of an article. As a matter of fact, we'd love to see more readers' tips making their way into the mailbox. So if you have a technique or tip you'd like to share, by all means drop us a line.]

Dear Soundprocess owners,

I would like to begin a "Soundprocess Hackerpatch" newsletter or column for Transoniq Hacker if they feel there is enough interest to warrant one. The Soundprocess Hackerpatch would be fashioned after the ESQ and VFX Hackerpatch columns so that any programmer could share their patches with other Soundprocess owners.

Bob Spencer tried to start a Hackerpatch once before and I was sorry to see that it did not materialize. I suspect, however, that there are plenty of copies of Soundprocess that aren't being used because people don't realize they can use the software to program or they get frustrated trying to decipher the manual.

I get a good deal of satisfaction from programming but I would love to see many more hackers get into programming the sounds they have been imagining. The more creative minds that get involved, the better.

If you would like to see new patches for Soundprocess every month or if you are already programming and would like to see this idea materialize, please drop me a line at the address below or call me at 504/892-7088 between 6 pm and 10 pm central time.

Sincerely,
Bruce Wallbillich
Digital Dreams
162 Beech Street
Covington, LA 70433

[CS - Okay, all you Soundprocessors.

Here's your chance.]

Dear TH,

I see by my subscription label that it's that time again, so I'm enclosing my check for another year. I'd hate to miss an issue...it would be almost like losing a family member.

And, speaking of family, I'd like to say that the Hacker Family is one of the greatest. Everyone I have met through the network has been super and was always there when I needed help or got stuck on a project, etc. With the exception of one individual in Indianapolis, who shall remain nameless, all the friends I have gained are truly great human beings, always ready to help or give good advice about my projects.

Having subscribed for several years now, I have witnessed the long debates over the "extra" waveform locations or addresses in the ESQ-1, the "HEAVEN" debacle, the demise of the ESQ-1 and SQ-80 production, the advent of the EPS, VFX and SQ-1 (makes me wonder why SQ-80 came first...shouldn't the name SQ-1 have been used first?), and now we see the names EPS-16-Plus and VFX-SD Version II appearing in the media. The whole point of this is that I wonder how much of the design of new products from Ensoniq is due to the feedback and occasional "gripes" that appear in the Hacker. I suspect a great deal, and I congratulate the Hacker for being unique in its field. We all tire of the gripes, but they do serve a purpose. Just like voting, one can try to fight the system, to get little accomplished, or get inside the system and make changes. It's great to have a forum where product design and implementation ideas can be born.

Keep up the good work, Hacker, and a special hello to Jim Symonds in Portland, Maine and to Eric and Jane.

Sincerely yours,
Mike Shanks, RPh, FASCP

[CS - Ensoniq does indeed pay attention to what appears in the Hacker. This I know from personal experience.

Within the industry, the Hacker occupies the unique position of being an independent newsletter dealing with the products manufactured by a specific company. Sure, there's lots of other newsletters out there, but generally these are published by the manufacturer itself (although we're beginning to see user newsletters appear, but these generally deal with a specific product, rather than a company's entire range).

The Hacker, on the other hand, has worked very hard to maintain its independent position. This has not always been the easiest road to travel, but we feel that our readers have come to expect a certain level of honesty and straight-forwardness not usually found in the in-house publications of most manufacturers. And after all, it's our readers who pay the bills around here - if not for you, we wouldn't be here.]

[Ensoniq - We always listen to input from our customers and the Hacker is one of the most valuable (not to mention vocal) sources of that input. A lot of the features we design into our products are the direct result of people like yourself telling us what you would like to see.]

Dear Hacker Interface,

I am trying to develop the best way to manage the process of saving and loading sequences and songs on my VFXsd Version II. My plan was to set up a file bank of the type 1-SEQ/SONG for each new sequence I created as I went along. When I got up to 30 sequences, I could put them in a file bank type 30-SEQ/SONGS. However, when loading with file type 1-SEQ/SONG, the sequence gets put in the first available space.

Now the sequences are in different spots and the song steps I created have the wrong sequences in them or are blank. Oh! More work to do re-programming the songs. WHY CAN'T THE SONG STEPS CALL SEQUENCES BY THEIR UNIQUE NAMES RATHER THAN BY THEIR LOCATION IN THE SEQUENCER BANKS? Being able to give names to sequences is great. It would be greater if the sequencer would call them according to their unique names. My solution will involve numbering the sequences so they end up in the right spot.

I am using J.L. Cooper's PPS-1 sync box while recording. It has a feature I'm interested in that requires your sequencer to allow for overdubs while externally synced. Does the VFXsd allow for this?

Also, I was wondering why EQ was not one of the effects included in the VFX? Why have Ensoniq sequencers never had an up tempo or down tempo feature? The transpose/mute feature within song step looks good. Could you go a step further and allow for that feature within a given repetition?

Thanks. I am enjoying my VFXsd.
John Adams
Elmhurst, IL

[CS - Your solution for your sequencer seems like a good one. Also, be aware that sequences can be easily copied to the correct locations - although whether doing this would be any easier than re-programming the songs steps is questionable.


The VFXsd will record into the sequencer when it is in external sync mode, so you should be able to use your PPS-1 in the application you want.

Though EQ is not contained in the effects algorithms onboard the VFX/VFXsd, the combination of high- and low-pass filters can give you a great deal of control over the tonal characteristics of your various patches (though I agree, it would be nice to be able to touch up the EQ of an overall sound with a nice parametric or quasi-parametric EQ. And how about an aural exciter while you're at it?).]

[Ensoniq - VFX-SD songs, as you point out, reference sequences by location rather than by name. Unfortunately, to do otherwise would require more memory and add a lot of processing time between song steps. It's a nice idea, but not possible at this time.

We are constantly developing new effects algorithms for use in our products. EQ has generally been a lower priority since it is much more easily implemented outside the VFX-SD as compared to dynamic effects.

It isn't possible within the current structure to transpose/mute a single rep, but by using separate steps referenc-



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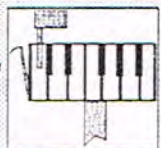
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ing the same sequence you can accomplish the same thing.]

Transoniq Hacker,

I have a few comments to make and a few hints to share about working with the VFX. I have the plain-vanilla VFX. No SD here, but I think my comments will be relevant to those machines also. I did not want the sequencer OR the disk drive that the SD has...and in the process, created a few problems to surmount. I usually sequence the VFX in Multi-Mode via my computer (Amiga 2000). The problem has become a way to store all of my Multi-Setups which change greatly from sequence to sequence, even within a song (!).

The cure to this problem and something that transforms the VFX into a different animal in a sequencing environment is found on pages 5-6 and 6-8 of the VFX Manual. Each track in the Multi can respond to program changes on different channels. A program change of 125 followed by the program change you specified will copy the Program and the Program's Effect Setup into the Multi! What all of this means is, in reality, you NEVER have to mess with saving Multi-setups again. If you're like me, you have the internal and cart banks filled with your favorite programs. When sequencing with a computer, use the Program changes to copy the ones you want in the Multi AT THE TIME YOU WANT THEM THERE. The Multi-setup goes from being a static storage area to a dynamic one that changes all the time. No longer will you have to worry if you've got the right Multi loaded...it will be whatever you need it to be when you need it. I know Ensoniq is aware of this and probably some VFX owners out there as well, but I haven't heard anybody mention this yet and it seemed time to speak out.

Anyway on to other things...the following is intended for Ensoniq.

You have been known ever since your beginning as a company that offered superior products at a reasonable price. You still are. However, the tendencies of manufacturers in the keyboard market are starting to concern me. The overall concept at this time is to build them good and greatly mark up the price. Inflation and rising costs of supplies explain some of this, but, definitely not all. To give you a more

direct example - I would LOVE to have a Korg T3, and I would buy one if it weren't for its \$3795 price tag. The Yamaha SY77 also has broken the \$3000 barrier. The big increases in prices over the last year is VERY obvious. The only exceptions to the rule have been Ensoniq's and Roland's flagships - the VFXsd and D70 respectively. And, as you will notice, Ensoniq's VFXsd retails for more than the D70. The D70 also has more polyphony - 30 voices. The point here is not to make a product comparison, though...the point is, keep the price reasonable or you may find your products are not that high in demand. You haven't done that yet. The reason the EPS-M broke the \$3000 barrier was quite understandable at the time...extremely high prices for memory ICs. But, I don't think you should stray from your initial reputation that brought you where you are right now. To not do so would bring immediate gains but, over the long-haul, great losses. I think your inclusion of the SQ-1 and SQ-R in your arsenal is a step in the right direction. Some people cannot afford the over-\$2000 keyboards. I used to be one of them, and I see others with the same concerns.

One other point - I LIKE Polyphonic Aftertouch. I believe it to be definitely superior to Channel Aftertouch. I hope you will continue to support this in your keyboards and rackmounts. Kudos for allowing the SQ-1 and R to respond to these MIDI Performance Controllers. I just wish more Computer-Sequencer-Software-Manufacturers would support it. Anyway, thanks once again to Transoniq Hacker for allowing this civil exchange of philosophy.

John Megehee
Tulsa, OK

[CS - Thanks for the input on using Multi mode on the VFX/VFXsd. You can use Multi mode in the same way with all Ensoniq synths - from the ESQ-1 through the SQ-1, and believe it or not, the new EPS 16+ supports a scheme for initiating the loading of sounds to various instrument locations by sending program changes (although it makes more sense if you are using your EPS 16+ with a hard drive).

As far as the rising cost of electronic instruments goes, I'm sure Ensoniq will have something to say. Still, I can remember when the Mirage first came out for \$1795.00. The next cheapest

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sampler on the market was the Emulator II – it was a mere \$8000.00. The SQ-1 is priced \$300.00 less than the SQ-80 was, and although it doesn't have a disk drive or a keyboard that generates poly-pressure, it has 21 voices as opposed to 8, 40 or so drum and percussion sounds as opposed to 5, built in digital effects, and a whole lot more wave ROM. Hard to complain too much, if you ask me.]

[Ensoniq – The VFX Multi is, as you discovered, a dynamic MIDI receiver which acts like 12 independent "virtual" synthesizers. As long as you have a "smart" controller, such as your sequencer, which is capable of sending notes, controllers, program changes, etc. on multiple MIDI channels, there is no need for saving lots of multi set-ups -- let your sequencer do all the work.

We appreciate your comments on the price of keyboards. We are indeed sensitive to this issue. Our goal is always to design products that provide the best possible value for the price. Overall, as Clark said, today's keyboard buyer gets a lot more for the same dollar amount than just a few years ago.

(We should point out that the EPS has always had the ability, mentioned above by Clark, to load disk files via MIDI program changes.)]

Dear TH,

I use my EPS in our church for modern praise music and chorus singing (along with a DX7 and a Yamaha Grand Piano). I am not able to find full, rich electric piano sounds that would stand alone. There seems to be many sharp and thin sounds, but I'm looking for a sound like the "Beltine" EP in Yamaha's new TG 77 tone generator. In fact, I am partially considering the purchase of this unit just for its "Beltine" piano. I would be happy to pay a reasonable amount to someone to sample this sound. On the other hand, I hope you may be able to suggest some sources of ready-made sounds. I would deeply appreciate it! Keep up the good work.

Music for the Lord.
Pastor Bill Orf
Auburn, PA

[CS – I'm afraid I can't recommend a source for that specific sound. Perhaps

one of our readers might know of a source? Or one of you third party vendors?

If you can't find a sound you need, I still think your best bet is probably your local dealer. Granted, some dealers are better than others at having a selection of aftermarket sounds – the local music store here in Portland has literally thousands of sounds for the EPS – but they may be the exception. On the other hand, if your local dealer stocks both Ensoniq and Yamaha products, perhaps he'd help you get a reasonable sample of the TG 77 module – it might be worth asking.]

Hacker:

Question: I'm confused a bit about "third party sounds." Could you do an article comparing the different sound collections available (and/or ie: the companies producing them for the EPS), what to look for in terms of quality (can you tell by the advertisement?), why are there such vast differences in price (is it quality-related?), and should one shell out the \$5-10 for a demo tape? These disks are expensive and some general guidelines (other than individual reviews) and comparisons of available options would be helpful.

Thanks again for publishing a great magazine – I look forward to each issue.

Sincerely,
Timothy D. Loker, M.D.
White River Junction, VT

[CS – I agree that the information you're interested in would be valuable, but it would be a tremendous undertaking for us to make the commitment to at this time. Perhaps one of the freelance writers out there might want to put some effort into something along these lines – then again, maybe not.

In my experience, the price of sounds is not necessarily a good indicator of the overall quality of the product – bearing in mind that "quality" itself is a pretty subjective idea. And I'm not sure how to answer your question about what to look for in terms of quality. Basically, if you like the sound, then it has met your personal criteria for quality – although by the time you know if you like it or not, you've probably already bought it.

And demo tapes are not necessarily a good indicator of certain kinds of quality. Things like signal-to-noise ratio and clarity of the sounds are difficult to determine by listening to demo tapes. Tapes can give you a good idea of what the actual samples sound like in terms of timbre, but I tend to think that you are better off spending the money on a disk or two and seeing (or hearing) for yourself. This should answer some of your questions about a particular company's approach to EPS sounds: Are the samples clean? Are patch selects used to good effect? Do the samples work across the keyboard? Are the samples memory efficient? Do you like the way they sound? These are all questions that really can't be answered by looking at ads and are difficult to answer by listening to demo tapes.]

Hacker:

I've got a question that needs a good answer. On page 3 of the Hacker every month, you list "Tested and Approved Hard Drives for the EPS." What's "tested" and "approved" mean exactly? I called Ensoniq and asked why I couldn't use any external hard drive that was compatible with a Macintosh computer, such as a Seagate, Kaloc, or Miniscribe. Their reply was that I could indeed use them as long as "parity" was disabled. If that's the case, how come you only list ones that cost an arm and a leg in your list? Some of us poor souls aren't in the business of making a living with our instruments, and therefore can't afford something like the Eltekon. In my case, I'm using two EPS samplers in a home music studio and therefore I don't need a fancy 19" rack module drive. How about testing some "cheapy" drives (\$300 - \$400 range) for us home-use folks?

With best regards,
Terry Fenninger
Plattsburgh, NY

[TH - We think there's a little misunderstanding here. The list of tested and approved hard drives (which actually might show up on just about any page) is provided by Ensoniq - because THEY tested and approved them. We're not in the business of testing hard drives. It's no secret that other drives might work, it's just that these particular ones Ensoniq has confirmed as being compatible. There have been several letters from readers who've tried other drives - some with success, some with some minor tweaking required, some that they just couldn't get to work. (We love letters that save the rest of us hassle.) As far as which ones were chosen for "The List" and why, and what they were subjected to, Ensoniq will have to answer those...]

[Ensoniq - There is no inherent price bias to the list - the drives on the approved list are simply the ones that we have had a chance to test and confirm that they work properly with the EPS.]

It would be nice if all Macintosh-compatible drives would work with the EPS. However, there is no way to guarantee this. Apple has its own interpretation of the SCSI specification; hard disk manufacturers have their interpretation of Apple's interpretation; and we have our own requirements, which differ slightly from those of the Macintosh. There is no way of knowing ahead of time what short cuts or implementation quirks a drive manufacturer may use. We simply don't have the resources to acquire and test all the brands of hard disks we would like to.

The safe bet is to stick to an approved drive - those are the only ones we can be sure of. However, many drives we haven't tested do work with the EPS and, as you suggest, Hacker readers can do each other a great service by sharing information among each other regarding their experiences.]



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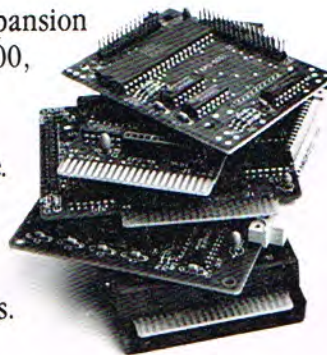


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