

Ensoniq's DP/4 — The Review

Charles R. Fischer

Product: DP/4 Parallel Effects Processor
Price: \$1495.
From: Ensoniq Corp., 155 Great Valley
Parkway, Malvern, PA 19355, (215)
647-3930 or contact your local Ensoniq
dealer.

If you've kept up with the product reviews in the magazines lately, you've seen a number of folks who appear to be in competition to see who could sing the loudest praises about the new Ensoniq effects processor, you guessed it, the DP/4. Well, if you're holding out hope that I'm going to contradict the rest of the reviewers, you're encouraged to skip over the rest of this story — I know what they're excited about.

The DP/4 Parallel Effects Processor is Ensoniq's first attempt at producing a stand-alone digital signal processor, which makes the results even more significant. The DP/4 is noteworthy for a number of reasons, which I'll quickly list here:

* The DP/4 is the first multiple effects processor with 4 sets of audio ins and outs, which may be used with the 4 on-board signal processors in just about any way you might want. Almost all other multi-effects units have their effects hardwired in between their inputs and outputs — there's no way you can use one or two effects on one signal, and use the rest on something else.

• The DP/4 is furnished with a set of useful effects algorithms (45 total), making it a versatile audio toolbox, capable of covering a wide variety of signal processing tasks here. In addition to the garden-variety reverbs and choruses, there're exotic treats like a Van Der Pol filter, tube amp simulators, — even a vocoder.

• And the thing is equipped with an extremely powerful MIDI implementation, which raises its usability by a large leap.

Of course, all the dope features in the world don't mean a thing if the sound doesn't deliver. The audio quality of the DP/4 is remarkably good for the most part. I know, some people still associate Ensoniq with second-rate sound quality because of early products like the Mirage and ESQ-1. There's nothing second-rate about this machine; the sounds are the best I've heard for a signal processor in its price range — \$1495 US.

In other words, if this is gonna be another one of those stupid enthusiastic reviews wherein a legendary cynic like myself ends up sounding like a leader of the Ensoniq P.R. staff, you can be certain that this product being covered is exceptional.

The System

It's all too easy to be confused by the architecture of this device, so we'll begin with an excellent explanation borrowed from the owners manual:

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"Picture a rack of effects containing the following:

- four state-of-the-art effects processors*

- * a patch bay to route the input signals to the four units, and to connect them together in almost any configuration,*

- and a mixer for combining and adjusting the output levels of the four units.*

"Now suppose you could change the effect in all four units, repatch the patch bay into a whole new setup, and adjust the levels on your submixer, all with the press of a button (or with a MIDI program change, or a press of a footswitch).

"That's the DP/4."

Of course, there's a little bit more to it than that, but it pretty much describes the power behind this unit. Because of this versatility, there are a few opportunities for confusion as you learn your way around; this can be minimized by learning Ensoniq's insider terms for the features and concepts used in the DP/4.

For example, Ensoniq refers to each effects processor as a "unit." The routing of the audio input to the units is called a "source" (each source can consist of either one or two inputs, depending on how the unit is set up). But the most important of these concepts is what is called the "config," short for configuration.

The config consists of the various parameters that control how the sources get wired up to the units, as well as how the various units are interconnected. You can chain multiple units in parallel or series, or create feedback loops between units. The latter is useful for producing Carlsbad Cavern reverbs, unbelievable Doppler effects, and other def sounds. The DP/4 design offers a global configuration setup, as well as 100 config presets.

The Hardware

The DP/4 is neatly packaged in a 2U rackmount case. The front panel boasts a large rotary knob for editing parameters, a two-digit LED display (indicating the present preset number), a backlit LCD (much like the ones on the SQ synths) and an assortment of buttons and LEDs. There's even an additional audio input jack on the front; this lets guitarists plug in and play without having to mess with the cables on the back panel — a nice touch.

On the back, you'll find a socket for a standard AC line cord (no wall warts to break or lose), MIDI in, thru, and out ports, and ten 1/4-inch phone jacks. These are set up as four sets of audio inputs and outputs, with the last two offering inputs for a footswitch and an optional footpedal or external control voltage.

Of course I removed the DP/4's cover. I'm pleased to report that the unit appears to be very well put together; aside from a

few added jumper wires, there was no evidence of last-minute modifications or rework (a fairly frequent occurrence in high-tech products). It appears to be rugged enough to handle touring without any problems.

The Software

Another strength of this unit is the large number of highly usable effects algorithms. If you want variety, you've come to the right place, my friend — you'll find everything from choruses and compressors to wahwah pedals and vocoders. This thing is literally a "greatest hits" of effects in one box — the only things I missed were a state-variable filter and the rarely-used ring modulator.

One thing that must be mentioned is that units and effects are not always the same thing; some algorithms can produce as many as three effects simultaneously, while others make use of multiple units (for example, the vocoder uses all 4 units in concert).

First, you'll find that most of the algorithms were apparently chosen for their musical usefulness; there are lots of bread-and-butter effects here (reverbs, chorusing, flanging, distortion, speaker simulators, and delay lines). While this means that most of the presets are geared to the so-called working musician, technos and other fiends need not worry — this machine can be programmed to produce some truly bizarre sounds.

There's a number of less-often used effects, as well. There's a good rotating speaker simulator with overdrive (so you don't have to waste a unit to get the sound of a Hammond in heat), an envelope follower with distortion (which can also be used as a wahwah pedal), several types of pitch shifters, compressors, expanders, and a few more specialized items. One algorithm generates sine waves and noise, allowing the unit to double as a function generator in a pinch (very clever!).

That's all for now. In the next installment, I'll get into the sound quality, the MIDI capabilities, and some of the possible uses for this unit. Talk to ya soon. ■

Bio: Charles R. Fischer is a test technician for AKG Acoustics, Inc. In addition, he writes for several magazines, designs custom MIDI controllers, plays keyboards, and finds time to sleep once or twice a week.

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!)

RND (🎵🎵)

Hacker News

It's been a while since we've changed much around here, so we figured we're overdue to try something new. Either this issue or next (depending on learning curves...) we're going to be doing the printing in-house. So you're going to notice some differences in how the *Hacker* is put together. What we hope to do is have a heavier, more Post-Office resistant outer cover (except for the non-U.S. issues — which go in envelopes anyway), and probably a pretty standard bond paper for the inside. Eventually, after we find out whether regular normal humans can actually run a press (and we find a regular normal human), we should be able to have more and different colors and maybe try some other things to jazz things up a little bit. Meanwhile, if some of your pages are upside-down or anything, just try to work around it — probably all the copies are like that. (The ones with the inky fingerprints are collector's items.)

We're looking for an *experienced* piano player with an EPS-16+ to review some sounds.

Ensoniq News

See pages 6 and 7 for a major announcement about a major new instrument.

TRANSONIQ-NET HELP WITH QUESTIONS

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

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

ALL ENSONIQ GEAR – Electric Factory (Ensoniq's Australia distributor). Business hours – Victoria. (03) 4805988.

SD-1 QUESTIONS – John Cox, 609-888-5519, 6 – 8 pm EST.

SQ-80 QUESTIONS – Robert Romano, 607-533-7878. Any ol' time.

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

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) 821-5054.

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

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

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

SAMPLING & MOVING SAMPLES – 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.

SD-1, sound programming, sequencing, & MIDI – Eric Olsen, Pegasus Sounds, (616) 676-0863. Mon, Tues, Thurs, Fri: 4 pm to 9:30 pm Eastern Time. Sat: 12 to 10 pm. (No calls on Wednesday please!)

SQ-1 QUESTIONS – Pat Finnigan, 317-462-8446. 8:00 am to 10:00 pm EST.

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

HYPERSONIQ NEW PRODUCTS

Latter Sound Productions has compiled *Volume 1* of public domain sounds for the VFX, VFX-sd and SD-1. These sounds are divided into ten banks covering atmospheric synth, tiner, piano/keyboard, woodwind, brass, guitar, organ, string/orchestral, effects, and percussion. All VFX and SQ-1 (conversions) Hackerpatches through Issue #85 are included. 62 sounds, 20 presets. \$12.50 Disks. For more information or to order, write or call: Latter Sound Productions, 1341 Westhaven Court, Tallahassee, FL 32310-8625. Phone: 904-575-5561.

Q Up Arts has just released a new drum library containing some of the heaviest hitters in the business: the explosive sounds of Tommy Lee of Motley Crue, the uniquely powerful sounds of Alan White of Yes, and the distinctive sounds of Jim Keltner — world renown studio drummer. *Heavy Hitters Greatest Hits* delivers the synergy of the entire set, not just miscellaneous drum sounds. Each sample has been digitally recorded and EQ'd for album production. Over 400 hard & soft and dry & ambient versions of kicks, snares, toms, hats and cymbals. All 44.1kHz, 16-bit stereo. Available in CD-Audio the first week in September: \$149.00. The principals of Q Up Arts (Douglas Morton and Susan Wilson) were the development and marketing team that published the highly-regarded *Reflective Arts Sound Library* while employed at Optical Media International. For more information contact: Q Up Arts, P.O. Box 1078, Aptos, CA 95001-1078. Phone: (408) 688-9524.

Dietmar Tinhof has released *Volume 1 of the Austrian Sound Library* offering a broad selection of acoustic instruments typically used by folk-musicians in Austria, Switzerland and Bavaria. All samples are original recordings and are exclusively available for the EPS and EPS-16 PLUS. *Volume 1* consists of five disks which contain well-known sounds like the Styrian Accordion as well as rare instruments like the "Hackbrett" (dulcimer). \$39 (plus \$6 shipping for US orders). In Europe, the ASL is distributed by Key-Wi Music. For more info contact: Dietmar Tinhof, Himmelhofgasse 46, A-1130 Vienna, Austria.

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Hypersoniq (Cont.)

Rubber Chicken Software Co. announces several new sets of samples for the EPS/EPS-16 PLUS. First, *01/W Samples*: 35 of the best on 10 disks. Complete programming is implemented and superb recoding and sampling. Price: \$49.95. Then, *D-70 Samples*: another 10-disk set. EP to digital. \$49.95. And, reviving the VFX tradition: *VFX meets EPS, Volume 4*: a 10-disk set of samples of the SD-1 32-Voice. \$49.95. And finally: *Minotaur Studio's Ultimate Organ Library* has been added to Rubber Chicken's product line. All the organs you'll ever need. \$59.95. Rubber Chicken has also cut the price of the Chicken Drive down from \$699 to \$599 — the lowest advertised price for an EPS-compatible Syquest 44MB removable. For more info contact: Rubber Chicken Software, P.O. Box 428, Renton, WA 98057. Phone: 1-800-877-6377.

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Hang onto Your Baseball Caps, Kidz — Here Come the Rogues!

Tape: *Select*.

Artist: Tim Rovnak.

Contact info: TR Productions, 35 Starr Hill Rd., Groton, CT 06340,
phone: (203) 446-9131.

Equipment: Ensoniq VFX-sd, AKAI AX60, Alesis Quad-raverb, Sony and Tascam recording equipment.

Tim wrote, "I'm currently with a successful band in Eastern Connecticut called The Rogues. We've been performing in clubs and bars throughout the state for over a year. Our material includes Genesis, Rush, REM, B-52's and some originals.

"The picture and tape are part of a demo package that I've been mailing to record labels. The tape is basically a mixed bag chosen from many songs that I've written and arranged."

This tape just smacks of professionalism, polish and pizzazz! Tim has put out a very presentable cover together with a photo of his handsome mug — and the music is superb.

There are four songs, all instrumental. The recording is silicon clear and crisp with no noise to speak of. All of the mixing is well done. There are twists, stops and turns in this music that tend to break it up and keep your interest. The songs are fairly short, although a couple are rather interesting in their complexity. At best they are fascinating to follow through as the mood is established and evolves. At worst, Tim's music can get a bit too movie-esque, with no real strong lead instruments — running that same car chase scene over and over in your mind can be sorta boring. And it's worth mentioning that when you are listening to the music you aren't paying attention to how Tim put together his sequences. As I've said in the past this is a big plus. If sequences are obvious they detract from the music.

Tim's intros and outros were also well calculated. I've heard that in the business, some of those hardened professionals only listen to the intro — fast forward and listen, fast forward and listen — fast forward and listen. If they like what they hear they keep listening. Forewarned is forearmed, and Tim seems to know how to introduce his songs.

Here's how the songs break down (forgive my overactive imagination for the imagery):

THE LIFE NIGHT — The introduction is soothing and draws you into its own space with the sounds hollow and spread out. Great sounding keyboard pads. The overall effect on this song is a large room reverb. The beat is sharp, but you are eased into it and the bottle/flute lead patch is gentle on top. There is

another synth lead that takes over, trading off throughout the song. The synth lead is more aggressive and expressive than the bottle-flute patch. The funkiness quotient is a bit too high for this to be considered an all out new-age piece. The lead really doesn't sing enough of a melody to stand out and be remembered and the last bars trail off into silence...

JUNCTION FUN HOUSE — Horns! Horns blast out the intro and the drums are funky. All the instruments here are crisp and clear. Good stereo separation and mix! The conga drums come through very easily. There is a mallet part after the bed of music is established that plays out the melody. This is easy-going funky-Latin-Caribbean sounding stuff. The lead is somewhat metallic in the middle, but not very strong, understated. The horn section carries the theme and hits home. A couple of good breaks punctuate the sections.

TIGHTROPE — The exhilaration and thrill up here beats the fun house by a mile! Right from the swoosh at the intro we are swept up to dizzying heights. Syncopation and new instruments introduced all the time. There are horns synths, great percussion and bass work. The percussion cuts out to leave the syncopation holding us up — it's a bit frightening. But the percussion kicks back in and we are swept over the top of a ridge as we reach the end of the song. A lofty big feel. Quite short.

CATCH ME — The chase is on and the pace is set right from the beginning. Out of the chute running, it's anybody's bet. The synth bass pumps and drives. There are some backward sounds that break things up with all the instruments sounding strong and solid. Tim knows how to set the build up and prepare us for — where did he go? The music really stops on a dime, turns down that one blind alley and then out of the corner of our eye we whirl back into the beat that sets the heart racing. The synth keyboard is very FM sounding. Just when we think we're about to catch — what, again? — we're confronted by an organ grinder with a monkey seemingly mocking us — but then the organ grinder takes off his disguise as we turn away and takes off down another street! The monkey scampers up a drain pipe. The changes are fast and crazy and we can barely keep up until the drums kick in again. The chase is on again and the beat is pumping.

Good luck to you, Tim, and to all the Rogues! Let me know when you tour California... ■

If you want your tape run through the ringer, err, Hacker, just mail it off to: Basement Tapes, *Transoniq Hacker*, 1402 SW Upland Dr., Portland OR 97221.



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

New From Ensoniq

The ASR-10 Preliminary Specs, 9/14/1992

Ensoniq Corp is pleased to introduce the *ASR-10 Advanced Sampling Recorder*. This next-generation sampler includes many of the features that the readers of the *Hacker* have requested from us. The main features include 31-note polyphony, stereo sampling, 2 Megabytes of RAM expandable to 16 Megabytes (using standard SIMMs), 49 effects algorithms (including most of the DP/4 effects!), re-sampling from the keyboard or sequencer, Audio Tracks, which allow the routing of external audio through the effects processor for live performance or sampling, a Quad-density (HD) disk drive, and much more. The ASR-10 will retail for \$2695.00 and will be available at the end of September. Following is a complete product specification.

Keyboard

- 61-note (C - C) weighted synth-action Poly-Key™ (polyphonic aftertouch) keyboard with programmable velocity and pressure sensitivity *

Controllers

- Exclusive Patch Select Buttons for instant access to 4 different sound variations within each Instrument *
- Pitch and Mod wheels *
- Programmable Foot Switch (SW-2, optional SW-10)
- Dedicated Foot Switch for use as Patch Select controller (with optional SW-10)
- Mod/Volume pedal (optional CVP-1)

Internal Memory

- 2 Megabyte internal RAM (1 Megaword - 16-bit format)
- Expandable to 16 Megabytes (8 Megaword - 16-bit format) internal RAM with standard SIMMs

Sampling

- True 16-bit linear sampling utilizing 64x oversampling Sigma-Delta (one-bit) technology
- Stereo or Mono sampling available
- 2 Sample rates: 44.1 kHz, 29.76 kHz
- Maximum sample times:
Std Memory (2 Megabytes/1 Megaword):
20.5 sec @ 44.1 kHz mono
10.3 sec @ 44.1 kHz stereo
30.3 sec @ 29.76 kHz mono
15.2 sec @ 29.76 kHz stereo

Fully expanded (16 Megabytes/8 Megaword):
183 sec (3 minutes) @ 44.1 kHz mono
91.5 sec (1.5 minutes) @ 44.1 kHz stereo
271.4 sec (4.5 minutes) @ 29.76 kHz mono
135.7 sec (2.3 minutes) @ 29.76 kHz stereo

- Dedicated stereo audio input preamp with hardware mic/line switch and input level trim control
- Individual Signal and Peak LED's for each channel
- Programmable pre-trigger time of up to 250 ms
- No minimum or maximum size for Instruments (within the limits of available memory)
- Expert System Autoloop
- Wide variety of Digital Signal Processing commands, including: wavesample copy, truncate, mix, merge, splice, convert sample rate, volume smoothing, gain normalize, fade in, fade out, 5 kinds of cross-fade loop (with the ability to audition most of these edits)
- Time compression/expansion function (non-real time) with compression up to 1/2 the original time, or expansion up to 2.5 times the original wavesample length
- Sampling (stereo or mono) through the effects processor
- Real time stereo re-sampling (also through the effects processor) of notes played on keyboard, played by the sequencer or received via MIDI

Playback

- Frequency response: 2 Hz - 20kHz +/- 1.5 dB @ 44.1 kHz
- 94 dB signal-to-noise, 96 dB dynamic range, 94 dB THD + noise (<.002%) at unity playback
- 2 playback modes:
31 voices at 29.76 kHz playback rate for 14.8 kHz frequency response
23 voices at 44.1 kHz playback rate for 20 kHz frequency response
- Compatible with all existing EPS-16 PLUS/EPS libraries

Voice Architecture

- 31 voices dynamically assigned
- Instant selection of alternate samples with exclusive Patch Select buttons, velocity, or legato playing
- Each Instrument can contain up to 127 wavesamples

- Each individual wavesample has a complete set of program parameters including;

2 independent multi-mode dynamic digital filters (low pass, high pass, variable bandwidth band pass)

pitch, filter and amplitude envelopes (5-stages with 21 parameters per envelope), with velocity interpolation between Soft and Hard Envelope levels

14 preset envelope templates for ease of programming

1 multi-waveform LFO with delay

Variable rate random Noise generator for modulation

15 modulation sources routable to pitch, filter cutoff, volume, pan, loop parameters, LFO depth or rate, and all effects parameters

4 different mono modes possible (Legato, Pedal, Trigger, Mini)

Real time modulation of loop start, loop end, loop position, and wave start index from any of the 15 mod sources

Transwave loop modulation for constructing unique spectral interpolation waveforms

Each wavesample can be individually panned and assigned to one of six stereo-busses (with optional OEX-6sr output expander)**

- Wavesamples are organized into Layers, which map groups of wavesamples across the keyboard

- Each Instrument can contain up to 8 Layers, which can be cross-switched by velocity, and crossfaded at any number of points by the keyboard, pressure, velocity, or any other modulator

- Layers can be delayed up to 5 seconds, with delay modulated by velocity

- Fully programmable pitch tables with 1 cent resolution and extrapolation capability

Performance Preset Parameters

- Double-click to Stack up to 8 Instruments, with key split possibilities

- The combination of up to 8 Instruments with special performance parameters can be stored as a Performance Preset

- Performance parameters include Mix, Pan, Output Bus, Key Range, Transpose, Patch Select Status, Pressure Mode, Effect Control,

MIDI Out Channel, Program Change and MIDI Status

- A Bank contains up to 8 Instruments, 8 Performance Presets, a global effect and all of the current Sequencer memory (including the Song)
- Banks can call up the needed Instruments from different floppy disks, directories on a SCSI device, or even different SCSI devices

Effects

- Custom VLSI 24-bit digital signal processor (ESP Chip) with 48-bit accumulation
- Programmable stereo multi-effects processing with real time modulation of any effects parameter
- 49 algorithms
- 4 programmable variations per effect
- 6 Stereo busses for dry, individual or grouped effects processing, and routing to optional OEX-6sr output expander **
- Audio Tracks allow the routing of external signals through the effects for sample input monitoring, or live performance (external signal can be merged with on-board sound generation – keyboard, sequencer or MIDI)
- Each Audio Track has its own Mix level, Pan and Output Bus routing, with instant muting

Sequencer

- 8 polyphonic tracks, each with separate Instrument, Volume and MIDI channel
- 8 additional "Song Tracks" permit recording of song-length tracks once Sequences are assembled into a Song, for virtual 16-track recording
- Tracks can play internal voices and/or external MIDI instruments
- Up to 80 Sequences (sample memory permitting)
- Song form provides up to 99 Steps with up to 63 Repetitions for each Step (each Sequence Track in a Step can be individually muted and transposed)
- Sequence size limited only by internal memory (up to 320,000 notes standard, up to 2,560,000 notes possible with 16 Megabyte – sample memory permitting)
- Clock resolution of 96 PPQ, synchronized to Internal or MIDI clock source
- 3 real time recording modes (Replace, Add, Looped) and Multi-track recording
- Up to 31 internal voices per Track, dynamically assigned (no limit on MIDI voices per track)
- Post-quantization (auto-correct to 1/64 note triplets)

- Step-editing, transposition, time-shifting, append, change length, track merge, and filter events commands

- Auto-locate controls (Bar/Beat accuracy), adjustable click track and Tap Tempo control
- MIDI Auto Mix automated mixdown feature records all volume/panning changes for each Track

MIDI

- Poly, Omni, Multi, Mono A and B modes supported
- Multi-timbral, accommodating up to 8 simultaneous polyphonic MIDI channels
- MIDI Local On/Off per Instrument allows up to 8 outbound MIDI keyboard zones for master controller applications
- Global controllers in Mono mode for use with MIDI guitar and alternate controllers
- MIDI Song Position Pointer and Song Select supported
- XCTRL allows any inbound MIDI controller (0-127) to be used as a modulator

Disk

- 1.4 Megabyte Quad-density (HD) 3.5" micro-floppy [also reads/writes Double-density (DD) disks]
- DMA (Direct Memory Access) for "Play While Load" capability
- Save MIDI System Exclusive dumps from any MIDI device to disk (up to 1.4 Megabytes standard/16 Megabytes fully expanded – to SCSI device only)
- Optional SCSI connection (SP-3) allows hook up to hard disks (up to 5 Gigabytes) or CD-ROM players with "direct dialing" of any sound on the storage device
- User definable macros for instant access to any directory within a SCSI device, or to instantly change SCSI devices
- SCSI features include access up to 7 devices, copy SCSI device, and Backup/Restore utilities

Inputs/Outputs

- Left/Mono and Right/Mono audio outputs
- Headphone jack
- Pedal/Control Voltage input (allows modulation of voices or volume control with optional CVP-1 pedal)
- 2 single/dual pedal inputs (SW-2, optional SW-10)
- Stereo audio inputs switchable between mic and line level
- Audio input level trim control
- MIDI In/Out/Thru

- Connectors for optional DI-10 Digital I/O board

Display/Panel

- 22-character alphanumeric display with dedicated mode indicator fields
- 38 front panel buttons, 10 with dual LED indicators
- Dedicated Data Entry and Volume sliders

Standard Accessories

- Tutorial Manual (with examples provided on O.S. disk)
- Musician's Manual
- Essential Sound Manual
- Current Operating System disk
- 8 Essential sound disks
- SW-2 Foot Switch *
- Detachable power cord

Optional Accessories

- Additional sound disks [AS Series (5 disks per set), Signature Series (3 disks per set), SL series (5 disks per set), SLT-1 thru 13 (10 disks per set)]
- SW-10 dual Foot Switch – 2 pedal piano damper for sustain, Patch Select and sequencer control
- CVP-1 (CV Pedal) – for voice modulation or volume control
- OEX-6sr output expander provides 3 additional pairs of stereo outputs or 6 mono outputs **
- SP-3 SCSI interface with opto-isolation for noise elimination
- DI-10 Digital I/O board (consumer AES/EBU digital interface)

Physical

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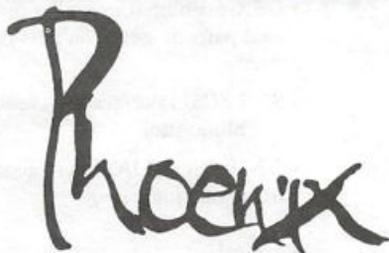
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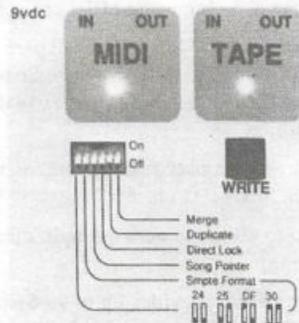
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Fun With the EPS-16+/EPS

Clark Salisbury

I've been working with the EPS family of instruments for something like 153 years now, and I'm still amazed by the things these wonderful instruments can do. And you know what? A lot of the really cool stuff is really simple — no computer editor needed, no degree in cybernetics, no exotic processing equipment. Just a little free time and a penchant for pushing little, square buttons.

Some of this stuff is fairly essential information, but most of it is more from the “just for fun” territory. You know — it's a rainy day, your Macrame-for-Peace meeting was cancelled and your cat's watching a special on Geraldo about cross-dressing field mice and can't be bothered right now. So you think, “Hey! This might be the perfect time to play with my EPS-16+ Digital Sampling Keyboard.” And you're right — now is the perfect time. So brew up a cuppa Joe and let's get started.

Custom Samples

I get a lot of questions about setting up to do sampling, so herewith is some of the basic stuff to be aware of if you decide to give sampling a go. (And if you haven't tried doing some of your own sampling, shame on you! It's the best part of the machine, and it couldn't be any easier). All of the parameters described in this section are accessed by scrolling through the sampling pages — press the [SAMPLE] button, select an unused instrument to sample into, and scroll.

The first thing you'll need to set, of course, is the input volume. The EPS-16+ display acts like a VU meter when in level setting mode, with the word AMP flashing to indicate clipping (distortion). Since the EPS-16+ provides no way for you to control the level of the signal coming in (aside from being able to switch between mic and line levels) you'll need to be able to control the volume of your input signal — usually with some sort of audio mixer.

Precise input level setting is not extremely critical as you can always use the “Normalize Gain” command (COMMAND/AMP, applied to the sample after it's been taken) to bring a quiet sample to its maximum volume before clipping. As a matter of fact, you should probably always normalize the gain on your samples. Normalizing the gain increases the amplitude of a soft EPS-16+ sample to the maximum possible without inducing clipping. This will never damage a sample, but it can help bring a weenie sounding sample back to life. Be aware, though, that normalizing the gain of a sound that's been sampled at too low a volume in the first place may increase the volume of any noise contained in the sample along with the volume of the sample itself, so try to keep your source material at a good volume when sampling.

The next thing you might want to do before taking a sample is

to decide on what sample rate to use. The EPS-16+ automatically assumes a default sampling rate of 44.6 kHz, which will yield a very high quality sound, but may burn through your memory too quickly if you want to sample a very long sound, or a lot of little short sounds. You can, however, opt to use a lower sampling rate, which will yield more sampling time. A sampling rate of 22.3 kHz, for example, gives you twice as much sampling time as the default rate of 44.6 kHz — although the sounds done with the lower sampling rate will tend to be less hi-fi than those done at higher rates. Note that using a higher sampling rate than necessary can be inefficient — a sample rate of 44.6 kHz will not necessarily give you a better sample than a rate of 29.8 kHz if your input material has no high frequencies. One trick, however — try the sample at a relatively low sample rate, say 22.3 kHz or so, but open the input filter all the way, to 20 kHz, or even take it out altogether. You will find a lot of material that you might sample will not have frequencies present that might cause aliasing — unless you are sampling acoustic instruments using high quality microphones. With the input filter opened up, you don't end up filtering anything out of the sample, but you might still be able to get away with lower sampling rates. If you do find that your samples are aliasing (characterized by high-pitched whistling sounds contained in the sample) try the sample again with the filter cutoff backed down a bit.

Remember, too, that the EPS-16+ will perform the nifty trick of converting the sample rate of a wavesample up or down. So if you are sampling sounds that you are serious about using down the road, I'd recommend doing them at the 44.6 kHz rate — you can always convert the sample rate down later if you find yourself squeezed for memory. If you do decide to convert the sample rate of a wavesample later on, be careful. For some reason, the listing of possible sample rates that the EPS-16+ will allow you to convert to is not presented in a completely consecutive order — scrolling one direction takes you from 44.1 kHz to 48.0 kHz, while scrolling the other direction moves you from 44.1 kHz to 312 kHz, and then on down. It's easy to mis-read 312 kHz as 31.2 kHz, and inadvertently convert your sample up to an unnecessarily high rate — so pay attention to those decimal points when converting the sample rate.

If you are multisampling, (taking multiple samples to the same layer of the same instrument) try to do the samples in some order — low to high, high to low — since each new EPS-16+ sample is assigned a consecutive number. It's a lot easier to keep track of multisamples if the lowest one is numbered “1,” the next one up is numbered “2,” and so on. Also, when setting the keyboard range for the high and low samples on the keyboard, it's usually a good idea to use the data slider (rather than playing a note on the keyboard) and set the low and high note to the maximum allowable. That way if you should need to transpose the entire instrument up or down using the “Set Key-

board Range" button, you won't end up with blank notes at one end of the keyboard or the other.

Wavesample Processing

The digital effects built into the EPS-16+ are a joy to work with and can help to create some very beautiful effects. But there's another type of digital processing available that's often overlooked — it's what I tend to think of as "Wavesample Processing." The EPS-16+ provides tons of this type of processing for the dedicated samplist — way more than I could ever hope to cover here. But there are a couple of favorite tricks that can help turn one of those "so-so" samples into something really stellar.

By now, most of us have learned the trick of copying a layer (COMMAND, layer, scroll to "Copy Layer," press enter, select "Params Only," press enter). Since a copied layer takes up almost no memory, and layers can be treated independently in terms of stereo placement, pitch detuning, and so forth, a lot of sounds seem to make use of this technique. So here's a couple of ideas for things to do with those extra layers.

Detuning a second layer makes for a nice chorusing effect, but applying a slow, subtle LFO to one of the layers tends to produce a bit richer, more realistic chorusing effect. I know there's already a chorus algorithm built into the EPS-16+ digital effects, but doing the chorusing in this way provides a somewhat different sounding effect than the built in chorus, and you may want to use the effects for something like phase shifting, which can't be used simultaneously with chorusing. So try this: Hit "Edit," select the layer you want to process, then hit the LFO button. Try a speed of around 25 or so, to start. Set the LFO depth anywhere between 20 and 60, depending on the depth of the effect you are trying to achieve, and set "delay" to 00. Hit the PITCH button, and scroll to the "LFO AMOUNT=" page — this should be set to around 1.0, unless you like your sounds really wiggly. You might even try setting "LFO MOD=" (on the LFO page again) to something like PRESS if you want to control the chorusing depth from key pressure.

You can create an interesting doubling effect by using the "Layer delay" function. Copy an existing layer as described above — remember to copy the parameters only. Select the new layer (hit "Edit" and underline "Layer=XX," and set the value here to correspond to the newly copied layer). Press the "Layer" button, and scroll until you see "Delay=XXXX." Here you can set the delay for anything from 0 to 5000 milliseconds, in 1 millisecond increments. For a little added spice, you might think about detuning one of the layers — tuning the second layer up an octave, for example, yields a pitch-shifted delay effect. You can even set multiple layers tuned to different pitches to different delay amounts to create pseudo-arpeggiator and other various twisted effects. And don't neglect the velocity control — you can use both positive and negative velocity amounts to control delay times.

You can also combine the chorusing and delay techniques I've just described to create some truly awesome backing vocal tracks. The idea is this. First, record your backing vocals to tape. If you're working in a multi-track format, try overdubbing

two-, three-, or even four-part harmonies. Mix these tape tracks so that they sound as good as possible on their own. Now sample this entire mix into the EPS-16+.

Once the track has been turned into an EPS-16+ wavesample, normalize its gain and make any basic processing adjustments you'd like — change the enveloping, adjust tuning and filtering, and so on (I've even gone so far as to apply a carefully designed pitch envelope to bend the sample slightly sharp or flat in places where the pitch was less than ideal in the original vocal track — but don't tell anybody). It's important to get all the parameters for the sample set as close as possible to the way you think you'll want them when the sound is in its finished form, because we're going to copy the layer and do some additional processing. It can save some significant time if you're copying a fairly finished layer and not having to duplicate programming moves later on other layers.

Anyway, once the first layer is set up pretty much the way you want it, copy it two times to create a couple of duplicate layers. Pan one of these duplicate layers to the left and the other to the right, and use the LFO trick described above to subtly modulate each of these copied layers. The biggest effects are achieved if you use slightly different LFO rates for each of the copied layers, so that each layer is being pitch-shifted at a slightly different rate. In addition, you may want to tune one layer slightly sharp and the other a bit flat to spread things out a bit more. You'll need to be a bit careful with the detuning, though, and particularly on longer passages. The effect of speeding up or slowing down the playback of a sample (which is what detuning does) can cause long samples to move noticeably out of sync with each other as time goes by.

Finally, apply a small bit of layer delay to each layer — perhaps 30-40 milliseconds to one layer, and 70-80 milliseconds to the other, or whatever sounds good to your ear. And *voilà!* Huge background vocal tracks on a budget. And if you want to be really high-tech (and you have a hard drive) you can use a sequencer synched to tape to load and play different backing tracks at the appropriate times in a mixdown. This not only saves on tape tracks, but makes you look like a genius as a recording engineer, because the results are (more often than not) superb.

Anyway, there's some thoughts on cool stuff to do with the EPS-16+ (actually, a lot of this applies to the EPS Classic, too). Anyway, I gotta go. Geraldo is interviewing a toaster oven and a Buick Le Sabre, and my cat's losing interest and sharpening

her claws on the Futon again... ■



Bio: Clark Salisbury has been actively involved in the composition, performance, and recording of electronic music for over 8 years.

The VFXsd and SD-1 Mixdown Lowdown

Robby Berman

The ability to automate volume changes in your sequenced songs is one of the more powerful features of the VFXsd and SD-1 synthesizers (and, in fact, all of Ensoniq's current instruments). It's nearly as easy as your *Musician's Manual* implies, although there are a few critical bits of information you might not have figured out (and on which the literature is mum). Here's the real deal.

There are two different types of tracks to mix down: the tracks contained in individual sequences ("sequence tracks") and those that run alongside them once you've assembled your song ("song tracks"). The procedures detailed throughout this article will refer to a single track, since that's all you can mix at a time. To mix more than one track, follow these steps over and over.

Let's assume you've sequenced all that you intend to sequence, and that you've constructed yourself a song (and maybe even recorded some song tracks). Song tracks are a true snap to mix; we'll get to them last.

Mixing Sequence Tracks

Before you can actually mix a sequence track, you've got a little prep work to do. First of all, whichever instrument you plan to mix down has to occupy the same track position in all the sequences used in your song. Say you want to ride the level of a string section, perhaps LUSH-STRNGS, which is on track four in your first two sequences. You need to make sure that in all the other sequences that are part of your song, track four is where LUSH-STRNGS resides. Any track is okay for any instrument, but you must be consistent.

If your mixdown instrument doesn't come in at the top of the song, define a track in the position it will eventually occupy in all the sequences leading up to its point of entry (track four in our example).

If the instrument does come in right at the beginning, but at a volume other than 99, go to the song's first sequence and set the track to its intended starting level.

This next item is certainly the most important bit of info not in the manual. Perhaps you remember that one of the things the sd/SD offers to memorize ("SAVE CHANGES...?") when you leave one sequence to go to another is which track was selected (underlined) in the sequence you're departing. Before mixing a sequence track you have to see to it that it's the track selected in every one of your song's sequences. In our example, track four should be underlined in all of the sequences. If it's not, simply select it and move on to the next sequence, answering

YES to the SAVE CHANGES prompt.

The one remaining thing to do is to select a song track on which to print the mixdown data. The track has to numerically correspond to the sequence track you want to mix. In our example, this would be song track four. Mixing down employs a special form of ADD mode, so if you've already recorded something on the song track, don't worry, the mixdown info will harmlessly lay right over it. If you haven't already created a song track in the necessary position, do it now by simply selecting the track.

Once these steps have been taken care of, here's what you do:

1. Press Seq Control and set RECORD MODE to MIXDOWN.
2. Press Seq Control again and set EDIT TRACKS to Seq.
3. Press Volume in the Performance section. Set the volume level to where you want it at the top of the song.
4. Hold down Record and press Play. Mix your little heart out. Any moves you make with either the up-and-down buttons or the data entry slider will be recorded, putatively, on the song track (song track for in our example). At the end of the song, or at a point after which the volume shouldn't change anymore, press Stop/Cont.
5. As you audition the mix, you can watch the changes you made. Press Play and quickly double-click on the Volume button. This will put you on the right screen to watch your handiwork go by.
6. Press KEEP NEW TRACK, or, to try again, KEEP ORIGINAL TRACK.

Suppose you've kept a mix and later decide to redo it. Since we're dealing with an ADD-type mode, you have to remove the old mixdown data before doing it over otherwise the new take will be added to the old one rather than replace it. Trying to find your old mixdown info using the event editor is an interesting experience. It's apparently not quite on either the song or sequence track! Where it is, I dunno, but here's how to get rid of it:

7. Select the song track that numerically corresponds to the sequence track you want to redo (in our example, it would be song track four). At this juncture, it doesn't seem to matter which sequence tracks are selected.
8. Double-click on either Tracks (1-6 or 7-12) button. If you're

the curious type, you can now observe your mixdown data with the event editor (set it to MXV).

9. In the Edit section, press Track.

10. On the display, press MORE and then FILTER.

11. Use the up-and-down buttons or the data entry slider to locate MIXDOWN VOLUME, press YES and KEEP NEW TRACK.

One last cautionary note. Once you've mixed a sequence track, don't erase the corresponding song track, or your mixdown data will be lost. You can record on the track, you can even filter out key or any other kind of events (except MIXDOWN), just don't use the ERASE command under the Edit Track button.

Mixing Song Tracks

Mixing song tracks is much easier. First of all, there's no prep

work to do. Just select the song track you want to mix and follow steps 1 through 4 above, with one exception: in step 2, set EDIT TRACKS to SONG. To watch your fader moves as you listen to what you did, press Volume twice. To remove data from an earlier take, simply follow steps 9 through 11 above.

It strikes me as a real shame that none of the VFXsd or SD-1 owners I personally know are taking advantage of this extremely useful mixdown facility; I suspect they're intimidated by it. But as for you, Reader, you now know how to do it — don't be afraid to try. ■

Bio: Robby Berman is a musician living in internationally infamous Woodstock, NY. He's just wrapping up work on his new double album (yikes!), "Rings and Rings," for which he's currently seeking distribution.

Cheatsheet of the EPS-16 PLUS Gods

Pat Finnigan

For: EPS-16 PLUS

Product: *The Navigator*, a quick reference sheet.

From: Keith Peterson, 711 Park Ave., Dunkirk, NY 14048

Price: \$6.95 + \$1 s/h (\$2 outside North America).

Isn't it funny how we gripe to manufacturers to put more power in their little black boxes? We gotta have every conceivable/possible tool/utility to get the ultimate sound. So they give it to us, but all we can do is whine about how we gotta press control/alt/delete while facing west at exactly 2:32:18 PM the night after a full moon to access the particular parameter we want. We're a pretty hypocritical bunch, demanding the power and then seldom using it. If we do decide to use some of that power on tap, out comes the owner's manual, a flurry of page turning gets us to the section we need, and perhaps a half-hour later, we've used 0.05% of our instrument's power. And, during this process, our creative juices have shifted from right brain imagery to left brain objectiveness. We forgot what we were trying to musically realize.

Keith Peterson's *Navigator* is designed to reduce that left-brain/right-brain flux by condensing the "direct-dialing" codes (button presses) for accessing EPS/16+ menu pages and operations to a single two-sided letter-sized sheet for easy access.

The chart is well designed and laser printed. Direct dial codes are organized first by function (MIDI/System, Layer Edit, Effects, etc.) and then by keypress in a boxed chart. The reverse side is primarily "mini-tutorials" on specific EPS operations; "To Create a New Sequence," "To Create Patch/Enable-Disable Layers" in bullet chart form. The sheet comes in a plastic page

protector for a looseleaf 3-ring binder. For novice users the *Navigator* will be quite indispensable. Even veteran users who occasionally forget how to get to the "Invert Data" page will find the *Navigator* a boon. Given the veritable plethora of commands for the EPS/16 the *Navigator* is frankly pretty handy for just about everybody.

The price is right, it's easy to use, and you're sure to save time with it. Given the *Navigator* as an adjunct to the owner's manual (not a replacement), I'd recommend it. If used like *Cliff Notes* you'll only be cheating yourself and your EPS. That's the only caveat about Keith Peterson's *Navigator*: it's not a replacement for the owner's manual, but an enhancement, sort of a resource summary. And yes, Keith, Ensoniq did print a trifold index-card sized Command Summary for the original EPS (I don't know about the 16+), but I wonder how many people out there really used it? I lost mine...

At \$6.95 I recommend it. It'll save you the headache of trying to get back where you were before trying to perform an operation. It'll save wear and tear on your owner's manual. It'll help you memorize direct-dial codes much faster. Even if you've got a computer, it'll cost you more in time and energy to write your own navigator than the \$8. Used as designed, it's a real labor saver. ■

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

SQ-1 = B-3²

(Part 2)

Mark Clifton

If you read my last article, *SQ-1 = B-3*, you are no doubt thirsting for more down-and-dirty grit on the art of Hammond B-3 emulation for the SQ-1. I've discovered several new tricks since my release from the MIDI Madhouse and have pondered this strange equation in my many group sessions. So, as part of my 12-step recovery program, here's the follow-up.

Velocity Response

In the last article I failed to mention that the B-3 is not velocity-responsive. That is, the volume and characteristics of the sound do not change with the hardness of the keystrokes like they do on the piano. Make sure that all parameters that pertain to velocity are at either OFF or 00.

Leslie Speaker Distortion

The Leslie rotating speaker is famous for distorting nastily when the volume is cranked up all the way. Many synths and effects processors with a rotary speaker effect have a programmable distortion parameter but not the SQ-1 (it is present on the VFX and SD-1, though.) If you have an external effects processor with a regular, or even better, a tube distortion effect, try feeding your B-3 sounds through it to get that harder edge. If possible, modulate the distortion amount from an external MIDI controller from your SQ. Try assigning the mod pedal to Volume (MIDI controller #7) and controlling it from there. That way as you move the pedal, the volume and the distortion effect will change simultaneously. This may take some tweaking, but the results should be worth it if you like that nasty, distorted Leslie sound.

Simulating Double Manuals

The B-3 has two five-octave (C — C) manuals that can contain a separate independent drawbar setting for each. This is very convenient for synthesizing B-3 sounds since this is the standard size of most synth keyboards. The SQ-1 is particularly suited to B-3 synthesis because the Preset feature allows you to assign different B-3 patches and layers to different MIDI channels. This allows you to play one patch on the SQ's keyboard and another patch from the keyboard of another multitimbral synth and/or even a MIDI pedalboard. All you have to do is set up a Preset (the manual will tell

you how) that contains all of the sounds that you want, plus the necessary layers. Set MIDI status (in the parameter bank) of each track to LOCAL. This way, the SQ will play all notes received over MIDI or played on its own keyboard without transmitting any MIDI data. If you want to send MIDI data such as program changes or notes to a sequencer, set this parameter to BOTH (the default). Then set the MIDI channel (also in the parameter bank) of each track that you want played by the SQ-1 to the SQ's base channel and those to be played by the external controller to its receiving channel. Any sounds that are meant to be layered should be set to the same channel, as this would trigger the sound meant to be played from the SQ's keyboard.

With two keyboards and a MIDI pedalboard MIDI'ed up in this fashion, you can do some heavy-duty pounding. If you do like playing dense chords with multi-layered sounds you can eat up polyphony pretty quickly when playing with this kind of set-up.

Weird Special Effects

Many old B-3 players would feed the sound of their organs through various microphones, speakers and effects devices to change or enhance the sound. There are basically no rules as to what you can do to here. Some commonly used devices were outboard guitar effects such as chorusing, flanging and wha-wha pedals. Some players would retrofit their organs and Leslies to get different variations on the sound. You might want to try feeding your B-3 patches through a real rotating speaker for added realism.

Well, I hope these extra tips were enough to get you wallowing in B-3 bliss again. If you have any of your own tips to add to this, be sure to write the *Hacker Interface* and let everyone know about 'em. I myself am always thirsting for yet more information to contribute to the great Grand Unified Theory of B-3 Synthesis. ■

Bio: Mark Clifton is a player and composer of Jazz, New Age, Orchestral and Rap (yes, Rap!) music and an aspiring Cyberpunk writer who also wouldn't mind going into sound design or film scoring. His favorite color is the infinite, star-speckled blackness of space.

Wave Mutilation 101 for SQs & KSs

Part 7: A Two-Phased Transwave

Jack Stephen Tolin

Ever since the beginning of recorded sound synthesis, people have wanted to use a single wave to do it all. After all, if you can make one wave do just about anything and you have a synthesizer with umpteen waves and waveforms in it, why listen to a guitar, bassoon, radio or anything else. In fact, why have analog ears at all?

Of course, I'm exaggerating. The point of the synth isn't to take over all other sound sources, it's to add to the overall palette of possible sounds for the artist — which is my philosophy with this series in wave mutilation. Why use a synth to replace something else when it's simply an instrument with its own characteristics? And so, instead of dealing with the synth as anything but a synth, let's enjoy what it can do and explore some new techniques of synthesis never available B.E. (Before Ensoniq). Like the old saying goes — "The old things passed away; behold, new things have come."

So, on that note, let's begin.

In keeping with the spirit of avant-garde sound as well as with classic analog sound, I've decided to use the transwave for further exploration. What we will be doing this month involves a combination of synthesis techniques previously discussed in past issues of TH. The emphasis is on modulating the start index of two transwaves while both are split across the stereo field. Remember everything you've ever learned about envelopes and LFOs because you'll need that information here.

Enter the "2-Phased T-Wave" program as listed into your SQ-1/2 synth. Note that ENV1 and ENV2 are blank. They are available for you to fill in later with your favorite parameters. Everything is basically centered around the MODSCR of the Start Index. The one I've used is a simple LFO. Notice how the rolling of each wave in each channel is somewhat different than the other. This is simply a result of the Restart parameter in the LFO bank being turned off.

Let's experiment. Go to the Wave bank and select ALL voices for editing. Next try setting the Start Index MODSCR to ENV1. Now go to the last screen of the ENV1 bank and try out some of the default settings. You may even want to try out different settings for each voice. (You will have to go back to the first screen of the Wave bank and select ONE and then select a voice that is "ON" to do this.) The Repeat mode in the ENV banks is an added bonus. Play around with it as you can, to a certain extent, produce your own original LFOs and customize the effect. Remember to save *everything* you like.

For a good example of stereo motion, make the following changes to voices 1 and 2:

```
ALL:      Wave bank (screen 3)  Mod=ENV1 * +99
ONE(1):   ENV1 bank (screen 0)  00 99 00 00
                                     10 10 10 16
                                     (screen 2)  Mode=REPEAT
ONE(2):   (screen 0)           99 00 99 00
                                     10 10 10 16
                                     (screen 2)  Mode=REPEAT
```

For another example, make the following changes to voices:

```
ALL:      Wave bank (screen 3)  Mod=LFO * +99
          LFO bank:  LFO Speed=30; Noise Rate=00
                   Level=00; Delay=00; MODSCR=ENV2;
                   Wave=POS/TRI; Restart=OFF
ONE(1):   ENV2 bank:(screen 0)  00 99 00 00
                                     50 50 00 50
                                     (screen 1: your favorite velocity)
                                     (screen 2)  Mode=REPEAT
ONE(2):   ENV2 bank:(screen 0)  99 00 99 99
                                     50 50 00 00
                                     (screen 1: same as voice 1)
                                     (screen 2)  Mode=REPEAT
```

Here the addition of ENV2 as the modulator to the LFO creates an even exchange in modulation between both channels; each takes its turn separately.

For the SQ-80, first type in "L-WAVE" as listed and save it to an available location. Next select "L-WAVE" for the Layer Program on the Split/Layer page. Then select the PAN amount on DCA4 and reverse the polarity — in other words, pump the value all the way up. Now write this program as "R-WAVE" and save to an available location, preferably a location near "L-WAVE."

Since there are no resident transwaves in the SQ-80, I've created the same type of sound with a similar LFO-sweep type effect. In order to duplicate the resonant aspect, I've set the Q to a value of 15. This choice was made so that the top would sound whizzy and the bottom wowwy when the sweep comes through. That is, a Q of 15 brings the sound toward the center in terms of frequency cut-off including resonance, especially considering the fact that a low Q would yield relatively little frequency when the Filter modulator (LFO or ENV) sweeps down. To demonstrate this in a more practical way, try setting the Q to 0 and try it out. (Remember that you have to edit both

SQ-1/2 & KS-32 Prog: 2-Phazed T-Wave

By: Jack Stephen Tolin

WAVE	1	2	3
Select Voice	On	Off	On
Wave Class	Transwave		Transwave
Wave	Resnt 3-X		Resnt 3-X
Delay Time	000		000
Wave Direction	-		-
Start Index	00		00
MODSCR	LFO		LFO
MODAMT	+99		+99
Restrk Decay	00		00

LFO	1	2	3
LFO Speed	14		14
Noise Rate	99		99
Level	99		99
Delay	00		00
MODSRC	LFO		LFO
Wave	Pos/Tri		Pos/Tri
Restart	Off		Off

AMP	1	2	3
Initial	99		99
Peak	99		99
Break	99		99
Sustain	99		99
Attack	00		00
Decay 1	00		00
Decay 2	00		00
Release	00		00
Vel-Level	13		13
Vel-Attack	00		00
Vel Curve	Linear		Linear
Mode	Normal		Normal
KBD Track	+00		+00

PITCH	1	2	3
Octave	+0		+0
Semitone	+00		+00
Fine	+00		+00
ENV1	+00		+00
LFO	+00		+00
MODSCR	Wheel		Wheel
MODAMT	-62		-62
KBD Pch Track	On		On
Glide	MiniMode		MiniMode
Glide Time	00		00

FILTER	1	2	3
Filter 1	2Lo		2Lo
Filter 2	2HI		2HI
FC1 Cutoff	127		127
ENV 2	+00		+00
FC1 KBD	-25		-25
MODSCR	Pedal		Pedal
MODAMT	-50		-50
FC2 Cutoff	000		000
ENV2	+00		+00
FC2 KBD	+00		+00
FC1MOD-FC2	Off		Off

OUTPUT	1	2	3
VOL	65		65
Boost	Off		Off
MODSRC	Pedal		Pedal
MODAMT	-05		-05
KBD Scale	+00		+00
Key Range	A0 C8		A0 C8
Output Bus	FX1		FX1
Priority	Med		Med
Pan	-98		-98
Vel window	000		000

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

ENV2	1	2	3
Initial			
Peak			
Break			
Sustain			
Attack			
Decay 1			
Decay 2			
Release			
Vel-Level			
Vel-Attack			
Vel Curve			
Mode			
KBD Track			

PHASE SHIFTER	
FX-1	99
FX-2	99
Phaser Rate	15
Phaser Depth	99
Phaser Center	50
Feedback	-75
ST Cross Fdbk	+00
Phaser LevellInput Invert	99/Off
MOD (Dest)	Rate
BY (MODSRC)	Pressure
MODAMT	+15

SQ-80 PROG: L-Wave BY: Jack Stephen Tolin

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	+0	00	00	SAW	WHEEL	-24	OFF	-
OSC 2	-2	00	00	GRIT3	WHEEL	-24	OFF	-
OSC 3	-1	00	00	SQUARE	WHEEL	-24	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	58	ON	PEDAL	-20	OFF	-
DCA 2	58	ON	PEDAL	-20	OFF	-
DCA 3	58	ON	PEDAL	-20	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	062	15	08	LFO1	+63	LFO1	+02

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	53	00	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	05	OFF	ON	TRI	63	00	63	PRESS
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	-	-	-	-	-	-	-	-	-	-
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	+63	+63	+63	13L	00	00	00	00	00	00

	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC
MODES	OFF	OFF	ON	00	OFF	OFF	OFF	OFF

	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY
	OFF	-	ON	R-WAVE	OFF	-	-

L- and R-wave to hear the complete effect. You may prefer to turn the LAYER parameter OFF on one program to test out your edits.) Then set the Q value all the way up and try again. This second one may sound just too quirky to actually use in most cases!

As far as the ENVs and alternate LFOs go, the same rule as mentioned above still applies: play around with different values and enter your favorites. Just make sure that you set both modulators on the filter page to the appropriate modulator, that is, LFO or ENV.

Here are two examples I've tried with just L-WAVE:

ENV1: -53 +63 -43 38L 00
 00 18 28 28 09

ENV2: +63 -63 -38 38L 00
 00 10 43 28 09

Set the PAN on DCA4 to dead center. Then set MOD1 and MOD2 on the Filter page to ENV1. Try it out. Next, set both MODs to ENV2 and try it out. Hear some sort of synthetic bass sound in the making? You may want to save each example you come up with so that you can go back to them later and form the sound into whatever it inspires you to create.

For the coup de grace, try layering both "2-Phased T-Wave" and "L-WAVE" (or "R-WAVE"). The result is one of the most — well, uh, — interesting (yeah, that's the word) sounds ever to coup...er, I mean grace your ears. Fortunately this patch represents what some creative programming can do for a lot less than a new RAM card or cartridge. Experiment. When I first got my first synthesizer, I rarely messed with the presets. Now I venture into the wild unknown and end up learning little techniques that help enhance a sound into an entire musical composition.

If you've actually survived this month's installment of Wave Mutilation 101 you've good some great resources for creating unique moving sounds. You also have the potential for thrill-

ing the *Hacker* editor, as well as the hundreds of hundreds of *Hacker* readers — so send in your patches and programs and thrill us all. ■

Bio: Jack is currently a Psychology major at Eastern Nazarene College in Quincy, Mass and performs at Boston area churches with his musical ministry group, Clay in Hand.



Holding Hands with Alexander

Anthony Ferrara

For: EPS-16 PLUS.

Product: *Ensoniq EPS-16 PLUS Operations & Sampling Book*, by Lorenz Rychner, with Bobby Maestas.

Price: \$24.95.

From: Alexander Publishing, 3537 Old Conejo Rd, Suite 10144, Newbury Park, CA 91320 (800)633-1123.

Those of us who build our home studios (and consequently our sound) around the EPS-16 PLUS are amazed by its capabilities but often confounded by the bare-bones facts as stated in the original Musicians' Manual that came with the unit. The most major shortcoming of the manual is its lack of step-by-step tutorials pertaining to such techniques as effects/effects busses, sampling/re-sampling, editing, re-synthesis, and sequencing.

Alexander Publishing purports to have created a solution for this by releasing a new book entitled, "*Ensoniq EPS-16 PLUS Operations & Sampling Book*." At \$24.95, compared to the list price of \$9.95 for the original manual, the question is whether the added coverage is worth the cost.

The new book begins with material similar to that found in the original manual, dealing with such basic issues as booting-up, floppy disk care and information, and audio/MIDI connections. There's more detail about MIDI connections and flow, which the original seemed to neglect.

Technical possibilities and tutorials dealing with effects/effects busses are very thoroughly explored, "...with corrected signal path illustrations for the EPS-16 PLUS that Lorenz Rychner worked out with the Ensoniq engineers," as the author tells us in the section on effects.

In the area of sampling, extensive coverage of various sample

sources is given, ranging from microphone techniques when going directly into the 16-PLUS, to working with pre-recorded samples, whether from various tape formats or CDs. Each major scenario is examined through the use of "sessions." For example, "*Sampling Session #5: Tape & CD Direct to Sampler/No Mic*," takes the reader through a detailed exercise. Several tutorials are devoted to the concept of re-sampling with effects, a technology which was not available on the original EPS.

One area that is not covered in this manual is the extensive sequencer capabilities of the EPS-16 PLUS. Alexander Publishing says a volume devoted to this will be available at some point.

The most important question here is who's going to find this book useful? It's clear that the novice hacker or those new to this marvelous (but complex) instrument will benefit the most. I feel that it makes a valuable supplement to the factory manual, given the tutorial approach that is taken. It's a good value for the price if what you're seeking is a very basic tutorial approach — particularly after what you already shelled-out for the instrument.



Happy sampling and I would love to hear from those of you who are using this board with a MIDI-guitar. I can be reached at: Anthony Ferrara, P.O. Box 14503, Philadelphia, Pa., 19115, phone: (215) 742-0738. ■

P.S. As a Philadelphia native, I still refuse to say "youse."

Learning to Live with Your Dinosaur —

Using Your ESQ-1/ SQ-80 in the '90s

Charles R. Fischer

Before we get started I just wanted to ask a question to see where we're coming from. My question is, "How many of you are less thrilled with your ESQ-1 or SQ-80 than you were the day you bought it?"

Hmmm — I see. I know exactly how you feel; how come a state-of-the-art instrument like the ESQ-1 or SQ-80 can turn into such a bargain-basement axe in only a few short years?

It's really funny. Your axe once seemed so *complete* — it had 8 multitimbral voices, a totally bitchin' sequencer, and it did all sorts of sounds so well! But now, those specs no longer cut it in a world of 16-bit synths and samplers decked with dozens of voices, onboard effects, and plenty of audio outs.

That's why your band members sneer as you lug it into rehearsal and why the resale price of these machines shrinks daily. The obvious thing to do is sell it and buy something newer (like an SQ-2), but you can't. Or won't.

What do you do now?

In this article, we'll cover some of the things you can do to live with the limitations of these instruments. By limitations, I mean mediocre audio quality, limited number of voices and sequencer tracks, limited options for signal processing and more. But you're already aware of that stuff, right?

It's a Matter of Attitude

I know several folks who are still using an ESQ-1 paired with a drum machine to handle all of their sequencing and keyboard duties. They're patiently enduring its limitations until they get signed to a recording contract. Until then, they ask me how to help them make the best possible use of their gear. And while we're talking, I remember that I started off with that same ESQ-1/drum machine setup — and how great it seemed at the time!

What had been a powerful, cost-effective system in 1987 has been reduced to a much lower class today. It's still the same ESQ-1 and drum machine (actually, we've seen a few software upgrades since then). The only thing that's changed has been our perception, which tends to be affected whenever we hear about some newer instrument, somewhere. While we can't return to 1987 expectations, we can learn to make the best of what we have!

RULE #1: While your gear may not be state-of-the-art, the good news is that it's yours. You can learn to work around its limitations, or buy a few inexpensive toys that will help to

cover up the obvious weaknesses. The best part is that all of this knowledge will make you all the wiser the next time you're shopping for gear.

RULE #2: Look for any trick that can cover the worst flaws in your setup. If you don't like the way it sounds, then process it 'til it sounds okay, or try layering it with a cheap sound module. All it takes is one or two pieces of gear to fill in for what your ESQ/SQ can't do.

RULE #3: Learn to use your gear to the fullest extent that you can. I'll take an experienced, creative musician with an ESQ-1 over a moron with a Synclavier any day!

Practical Cures

Funky Sounds

Both the ESQ-1/SQ-80 lack the clarity of newer, 16-bit designs. And both lack the onboard signal processors that have become a part of contemporary keyboards since the Roland D-50. While I doubt if Ensoniq is going to release an ESQ-to-SD upgrade kit in the next millennium, the fact is that anyone can add a signal processor to their setup, which will help enhance the sound quality considerably. It's difficult listening to an ESQ-1 dry these days.

I reviewed the Alesis Quadraverb in the Dec. '91 *Hacker*, looking at it as a crutch for the sonic limitations of our ESQ/SQ-80's. At a list price of under \$500, it's a lot less expensive than buying a new axe for its onboard effects.

Since I've heard some people complain that our instruments lack something in the high frequency range, another signal processor to look at is the Aphex Enhancer. It can actually synthesize harmonics that were missing from the input signal, adding sparkle and clarity to the sound.

Not Enough Voices

Eight voices simply isn't enough for many situations. The obvious solution: buy some inexpensive sound modules to make up for this. One example would be the Yamaha TX-81Z FM module. It has 8 multitimbral voices and you can find them secondhand for \$300 or less. There many other products that can do just as well for minimal bucks.

Not Enough Outputs

I agree, two audio outputs is completely inadequate. How do

you keep your bass line separate from the horns or strings, or send the bass to an equalizer while everything else gets reverb? Answer: You can't, — so we'll have to try something else. First, you could pick up a used sound module to handle the bass part (I've seen several 360 Systems MIDIBasses for \$100 or less in the want ads this year). Or maybe a Casio CZ-101, or something of that ilk. As long as it sounds passable and is affordable, it will solve your immediate problem.

The second fix is for all you do-it-yourself types out there. In the December 1991 issue of EQ magazine, Fellow Hacker, Craig Anderton, and I have an article that describes a simple circuit called the Mudguard, which can be used to remove the low frequency portion of the audio, so that you can use reverb and other effects — without the low-end slop. Check it out. . . it works pretty well for our needs.

Perversity, uh, Perseverance Pays

I hope that you've been educated, uplifted, or even challenged by my comments. It's easy to be frustrated when you believe that what you've got doesn't cut it.

If any of you eight-biters out there have any questions or comments regarding my ideas, you're invited to write me c/o:

P. O. Box 5372, Hercules, CA 94547. Please include a SASE if you'd like me to reply. ■

Bio: Charles R. Fischer works as a test technician for AKG Acoustics, Inc. He also writes for several magazines, designs custom MIDI controllers, and works as a studio musician now and then.

The SD-1 Power Primer

Part 3 — The Inside Track

Tony Thomas

While there are many workstations on the market, there are few with a sequencer that can compare to the one in the SD-1. It provides a virtually transparent user interface that doesn't come between the composer and the music.

And even though computer-based sequencers can bring a tremendous amount of processing power to bear upon any musical task, they are generally difficult to use. Watching a computer monitor while fiddling with a mouse and two keyboards — one computer and one musical — is no fun.

With the SD-1, most sequencing tasks are only a few button presses away. The large screen gives you a great deal of information at a glance and the ergonomics of the instrument keep you focused on making music. Of course, you have the option of bouncing your work to a computer sequencer for final tweaking, but with the SD-1's powerful editing functions, you probably won't need to.

The Internal Advantage

The SD-1's internal sequencer is easy to use. I often find myself hitting record and play during improvisations, just in case I want to use part of it as the basis for a song. Using the editing functions, it's relatively simple to cut out the part I want and throw the rest away or file it away for later use.

Since the sequencer is an integral part of the SD-1, all of the sounds, effects and parameters (like pan, volume, etc.) are called up with the sequence, making it simple to pick up right where you left off days, months or even years later.

The SD-1 even memorizes the patch numbers used for external MIDI devices and sends program change messages to those devices when the sequence is called up. You can even store banks of sounds from other synths using the sysex record function. (Remember, this function will wipe out your sequencer memory, so back up your work before doing sys-ex dumps to the SD-1.)

Sequencer Secrets

It is a good idea to make a template sequences with the instruments, MIDI channel assignments, drum kits and effects that you use most. You can then copy these templates into a fresh slot and begin sequencing. In addition, you can save these templates to disk using the Save One Sequence/Song command and load them in whenever you need them.

You can name them according to musical style or feel, i. e.: Jazz, Funk, Rock, Country, Metal, Dance, New Jack, House, etc. You can also build up (or purchase) a library of generic drum and rhythm patterns and fills which can be cut and pasted into compositions. You can transfer these from your favorite drum machines (although you may have to remap the note numbers for the SD-1) or create them from scratch. These will make it easier to compose without having to go back to square one each time.

The SD-1's sequencer adapts to the way you like to work, rather than making you conform to its whims. If you like to work linearly (like a tape recorder), you can record a composition as one long track, punching in here and there as the need arises. If you'd rather create a song by stringing

together a bunch of sequences (like a drum machine), you can do that too. If you want to overdub over the sequences after you've strung them together, you can do that using the SONG TRACKS record feature.

The SD-1's loop record feature is great for putting together drum parts and short grooves. One of my favorite techniques is to construct a 4 or 8 bar sequence using loop record and add several parts. I then go into song mode and string the sequence together to construct a song using the transpose and mute to change key and to bring different instruments in and out.

The SD-1 Sequencer In Action

Recently, I had to produce several music beds for a radio station to be used under their sweep liners. The program director liked one of my compositions and decided to use it as the station's "signature" theme. Since I had it on a SD-1 disk, it was simple to load the theme complete with the patches, drum kit and effects that I had used in a matter of seconds.

I copied the sequence to a new memory slot and cut it down from song length to about 10 seconds. I made more copies and changed the endings and instrumentation. In about two

hours, I was able to create about fifteen different versions of the original sequence by changing the tempo, effects settings and patches and adding some new tracks. I brought them to the program director who suggested some changes. No problem. I loaded the disk, made the changes, created some more versions and in about an hour I was done. The music beds are now on the air. And the only instrument I used was the SD-1! Using a traditional MIDI system, I would have had to document synths, patches and MIDI channels extensively to be able to recreate the sequences exactly as they were recorded. I would also have had to document, levels, pan settings, EQ and effects settings (or buy an SSL console). This would have taken hours. With the SD-1, what could have been a complex musical task was a snap. ■



Bio: Tony Thomas is a veteran journalist who has contributed to several national magazines including Mix, Electronic Musician, Music Computers and Software, AV/Video and REP. He is also an established recording engineer, producer, composer and keyboard player.

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Want to trade my 500cc Yamaha motorcycle for your Mirage, Stratocaster, \$400, or ? Denver area. Call Bob at (303) 337-4570.

KS-32 \$1550. EPS-16+ rack \$1650. Both new, purchased 7/24/92. Taken out of box only once to check-out everything. Visa/Mastercard accepted. Jones, Barnett Drive, Tazewell VA 24651. Phone: (703) 988-7442.

Ensoniq EPS-16 Plus with 4x expander, scuzzi port, extras. Also sequences, disks, like new, boxed. (813) 646-0442. Asking \$1950.

ESQ-1 early model (metal case) \$600. E-mu Proteus/1 \$600. Alesis HR-16 \$225. Alesis MIDI and MicroVerbs \$150 each. Alesis 1622 mixer \$675. Yamaha 802 8-channel mixer \$200. 1-800-926-2583, Visa & MasterCard Okay.

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NEW SD-1 sounds from Eric Olsen! Volume 3 and Volume 4 are now available. Killer organs, shimmering EP's, punchin' basses, and wave-sequences!! \$25.00 each. Send check or money order to: Pegasus Sounds, 6050 Adaway Ct., Grand Rapids, MI 49546. Phone: (616) 676-0863. (Updated VFX-sd or SD-1 only.)

NEW SQ-80 SOUNDS from the Hacker's Sam Mims! Soundset 4 takes full advantage of the SQ-80's unique waveforms, and brings "hidden waveforms" to the SQ-80 for the first time. Also available for the ESQ and SQ-80 are Soundsets 1, 2, and 3. Forty patches per set, each with 22-page booklet of programming notes and performance tips, for \$17.95. Send SASE for free literature. Syntaur Productions, 2315 Mid Lane #44, Houston, TX 77027, or call (713) 965-9041.

SOFTWARE

Midicaster is still available. The way-cool operating system that turns your Mirage into a very capable System Exclusive data librarian, a 20,000-note sequence player, a disk copier/formatter, and wave-draw synthesizer is still available for a limited time. For more information, or to order, contact Tim Martin, 1510 S 5th W, Missoula, MT 59801. Phone: 406-542-0280 And thank you for your support.

MUSIC / SEQUENCES

"Anthony Ferrara, Contemporary Guitarist,"

audio cassette, reviewed in July '92 Hacker. Send \$5.50, check or m.o., payable to: Anthony Ferrara, P.O. Box 14503, Philadelphia, PA 19115. 24-Hour demo line: (215) 742-0738.

MERRY Christmas Live performance MIDI sequences of Christmas carols on floppy disk for IBM PC. Other formats available. 25 Religious classics: \$24.95. 25 Secular favorites: \$24.95. Plus \$3 shipping and handling per order. MIDI Music Co., 230 Foster St., Bldg. 2, Suite 1, Brighton, MA 02135. Phone: (617) 787-5980.

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ESQ & SQ-80 Hackerpatch

Sam Mims

ESQ Patch: BELSTR

by Sam Mims, Syntaur Productions

As the name implies, BELSTR is a combination (not a layer) of bells and strings. OSC 1 produces the bell sound, which can be removed with the CV pedal. Oscillators 2 and 3 form a standard analog detuned-sawtooth string patch, and this sound is slightly increased in volume with the CV pedal. The mod wheel closes down the filter

to darken the sound as desired. LFOs 1 and 2 add a chorusing to make the string sound rich, while LFO 3 adds a slow back-and-forth stereo motion. A very subtle reverb effect on the strings is achieved by the combination of ENV 1 (operating on DCAs 2 and 3) and ENV 4. This patch is from Syntaur's Soundset 2 collection.

The Hack

It's easy to make this into a richer sounding string patch — without the bell — by changing the values on the OSC 1 page to OCT=0, FINE=-04, WAVE=SAW, MOD 1=LFO 2, and DEPTH=-04. Then, change the DCA 1 values to those listed for DCAs 2 and 3. This gives the string patch an extra detuned sawtooth wave for extra fatness.

ESQ-1 PROG: BELSTR								BY: Sam Mims		
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH		
OSC 1	+2	00	00	BELL	OFF	-	OFF	-		
OSC 2	+0	00	00	SAW	LFO2	+04	OFF	-		
OSC 3	+0	00	04	SAW	LFO1	+04	OFF	-		
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH				
DCA 1	59	ON	OFF	-	PEDAL	-63				
DCA 2	14	ON	ENV1	+63	PEDAL	+17				
DCA 3	14	ON	ENV1	+63	PEDAL	+17				
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH			
FILTER	33	06	07	ENV4	+51	WHEEL	-63			
	FINAL VOL	PAN	PAN MOD	DEPTH						
DCA 4	46	08	LFO3	+52						
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD		
LFO 1	19	OFF	ON	TRI	03	02	10	OFF		
LFO 2	22	OFF	ON	TRI	02	01	13	OFF		
LFO 3	08	OFF	OFF	TRI	15	07	63	OFF		
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	+63	+46	+38	00	37	36	49	44	34	00
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	+63	+50	+42	00	00	00	33	50	43	00
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC		
MODES	OFF	OFF	OFF	00	OFF	OFF	OFF	OFF		
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY			
	OFF	-	OFF	-	OFF	-	-			



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.

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.

SD & VFX Prog:TREM STRINGS

By: Jim Grote, Cincinnati, OH

NOTES: This is an example from my collection of 60 patches that I offer. It is a full string section playing tremolo, a technique where the bow is moved very quickly back and forth across the strings. I've tried to capture the bright scratchy sound created by this technique. Try some chords around the lower middle of the keyboard. The left patch select cancels two oscillators for more polyphony but a thinner sound. Also, the TIMBRE slider sweeps the filter cutoff frequency, muffling the sound.

THE HACK: I love the motion of this patch; you can play whole notes and still have excitement. There were two things that my ears wanted to hear differently. First of all, the decay sounded un-

naturally long and a bit too swimmy. So I changed the FX1 setting of the reverb mix to 50 (on the first Effects page), and this helped a lot. Voices 3 and 6 still held on a bit too long for me; after all, why simulate a reverb decay when you have the real thing? So I shortened the RELEASE time of ENV 3 to 17* on both these voices. My final edit was to the pitch of Voices 1, 2, 4, and 5. These all sounded way too sharp, so I decreased the FINE value on their Pitch pages by 5.A final quick suggestion might be to program the mod wheel to control the volume (on the Output pages) negatively, so that sforzando chords could be played in this manner. - Sam Mims

WAVES	1	2	3	4	5	6
Wave	Strings	Strings	Strings	Strings	Strings	Strings
Wave Class	StringSnd	StringSnd	StringSnd	StringSnd	StringSnd	StringSnd
Delay	0	0	1	0	0	12
Direction	Forward	Forward	Forward	Forward	Forward	Forward
Start	2	0	0	0	2	7
Vel Start Mod	0	0	-57	0	0	+17

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

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

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

FILTER 1	1	2	3	4	5	6
Mode	2LP	2LP	3LP	2LP	2LP	3LP
Cutoff	124	111	127	124	124	127
KBD	0	0	0	0	0	0
MODSRC	Press	Press	Timbr	Press	Press	Timbr
MODAMT	+16	+16	0	+16	+16	0
ENV2	0	0	0	0	0	0

FILTER 2	1	2	3	4	5	6
Mode	2HP	2HP	1HP	2HP	2HP	1HP
Cutoff	26	0	127	22	0	84
KBD	0	0	0	0	0	0
MODSRC	Timbr	Timbr	Timbr	Timbr	Timbr	Timbr
MODAMT	+99	+99	0	+99	+99	+46
ENV2	0	0	0	0	0	0

OUTPUT	1	2	3	4	5	6
VOL	85	82	93	85	85	92
MODSRC	LFO	LFO	Timbr	LFO	LFO	LFO
MODAMT	-21	-21	-16	-21	-21	-27
KBD Scale	Zone	Zone	0	-98	Zone	0
LO/HI Key	G#2/F4	F#5/C8	D5/C7	C2/C7	F#4/F5	D5/C7
Dest Bus	FX1	FX1	FX1	FX1	FX1	FX1
Pan	50	50	50	48	52	81
MODSRC	LFO	LFO	Press	LFO	LFO	Press
MODAMT	+56	-14	0	0	0	0
Pre-Gain	On	On	Off	On	On	Off
Voice Prior	Medium	Medium	Medium	Medium	Medium	Medium
Vel Thresh	0	0	0	0	0	0

LFO	1	2	3	4	5	6
Rate	68	69	34	65	68	70
MODSRC	*Off*	*Off*	*Off*	*Off*	*Off*	*Off*
MODAMT	0	0	0	0	0	0
Level	99	99	0	99	99	99
MODSRC	*Off*	*Off*	W1+Pr	*Off*	*Off*	W1+Pr
Delay	0	0	3	0	0	3
Waveshape	Square	Square	Triangle	Square	Square	Triangle
Restart	Off	Off	Off	Off	Off	Off
Noise SRC RT	-	-	-	-	-	-

SELECT VOICE

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

ENV1

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

ENV2

	1	2	3	4	5	6
Initial						
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	88	0	71	0	0	55
Peak	99	99	92	99	99	92
Break 1	99	99	98	99	99	98
Break 2	99	99	95	99	99	95
Sustain	86	86	83	86	86	83
Attack	8	6	17	4	6	0
Decay 1	32	32	41	32	32	41
Decay 2	19	19	49	19	19	49
Decay 3	62	62	56	62	62	56
Release	17*	26*	42*	17*	17*	42*
KBD Track	0	0	1	0	0	0
Vel Curve	Cnvx1	Cnvx1	Cnvx1	Cnvx1	Cnvx1	Cnvx1
Mode	Normal	Normal	Normal	Normal	Normal	Normal
Vel-Level	30	20	8	17	17	8
Vel-Attack	24	31	44	28	29	39

PGM CONTROL

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

EFFECTS (1)

Effect	Concert Reverb
Decay	52
FX1Mix	60
FX2Mix	15

EFFECTS (2)

Pre-Delay	88
Early Refl Level	12
Early Refl Time	29
Diffusion	56

EFFECTS (3)

FX2 Mode	Normal Stereo Snd
HF Dampng	29
LF Decay	0

PERFORMANCE

Timbre	0
Release	0
Pressure	Key

Prog: RAI's Sound

By: Bengt Karlsson

WAVE	1	2	3
Select Voice	On	On	On
Wave Class	DrumW	BreathW	Waveform
Wave	CrashSym	VocalEns	Sine
Delay Time	000	000	000
Wave Direction	Forward	Forward	-
Start Index	00	00	-
MODSCR	LFO	LFO	-
MODAMT	00	00	-
Restrk Decay	42	42	42

LFO	1	2	3
LFO Speed	36	36	26
Noise Rate	00	00	00
Level	19	19	17
Delay	00	46	00
MODSRC	Xctrl	Xctrl	Wheel
Wave	Triangle	Triangle	Triangle
Restart	On	Off	Off

AMP	1	2	3
Initial	56	56	99
Peak	93	93	99
Break	99	99	56
Sustain	84	84	00
Attack	38	38	00
Decay 1	42	42	45
Decay 2	57	57	52
Release	60	60	65
Vel-Level	00	00	19
Vel-Attack	00	00	00
Vel Curve	Convex	Convex	Convex
Mode	Normal	Normal	Normal
KBD Track	00	00	+28

PITCH	1	2	3
Octave	-1	0	0
Semitone	00	00	00
Fine	+06	-06	00
ENV1	00	00	00
LFO	+03	+03	+07
MODSCR	LFO	LFO	LFO
MODAMT	00	00	00
KBD Pitch Track	On	On	On
Glide	Off	Off	Off
Glide Time	00	00	00

FILTER	1	2	3
Filter 1	2LoPass	2LoPass	2LoPass
Filter 2	2HiPass	2HiPass	2HiPass
FC1 Cutoff	092	092	127
ENV 2	00	00	+50
FC1 KBD	00	00	+43
MODSCR	Pressr	Pressr	Keybd
MODAMT	+035	+35	00
FC2 Cutoff	000	000	000
ENV2	00	00	00
FC2 KBD	00	00	00
FC1MOD-FC2	Off	Off	Off

OUTPUT	1	2	3
VOL	60	90	99
Boost	Off	Off	Off
MODSRC	LFO	LFO	LFO
MODAMT	00	00	00
KBD Scale	00	00	00
Key Range	C3-C6	A0-A0	A0-A0
Output Bus	FX1	FX1	FX1
Priority	Medium	Medium	Medium
Pan	00	00	00
Vel window	000	000	000

ENV1	1	2	3
Initial	15	68	00
Peak	00	00	00
Break	00	00	00
Sustain	00	00	00
Attack	32	06	00
Decay 1	00	00	00
Decay 2	00	00	00
Release	00	00	00
Vel-Level	00	00	00
Vel-Attack	00	00	00
Vel Curve	Linear	Linear	Linear
Mode	Normal	Normal	Normal
KBD Track	00	00	00

ENV2	1	2	3
Initial	99	00	99
Peak	75	99	75
Break	56	56	50
Sustain	00	27	00
Attack	03	03	50
Decay 1	45	45	50
Decay 2	53	53	50
Release	30	30	50
Vel-Level	19	19	53
Vel-Attack	00	00	00
Vel Curve	Convex	Convex	Convex
Mode	Normal	Normal	Normal
KBD Track	+28	+28	00

Standard
Sound
Programming

Effects Programming

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

CHORUS AND REVERB

FX-1	46
FX-2	25
Decay time	60
HF Damping	46
Chorus Rate	20
Chorus Depth	20
Chorus Center	50
Feedback	00
Chorus Level	53
MOD (Dest)	Level
BY (MODSRC)	Wheel
MODAMT	00

The Hack: This patch comes to us from across the Atlantic direct from the Icelandic regions. Bengt Karlsson has created a patch in "Rai's Sound" that will make any New-Ager (including Yanni) jump with understated joy. If you're interested in dream-world backings and silver smooth pads, this is THE one. "Rai's Sound" is a near-perfect blend of ensemble pad and solo-like sinewave. Changes to the patch's character are not really necessary, but there are a couple of minor corrections. I doubt if Bengt wanted Voice 2 to be silent or sound on just one key. So, for Voice 2, in the Output Section change KBD SCALE to ZONE and KEY RANGE to A0-C8. Also, in the Effects Section, enable the modwheel by turning MODAMT to 99. If you'd like to "bend" the pad a little, look to Voice 1. In the Pitch Section change MODSCR to ENV2 and give MODAMT +27.



Jeffrey Rhoads

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

SQ-1/2 & KS-32 Hackerpatches are published with the same constraints and understandings as the ESQ, SQ-80, and VFX patches. The hacking and mutilating part is being handled by Jeffrey Rhoads.

The Interface

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

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

Electronic mail - GEnie Network: TRANSONIQ, CompuServe: 73260,3353, Internet (via CS): 73260.3353@compuserve.com.

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

Dear Hacker,

I was very glad to see Don Adams' letter about the VFX in your last issue. Don, you took the words right out of my mouth. It's a piece I plan to hang on to and enjoy for years to come. I'd like to take Don's question a step further.

Is a memory upgrade not being done because there are not enough of them out there to make the venture profitable or because it's just plain impossible? Am I right in thinking there are third party memory upgrade developers for the EPS? If it's possible, why not the VFX, guys? I'd love to rap with you other "stepchild" owners. You can reach me via E-mail. Compuserve 71055,1113

Thanks, Hacker, for your great magazine support.

DARA JONES
[71055,1113]

[CS - Yes, Dara, there are third party memory upgrades for the EPS as well as many of the other products in the Ensoniq lineup. However, these upgrades increase RAM (Random Access Memory) such as that used for disk-based samples or for the sequencer memory in these products. The only RAM in the VFX (which has no sequencer) is that which is dedicated to storing the parameters that make up a sound program - the actual waves (the basis for VFX sound programs) are stored in ROM (Read Only Memory), which is not easily upgradeable.]

[Ensoniq - Clark is correct, the VFX cannot easily be upgraded. The types of upgrades you discuss are based on RAM memory and the VFX does not use much RAM. We would have to basically re-design the VFX to do what you ask for - which we did when we created the VFX-SD and then again with the SD-1 products.]

Dear Transoniq Hacker,

I'm a new Ensoniq user as well as a new subscriber of your magazine. While reading your August 1992 issue I noticed that

you are looking for some owner critiques of the KS-32. Well, I must be one of the newest owners, having the ninetieth serial number. I'm glad to have an opportunity to voice my ideas about the keyboard.

I work for an entertainment software company and have been looking for a board to act not only as a MIDI controller, but which also has a good variety of sounds for use in my products. As a controller keyboard, the KS-32 excels. The feel of the keys is excellent, comparable to a good quality mass produced piano. The sensitivity adjustment is a nice touch, allowing for a number of playing styles and, for that matter, players. In combination with the 32 bit sampled piano patch, the instrument is very convincing. The MIDI functions are also quite acceptable, allowing a good flexibility with the rest of my system. I particularly like the overlap function, where if you have more than 32 voices going, the remaining are sent to MIDI out to be used by another device. Also the inclusion of a foot switch is a nice touch and something that I think more manufacturers might look at.

Of course I have a few complaints about the controller portion as well. The keyboard has the ability to sense release velocity but this function is not utilized internally, only sent out through MIDI. I'm not sure why, although I suspect that it's to keep it compatible with the rest of the SQ line. It seems a pity that I can't use this feature on board though. My biggest beef is that the lowest key, the E, seems to have come from the factory with a bad spring and makes an irritating noise when I hit the key. I don't have the spare time to bring it back to the shop right now and I am afraid that I'll be stuck with this nasty key. It seems that on Ensoniq's first 100 run of a new "flagship" keyboard they could have boosted the quality control.

The sound module in the KS-32 is excellent. I've been told that it is very similar to the SQ-2 with some improved samples. The piano is excellent. In fact, it's the piano sound that sold me on the KS-32 instantly. Ensoniq gives you a wide variety of pianos with different effects including a workable dry piano. The programming of

the sounds seems pretty straightforward, although I will have to look into a patch editor for my PC, as there are a lot of parameters to remember and you can only see a few on the screen at a time. I can't give enough praise to the onboard effects. The drum section is excellent and I have actually put my RX-7 in the closet since I got the KS-32, the sounds are so much more usable.

The negative aspects of the sounds do cause me some distress though. The first thing I noticed when I got it home was that the output was fairly noisy. I own a number of sound modules, all of which have a very clean output and the hiss from the KS-32 causes no end of irritation. I have a feeling that Ensoniq saved some money by putting in a low quality D/A converter so it's understandable. Perhaps Ensoniq will be putting out a fix for this? The built in sounds are good but Ensoniq could have been a bit more creative. In the RAM user area they provide a number of splits and layers which would have been better used for some interesting sound effects or synthetic sounds. I am also furious (this fury is aimed at the general keyboard industry) that 80 usable memory locations are filled up by ROM! I don't know what inspires manufacturers to do this. It would be no difficult task (as the KS-32 does for its RAM patches) to set up a ROM default that is only loaded into memory if you initialize the keyboard. Why waste 80 locations which could be very useful to operators with a bunch on uninspired sounds? Really Ensoniq, do I need 15 different electric pianos that I will never use and can't get rid of? It almost seems as if the manufacturers are trying to force you to purchase their RAM cards.

The performance section is great, allowing you to assign all 16 MIDI channels and do some very creative layering and splits. Once again, I wonder why Ensoniq opted to put splits in the RAM patch area when they provide a much more powerful performance area elsewhere in the board. I really like the fact that you can assign your choice of effects to each performance track! This is a feature I haven't seen on any other board and is great when I am playing back sequences.

The final item that I am very critical of is the manual. Although it covers all the features of the keyboard, the manual is very poorly laid out. There are many corresponding functions such as how to select your note length value in step sequencing mode and how to enter step mode that are in completely different parts of the manual or so buried in the text as to make it near to impossible to figure out. On top of this, the index is terrible and doesn't reference many important functions of the keyboard. Ensoniq provides five heavy duty pull out pages which tell you all the functions of the machine, but are not really that useful as the LCD screen and the overlay on the surface of the unit tell you what you need to know. I believe that this space could have been better utilized by providing a chart listing the waveforms available. As it is, I've had to photocopy the page that covers this because I've nearly pulled it out of the book, a chart which maps out the RAM drum keyboard locations, a list of banks and patches of the ROM sounds (since Ensoniq finds it necessary to include them, they could have let us know what they are. They are not listed anywhere in the manual) and a chart showing the voice configuration and the envelope structure.

All things considered, despite my complaints I am happy with my purchase. Like I say, I am glad to have the opportunity to voice my comments about this fine piece of hardware. If Ensoniq is listening maybe they'll take some of my comments to heart. If not, it's still a great buy! I can't believe the features versus price ratio. I'd like to end my letter with a couple of questions. I noticed in your August issue that the current EPROM version for the KS-32 is 3.0. How do I know what version I have and does Ensoniq send out upgrade notices when they make improvements? Also, I understand that SQ patches are compatible with the KS-32 but how about SQ RAM cards? Or do I have to get special ones for the KS-32?

Sincerely,
Chris Blackwell
El Sobrante, CA

[CS - I know that you aren't necessarily looking for comments on these things, but that's never stopped me before...]

I'm a bit surprised that you find the output of the KS-32 noisy. While it's true that the KS-32 isn't as quiet as an EPS-16+ or an

SD-32, in my experience (which includes some fairly critical recording studio applications) the noise level is quite acceptable. I'm wondering if you might have a problem with your particular unit - you might want to head back to your local dealer and listen to another unit for comparison. Also, (and you probably know this already), you'll generally achieve the best performance out of any electronic instrument if you keep its master volume turned up to a healthy level and use the volume control on your mixer or amp to bring the overall volume down to a comfortable listening level.

I can't speak for Ensoniq here, but as far as having 80 ROM sounds that you're not particularly fond of, I'd look at it this way. The 80 ROM sounds are not taking up 80 usable sound locations - locations for user-programmable or loadable sounds occupy RAM memory. To have locations for 80 additional user sounds would require that more RAM be included in the final product, increasing the cost of the machine (perhaps not by much, but many features like this are weighed when the product is designed, and certainly not every feature can be included to keep a given product within budget).

The ROM sounds could be "hidden," and be loaded by the instrument when it is re-initialized - just such a scheme was employed with the ESQ-1, for example. However, if the sounds are already built into the machine in ROM, the cost of making them accessible to the user (as ROM programs) is quite small, and it does make it quite a bit more convenient for the user who wants access to those sounds.

In conversations with Tony McAnany (head of Ensoniq Artist Relations and sound development), I've learned that the KS-32 and its sounds were designed specifically to appeal to keyboard players - primarily those working in the educational, church, and casual engagement areas. This is why there are so many piano and organ sounds - Ensoniq felt that there was a need for a product targeting this particular market segment. And apparently, they were right - my understanding is that the KS-32 has been a huge success worldwide, with consumer demand far outstripping Ensoniq's ability to produce the product.

Now on to your questions.



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To determine the OS version of your unit, first press the 'EDIT TRACK' button, then press and hold the Bank 9 button, and press the #2 sound selector button. The unit will briefly display its software version. Be careful, though — certain button combinations can erase sequencer memory, or even re-initialize your unit. So if you're not completely sure of which buttons to press, make a backup of your data before doing any experimenting.

And yes, SQ RAM and ROM cards are all compatible with your KS-32.]

[Ensoniq — Chris, thanks for such a detailed reaction to the KS-32. We'll have to take some time and digest it all! Regarding the low E key, it sounds like a weight was knocked out of that key. You should contact our Customer Service Department to have that looked at.

As far as the sounds go, every user has different needs. We tried to provide sounds that covered the needs of the market and show some interesting possibilities to trigger your own sound-creating ideas (such as creating split within a Sound as well as in the Performance section!). Because your needs may differ we put the sounds in RAM that we think have the highest chance of being changed, and view the ROM as the basic "bread and butter" area. But between your changing the RAM and using our SC/HSC ROM and MC-32 RAM cards (which each hold 160 sounds) we're sure that you can compile a group of 340 sounds that suit your needs.]

Dear Hacker,

When I updated my Quadraverb I had to replace this little 28-legged centipede thing with an updated one. Is there any way of adding the old chip to my ESQ so that it can have reverb?

Also, I was wondering if I could safely run a line from, say, my drum machine to the CV pedal input and use a drum pattern to modulate a patch? Will it work?

Thanks,
Bob Yates
Aurora, CO

[TH — 1) Yeah, first you find an unemployed hardware/software engineer...]

[CS — 1) As my editor has so succinctly

stated, there's not really any way available for the mortal man to use a chip from his digital processor to add effects to an ESQ-1. It would sort of be like trying to play cassette tapes on a phonograph; while it's true that the cassette contains software (music) and the phonograph is designed to "read" software, the design of the phonograph will not allow it to read software from cassette tapes.

2) It shouldn't hurt anything to run a line from the audio out of your drum machine to the CV pedal in on your ESQ-1, so there's no reason not to try it. It's likely, though, that the drum machine won't have a high enough output to have a lot of effect when modulating some aspect of a patch, but it's certainly worth a try.]

Hey Hacker,

On the front cover of each issue of the Hacker there is an odd symbol between the words "Transoniq" and "Hacker." What the heck IS that thing?

Kirk Slinkard
Synthesizer Person
Lakewood, CO

[TH — Why, Kirk, you of all people should recognize that. It's a looped digitized sinewave. The little musical notation repeats are there to show the "loop." (Of course, the digitizing is kinda coarse — but that's an artifact of the ol' 2-bit samplers.)]

Dear TH,

I have a VFX-sd II controlling an EPS-16. When I want to record a track on the EPS I can't figure out how to get the EPS to give me a four-count intro click before going into record mode.

I have the countoff set to ON on the VFX and the countoff set to ON on the EPS. When I hit play on the VFX the EPS ignores the four-count click and starts recording. So the EPS is always four counts ahead of the VFX. Is there any solution to this problem?

If you load SD-1-Int into a VFX-sd II and select Dynamic-Grand, then go to the select voice page and underline the first *unknown* then press the wave button, you get String-50. Is there any way of get-

ting any sound out of this hidden wave?

Thanks,
Rob Bell
Mesquite, TX

[CS - I tried out your setup using an EPS-16+ and a KS-32 and, sure enough, as soon as the EPS receives its start command from the KS-32, it goes into record mode, regardless of the setting of the countoff. Of course, I'm assuming that you need to have both your VFX and EPS sequencers synchronized for some reason - perhaps you are using more tracks than either of these products alone can accommodate.]

I have two thoughts on workarounds, though. Probably the easiest would be to simply add a measure to the beginning of your VFX sequences to use as the countoff, and leave the countoff turned off altogether; when you've finished the sequence, it should be no big deal to delete this extra measure from the front of the EPS and VFX sequences.

The other idea would be to do all of the sequencing on one machine or the other, and as the need for more tracks arises, simply transfer some of the sequenced tracks from the machine your sequencing on to the other. With the multi-track record capability of either machine, you can easily transfer groups of tracks in a single pass.

As far as the "hidden wave" question, I couldn't tell you what "String-50" means, but I know of no way to get a sound out of an undefined wave. Basically, the VFX is telling you that the wave pointers for that particular voice are pointing to an area of memory that does not exist in the VFX, so even if you could get it to make a sound, the sound it would make would probably not be particularly interesting.]

[Ensoniq - Thanks for bringing that to our attention, we'll have to look at it and see if it can be changed.]

Dear Clark,

1. Aside from the weighted keyboard and the sequencer, how does the KS-32 differ from the SQ-1 or the SQ-2?

2. What do you honestly think of the

KS-32 grand piano?

3. Are there any plans in Ensoniqland for an 88-key KS-32? If so, I'll chuck my RD-300 and get the 88-key "KS-88." Better yet, I'll keep the RD-300 for my live work and use the KS-88 for the home studio.

4. Finally, thanks for the information on the SD-1 Rude Guitar (Interface, Issue #85). I followed your instructions (after creating a preset with the Rude-Guitar as the first patch and the Elect-Bass as the second), set the split point at middle C, set the Electric-Bass volume at 99, and the Rude-Guitar volume at 52, set the timber for the Electric-Bass at about 27, and VOILA! Who would have ever guessed that one day you could play a synthesizer that would sound like Jack Bruce in the left hand and Eric Clapton in the right. I saved this file to a disk as 1-Rudefile. This preset does a very mean "Sunshine Of Your Love," not to mention a lot of other hardrock numbers. Thanks for the info.

5. Is there anybody out there (Sam Mims perhaps) who can program a patch for the SD-1 that sounds as close as possible to the 12-string guitar used in the song, "Love Is Blue"? That's one of the best sounding acoustic 12-string sounds I've ever heard!

Your very Rudely (just kidding)
The Secret Mystery Interfacer

[CS - 1) Perhaps the easiest way to describe the differences between the various SQ products is simply to trace their history. The SQ-1 was the logical successor to the extremely popular ESQ-1, and its cousin, the SQ-80. As such, it featured a 61-note velocity sensitive keyboard, 21-voice polyphony, on-board sequencer, and on-board effects processor.

Next in the series was the SQ-2, which added to the features of the SQ-1 with a 76-note velocity and pressure sensitive keyboard, and a new 16-bit piano wave - a tremendous improvement over the original piano waves contained in the SQ-1 (although the original SQ-1 piano waves were still retained in the SQ-2, keeping it compatible with all SQ-1 sounds). Along with the SQ-2, Ensoniq also produced the SQ-1+ and SQ-R+, a 61-note keyboard and a rack-mount version (respectively) of the SQ-2.

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Next, Ensoniq introduced the "SQ-32," which further expanded on the SQ feature set by upping the polyphony to 32 voices, and adding a number of new waveforms, including nylon string guitar, harp, solo violin, viola section, soprano sax, muted trumpet, a new choir, new organs, basses, lots of new percussion and ethnic instruments, and so on. The latest in the series, the KS-32, is most closely related to the "SQ-32," but with the addition of the 76-note weighted keyboard, and a few changes to make the user interface a bit easier to navigate. And, as I mentioned in response to Chris Blackwell's letter above, the KS-32 has become one of Ensoniq's most popular keyboards.

2) Honestly, I like the KS-32 piano sounds a lot. Of course that doesn't mean you should buy one — your taste may be different than mine. But I think that the KS-32 pianos measure up real well in comparison to other digital piano sounds out there.

3) I don't know.

4) You're welcome.

5) I'm sure there probably is, but not being familiar with the sound you're talking about, I'm afraid I haven't much to comment about.]

[Ensoniq — We have no current plan for 88-note keyboards. We feel that 76 keys is the most reasonable balance between extended key range and portability (well maybe portable isn't the best word!).]

Dear all,

The following is a true story. Though the record of my actions may make me look almost like an idiot to the seasoned pro, I feel that this story serves as a warning to others.

Back in my younger and more naive days I had my heart set on the first major purchase of my life — a synthesizer. After a little listening, I decided to purchase an SQ-80 made by some company I had heard of only a couple times before (even over

the more popular D-50 made by a company everyone had heard of). Not only did the SQ-80 sound more impressive to me, but it also had a built-in 8-track sequencer with disk drive.

After a little shopping around, I came up with the following: Music store "A" would sell the unit at list, offer free updates, and include a warranty. Music store "B" — whose owner claimed to be an authorized dealer — offered it for more than \$200 below list, updates, warranty, and an EPROM. "B" told me he would have to call in the order to his supplier and the synth would be in in a few days.

Two months later, after countless calls on my part, I was finally told my synth was in the store waiting for me. When I went to get it, it was out of its box — not sealed in plastic, as I was later to learn it should have been — and the foot switch and the EPROM were missing. They said they'd call their distributor and have them sent "right away."

A month later, I was in music store "A" looking for some sound disks and the salesman happened to ask me where I bought the synth and pointed out that "A" was the *only* authorized dealer in the area. Thus began the quest of "A's" store manager to make things right. I was put in contact with an Ensoniq rep and a technician in order to determine the serial number of my machine — someone, somewhere along the line had removed the serial numbers from my synth! The Ensoniq rep explained that there was little they could do for me at this point. My synth was a "stolen" keyboard — no warranty, no updates, and "B" certainly wasn't authorized to fix anything. (Although the rep did say they would be able to stop "B" from doing this to anyone else.)

Needless to say, "B" refused to take back the SQ-80. Folks, make sure you buy from authorized dealers. A legit store will tell you when they aren't and even direct you to who is.

(Thanks to Dan Wright from Osieki Brothers Music in Erie, PA and to Bob Stillman of Ensoniq for doing what they could to help me.)

Older and wiser,
Jack Stephen Tolin
Quincy, MA

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[TH - Yeah, and you probably didn't get a free sample Hacker with it either...]

[CS - I've always been a firm believer in giving your local dealer the first shot at your equipment dollars - but only if he's an authorized dealer, and is knowledgeable, helpful, competitive, cheerful, thrifty, brave, clean and reverent. Damn! I think my Boy Scout training is once again rearing its ugly head...]

Dear Hacker,

Before I start with the questions and help-me stuff, let me start off by saying that I bought an EPS-16+ as my first REAL synth/sampler journey. A great machine to be sure. Ensoniq's development team deserves a raise or a huge Christmas bonus. I also bought a Notator program (along with an Atari computer and monitor) about seven months ago which leads us to the questions at hand.

I read an article in *Keyboard* (Sept, '92) which mentioned the ability of the RMG screen to send SysEx messages. It said that practically any parameter on the synth/sampler can be controlled from this window. Since it was an overview article, they didn't go into specifics on how to do it with my EPS-16+. I ran (okay, drove) down to MusicMakers in Austin, Texas and asked Elijah how to do it. He told me the basics and as soon as I got home, I forgot. Elijah is great, my memory for programming details sucks.

So, O-Mighty-Hacker, Lords of Binary information and Kings of sound and color, could you explain the procedure to me to set up my EPS to receive MIDI Pan messages from my Notator. While I'm asking that, can I control the parameters of the effects (built in and WAVEBOY) from the RMG as well? As a new pawn in the keyboard world and a foreigner to hacking a sample, I would love an overview article dealing with altering sounds via envelopes, filters, etc in the EPS. Somewhere along the line of Tom Shear's EPS-16+ Hacker-patch article (Issue #86) but with the above info. Maybe one has already been written? How about an annual or available reference issue which contains a short synopsis of each article's content.

Too bad about the lack of memory upgrade for the EPS (yes, I have the 4X expander and Flashbank...but too cheap for a SCSI

drive). I know you hate the comment and I've read the replies in the past so there is no need to defend this passing statement (jab).

Thanks for the ear and keep doing what y'all know is right.

Paul Bissell
Go Fish Music
Austin, TX

[CS - I'm afraid I'm not real familiar with Notator, but getting the EPS-16+ to respond to pan messages is no big deal, so here goes.

First, select what it is on the EPS-16+ that you want to pan - it may be the whole instrument, a single layer, or a single wavesample. Once you've selected what it is you want to pan, hit EDIT, then AMP, then scroll to WS VOLUME =XX PAN=XX (or, hit AMP then button 0 quickly to 'direct dial'). Here you will set the initial stereo placement of the sound - for example, if you want the sound to pan from hard left to right, set PAN=-99. Now scroll

to PAN MOD (or hit EDIT/AMP/8 to direct dial). From here you can set the pan modulator and the amount of modulation; for example, you can use the LFO to automatically pan a sound back and forth by assigning PAN MOD=LFO (of course, MOD AMT must be set to something other than 0). If you want to control panning from an external source, and don't necessarily want to give up one of the more common modulators, you might want to set PAN MOD to XCTRL (external controller). This allows you to assign a MIDI controller number for panning to respond to. The external controller number that you actually use is determined from the system pages - hit EDIT, then SYSTEM and scroll (or EDIT/SYSTEM/9 to direct dial), and set the XCTRL number here. The default is #2; if you don't change this, then you can send MIDI controller #2 from an external source (such as Notator) to control panning. Of course, you can use any XCTRL number that you want - just make sure that it agrees with the MIDI continuous controller number that you're sending from Notator (or whatever external controller you might wish to use).

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As far as using external controllers to modulate effect parameters, the setup is nearly identical to what I've just described for panning, except that you assign the controller and amount to use from the effects menu pages.]

[TH – We do have a Back Issue Index available to anyone who asks for it. You might want to check out Issue #46, Seventeen Things to do With Envelopes, by Gary Dinsmore, and Issue #59, Resonant Filters for the EPS, by Brian Willoughby.]

Dear TH,

1. Has anyone come across samples of orchestral string sections for the EPS or 16+ where ensembles of an appropriate number of musicians have been recorded (for use in classical composing and demos)? So far I have heard only mixes of single instrument sounds or recordings of 3 – 4 piece ensembles, which sound thin and usually very harsh.

2. The pitch table feature of the EPS-16+ is an excellent idea but someone must have thought that micro tunings are done by only sharpening the pitches because the fine tune option has only a 0 to +99 range. The only solution I can think of is sharpening every note in every layer of each in-

strument by 50 cents to create some "minus" space and then lowering the master tuning of the keyboard by 50 cents to go back to 440 standard! Is there an easier way I may be missing?

3. When sequencing the the 16+, if you want to record something beginning at the 40th bar of a 50 bar sequence, you put your cursor under the bar number and say "Go to 40" and record. If you don't like what you recorded (which happens frequently) you say "No" to the Play/Keep page and find your cursor sitting under the sequence number. You have to remember to hit the right arrow button to underline the bar number again so that you can hit Enter twice to take you back to bar 40. Making that line stay under the bar number (in the upcoming OS, perhaps) will be a significant improvement since this may be the most repeatedly used command.

Thank you,
Semih Firincioglu
NY, NY

[CS – 1] By now, Ensoniq should have released four sets of state-of-the-art string samples, (basses, cellos, violas, and violins) co-produced and co-engineered by legendary hitmaker Phil Ramone. These are samples of medium to large sections, done with the finest equipment, players,

and facilities, and including pretty much every type of articulation you could think of. I'd check them out.

2) Perhaps an easier solution to your micro tuning dilemma would be that, in the case of a note that you want tuned flat from concert pitch, set its key to a half-step below normal pitch, and then tune it up. For example, if you want "C4" to sound flat by 50 cents, edit the pitch table settings thus: "KEY C4=B3 50 CENTS."]

[Ensoniq – Clark is referring to SL-10-13. Each set is a complete string section, and they retail for \$39.95 each for 5 disk sets.]

Dear TH,

Many thanks for the publishing of a useful and really great magazine!

I very much enjoy the articles and the published patches. I just finished the "Tarkus" and "Hammond C-3" for the SD-1 and "Breath Soul" for the SQ-2.

I would be interested in hearing from anyone or seeing published patches for Pat Metheny's synthesized guitar and electric guitar and Lyle Mays' lead sound (sort of a flute with an Oberheim-like sound...although I'm not really sure).

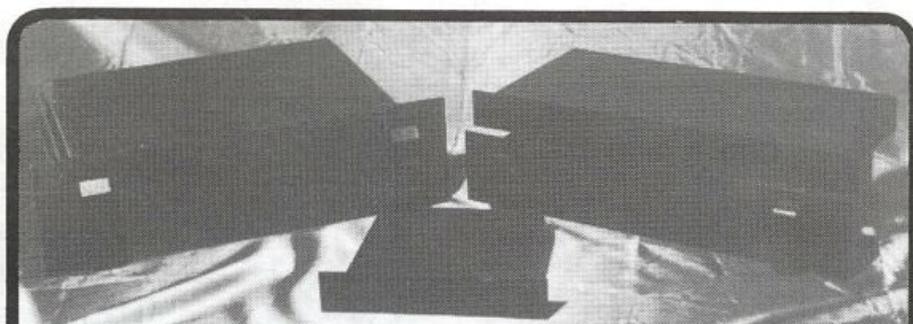
I'm also interested in an editor/librarian for the SD-1 and SQ-2.

Thanks,
Matthew Knight
Gainesville, FL

[CS – There is a sound in the Ensoniq library that's quite a bit like the sound I think you are describing as the "Lyle Mays lead sound" – I just can't remember what it's called. Perhaps someone at Ensoniq knows.

As for editor/librarian programs, I use Galaxy on the Macintosh, but it's strictly a librarian. I believe Opcode also markets a program called, "Galaxy Plus Editors," which includes editing capabilities for a number of popular instruments – it might be worth checking on.

If you're not using a Mac, Dr. T's Music Software might also be a good place to check for editor/librarian programs – they have some excellent software available.



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Maybe even stuff for the Mac, now that I think about it.]

[Ensoniq - Interval Music, (310) 478-3956, has an editor for the VFX-SD on the Mac, and Dr. T's X-Or (1-800-989-MIDI) has some editing support on the Atari and Mac. We have tested an SQ editor from Steinberg (818) 993-4091 for the Atari, but do not know if it has been released yet. Try contacting those companies for more information.]

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SQ-2	1.2
SD-1/SD-1 32	4.10/4.10
DP/4	1.06
KS-32	3.0

BACK ISSUES

Back issues are \$2.00 each. (Overseas: \$3 each.) Issues 1-30, 35-38, and 67-72 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 (which also applies to the SDs) got started in Number 48. The SQs got going in Number 63. (SQ articles also apply to the KS-32.) Permission has been given to photocopy issues that we no longer have available - check the classifieds for people offering them. A free back issue index is available which contains the tables of content for all issues since Number 43.

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