TRANSONIQ HACKER

The Independent News Magazine for Ensoniq Users

A Hackerpeak at Ensoniq's New Synth - The VFX

by four who should know

Ensoniq's got a new synth that's about to be released - and it's a *monster*. Several of our favorite contributors were lucky enough to be invited to a recent "pre-release" viewing. What follows is their first impressions. But first...

The Specifications

Keyboard

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

Up to 12 programmable keyboard zones for splits and layers

Controllers

Exclusive Patch Select buttons for instant access to four program variations

Programmable dual footswitch input for sustain, preset advance and other assignable functions

Pitch and Mod Wheels

Mod/Volume Pedal input

Data Entry Slider

Internal Memory

32 Kbytes of non-volatile RAM for 60 internal programs and 20 performance presets

Cartridge

32 Kbytes for 60 additional programs and 20 additional performance presets

Waves

1.5 Megabytes of waveform ROM

Multi-sampled acoustic instruments in String, Brass, Bass and Percussion groups

TransWave spectral interpolation waves with real-time modulation

Timbre-shifted versions of acoustic samples

Modulatable start point and forward-backward playback modes on all samples

Voice Architecture

21 dynamically assigned voices

A single program can use up to 6 voices simultaneously

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

3 six stage envelopes per voice

One fully programmable pitch table available per program for alternate tunings

Output

16 bit D/A conversion with 96dB dynamic range

First-order linear interpolation for wide transposition range

Linear phase output filters

Dynamic stereo panning per voice

Digital Signal Processor

Custom VLSI 24 bit digital signal processor specifically designed for audio processing

Programmable stereo effects processing with dynamic performance control capability

MIDI

Poly, Omni, Multi, Mono A and Mono B modes

Multi-timbral, accommodating up to 12 simultaneous polyphonic MIDI channels with separate programs and keyboard zones

Global controllers in Mono modes for use with alternate controllers (MIDI guitars, etc.)

Display

80 (2 x 40) character fluorescent display, with 6 soft buttons for ease of programming

In This Issue...

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GENERAL:

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VFX Sneak Preview

by Craig Anderton, Electronic Musician *Magazine*

One of the trends at the 1989 Winter NAMM show was the re-emergence of the upscale synthesizer. The market for synths has become more and more crowded in the $2,000-and-under price point, so several manufacturers decided it was time to put back in some of the bells and whistles, and price their units accordingly.

Ensoniq's contribution to this trend is the VFX. Apparently, the VLSI manufacturing process was not quite perfected in time for NAMM, and there were a few crackles and pops that made Ensoniq skittish about showing the VFX. (Not to worry; in the semiconductor biz, process problems are relatively easy to track down and fix.)

Frankly, I'm not sure they needed to worry all that much; at a recent sneak preview the VFX sounded *huge*, with a degree of "motion" to the sound that we're just not used to expecting from a wavetable synthesizer. The secret ingredient is the ability to modify the sampled waveform itself in real time, in a manner reminiscent of how changing the pulse width on analog synthesizers adds animation to the sound. An alternate point of reference is the EPS, which by letting you modulate the loop start point, can also provide some pretty innovative effects (try "swelling" brass patches by moving the loop start closer to the beginning of the waveform; the effect is far more impressive than using a filter). In many ways, the VFX sounds like the ultimate *analog* synth--fat, animated, and rich, but with the stability and programmability of digital technology. Of course, Ensoniq isn't the only company trying to overcome the static nature of wavetable synthesis or sampling, but it looks like they'll be the first to get a product that addresses this problem to market. And, as you might expect, there's the usual easy-to-understand user interface and polyphonic aftertouch.

A First Impression

by Jim Johnson, JAMOS Music

At a recent sneak preview, I had the good fortune to be one of the few people to get a glimpse of a prototype of Ensoniq's new synthesizer, the VFX. The best way to describe this instrument is that it is to the ESQ-1 as the EPS is to the Mirage - sort of.

Most important, it's a true synthesizer, not just a sample player or workstation, like so many other instruments these days. The most impressive feature, in my view, is the inclusion of the "transwaves," which are waves whose shapes can be modulated by any modulator in the instrument. Ensoniq compares this to the old PPG synthesizers, because the method used to generate them is similar to that used in those German wonders, but when I heard it, it was more reminiscent of some of the exotic waveshaping available on certain modular synthesizers. Dynamic waveshaping is probably the most serious casualty of the current trend towards sample-playing instruments; I'm glad Ensoniq decided to include it here. Another big plus is the inclusion of two multi-mode digital filters on each oscillator, which should allow for the creation of plenty of spectacular and/or subtle filtering effects. Alas, the filters don't have variable resonance, but that is my sole complaint about the instrument - and that's saying a lot!

Ensoniq has also added some unusual modulation features in this instrument which are way ahead of anything found on any other digital synths these days. While there is only one LFO per voice, the envelopes can be made to act as complex LFO's by setting them to loop; and the modulation processor (which I believe Ensoniq is calling a "source mixer") is going to be a gas to play with. I've said it before, and I'll say it again - modulation is the most important element in any synthesizer, and Ensoniq seems to have recognized this. And yes, they really have improved the poly-pressure keyboard; it doesn't click at all, and still feels nice and stiff.

My overall impression: I'm dying to get my hands on the VFX for some serious programming and playing.

Is There Life in Silicon?

by Bill Lewis, MCS *Magazine*

You bet! And like the food chain, it's generational AND evolutionary. DOC gave birth to the Mirage, who begot the ESQ (and its cousin, the Apple IIgs), giving life to DOC II and now its evolutionary sibling, DOC II 2. Well, that's not exactly what Ensoniq is calling the grey matter of their new synthesizer, the VFX, but that's what it is. (Actually, it's called "Otis.") This derivative VLSI wonder from Malvern is really twins - hence the FX in the name. FX is silicon signal processing on a single chip (called the "ESP" chip) that interacts with new DOC II (Otis), opening up a world of on-board, interactive, dynamic signal processing as part of the patch structure for this next generation of Ensoniq synthesizer.

In a preliminary and somewhat clandestine showing of the VFX, I was quite impressed with two things - what they left *out* (there's no disk drive and no sequencer on this child) and its sound. In the past, Ensoniq has occasionally taken it on the chin for their "fidelity", but they've always more than made up for it in integration. The VFX addresses sonics and synthesis as its prime directive. The prototype unit we were privy to did not have its DSP processor implemented, but it sounded wonderful anyway. This was likely due to the wave sources and their origin, not to mention the synthesis structure. The VFX will hold special appeal to those deeply into programming.

Naturally, my impressions are garnered from a controlled situation. I therefore reserve final judgement until DSP is a integral, *dynamic* part of a unit I can "beat on" in the uncontrolled environment of my studio and a Saturday night at the local bistro. However, first impressions do tend to be lasting.

By the way, have you any idea how tough it is to name a new synthesizer?

For the First Time

by Sam Mims, III, Gig *Magazine*

For the first time, a synth will be available with dynamic waveform modulation and that's the big news about the VFX. The Prophet VS took a stab at it a few years ago by providing four oscillators per voice and giving the user a joystick or a modulator to control the mix of these. (This is easily accomplished on the ESQ-1 and SQ-80 with three oscillators.) But these oscillators are static, producing the same waveform, only the mix is changed. The VFX, however, is the first synth ever to offer oscillators with which the actual waveform can be modulated and the sound is fabulously alive, ever changing with the complexities of natural sound or of new dynamic synthesized soundscapes. The keyboard itself is an improvement over the EPS/SQ-80; it has all the good features but no clicking - and it feels very good.

There's no disk drive but sounds can be stored on EEPROMs, on tape or on SysEx dumps. I can live with that, and I don't even miss the "standard" sequencer. This synth was built for *sound* and it does the job extremely well. In fact, I heard the VFX before the multiple digital effects software was implemented. Even completely dry, D-50 type sounds were beautifully ambient. With fully programmable multiple effects there will be no stopping it. Here is a new breed of synthesizer and it's a sure champion.

Front Panel

RND (♪♫♪)

This month's issue is a little lopsided toward the sampler coverage - temporary aberration, folks!

* * *

We've received a report that some EPS's shipped out since Jan 1, 1989 (1700 series) are sampling 4 cents sharp. Ensoniq has tracked down the problem and has made the following announcement:

The new Operating System for the EPS AND EPS-M is version 2.35. This new O.S. fixes the following:

1) Append sequence function

2) Random distortion and pitch shift when sampling

We are recommending that EPS/EPS-M owners contact their local Ensoniq dealer to schedule an appointment so they can copy the most recent O.S. to customers who provide their own double sided disk. We usually do a dealer mailing upon the release of a major software revision for the EPS. The last mailing was in November for the O.S. 2.2 release. We mailed O.S. 2.35 to all Ensoniq dealers and Repair stations the week of February 13, 1989.

* * *

And also the following from the memory expander front:

We (Ensoniq) have recently approved the 4X expander being offered by PS Systems, San Diego, CA. Due to differences in the design of their expander board, the Ensoniq SCSI kit is not compatible. The PS Systems expander is not user installable and therefore must be installed by an Ensoniq Authorized Repair Facility. In order to protect their warranty, the end user must hold onto their repair receipt as proof of installation. To date, no other 3rd Party expander or SCSI kit for the EPS has been submitted for approval.

Ensoniq has recently released the ME-2 4X expander cartridge. The look of the cartridge is similar to the ME-1A and also allows the option to have a SCSI kit installed. If you are upgrading from an ME-1A with a SCSI kit installed, an Ensoniq Authorized Repair Facility must re-install the SCSI kit onto the ME-2 to protect the warranty. The ME-2 list price is $895.00.

* * *

Ensoniq has just released two series of libraries for the EPS. The first is the *ENSONIQ EPS SOUND LIBRARY*, each library containing 10 different disks. There are currently six different volumes available, each with a list price of $69.95. The second is the *EPS SIGNATURE SERIES*, each library containing three different disks by such artists as Craig Anderton, Claude Gaudette, David Hentschel, Paul Jackson Jr., John Robinson, and Nile Rodgers. The list price is $39.95.

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Transoniq Hacker is typically on a 4-week, 4-week, 5-week schedule. You should receive the next issue (#46) in approximately 4 weeks.

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TRANSONIQ-NET
HELP WITH QUESTIONS

ALL ENSONIQ GEAR - Ensoniq Customer Service. 9:30AM to 6:30PM EST Monday to Friday. 215-647-3930.

MIRAGE 24-HOUR HOTLINE: M.U.G. 914-963-1768.

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

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

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

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

ESQ-1 QUESTIONS - Jim Johnson, (602) 821-9266. 8 a.m. to 5 p.m. Mountain Time (AZ).

ESQ-1 QUESTIONS - International, Brendon Sidebottom, (03) 689-5731 Australia. No calls between 4 a.m. and 10 a.m. Australian ES Time.

SAMPLING & MOVING SAMPLES - "Mr. Wavesample" - Jack Loesch, (201) 264-3512. Eastern Time (N.J.). Call after 6:00 P.M.

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.

SAMPLING - Mark Wyar, (216) 323-1205. Eastern time zone (OH). Calls between 6 pm and 11 pm.

MIRAGE HARDWARE & FIRMWARE - Scott D. Willingham. Pacific Time (CA). Weekdays: 6-9 p.m., Weekends: 12-9 p.m. (213) 397-4612.

MIRAGE OPERATING SYSTEM - Mark Cecys. Eastern Time (NY). Days. (716) 773-4085.

MASOS - Pete Wacker. Whenever. (602) 937-1177.

CHANGE OF ADDRESS

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

BACK ISSUES

Back issues are $2.50 each. (Overseas: $3 each.) Issues 1-9, 11, 13-23, 27, 29, 30, 38, and 42 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.) Permission has been given to photocopy issues that we no longer have available - check the classifieds for people offering them. Reprints in our "Quick and Dirty Reprint Series" are available: MIRAGE OPERATIONS, for $5, and MIRAGE SAMPLE REVIEWS for $4. Each contains material from the first 17 issues.

Current Ensoniq Operating Systems

INST	OS	DISK	EPROMS
EPS	2.35	X	
EPS-M	2.35	X	
MASOS	2.0	X	
MIRAGE	3.2	X	
ESQ	3.5		X
ESQ-M	1.2		X
SQ-80	1.8		X

HYPERSONIQ
NEW PRODUCT RELEASES

Mescal Music is pleased to announce the release of 40 high-quality sound programs for the Ensoniq SQ-80. All 40 sounds were carefully crafted and selected for versatility and musical usefulness. The programs include 15 keyboard sounds, percussion and drum sounds, orchestral instruments, and 4 unique novelty sounds. The 40-patch set comes on 3 1/2" floppy disc and sells for $12.95. Mescal Music, PO Box 5372, Hercules, CA 94547. 415-724-0804.

Rubber Chicken Software is offering a free public domain list for the Ensoniq EPS. 500 samples from all over the country. $1.75 per disk, or send in your own blanks. They also offer their own library of sounds, specializing in out-of-the-ordinary instruments and sounds. Free catalog. Demo tape: $5.00. Contact: Rubber Chicken Software, PO Box 428, Renton, WA 98057. 206-242-9220.

Digital Concept International (DCI) of France has announced two new memory expansion cartridges for the EPS. The *EMC2* adds 2 Meg of memory (4092 blocks), is compatible with the Ensoniq SP-1 SCSI interface, and sells for $995. The *E2X* provides and additional 2 Meg (4 Meg total) and includes exclusive functions in a new operating system (no price quoted). Installation is extremely simple. For additional information, contact: DCI, 159 Rue du Faubourg Poissonniere, 75009 Paris, France. Phone: (1) 42.82.90.89.

Sound Logic of San Diego is broadening their product line to include items of interest to electronic musicians in general. New items include color-coded floppy disks (both 5 1/4 and 3 1/2) and modems (1200 and 2400). For more information, contact: Sound Logic, 1125 Eleventh St., Ramona, CA 92065. 619- 789-6558.

Turtle Beach Softworks has announced the availability of a digital audio playback port for IBM-compatible computers. The *DP8* playback port plugs right into the PC's parallel printer port and allows the user to play sounds being created and edited via Turtle Beach's SampleVision software package - without having to move them back into the sampler. An audio-out connector is also provided for connection to amplification systems. The DP8 is available to registered SampleVision owners for $95.00. For additional information, contact: Turtle Beach Softworks, PO Box 5074, York, PA 17405. 717-757-2348.

Blank Software announces *Alchemy Apprentice*, a new 16-bit universal stereo sample editing program. Alchemy Apprentice is centered around an elegant stereo waveform editor which offers spectrum analysis and resynthesis, as well as a number of advanced digital signal processing functions, including digital EQ, automated crossfade looping and hi-fidelity sample rate conversion. Alchemy Apprentice supports both the Mirage and the EPS. An upgrade path is also provide for those who later wish to advance to the full Alchemy program (Version 2.0). Available early second quarter of 1989. Retail price: $345. For more information, contact: Blank Software, 1477 Folsom St., San Francisco, CA 94103. 415-863-9226.

Richard Street Marketing has put together a comprehensive 400-page manual and an 8-hour recorded workshop by industry expert *La-Dair Guzman* on how to write, produce and record music for advertising. Full guarantee. For more information, call or write: Richard Street Marketing, 3353 S. Main St., #133, Salt Lake City, UT 84115. 801-262-6501.

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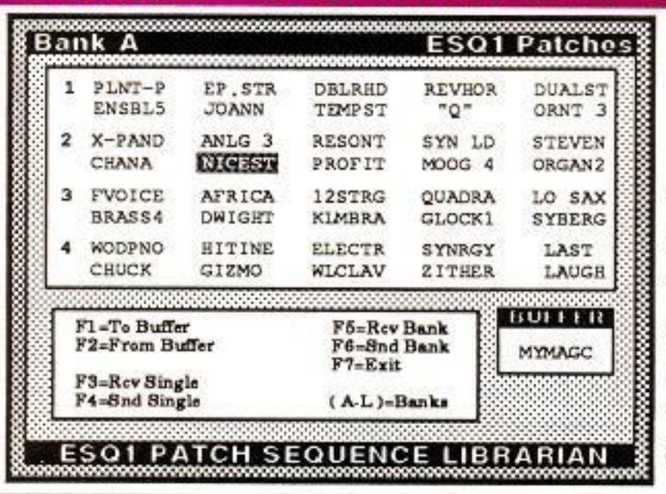

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In summary, the ESQ1 program is a well-written and useful program. - **ELECTRONIC MUSICIAN** -

Valhala's ESQ1 program proves that even a 'dinosaur' like the C64 can be more than adequate for purposes such as this when the software is intelligently written. - **TRANSONIQ HACKER** -

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VALHALA Box 20157-TH Ferndale, Michigan 48220

Sampling an Acoustic Instrument on the EPS
Part II

By Gary Dinsmore

Last Month

In the first part of this two part article we collected a series of "wavesamples" into layer 1 from an instrument like a trumpet. We normalized the gain to get the most dynamic response from the sample and equalized the volume of the samples. We looped the sample, smoothed the volume, and cross faded the loop if necessary to get good quiet loops. We set the start and end of each loop, and truncated them to save memory.

And Now...

Now is the time to edit the "wavesamples" of this layer. I find it easiest to edit all of the samples together by selecting "WS= ALL" on the Edit page. Here is a logical way to go at this editing:

Start with the Amplitude envelope "Env 3." Select [Edit] [Env 3] and scroll to the "Envelope =" page. It will probably say "Current Value". There are two ways to get started here. One is to lift an envelope from a similar instrument, the other is to select one of the standard templates offered in this page. The EPS Advanced Applications Guide has a detailed description of envelopes starting at the bottom of page 3, so I will not cover that here. Since I was using the natural attack envelope for my layer 1 patch, I selected the "Full On" template. I then moved the soft velocity levels all to 70, and turned the soft velocity switch to on. That allows some velocity sensitivity. I also set both envelope 1 and 2 to full on to eliminate any affects they might have on pitch or timbre.

Had this been a short loop with no natural envelope we would sculpture the attack-decay curve for amplitude to emulate the attack we hear in the acoustic instrument. In this case it may be helpful to "borrow" an envelope from a successful patch of a similar EPS instrument. To do this we must load the instrument, and select it. Press [Edit] [Env 3] and scroll to the "Envelope =" page. It will probably say "Current Value". Press [Enter] and the EPS will respond briefly with "Envelope Params Saved." Now select your new instrument and envelope 3 again. Scroll to "Envelope = Saved" and those saved parameters from the other instrument will also exist in your new instrument. Once you change any of the individual parameters in the envelope the "Envelope = Saved" page will change to "Envelope = Current Value". The saved envelope will still be in memory, however, if you wish to return to it. I find it easiest to work only on the Hard Velocity curve and leave the Soft Velocity Curve off for the time being. Once you get the hard velocity exactly where you want it, it is easy to shape the soft velocity curve to a softer version of the hard velocity curve. Also work in the middle of the instrument's range while you are editing all of the envelopes together. Don't worry about the samples at the ends - we'll touch them up individually by editing single "wavesamples" later.

Next, I work on the "2nd release" and adjust the release time and level. The left parameter is actually a sixth time in the envelope and the level can be adjusted from -99 to 99 and represents the level relative to the current value at the time the key is released. The zero level represents the same level as the current level. You can use this for a reverb type of effect or to just keep the note from dying too quickly. Finally work on the Attack Time Velocity if you wish to have velocity shorten the attack. This parameter determines how much shorter time 1 will be with increasing key velocity. If time 1 is, say, 50, it will have a time of about 2 seconds. An "Attack Time Velocity" of 50 would allow a fast attack to exactly cancel the full 2 seconds. An attack time velocity of 99 would not cancel any of time 2. It would, however, allow the time 1 portion of the envelope to be completely cancelled with much less velocity.

The times provided in the envelopes are logarithmic which means each 10 units of time doubles the time for that segment of the envelope. A time of 99 represents about 50 seconds. That means a single envelope could take almost five minutes to play all the way through in the cycle mode.

The next envelope to work on is the Pitch envelope, "Env 1." With this envelope you try to match the natural artist's tendency to start the note a bit low or high. Setting the velocities to all one value such as all 0 or all 99 gives a constant tone at the key's set pitch. Envelope amount under Edit Pitch determines the amount of variation is imparted by the envelope. Going from a small number to a large number with a positive envelope amount causes an increase in pitch.

Finally Envelope 2 can be used to sculpt the filtering of the tone. There are two filters, and they can be either low pass or high pass or one of each, creating a band pass filter. I have been able to use a low pass filter to trim a low frequency thump out of a sample loop point. I am still scratching for knowledge in this area. Clark Salisbury shed a bit more light on this in a class he gave. Each filter gives 6 db of roll off. This means two filters give 12 db and three filters give 18 db. For our acoustical emulation we will use the filters mostly for control of tonal brilliance. For this we use the "Cutoff", "Env 2 Amount" and "Keyboard Amount" under [Edit] [Filter] pages. We will set the filter for 1 low pass in Filter 2, leave filter 1 all the way open at 127. Use zero envelope amount and keyboard amount for filter 1, and turn both "F1 MOD" and "F2 MOD" to off. This disables filter 1 and leaves us a mild 6 db filter in the low pass mode. We first will work with the envelope to give us a little spit at the start of the tone. The hard velocity curve will go 99, 80, 80, 80, 80, and the times can be 2, 5, 20, 20, 20. We will leave the soft velocity curve off. Next we set the envelope amount up to +50 or so and pull the "cutoff" of F2 down until we can just hear it darken the tone. Finally we can set keyboard amount all the way to +99. To study the effect of Keyboard amount play successive notes within a single sample. With multiple samples the keyboard amount is not as important as when a single "wavesample" is spread over the whole keyboard.

Making the Whole Keyboard Sound as a Unified Whole

After working all wavesamples together, play the full range of the instrument. If individual areas of the keyboard need subtle variations on the basic settings, you can now go to the Edit page, play a note in the offending region to set the "wavesample" for editing. Changes made in individual envelopes or other parameter settings only change that range of keys when the edit page shows a single "wavesample" number instead of "ALL". In addition if groups of keys are louder than others you can adjust the individual "wavesample volumes" under [Edit] [Amp].

The EPS will automatically assign key ranges to each sample as you fill in the keyboard. If, for example, one of the samples gets too ragged before you reach the break point, you can change the key assignment of the individual samples. Simply go to the edit page, and play a note in the region to call up the "wavesample." Press [Set Keyboard Range], and play the lower and upper keys desired. If you expand into the range of the sample above or below the current one, the EPS will simply adjust. If you shorten the range of keys, it may leave blank keys. You then must adjust the neighboring "wavesample" to

cover. If neither "wavesample" gives a satisfactory sound in the offending region, it may be time to insert a new sample between these, and not stretch the samples over so many keys.

To tune the layer, go the the Edit Pitch page that shows the root key and fine tuning parameters. To get a reference pitch I use a well tuned instrument in another track. I use the sequencer to play a couple measures of the root key I wish to tune. I then return to the new instrument and go to the Edit page, play the note corresponding to the root key I am tuning to select that "wavesample." I then press the Pitch parameter and run the fine tune up and down while repeatedly playing the root key. You must repeatedly play the note, since it locks in the pitch as long as you hold the note, and changes to the parameter do not register until you cycle the key.

Now if you want vibrato set [Edit] to "ALL", and select [Edit] [LFO] and set "LFO Mod" to either "PRESS", for pressure, or "WL+PR" for the Mod wheel and pressure. Set the speed to something reasonable, like 32. Then on the [PITCH] page set "LFO amount" to something between 0.4 and 1.0 to get a pitch vibrato. You could also go on the [AMP] page and set Volume MOD to LFO and set the amount about 9 or 10 to get an organ-like tremolo.

I always save the instrument after collecting all of the samples for a layer, and again after tuning the layer. You can now create a new layer, and sample a muted trumpet into another group of wavesamples. When you finish with that layer, go to [Edit] [Instrument] and set patch OO to layer 1. Press the left patch button, and set patch XO to layer 2. Now pressing the left patch button will bring up the muted trumpet.

This is a very simple patch. When you rummage around some of the instruments in the Ensoniq library you'll find that they are composed of several layers for each patch. One layer will provide an attack tone, another the legato tone, while another layer may supply an atonal breath sound. Other layers could call up a growl sound like Ensoniq's Tenor Sax.

A Quick Review

Let's quickly review the steps we have completed to create a single layer of an instrument patch.

First we paid a lot of attention to collecting good sounding samples of the instrument we wish to emulate on a tape. We auditioned these sounds and selected tones that had steady volume pitch and timbre.

After we had previewed some samples at different sample rates we selected our sample rate, and planned our strategy. Each tone was auditioned on the EPS and the output of the tape machine adjusted to use the full dynamic range of the sampler. We play the tone one last time and press enter just before and just after the tone.

The next step is to loop the sample. We adjust the start of loop, and end of loop to a nice stable portion of the sample, then move the loop ends back and forth to find the quietest loop. Now we normalize the gain and volume smooth the sample. After smoothing we try the various cross fades to get a seamless loop.

This is repeated until all of the samples for the layer are collected. Save the instrument at this point if you haven't already done so.

We set the edit mode so we edit all samples of the layer, and start working with the envelopes. I start with the amplitude envelope, "Env 3", simply because it is the easiest one to understand. Select an envelope template, or bring one from a similar instrument in the "saved envelope" register. Push it around until it pleases you in the middle range of the patch. I work the hard velocity layer first then turn on the soft layer later.

Next set the "Env 1" to create pitch variations, "Env 2" to create a filter envelope, and finally set up a vibrato or tremolo with the LFO. Touch up the envelopes and parameters of individual samples to achieve a uniform sound from one end of the patch to the other.

Now tune the new patch against an existing instrument. I use the sequencer to play one pitch from the standard and compare that to the new instrument. Individual key ranges can be adjusted if you don't like the EPS's split point.

The Test Drive

The proof of the pudding is how smooth is it, and how does it go with the rest of the meal. Load up some of your favorite instruments along with this new instrument, and sequence a few licks. Does your new instrument sound realistic when you play it in the style of the acoustic instrument you are trying to duplicate? When you play it in the ensemble does it overpower or get lost with the instruments you are likely to play with it? You might find, for example, the attack is too slow for the type of music you intend to play. Now is the time to go back and tweak a few parameters to settle the instrument in. Finally, update all of the copies you have of the instrument with your final version, and save a backup copy for emergencies only.■

Bio: Gary Dinsmore took up the organ with a vengeance about 10 years ago, but finally sold it, leaving the pedalboard to people who can walk and chew gum at the same time. He's strictly an amateur musician - although he and a buddy did a couple gigs back in college and formed a little country-western group called the Selkirk Mountain Boys. They did so well that they decided their best bet was to finish college and get "real jobs."

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Poor Man's MIDI Disk For the Mirage

by Nathan Miles

I was pretty naive about sequencers when I bought my Mirage. It took me a few months to realize all the nifty things I was missing like multiple tracks, quantization, multi-pattern songs, and enough space for a reasonable length composition. I was thrilled when Alesis came out with the $300 MMT-8 sequencer which supplied all these functions.

The only thing I lost when I went to the outboard sequencer was the ability to store my sequences to the Mirage diskette. Alesis provides the ability to dump the sequencer storage to a cassette recorder. However, I have always hated the inconvenience of getting the recorder set up and the multi-minute times that it takes to store the data to tape.

There are at least a couple of companies that advertise products in the Hacker every month to allow the Mirage to accept SysEx data dumps from outboard devices and store them on the Mirage diskette. The only catch is the $40 to $60 dollars that they cost.

I decided that if I aggressively trimmed out all the bells and whistles I could use a Mirage monitor utility to enter a small program to perform this function for free.

MIDI Disk Operation

The first simplification I made was to assume that I would only use my program with the simplest kinds of MIDI devices. In particular the Alesis products have the nice feature that they can be manually requested to dump their contents from their front panel. In order to reload the Alesis unit you only have to send back to it exactly what it dumped to you. I wish I could tell you what other manufacturer's devices act like this but your local music store MIDI Guru ought to know.

I picked the SAMPLE UPPER key to cause the Mirage to clear its SysEx buffer area and wait for a data dump. To capture the SysEx data you hit SAMPLE UPPER and then select the proper front panel keys on your Midi device to cause it to dump its contents over the MIDI port. For the MMT-8 this means holding down the TAPE key, hitting PAGE UP until the SEND ALL PARTS & SONGS OUT MIDI appears in the display, and then pushing the RECORD button. With the sequencer full up this operation takes about 10-15 seconds.

Store the received SysEx data on diskette just like you would wavesample sound data. That is: a) select parameter 13, b) press 1, 2, or 3 to select a disk bank, and c) hit ENTER. After saving the SysEx data to disk you should reboot your Mirage by entering LOAD UPPER, LOAD LOWER, 0, ENTER in order to restore it to normal Midi receive operation.

In order to transmit the saved sequencer SysEx data back to the MIDI device you must first load it back into wavesample memory with the LOAD UPPER and LOAD LOWER keys. Then press SAMPLE LOWER to transmit the SysEx data. Reload your wavesamples with the sounds you wish to use and you are ready to go. It is not necessary to reboot the Mirage after transmitting the SysEx data.

MIDI Disk Code

The following paragraphs contain the complete source code for the MIDI disk and comments on the implementation. The corresponding object code appears to the left of the source and should be entered using a Mirage monitor utility such as Leaping Lizard's Mirage Monitor V1.0 or Upward Concept's OS-1.

The only data variables used by our code are stored down in lower wavesample memory. The variables are stored here so that the values marking the end of the current data (addr/bank) will get saved to disk along with the SysEx data.

```
1000                        org     $1000
1000 00        addr         fcb     0
1001 00                     fcb     0
1002 00        bank         fcb     0
1003 00        savaddr      fcb     0
1004 00                     fcb     0
1005 00        savbank      fcb     0
```

The code to process the SAMPLE UPPER and SAMPLE LOWER keys resides at 94A7 in OS 3.2 so we insert a jump instruction here to divert execution to our MIDI disk code.

```
94A7                        org     $94a7
94A7 7E 97 00               jmp     start
```

In OS 3.2 the sampling code starts around address 9700; we overlay this with our MIDI disk code. At this point the code for the Mirage front panel key that was pressed resides in the 'A' register. If the SAMPLE UPPER key was not pressed, it must have been the SAMPLE LOWER key that got us here so we jump to the MIDI buffer transmit code at 'xmtbuf'.

```
9700                        org     $9700
9700 81 12     start        cmpa    #$12     SAMPLE UPPER?
9702 26 5C                  bne     xmtbuf
```

At this point we know that the SAMPLE UPPER key was pressed so we reach out into the MIDI received character processing area of the OS 3.2 code and patch in a branch to our received character processing code at 'rcvchar'.

```
9704 B6 97 1A               lda     >jmpinstr
9707 B7 A2 05               sta     >$a205
970A FC 97 1B               ldd     >jmpinstr+1
970D FD A2 06               std     >$a206
```

To finish up our initialization to begin receiving, we set our current address to point past the end of our 6 bytes of variable storage and set the current memory bank 0.

```
9710 CC 10 06 rcvinit       ldd     #$1006
9713 FD 10 00               std     >addr
9716 7F 10 02               clr     >bank
9719 39                     rts
971A 7E 97 1D jmpinstr      jmp     rcvchar
```

The receive character initialization patches OS 3.2 to jump to 'rcvchar' every time a new character comes in over the MIDI port. When we get to 'rcvchar' this MIDI character is present in the 'B' register. We have some gyrations to execute at this point due to the fact that not all of the Mirage's 128K (K= 1024 characters) of wavesample storage can be accessed at the same time from our code. The wavesample memory can be thought of as 4 separate banks. Each bank is 32K long. Banks 0 and 1 make up the lower wavesample memory of the Mirage and banks 2 and 3 make up the upper wavesample memory. In order to access a given bank we have to insert the required bank number into the bottom two bits of the register which controls the bank mapping. This register is present at address E200. After we are done we reset this register to its previous value just to make sure we haven't altered it from the value that some other section of the Mirage code had previously set it to.

```
971D BE 10 00 rcvchar ldx   >addr
9720 B6 E2 00         lda   >$e200   Get map reg.
9723 34 02            pshs  a        Save it.
9725 84 FC            anda  #$fc     OR in 'bank'
9727 BA 10 02         ora   >bank
972A B7 E2 00         sta   >$e200   Set map reg.
972D E7 84            stb   0,x      Store Midi char.
972F 35 02            puls  a        Get orig reg.
9731 B7 E2 00         sta   >$e200   Reset map reg.
```

At this point we need to increment the memory locations which define our current position in the data wavesample storage area. The code is arranged so that the 'X' register already contains our address in the current bank. The 'X' register is incremented and stored in the 'addr' memory location. If we have just gone past the end of the current bank, we reset the current address to 0 and increment the current bank.

```
9734 30 01     incraddr leax   1,x
9736 BF 10 00           stx    >addr
9739 8C 80 00           cmpx   #$8000
973C 26 09              bne    done
973E CC 00 00           ldd    #0000
9741 FD 10 00           std    >addr
9744 7C 10 02           inc    >bank
9747 39        done     rts
```

The 'getchar' routine is called by the transmit routine to get the next character from the wavesample storage area. This character is returned to the caller in the 'A' register. The required bank is temporarily mapped into memory long enough to retrieve the required character and then the mapping register is restored as in the 'rcvchar' routine.

```
9748 BE 10 00 getchar  ldx    >addr
974B F6 E2 00          ldb    >$e200
974E 34 04             pshs   b
9750 C4 FC             andb   #$fc
9752 FA 10 02          orb    >bank
9755 F7 E2 00          stb    >$e200
9758 A6 84             lda    0,x
975A 35 04     getdone puls   b
975C F7 E2 00          stb    >$e200
975F 39                rts
```

We get to 'xmtbuf' whenever the user presses SAMPLE LOWER to initiate a MIDI disk transmit operation. The first thing we have to do is make a copy of the current location information marking the end of the received data and then reset the current location to point to the beginning of the Midi Sysex data storage area.

```
9760 FC 10 00 xmtbuf   ldd    >addr
9763 FD 10 03          std    >savaddr
9766 B6 10 02          lda    >bank
9769 B7 10 05          sta    >savbank
976C 8D A2             bsr    rcvinit
```

In order to decide whether we are done yet, we compare our current location to the final location we saved in the previous code section. When they are equal we are done.

```
976E FC 10 00 xmtloop  ldd    >addr
9771 10 B3 10          cmpd   >savaddr
9775 26 09             bne    xmtit
9777 B6 10 02          lda    >bank
977A B1 10 05          cmpa   >savbank
977D 26 01             bne    xmtit
977F 39                rts
```

We call the 'getchar' routine to get the next MIDI SysEx character to be transmitted. Then we call the OS 3.2 routine which transmits the character out the MIDI port and the routine which waits for the transmission to complete. After this we increment our current position and jump back to the code which checks to see if we are done.

```
9780 8D C6     xmtit   bsr    getchar
9782 1F 89             tfr    a,b
9784 BD A1 3D          jsr    $a13d   Xmit char in B
9787 BD A1 0E          jsr    $a10e Wait buffer empty
978A BE 10 00          ldx    >addr
978D 8D A5             bsr    incraddr
978F 20 DD             bra    xmtloop
```

Conclusion

With about 15 minutes effort and a Mirage monitor disk you can create a basic MIDI disk facility. If anyone is interested in talking about Mirage internals they can call me at 812-234-4253 or write to 1905 S. 30th, Terre Haute, IN 47803. I have a public domain 6809 assembler and terminal emulator program for IBM PC's I would be happy to share. ▬

EPS DOS/SCSI Miscellaneous Ramblings

by Alan K. Smith

The purpose of this article is to provide as much information about the EPS DOS (Disk Operating System) and SCSI (Small Computer Systems Interface) implementation as time and space allows. Here is a list of the topics I will be covering - if it looks boring you should bail out now:

I. General overview of the DOS file structure including some helpful hints.

II. General overview of the EPS SCSI implementation.

III. Discussion of such SCSI topics as termination, SCSI drive vendors expected load times.

IV. Brief discussion of known DOS/SCSI bugs.

I. DOS OVERVIEW

The EPS DOS implements a variable length file system using the standard linked list data structure to keep track of where the file is actually stored. The linked list is usually referred to as the file allocation table (FAT) or volume allocation block or some other similar name. It basically works as follows:

Within the directory entry for a particular file is the pointer to the first block of data. This beginning block pointer is then used to access its corresponding entry in the file allocation table which contains the pointer to the next block of data. This procedure is repeated until the block pointer is equal to the special end of file code. Please note that one block on the disk is 512 bytes and is the same as one block of internal memory.

The general organization of any disk connected to the EPS (either internal floppy or external SCSI drive) is:

1) Three blocks of various system information.
2) Two blocks for the root directory.
3) File allocation table blocks (FAT) - the number of blocks depends on the size of the disk drive.
4) EPS O.S. if it exists on the disk.
5) User data (sound files, sequence files, sub-directories, etc.).

The main problem with the variable-length file system is that as files are saved and deleted, the disk becomes fragmented (or noncontiguous). That is, if there are X number of free blocks on the disk, they will not be grouped together at the end of the disk. Instead, there may be some free block in the beginning followed by allocated blocks followed by free blocks.

Great, you say, but what does it mean? The response can be summed up in two words - load time. Storing files in contiguous blocks translates into contiguous tracks and sectors. This will improve the file load time because it will minimize the movement of the disk drive heads. Loading large files that are contiguous can still require a substantial amount of head movement, because the file allocation table entries must be accessed to get successive blocks of the file. On the EPS, each file allocation table block contains 170 block pointers. Due to O.S. memory limitation, only 1 FAT can reside in memory at any time. The larger the file the more FAT entries are required and this means that multiple FAT blocks are necessary to track the file. As a result, even though a file is contiguous, if it is large, it will still require a substantial amount of head movement to load the required multiple FATS.

In order to bypass loading multiple FATS, a contiguous blocks field is maintained in the files directory entry when a file is being saved. When a file is loaded, if its length is equal to the contiguous blocks count, then the FAT does not have to be accessed. It starts loading at its beginning block and continues until its length in blocks is loaded. If its length is greater than its contiguous blocks, then the file starts loading at its beginning block, through the count in contiguous blocks and then must pick up the remaining file blocks using the FAT'S. With this in mind, there are a few simple techniques you can apply to minimize your file access times:

1) Create all sub-directories after the drive has been formatted, the O.S. copied onto it, and before you save any sounds. Create extra directories even if you think you may never use them, and give them names like My Sound 1, My Sounds 2,.

Why? Sub-directories only take up 2 blocks on a disk. If you create sub-directories after you have saved files, you will begin fragmenting the disk.

2) Saving sounds after a disk has been formatted will guarantee that the sounds will be stored contiguously and will load as fast as possible.

Why? A disk can be fragmented only by deleting files (instruments, sequences, sub-directories, etc.). Once a disk is formatted all of its free blocks are contiguous. As files are saved, the remaining free blocks will decrease but will still be contiguous. These free blocks will always be the higher-numbered blocks which are toward the inner tracks of the disk.

3) Develop new sounds using floppy disk(s). Once you have perfected the new sound, save it to a newly formatted floppy disk or hard disk (see also 2 above).

Why? When you are developing new sounds, often you will have multiple copies with different parameter settings. Once you get the sound right, you will usually delete the older versions, thus causing the disk to become fragmented. Also, by saving a finished sound to a different floppy disk or hard disk, you also create a backup of your sound.

II. EPS SCSI IMPLEMENTATION

The SCSI implementation on the EPS is Apple Macintosh Compatible. This was done primarily because of the availability of Apple compatible SCSI hard drives and also because we use MACs for sound development. From a software standpoint, hard drives are treated the same as the internal floppy disk in terms of the file system and the DOS commands that are available. On the hardware side, the floppy disk I/O uses channel 0 of the DMA (Direct Memory Access) controller and SCSI devices use channel 1.

All of the comments made in the DOS overview section are applicable to a SCSI hard drive, except that the number of file allocation blocks required for a particular hard drive is dependent on the size of the drive. The larger the storage capacity, the more file allocation blocks are required. Also, the suggestions made on minimizing file load times will provide more dramatic results on a SCSI hard drive.

The only addition to the EPS DOS is the macros command. Macros allow you to assign a file, directory, etc. to a specific macro number. Then when you want to make that file, etc. appear in the display you simply execute the macro. Keep in mind when a file is displayed it can be loaded by pressing ENTER. Thus, if you have an instrument file that is in a sub-directory three levels down from the root directory you can load that file with five button presses. If you are used to scrolling through a directory and then having to press ENTER and then select an instrument button you can begin to appreciate macros really fast, especially since the use of even the smallest SCSI drive will probably require sub-directories.

Before we move on to the more technical stuff, there are two suggestions that should be given consideration if you are using a SCSI drive with the EPS:

1) Backup - Keeping a backup of all files on your hard disk is a must. When our backup utility becomes available, this will be an easy but time consuming thing to do. There is an easy way to do backups even without a utility, however. For the factory sounds/sequences that you are uploading to a SCSI drive you already will have a backup. Then for any new sounds, etc. you develop, take the few minutes to copy it onto a floppy disk. If you develop new sounds on a floppy and then copy them to the SCSI drive you will always have a backup. The important point is to keep backups of all your files on floppy disk.

2) Documentation - Document how you have your files organized on your SCSI drive. For example, use a sheet of paper for each directory which would list all the files in that directory. Because SCSI drives allow you to store a large number of files, it is easy to lose track of where a particular file is located. Since the EPS only has a 1 line display, it could take a long time to locate a file (don't forget macros either, and document these also). The documentation will also be helpful if you ever have to rebuild your hard drive.

III. MISCELLANEOUS SCSI TOPICS

1) What is SCSI? - The Small Computer Systems Interface (SCSI) is a standardized hardware and software communication protocol for small computers (such as the Macintosh and the EPS) and peripheral devices (hard disk drives, etc.). The SCSI bus is the cabling that is used to connect the SCSI devices together. There are a total of 18 signal lines (not including signal grounds) of which 9 are data and 9 are control. Thus, SCSI implements a byte parallel data path (8 data bits, and 1 parity bit) versus MIDI which is a serial data path.

The interfacing of SCSI and MIDI is similar because they are both daisy chained configurations. However, the number of signal lines and type of cable is different. In a MIDI connection, the output or thru of one device goes to the input of the next MIDI device and this continues until the last MIDI device in the chain. SCSI devices are also daisy chained except that there is no SCSI input or output connectors. Most SCSI devices have two 50 pin SCSI connectors which are wired together, and can be thought of as both input and output.

In addition, SCSI and MIDI are similar because they both use an address to communicate with a specific device. Although MIDI does have different modes that allow communication with all MIDI devices at once, this cannot be done on the SCSI Bus MIDI has sixteen channels (or addresses) and multiple MIDI devices can have the same address. SCSI has eight addresses (sometimes called the SCSI priority or ID) and devices on the SCSI bus must never have the same address. Thus, there can only be a maximum of eight SCSI devices connected to the SCSI bus. The valid SCSI address (priority) range is from zero to seven, with seven being the highest priority. The priority of a SCSI device is important only if two devices are trying to control the SCSI bus at the same time. In this case, the device with the highest priority will gain control of the SCSI bus. The EPS has a fixed SCSI ID of three, while the Apple Macintosh has a fixed ID of seven.

2) EPS SCSI Communication Modes - Generally, the EPS implements only the initiator mode of communication. This means that the EPS must originate any SCSI transfer between itself and another SCSI device. So, for example, a computer can't address the EPS and request information. There is only one exception to this, and that occurs during wavedata transfers. If SCSI is installed and a wavedata transfer is requested, then the MIDI routines will request the DOS to enter target mode. The EPS will then wait to be selected by the computer and then respond appropriately by sending or receiving the wavedata.

3) SCSI Termination - All SCSI configurations must have termination at both ends of the SCSI chain. A terminator is a resistor network on each SCSI signal on the SCSI bus, and it prevents reflection or ringing on the signal lines allowing reliable high speed data transfers. The ringing would appear as a damped sine wave on the signal transitions, ie, high to low and low to high. In general, a longer cable will produce more ringing (higher amplitude). If the amplitude of the ringing becomes high enough it can cause the controller to detect a change of state which would then cause an error. The ringing can be eliminated by terminating both ends of the cable. The cable, however, must be treated from a systems point of view because the SCSI bus is implemented by daisy chaining devices together. For example, if you have just one EPS and one disk drive then you will physically have one cable. If, however, you have an EPS and two or more disk drives and a computer then you will physically have multiple SCSI cables. These multiple cables daisy chaining all the SCSI devices together must still be treated as one cable from a termination standpoint. Note that the combined length of all cables should not exceed 19 feet. Ideally the termination wants to be placed on the devices that are located on the physical ends of the SCSI bus. In general, a system configuration (two or more SCSI devices) must have at least one terminator, but never more than two terminators. Damage can result if more than two terminators are present due to the excessive current flowing into the drivers.

I have examined three types of terminators, two of which are external and one internal. The internal terminators are implemented by most SCSI disk drive manufacturers these days and are resistor packs which implement the termination network on the SCSI drive controller board. The external terminator comes in two flavors: one resembles two 50 pin SCSI connectors mounted back to back encased in plastic; and the other resembles two 25 pin D sub-connectors mounted back to back encased in plastic.

The 50-pin external terminators are not used often, because the majority of drive manufacturers supply internal termination on their drives. The 25-pin terminator is the type required by the EPS because it uses a 25-pin D sub-connector for the SCSI interface. Our recommended source for this type of terminator (Integrated Media Systems) has not been able to supply them. All is not lost, though, because by the time you read this, Eltekon should have one available.

Also, if you would rather build your own, I can supply you with a schematic and parts list. All you need to do is write to me at Ensoniq and include a stamped self-addressed envelope. The bottom line on termination is this: If the total length of all your SCSI cables combined is only two or three feet, then termination should not be necessary. If the total length of cables is greater than this, then you should terminate SCSI at the EPS. There is one alternative, however, and that involves cables.

4) SCSI Cables - As you know, termination will prevent the SCSI signals from ringing, and therefore provide reliable communication. The ringing is actually caused by impedance mismatches in the cable. For example, the impedance of the receiver may be much lower (or higher) than the driver's impedance (hence the use of terminators especially on both ends of the cable). The impedance of the cable, however, is actually made up of many different components, like line resistance, capacitance and inductance and can also vary with frequency. The one component that does standout is capacitance, and the longer the cable, the more capacitance each signal line will have. Also, shielding cable adds more capacitance and most SCSI cables are shielded.

One simple solution is to use a ribbon cable to extend the length of your SCSI connection. So, if you want a 10-foot SCSI cable, use the 2-foot SCSI cable that is normally supplied with the drive and add 8 feet of ribbon cable. For the ribbon cable,

you want a 25-pin D sub male connector on one end and 25-pin D sub female connector on the other end. Then connect the male end of the ribbon cable into the EPS. Connect the female end of the ribbon cable into the 25-pin connector end of the SCSI cable supplied with the drive and the other end of the SCSI cable into the disk drive. I have successfully used a 14-foot ribbon cable and two foot SCSI cable, but this may not work in all setups. Unlike termination which will always work (provided you follow the rules), the ribbon cable approach will take some experimenting. For example, if a 14-foot ribbon cable does not work, the cut off a couple feet and try it again. Also, since ribbon cables are usually not shielded you must be careful on how you route the cable in your setup. For example, avoid running it across power cables or other sources of electromagnetic fields.

5) SCSI Drives and Load Times - Keep in mind that there are companies who sell SCSI drives as OEM's (Original Equipment Manufacturers) such as: Jasmine, General Computer, Rodime, Eltekon, etc. and there are companies who actually manufacture the SCSI drives like Seagate, Rodine, Quantum, and CDC. Most OEM's use multiple manufacturers in their product line. For example, Eltekon uses Seagate, CDC and Microscience disk drives. So, it is possible that different OEM's may actually be using the same SCSI drive in their systems. Jasmine uses Rodime drives and Rodime also uses their drives in their Apple Compatible SCSI drive systems. Therefore, once I tested the Rodime drives, I knew that the Jasmine drives would also work. So, if you are considering company XYZ's disk drive that you know uses the same manufacturers model of a drive we have approved, then you can be pretty sure it will work. Note that some older OEM's like Dataframe used a SCSI controller board made by Scientific Micro Systems, which had a very limited SCSI implementation (since it was one of the first). These drives will not work with the EPS. Most OEM's these days are using SCSI drives that have the SCSI implementation built into the hard drive itself. Some of the SCSI hard drive manufacturers I prefer are Rodime, CDC and Quantum, because these drives have a cache built into the drive which does a pre-fetch on Sequential blocks. Thus, if you make your files contiguous this pre-fetch can make file load times even faster. Also, the above vendors automatically park the heads on power down although most manufacturers provide this feature.

Load times for most drives loading 512K bytes takes two seconds or less. For the Quantum and CDC drives I loaded 2M Bytes in under five seconds. (That's right folks, the 4X lives). Note that these numbers are for contiguous files. The Seagate drives have taken as much as nine seconds to load 512K bytes. This is because they do not have a cache and the interleave of the sectors needs to be optimized for the EPS. When formatting a SCSI drive on the EPS, you currently cannot select an interleave factor (usually two to one works fine) but this will be added in a future release. It will require a ROM upgrade, however.

6) Connecting MAC'S and Hard Drives to the EPS - When connecting SCSI hard drives to the EPS the most important thing to remember is to assign different SCSI ID's for each drive you attach to the SCSI bus and do not use SCSI ID three because this is the ID of the EPS. Also, refer to the section on termination and cables. When connecting MAC's to the EPS follow these rules:

A) Position the EPS and the MAC at the opposite ends of the SCSI Bus.
B) Locate the MAC SCSI hard drives closest to the MAC and the EPS SCSI hard drives closest to the EPS.
C) Follow the rules for termination.

If these rules are followed, you will have one SCSI jumper cable that will connect the MAC SCSI devices to the EPS SCSI devices. If you have trouble booting the MAC or the EPS, unplug this SCSI cable and boot the MAC and EPS separately, then plug this cable back in. Some MACS will not boot up if they see an EPS formatted hard drive. The Plus and MAC II seem to exhibit this problem while the SE does not.

An RS-232 switch box can also be used to isolate the two systems. Make sure that the box switches all 25 lines and that the EPS is terminated whenever it is isolated from the SCSI Bus. Note it is possible to connect two EPS's to one SCSI hard drive, although this violates my statement that no two SCSI devices can have the same address. This can be done because the EPS does not implement the target mode, thus if a SCSI device tries to address the EPS, it will not respond at all. If two SCSI hard drives have the same address, however, and you try to save a sound both drives will respond and you will probably corrupt the data stored on one or both of the drives.

IV. DOS/SCSI BUGS

The only known DOS bug causes a file that was being resaved over itself to become non-contiguous even if it was smaller than the original file. This will not cause errors or other nasty problems. It will just cause slower load times for that particular file after it was resaved over itself. This bug was fixed in the SCSI release which starts at disk 2.0 and ROM 2.0.

There are only two known bugs in the SCSI release. The first is the interleave selection that will be added to the format SCSI command in a future release. This is actually just a pseudo-bug since most SCSI drives do not require an interleave factor to be matched to the EPS. The second bug can cause the EPS to crash and occurs when the macro to load the floppy is executed and the floppy disk is not in the drive or the diskette is bad. We believe this bug has been fixed in disk O.S. Rev 2.2.

V. CONCLUSION

I hope the information provided in this article will be of some use. If you have any additional questions write me at Ensoniq or mention it in a letter to the Hacker. Most of the people at Ensoniq read the Hacker, especially the Interface.

Bio: Alan K. Smith is a Project Engineer for Ensoniq. Responsibilities include both hardware and software design. ▬

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Mirage Sampling Times - Parameter 73

By Arthur Entlich

If you've ever adjusted Parameter 73 Sample Time Adjust during a sampling session, and wondered "how long a sound can I sample at this value?", the chart below might help. Parameter 73 can be adjusted between the values 20 and 99 (you need to use the external input sampling cartridge to use values below 30). As the value of Parameter 73 is increased, the length of the sound that can be sampled is increased. The tradeoff for this extra length is lower frequency response and fidelity of the sample, in part because the cutoff filter has to be set lower to prevent aliasing. As the sampling rate is lowered by increasing the value of Parameter 73, the number of sample readings taken relative to time is decreased. Since there is a finite amount of memory in the Mirage, it can only store a finite list of readings that make up the sample. If readings are taken more often, a higher frequency response sample can be created, but it must be shorter in length. If readings are taken less often, the sample has lower fidelity, but can be longer in length.

Leaving the realm of theory, the chart below lists the range of values for Parameter 73. Listed next to each value you will find a number which is the maximum length (in seconds) of the sound you can sample. The length listed is the duration the sample will be once tuned to unity. Unity is when the sample is tuned to the identical pitch as the source sound.

As an example, if you have a source sound which lasts 3 seconds, and you wish to sample it in its entirety, you will need to set Parameter 73 to a value of 46. This will give you 3.01 seconds of sampling time. Once the sample is made and tuned to the same pitch as the source sound it will last 3 seconds, just like the original sound.

Chart for Mirage Sampling Times (Parameter 73)

[73] LENGTH* (SEC)	[73] LENGTH* (SEC)	[73] LENGTH* (SEC)	[73] LENGTH* (SEC)
20 -- 1.31	40 -- 2.62	60 -- 3.93	80 -- 5.24
21 -- 1.38	41 -- 2.69	61 -- 4.00	81 -- 5.31
22 -- 1.44	42 -- 2.75	62 -- 4.06	82 -- 5.37
23 -- 1.50	43 -- 2.82	63 -- 4.13	83 -- 5.44
24 -- 1.57	44 -- 2.88	64 -- 4.19	84 -- 5.50
25 -- 1.64	45 -- 2.95	65 -- 4.26	85 -- 5.57
26 -- 1.70	46 -- 3.01	66 -- 4.33	86 -- 5.64
27 -- 1.77	47 -- 3.08	67 -- 4.39	87 -- 5.70
28 -- 1.84	48 -- 3.15	68 -- 4.46	88 -- 5.77
29 -- 1.90	49 -- 3.21	69 -- 4.52	89 -- 5.83
30 -- 1.97	50 -- 3.28	70 -- 4.59	90 -- 5.90
31 -- 2.03	51 -- 3.34	71 -- 4.65	91 -- 5.96
32 -- 2.10	52 -- 3.41	72 -- 4.72	92 -- 6.03
33 -- 2.16	53 -- 3.47	73 -- 4.78	93 -- 6.09
34 -- 2.23	54 -- 3.54	74 -- 4.85	94 -- 6.16
35 -- 2.29	55 -- 3.60	75 -- 4.92	95 -- 6.23
36 -- 2.36	56 -- 3.67	76 -- 4.98	96 -- 6.29
37 -- 2.42	57 -- 3.74	77 -- 5.05	97 -- 6.36
38 -- 2.49	58 -- 3.80	78 -- 5.11	98 -- 6.42
39 -- 2.56	59 -- 3.87	79 -- 5.18	99 -- 6.49

*=Length of sample when tuned in unity to source, rounded to nearest hundredth of a second.

Bio: Arthur Entlich is a recent purchaser of a Mirage. He is a photo-video-grapher, painter and computer graphics artist who composes soundtrack material for "in-house" (literally) video productions. He owns several quirky "early MIDI" instruments including a Fender Chroma Polaris and Roland MSQ-700, as well as several "antique" acoustic instruments such as guitar and flute, which he plays with varying proficiency.

Tuning In: Microtonality in Electronic Music

Reviewed by Robert Rich

For: Mirage, EPS.
Product: Book - "Tuning In: Microtonality in Electronic Music" by Scott R. Wilkinson.
Price: $14.95 in music stores.
From: Hal Leonard Books, 8112 W Bluemound Rd., Milwaukee, WI 53213.

Long-time readers of the Hacker probably know that both the Mirage and the EPS support microtonality. This makes weirdos like me very happy. Others of you may be thinking, "Great, but is it Rock & Roll?" Most modern Western musicians don't even think about the role that temperament plays in music. Once you do manage to escape from 12-tone Equal Temperament, the world can look pretty confusing. Most of the books on alternate tunings just make things scarier. We have long needed a good up-to-date introduction to microtonality, and Scott Wilkinson has filled this need with his excellent new book, Tuning In. Although I do have some reservations about Wilkinson's simplified approach to this many-faceted subject, I think he does an admirable job of introducing microtonality to the novice reader.

The miracle of this book is that it exists at all (and from a rather large publisher, at that). Its few faults are offset by the service it will perform of informing the "average" musician about microtonality, a subject often considered too arcane for anyone but the avante-garde fringe.

Tuning In begins with a very good discussion of the physical basis for musical perception. Wilkinson covers the most important stuff, and does it clearly and accurately. He starts with basic music math: frequency, interval ratios, etc., and moves smoothly into psychoacoustics. These two chapters should make a good introduction for the unmathematical reader, as they stay in the realm of basic arithmetic while covering some ideas that are really quite advanced.

Wilkinson then provides a brief overview of the history of tuning, from 3000 years ago in China through the 20th Century. This is an ambitious chapter, which inevitably lacks the depth needed to take it beyond introductory status. A few of the important 20th century microtonalists are missing from this overview, including Lou Harrison and the entire American Gamelan movement, Pauline Oliveros and others, but I suppose it's hard to cover everything.

The next chapter deals with practical applications of alternate tunings. This chapter unfortunately presents a rather one-sided view of the subject. Here we find a very strong Wendy Carlos influence, stressing the interdependence of tuning and timbre. This is rather touchy ground among microtonalists, many of whom feel that timbre plays a secondary role in the perception of musical intervals. Carlos (and Wilkinson) recommend that people use intonations that align to the overtone series of the timbres of each instrument. This works well unless the music you want to play contains a wide range of different timbres.

For the record, I think Wendy Carlos is correct from a psycho-acoustic point of view. I have long held her beliefs in the interconnectedness of tuning, timbre and time. However, a lot happens in a musical performance that cannot easily be reduced to interactions of the overtone series. Many of the composers who have been working with just intonation for decades have come to the impression that the perception of tunings has as much to do with context as it does with timbre. This is a complex problem, and lies way beyond the scope of this review. However I do not feel that it is beyond the scope of Wilkinson's book, and I would have liked to see some equal time given to those composers with different approaches to microtonality. Wilkinson's oversimplification of this issue may lead many readers to believe that Wendy Carlos' approach to intonation is the only one there is.

Despite the somewhat lopsided influence from Wendy Carlos, there is some great information in this book. The most useful chapter, in my opinion, is the one listing some 26 historical and modern alternate scales. Wilkinson lists these by scale degree, ratio and cents (for both consecutive and absolute intervals), and also suggests mappings onto standard Western keyboards. These tunings appear to be quite accurate, and represent a wide range of useful and interesting possibilities. This chapter provides the starting point for anyone who wants to hear what meaningful microtonal scales actually sound like.

The final chapter lists and describes most (if not all) of the re-tunable synthesizers available today. You won't learn how to use the microtuning features of these synths, but you will find out what is available. Mentioned among these are the Ensoniq Mirage and EPS. (You were wondering when I would get to this, weren't you?). Here Wilkinson mentions Dick Lord, whose expert hacking opened up the Mirage tuning tables. Concerning the EPS, we learn quite a bit less, perhaps due to its late arrival. The reader is informed that the EPS has a tuning resolution of 1 cent, which is not quite right.

(A quick phone call to Dick Lord revealed some new facts about the EPS, which he allowed me to disclose. The EPS has a linear tuning resolution, defined in Hertz. Its resolution changes depending upon sample rate, with:

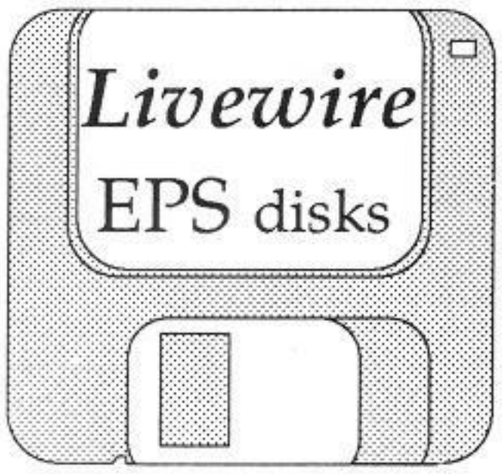
Resolution (Hz) = Sample Rate (Hz) / Bit Resolution of Pitch Table = Sample Rate/65536

At a 52.1 kHz sampling rate this gives us .79 Hz steps, while at 31.2 kHz we get .49 Hz increments. Translated into cents, this gives us a decent resolution at high pitches but a pretty bad resolution at low pitches. For example, a .49 Hz step translates into a whopping 8.5 cents at 100 Hz, but only 0.85 cents at 1000 Hz. This relatively coarse resolution at low pitches bodes ill for those who require a great deal of precision in their tunings. To make matters worse, the EPS software interface does not even give the user access to the full accuracy of the hardware. According to Dick Lord, the user tunings are quantized to a minimum of 1.6 cents even though the display reads in single cents. This quantization becomes obvious when you try to tune certain intervals, and the display keeps flopping back to a different number.)

Well. . .back to the book.

Although I may seem critical of Tuning In, that's only because I'm using this review to add some information to an otherwise very good book. Tuning In is generally an intelligent and accurate overview of microtonality. It provides a much-needed introduction to a very complicated subject. I do wish it went a bit deeper into the difficult and more technical problems of using alternate tunings, but then I guess it wouldn't be an introduction. If you want to begin exploring the world of alternate tunings, this book is a great place to start. ▬

Bio: Robert Rich is a composer of electronic music who prefers acoustic instruments and things that go glurp in the night. His album "Numena" has just been released on CD in France. For some reason, he still hangs out in the basement of the Stanford Psychology Department.



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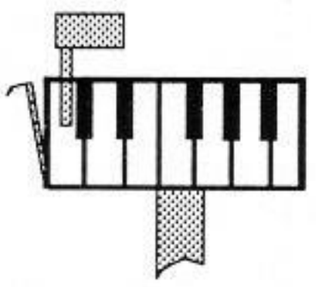

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While you're at it, check out the reviews in *KEYBOARD*, (August 1988), and *MUSIC, COMPUTERS, & SOFTWARE*, (September 1988).

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Noria Productions Drum Sample Disk

Reviewed by Dave Caruso

For: Mirage.
Product: Drum Sample Disk.
Price: $12.95, $2 S & H.
From: Noria Productions, 6951 Warner Ave, Suite #370, Huntington Beach, CA 92647.

One thing that's always welcome in a world of expensive, copy-protected software is a reasonable-priced offering like this one from Noria Productions.

The disk received is without an operating system, and not copy-protected. So the first thing I did when I was assigned the review was to get out my Chameleon Multi-Utility Disk from Leaping Lizards and add the operating system of my choice directly to the Noria disk. This was the first time I tried to add the O.S. without backing up the disk first, and (whew!) it works like a charm, with no damage to the samples or sequences.

Did I say, "sequences?" Oh yeah, that was the second thing I did. I booted the disk, loaded sequence one, and pushed "sequence play." Another big disappointment in mail-order samples is the usual lack of sequences. This disk includes one for each bank, and they help.

Now, on to the samples themselves.

BANK ONE: ROCK DRUMS

I've listed the keyboard half, wavesample number, and key configurations for each sample so that you can more easily edit and move around the samples on your own disk.

LW1, C1, Kick Drum -- A tough, punchy, gated drum. Not lots of low end, but it complements the snare, and vice versa.

LW2, C#1-D1 -- Same sample, different wavesample and tuning.

LW3, D#1-E1, Snare Drum -- A big, gated, dance beat snare. This snare beats both the "Ambient Drums" snare and the "Electronic Drums" snare by Ensoniq (from disks A1 and B1, respectively) for sheer power and progressiveness. Equally appropriate for fashion and thrashin'.

LW4, F1-F#1 -- Same sample, except that less of the sample is used. There's a subtle difference in the amount of gating.

LW5, G1-A2, Toms -- All one sample. Not much of the gated-tom ring I expected to hear (in order to better match the snare). There are a little disappointing after the snare, but at least they're not cheesy like so many Mirage tom samples.

LW6, A#2-B2, Closed Hi Hat -- Good for a Mirage. Full and rocky like a big-cymballed hat.

LW7, C2-Another closed hat, presumably to be alternated with LW6 for fast repeats.

LW8, C#3-D3, Open Hi Hat -- This mixes best with non-acoustic drums like the ones on this bank. A good mate for the closed hat.

UW1, D#3-E3, Shaker A -- A short, hard shake.

UW2, F3-F#3, Shaker B -- Not much different from UW1F.

UW5, G3-G4, Ride Cymbal -- Short, but otherwise great. Much better than the ride on Ensoniq's disk B1, but not quite as clean as the one on Ensoniq disk A1.

UW6, G5-C6, Crash Cymbal -- The most I can politely say is, "Great -- for a Mirage." Unfortunately, that isn't saying much when it comes to the high frequency content of cymbals verses the relatively smaller frequency-capturing capabilities of the Mirage. Again though, this is a far cry better than the cymbal on Ensoniq disk B1. Overall it's better than A1 too, except A1's crash seems to have a bit more crisp high end.

BANK TWO: R & B DRUMS

LW1, C1, Kick Drum -- A tight thud. More natural than electronic. Very good.

LW2, C#1-D1 -- Same sample, same memory amount used. Sounds like not as much mallet sound. Actually, it's just that the relative amplitude (P69) is set lower for LW2 than for LW1.

LW3, D#1-E1, Snare -- A higher-pitched snare than the one used for back one, with a shorter gate. Still cutting, still powerful.

LW4, F1-F#1 -- Again, same sample, softer relative amplitude setting.

LW5, G1-A2, Toms -- The lower toms aren't too bad, and have a nice, long ring to them, but the higher you go, the more aliasing is apparent. All one sample.

LW6, A#2-B2, Closed hi hat. All of the hi hat samples in this bank sound very much like the same hi hat samples used in bank one.

LW7, C3, Closed hat.

LW8, C#3-D3, Open hi hat.

UW1, D#3-E3, Shaker A -- These might be from bank one also. I would've loved to have verified all this, folks, but the review package had no documentation, no phone number.

UW2, F3-F#3, Shaker B.

UW3, G3-A3, Cowbell or Agogo Bell -- Great sample, and it's a musically and rhythmically useful sound over several octaves -- as a cowbell or just a percussive pitched instrument.

UW4, A#3-D4, Claps -- Ensoniq's clap is a bit better, but that doesn't make this one bad.

UW5, D#4-E4, Finger Snap -- This is best used by flaming the two keys so that it sounds like more than one snap.

UW6, F4-F#4, Claves.

UW7, G4, Tamborine -- Good. I think a good arrangement for a tamborine sample requires at least two keys though, because the bit and the shakes of a tamborine are different in attack and volume. Obviously, you can set this up yourself by changing the appropriate top key settings (P72).

UW8, G#4-C6, Crash Cymbal -- This isn't the sample that's going to change my opinion of Mirage cymbal samples. If you really don't have real cymbals lying around to use, go without.

BANK THREE: LATIN PERCUSSION

This bank contains many tuned drum sounds that are so similar that taken in the context of these samples it's difficult to name them accurately. They're all bongo- and conga- type sounds, with differing slaps or mallets and different tunings. I therefore was forced to resort to generic labels for those samples in this bank, such as, "Drum 1."

LW1, C1-C#1, Kick Drum -- More thud and less bite than the kick in bank two. Another terrific kick drum.

LW2, D1-E1, Timbale -- This is a timbale that will really cut through the mix. It's tuned pretty high for my tastes, but a tweak of P67 and P68 will take care of that.

LW3, F1-B1, Drum 1 -- These are tightly-tuned and tough-sounding. Useful for percussive accompaniment in at least three octaves.

LW4, C2-E2, Bongos -- Very realistic, especially in the attack.

LW5, F2-G#2, Drum 2 -- Lower than the bongos, with about the same attack and decay. Great.

LW6, A#2-C3, Agogo Bells -- Not a sweet sound, but more like what you'd hear if you really beat on one.

LW7, C#3-D3, Tuned Sound.

LW8, D#3-F#3, Castanets -- Real clean and snappy. Three clicks per keystroke.

UW1, G3-C4, Maracas -- Each keystroke gives you two shakes, an "up" shake and a "down". Of course, to vary the speed of the shake would require you to alter the pitch. Another arrangement using two different samples would've solved that potential problem and made the sample more versatile.

UW2, C#4-D#4, "Phhhht." Sorry I can't tell you more. It's a secret, and I'm no killjoy.

UW3, F4-B4, Drum 3.

UW4, C5-C#5, Scraper A.

UW5, D5, Scraper B -- Tuned higher than Scraper A.

UW6, D#5-Ed, Drum 4.

UW7, F5, Drum 5.

UW8, F#5-C6, Drum 6.

Well, as you can tell, any sort of documentation would have been welcome. My only other complaints are subjective ones that can be taken care of with tweaking. For instance, touch sensitivity could've been used to better advantage, since all drums and percussion respond to it to some extent. I especially missed this feature with the bongos and congas. Also, and this is a minor point, it would be nice to see the percussion disks all use the same or similar key-to-key configuration as that of Ensoniq's drum disks. (The same goes for sample numbers.) A standard would be helpful when you want to try different disks/sounds with the same sequence. All in all, a great little disk at a great price. ▬

Bio: Dave Caruso is a singer/song writer from the Detroit area. After five singles and two albums with premier Detroit band "Caruso," he is now playing a sequences-and-live solo show which includes SQ-80, guitars, HR-16, and vocal. His first solo album is due out in 1989.

Still More (ES)Q-(80) Q's & A's from the Transoniq Net

by Jim Johnson

Q: I'm having problems sending system exclusive dumps from my ESQ-1 to the EPS. Patch dumps work fine, but anytime I try to send a sequence dump, I get a "TARGET SYSTEM NOT RESPONDING" error message. I've tried both the SEND TO ESQ and SEND TO MIRAGE options, and my ESQ-1 software revision is version 2.0. What gives?

A: The problem lies in your ESQ-1 software version. All ESQ-1 software prior to version 2.2 used a system called "handshaking" to test for the presence of a receiving instrument when doing a sequence dump. This works fine if the receiving instrument is an ESQ-1, or if it's a program that knows exactly how to deal with an ESQ-1, but it won't work at all with generic librarians or sequencers that record sysex data. For this reason, Ensoniq removed the handshaking from the ESQ's software when they released version 2.2. You'll need to update your instrument to the latest revision in order to send sequences to your EPS.

Q: I'm getting ready to buy an ESQ-M for use as an expander for my ESQ-1. My ESQ-1 has version 3.5 of the operating system, which allows the OCT settings on the oscillators to go up to +5 octaves. Is a similar software revision available for the ESQ-M? I'm also planning to use the ESQ-1 in overflow mode, and I'm using an IVM MIDIDisk for patch storage. In this configuration, will the ESQ-M receive patch dumps intended for the ESQ-1?

A: I've got good news and bad news for you. The bad news is that the answer to both questions is "no", but the good news is that neither situation is terribly hard to work around. In the case of the ESQ-M, no software updates have been released since version 1.2 came out, shortly after the instrument's release. If you're using voices in the ESQ-1 that make use of the higher octave settings, you will need to transpose all three oscillators down by one or two octaves, and then transpose your sequences and/or keyboard parts up by the appropriate amounts, in order to match the ESQ-M. (If you are playing the part manually, and if transposing the part puts it above the top end of the keyboard, you're out of luck, I'm sorry to say.)

In regard to the second question, the ESQ-1 does NOT echo system exclusive messages when it is used in overflow mode. This means that any instruments "downstream" of the ESQ-1, including the ESQ-M, won't receive data from the MIDIDisk. The answer to this problem is a simple MIDI switch box, preferably one with several outputs and at least two inputs, like Yamaha's YME8. In normal operation, you'd set the switch box so that the ESQ-M is connected to the ESQ-1's output, but when sending dumps, the ESQ-M should be connected to the MIDIDisk. Of course, this gives you one more switch to deal with on stage, so it's not an ideal solution. A safer (though more expensive) solution would be to use a MIDI merger on the M's input, to merge the data from the MIDIDisk with that from the ESQ-1.

Q: I'm using my ESQ-1 sequencer to control several instruments, including an Emax HD rack unit. One neat thing about this arrangement is that I can call any sound from the Emax's hard disk with a patch change message from the ESQ-1, but since the ESQ requires a separate sequence for each patch change on a given channel, I run out of sequences very quickly. If I could store my ESQ sequences on the Emax hard disk, I'd be in MIDI heaven; is there a way to do this? If not, I might upgrade to an SQ-80. Will I be able to use my ESQ-1 sounds and sequences on the SQ-80?

A: Alas, the Emax can't do what you'd like it to. To do so, it would need special system exclusive dump software, like that built-in to the EPS. The SQ-80, on the other hand, will do what you need. ESQ-1 sounds can be directly loaded into the SQ-80, and will sound no different than they did in the ESQ-1, except for some minor coloration differences. According to Ensoniq, the SQ-80 will accept dumps of ESQ-1 sequences via MIDI, and can also read ESQ-1 sequences from tape, but the reverse is not true.

Q: I've got an older model ESQ-1 (the version with the metal case). Recently, I went to have a new operating system installed, and the dealer wanted $60 to install the new EPROMs! Is this outrageous, or what?

A: Not necessarily. I agree that it seems high at first, but it turns out that in the older ESQ-1's (which I also use), replacing the EPROMs is not a trivial task. In these instruments, the operating system ROMs are located under the keyboard, which must be removed before they can be changed. In the newer instruments, the ROMs are right at the top of the board, where they belong, so the technician just has to "open the hood" in order to get at them. The extra time involved in pulling the keyboard is probably the reason for the unusually high charge. ▬

Hackerpatch

By Sam Mims

HACKERPATCH is intended to be a place where patch vendors can show their wares and musicians can share their goodies and impress their friends. Patches designated "ESQ-1" will also work on the SQ-80. The reverse is not always true. Once something's published here, it's free for all. Please don't submit patches that you know to be minor tweaks on copyrighted commercial patches unless you have permission from the copyright owner. All submitted patches are subject to consideration for mutilation and comments by Sam Mims - our resident patch analyst. If you send in a patch, *PLEASE* include your phone number.

The Patch: GHOST1
by D. D. Van Wagoner, Kittery, ME

GHOST1 is a relatively straight-forward mix of just the right waveforms with just the right LFO and oscillator envelopes to make an almost "Disney-perfect" ghost sound.

The Hack: There's a real ghost in the machine here! This is quite a fun sound that works even better with a repeating echo. I preferred a less complex waveform on OSC2 (less overtones, and thus more of a "Wooooooo"), so I tried SINE and OCTAVE for the WAVE - both worked well. Try making this change, then going a step further: turn the amplitude modulation (AM) on for more of a solo ghost accompanied (in the high register) by a low frequency warbling, no doubt due to some sort of subterranean boogie monster. (But leave SPLIT turned OFF to hear this effect.)

The Patch: SCREEM
by D. D. Van Wagoner, Kittery, ME

SCREEM is a little more involved than GHOST1. An amplitude modulation is used to produce a shriek sound, albeit a little electronic sounding. I put it on a split with GHOST1 on the bottom, using a split key of 65 to create the consummate effect. I wrote these two programs to augment a Halloween party.

The Hack: Van Wagoner's second patch is fun as well, though not quite as convincing (as ghosts?). The scream works best on E4, and adding some resonance to the filter seems to make it slightly less electronic sounding. Another trick that seemed to "humanize" the sound a bit was the addition of ENV4 as a modulator (MOD2, AMT = -19) on the OSC1 page. Blast SCREEM through a reverb unit, and commence scaring the neighbors!

The Patch: BELSTR
by Steve Munro, Denver, CO

This is a nice mellow sound I like for slow ballads. The wheel controls vibrato on the "string" portion of the sound. The SINE wave becomes too loud in the upper register, so I've tempered its DCA with KBD2. Stereo panning can be achieved by LFO2 as a modulator on DCA4.

The Hack: The bells of BELSTR are very FM-ish and the strings are dark and analog sounding; it's interesting to switch this sound off (turn DCA1 OFF) to hear just the string sound with a hard attack. The sound is at first very brass-like, then it melts into strings.

Anyhow, turn DCA1 back on to get back to the original sound. To make it a higher, more tinkley bell, try cranking the OCTave setting of OSC1 up as high as you please. Try changing the WAVE of this oscillator as well for other variations; SYNTH2 and BELL work nicely. The string timbre can be altered also by changing the WAVE of OSC3. SAW, SQUARE, and PULSE are good for starters.

Finally, an interesting digital piano/brass hybrid sound is yours for the asking by starting with the original patch and merely switching on the AM (on the MODES page).

The Patch: DRKIK"
by Glen Gafter, Kent, OH

DRKIK" is a tuned African-style tonal kick drum. Try changing the OSC3 wave to SYNTH2 or SYNTH3.

The Hack: I'm a sucker for this kind of percussion sound, so I went after Glen's with a vengeance. The basics were there, but it wasn't quite right for me, so I made a few adjustments. First, I like the tunings to be completely random - this ain't a marimba, it's a sawed-up tree trunk, right? So I changed SEMI on OSC2 to 6, then I added KBD as a modulator to all three oscillators. The AMOUNTS I used - very random - were 7, -39, and -13 on OSC1, 2, and 3, respectively. This "messes up" the octave scaling, so that C1, for instance, isn't at all a true octave under C2. Then I turned the filter WAY down, to get a fairly muted sound with no bright overtones. Try setting FREQ to 18 or so.

This got the sound pretty close to what my brain was hearing, but I added one final trick. I wrote the sound into memory, then layered it with itself. This provided more punch, and a hint of flanging which gave the sound an interesting tonal color.

Play DRKIK" with two fingers at a time. The fingers should be loose, and striking adjacent keys - this gives a "flam" effect that sounds more like a tribe than a soloist. Throw in a hint of reverb and head for the jungle. Whoa, Simba! ▬

Bio: Sam Mims is a studio session player in Los Angeles, and a member of the band THE NEWKS. *He is a Contributing Editor for* GIG *magazine, and owns Syntaur Productions.*

ESQ-1 PROG: GHOST1

BY: D D VAN WAGONER

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	0	SINE	ENV1	27	OFF	-
OSC 2	0	0	3	OCT+5	ENV1	29	LFO2	24
OSC 3	-	-	-	-	-	-	-	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	56	ON	OFF	-	OFF	-
DCA 2	56	ON	ENV1	40	OFF	-
DCA 3	-	OFF	-	-	-	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	94	19	30	ENV3	20	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	-	-	-	-	-	-	-	-
LFO 2	24	OFF	OFF	TRI	11	0	11	OFF
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	40	54	-33	11	14	29	27	57	63	34
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	60	22	35	1	1	2	41	44	22	9
ENV 4	41	53	47	0	0	21	30	63	35	9

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

SPLIT/LAYER	S/L PRG	LAYER	LAYER PRG	SPLIT	SPLIT PRG	SPLIT KEY
OFF	-	OFF	-	UPPER	SCREEM	65

ESQ-1 PROG: SCREEM

BY: D D VAN WAGONER

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-3	0	0	SINE	ENV1	25	OFF	-
OSC 2	1	0	0	SAW	ENV4	25	OFF	-
OSC 3	-	-	-	-	-	-	-	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	-	-	-	-	-	-
DCA 2	-	-	-	-	-	-
DCA 3	-	-	-	-	-	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	127	0	63	OFF	-	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	63	OFF	ON	NOI	63	0	63	OFF
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	0	47	20	0	0	19	10	63	43	0
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	46	0	6	14	22	30	23	13	0

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

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

ESQ-1 PROG: BELSTR

BY: STEVE MUNRO

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	0	0	0	SYNTH1	OFF	-	OFF	-
OSC 2	-1	0	3	SAW	LFO1	-1	OFF	-
OSC 3	-1	0	0	SINE	LFO1	1	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	63	ON	OFF	-	OFF	-
DCA 2	0	ON	ENV1	63	OFF	-
DCA 3	0	ON	ENV1	63	KBD2	-17

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	27	0	27	ENV2	15	ENV3	43

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	22	OFF	OFF	TRI	0	2	27	WHEEL
LFO 2	12	OFF	OFF	TRI	63	1	20	OFF
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	43	63	63	10	0	0	34	0	25	0
ENV 2	63	30	0	0	0	0	0	0	0	0
ENV 3	63	30	1	41	22	0	28	47	29	15
ENV 4	63	63	0	24	63	0	41	63	29	9

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

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

ESQ-1 PROG: DRKIK

BY: GLEN GAFTER

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-3	0	0	KICK	OFF	-	ENV1	-63
OSC 2	-3	0	2	KICK	OFF	-	ENV1	-63
OSC 3	-2	2	0	SYNTH1	OFF	-	LFO1	-25

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	0	ON	ENV2	60	OFF	-
DCA 2	58	ON	OFF	-	OFF	-
DCA 3	63	ON	ENV4	63	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	127	0	0	ENV4	32	OFF	-

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	8	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	1	ON	OFF	SAW	63	63	63	LFO1
LFO 2	-	-	-	-	-	-	-	-
LFO 3	-	-	-	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	0	25	0	0	0	0	40	63	20	9
ENV 2	63	50	45	0	0	0	50	63	20	9
ENV 3	-	-	-	-	-	-	-	-	-	-
ENV 4	63	0	0	0	0	0	19	7	59	30

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

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

Classifieds

SAMPLES

Save $1400 on a digital acoustic piano. I sampled one of the best, and came up with the best acoustic piano sound I've heard for the EPS (927 blks). $15. Maruin Isreal, 4002 Cascade Dr., Greensboro, NC 27410.

EPS Samples. D-50, Moog, Kurzweil, piano, drums, many others. You configure your own disks from my sound list. Most instruments are under 500 blocks. Each disk $9.95. Send SASE to J.D.W., 715-E Main St., Albertville, AL 35950. 205-878-7177.

Free Public Domain Samples for the EPS. Over 500 sounds available. Send SASE for list & order form. Also - High Quality Samples For Sale. Perfect for unique applications. Free catalog. $5 for demo tape. Rubber Chicken Software, Box 428, Renton, WA 98057. 206-242-9220.

EPS Samples for sale or trade. For list, contact Matt Noble, 914-793-8206 or write c/o The Loft, 84 Kraft Ave., Bronxville, NY 10708.

"Lush," "X," "DeMity," and now "Addy" disks for your Mirage and Soundprocess! Only $25.00 each. Or the entire library - 500 sounds - only $80 on 4 disks. Also my library of over 300 EPS samples, only $12/disk. Send for a free list. Bob Spencer, 703 Weatherby Lane, Greensboro, NC 27406.

EPS, DSK, Mirage samples. Also custom services. Every sound you need. Listings: $1.00. Demo tape: $6.00 (includes listings). Mr. Wavesample, 162 Maple Place, Keyport, NJ 07735. 201-264-3512. Make checks payable to Jack C. Loesch.

EQUIPMENT

Mirage DSK-8 sampling keyboard. Great condition with disk library, MASOS and manuals. $650. J.D.W. 205-878-7177 after 5 pm CST.

Passport MIDI interface for Apple IIe & compatibles, w/tape sync & MIDI/8+ sequencing software, $175. Mirage VES for C-64, $50. Soundprocess, $100. Pat Finnigan, 317-357-3225.

For Sale: Mirage, $800; ESQ-M, $600; Opcode Studio Plus Interface, $100; Fostex 450 8ch Mixer, Fostex 80 8tr deck, Fostex 4050 Autolocator & cable, $2600 for all three; (2) Alesis Midiverb 11's, $425; 100's of factory Mirage disks @ $4 ea; TH issues 11, 20-43, $40 set; MOTU Performer $275; MOTU Composer $300; Opcode ESQ Ed/Lib $100; SoundDesigner (Mirage) $250; 3 ESQ carts @ $15 ea. Call Ed, 704-464-4179 between 7 pm - 10 pm EST.

Mirage. Perfect condition. Mainly studio use. Can be heard on thr Rossington Band CD, "Love Your Man" (MCA 1988). Must sell for $995.00 + $10 shipping. Mark Ray, PO Box 2409, Muscle Shoals, AL 35662. "Hit Recording Capital of the World!" Copies of many studio-quality sounds available.

SOLD MY APPLE 2e. Apple 2e MIDI stuff CHEAP. Passport MIDI interface, Ensoniq Mirage Visual Editing System, Passport Master Tracks sequencer, Dr. T's Keyboard Controlled Sequencer, Dr. T's DX Patch librarian, DX-PRO DX7 editor, MIDI dump program. EVERYTHING ONLY $200.00!!! Omar A. Serang, 10484 Byrne, Cupertino, CA 95014. (408) 922-6113.

SOFTWARE

C-64 Software: Sonus Visual Editor for Mirage $30, Dr. T's Keyboard Controlled Sequencer $25, Dr. T's DX/TX-7 Patch Librarian $25, Dr. T's Echo-Plus $15, Passport Interface or Sequential Sequencer/Interface $25. Call Jeff: 419-385-5745.

For Sale: Dr. T's ESQAPADE $75, 1500 ESQ1/ESQM/SQ80 PD sounds $25, Dr. T's MRS Sequencer $25, Transoniq Hacker (1 through 38) $55, or everything for $150. Giorgio, 602-395-5076 (Office hours).

Just Intonation Calculator, by Robert Rich. Macintosh Hypercard stack makes JI easy: shows scales to 48 notes/octave; calculates transpositions; reduces fractions; converts between ratios, cents, DX711, TX81Z units; internal sound. Only $10.00. Soundscape Productions, Box 8891, Stanford, CA 94309.

Sound Designer for the Mirage. Never used. This is the original - not a copy. Make me an offer. 516-744-5513. After 5pm EST. Ask for Tony.

PASSPORT (Master Tracks) 16-track Sequencer Pro, C-64, $75.00. VALHALA ESQ-1 Patch and Sequence Librarian, C-64, $25.00. MUSIC DESIGN X-Lib for all DX/TX Synths, C-64, $15.00. ELTEKON PRODUCTIONS ESQ-1 640 Voice Cassette, $25.00. ORBITAL ACTION MUSIC, PO Box 55191, Grand Junction, CO 81505.

MSCI - IBM VES for Mirage and MPU-401. Reviewed in Issue #38 of TH. Program: $55.00, Demo: $10.00. Add $5 S/H. Send check to: Jeffrey Richter/Donna Murray, 3502 Village Bridge Apts, Lindenwold, NJ 08021. Phone: 609-346-0943.

WANTED

Wanted: Church Handbell Patches. Small church with ESQ-1 wants to have electronic handbell choir. $100 for best patch received before April 30. Send entries to Nursing Home Ministries, c/o 537 North Ave., Westfield, NJ 07090. Thanks for your interest and support.

PATCHES

Yes! I'll prove the ESQ can play SAX! Real! Crisp! Growling! Like you've never heard! More? Take the Real Tremolo and Distortion Guitar! They'll fool anyone! Incredible Concert Strings, True Harmonica (wailing blues harp), Accordian, Marimba, Harpsichord, Piccolo, Digital Delays, Chopper, more. These are my "Top 40" of over 3000 sounds. One bank of the BEST. No K-Mart sounds! $14.95 data cassette plus $2.50 shipping and handling. Guaranteed! Jim Symonds, 4 Kenwood St., Portland, Maine 04102.

Introducing the first release of 80 alternative patches for the ESQ-1/SQ-80 for the musician who has every patch except... The "Goosebump" Series. $20/data cassette, Demo=Free (+ $1.50 p/h). From: The Patch Well, 1826 E Indianola, Phoenix, AZ 85016. "Quality Not Quantity."

ESQ-1/SQ-80 840 Sparkling Sounds!! Professionally Programmed. Super Synth, Bass, Brass, Thick Strings, and many unusual sounds. 280/$19.95 or all 840 for only $39.95. P/H $2.50. Music World, 617 Panorama Dr., Grand Junction, CO 81503.

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SOUND LOGIC ESQ-1/SQ-80 "Modular Voice System". 120 Stereo Voices - 80 Fundamental and 40 Unique. Extensive implementation of CV Pedal and Poly-pressure. 64-page Owner's Manual with program sheets and performance notes. SysEx, Mirage disk and all other standard formats supported. $39.95. FREE Shipping & Handling. For brochure or to order: SOUND LOGIC, 1125 Eleventh Street, Ramona, CA 92065. 619-789-6558.

PATCH UPGRADES

SOUND LOGIC UPGRADE: 1-2-89
MODEL: ESQMVS - FUNDAMENTAL 80
PATCH: 07.STRG (7th String Ensemble)
OSC1: WAVE = SAW
OSC2: WAVE = FORMT1
OSC3: MOD#1 DEPTH=-2; MOD#2=LFO2 * -1
FILTER: FREQ=60; Q=0; KEYBD=31; MOD#1=ENV3
DCA4: FINAL VOL = 46
LFO1: FREQ=15; HUMAN=OFF; WAV=NOI; DELAY=14; L2=12
LFO2: DELAY=15; L2=17; MOD=PRESS
ENV3: L1=+63; L2=+63; L3=+63; T1=24; T2=44; T3=35; All others=0
ENV4: LV=0; T1=30
NOTE: Brightens the sound and adds chorusing. MOD WHEEL intensifies chorusing and key PRESSure adds a string-type vibrato.

SERVICES

Custom EPS Sampling and Mod Service. Expert sampling - custom orders. Can do - will do. Rubber Chicken Software, Box 428, Renton, WA 98057. 206-242-9220.

SEQUENCES

For the ESQ1 with expanded memory: classical music sequences for organ and piano scores, including patches for the proper sounds. 10 volumes available. Supplied on high quality data cassette and individually made at $14.95 each or audio cassette at $6.00 each, plus $2.00 S/H. Send for free list. Newest volume - The Piano Music of Scott Joplin. Don Pribble, 6810 Hwy 55, Minneapolis, MN 55427.

PUBLICATIONS

"The EPS Users Guide," 75-page reference manual for Ensoniq EPS. Price includes shipping in the continental US and free SCSI drive section update in late 1989. Send $20.00 check or MO to Gary Dinsmore, 32695 Daisy Lane, Warren, OR 97053.

OUT-OF-PRINT BACK ISSUES

M.U.G. will provide Out-of-Print issues for cost of materials and postage. M.U.G. Hotline: 914-963-1768 or write: G-4 Productions, 622 Odell Ave., Yonkers, NY 10710.

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

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

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

The Interface

Letters for The Interface may be sent to any of the following addresses:
U.S. Mail - The Interface, Transoniq Hacker, 1402 SW Upland Dr., Portland, OR 97221
Electronic mail - GEnie Network: TRANSONIQ, CompuServe: 73260,3353, or PAN: TRANSONIQ.
This is probably one of the most open forums in the music industry. Letter writers are asked to please keep the vitriol to a minimum. Readers are reminded to take everything with a grain of salt.

Dear Transoniq Hackers,

I have an **ESQ1** keyboard purchased in October, 1987 for our orchestra and am experiencing the following problems:

1. When using the sequencer, the following words appear on the display: "SYSTEM ERROR - PRESS ANY BUTTON TO CONTINUE". When I press the soft button, some keys produce normal volume, some keys produce low volume, other keys produce no sound at all. And then if pressed with more strength two or three times, they produce audio. Also, when I try to record sequences, the instrument produces a long humming noise.

2. When I use the internal memory system the keys do not produce any sound so I have to reinitialize the keyboard. After reinitialization, the sequencer functions normally without any humming noise but the problem of producing uneven volume in keys is not solved.

Please advise us how to rectify the above problems on our ESQ1 keyboard.

Yours very truly,
S Selvarajan
Kamarajar District, India

[Ensoniq's response - After reinitializing, be sure to tune the filters. Otherwise, you may need the assistance of an ENSONIQ Authorized Repair Station.]

Dear Hacker,

I have just spent a good part of my vacation learning the ins and outs of my **EPS** and discovered some very annoying bugs in the sequencer. These problems resulted in my losing hours of work. I would appreciate your passing these on to Ensoniq and alerting your readers before they also lose their hard work. All of these occurred using OS 2.20.

- When using the event editor, the EPS will crash if you try to backup past the beginning of a sequence by decreasing the clock field.

- The append command does not always work correctly. While trying to append a sequence only some of the tracks copied correctly. Others disappeared or were scattered to different bars. I had a two-bar sequence that I tried to append to itself. When I tried to play it, one track was gone. I then attempted to find it using the event editor. What I found was it showed up in many bars, even bars in the 600's, 500's, etc! I tried to delete these extra bars and the system crashed again!

- When copying a sequence, it is possible to copy it to a name that already exists. This can cause confusion because you can end up with two sequence 2's, for example. I had to copy one of these to a name I hadn't used yet and delete the original. While this is not a major problem, it would be better if it was not possible to create two sequences of the same name.

I am also having a problem making an instrument's volume increase as the keyboard pressure increases. I can only make the sound decrease with increasing pressure. Any hints?

Your magazine is great - very useful and informative. I have one suggestion. The headings for your articles are sometimes deceptive because they are implying they are only applicable to one instrument when they are really useful for more than one. For example some of the sampling articles under the Mirage heading are also useful for EPS users. Please encourage your readers to at least glance at all the articles to see if there is something worth while in them or else consider using different headings such as sampling, sequencing, etc...

Thanks,
Paul Wykes
Leicester, MA

[TH - We'll probably be changing the headings (at least in our Table of Contents) in the near future.]

[Ensoniq's response - The APPEND function has been corrected in OS version 2.35 (see Random Notes). The crash that you experienced when decreasing the clock field was related to the problem with the APPEND function.

On the EDIT/AMP page, selecting PRESSURE as a modulator and setting the depth to some positive number should allow you to increase volume with keyboard pressure.]

Dear TH:

Hello again. First off I wish to thank you and Ensoniq for your responses to my previous writing. Now I'd like to dump some more of it on you.

An apparent bug in the sequencer, OS 2.20: My **EPS** crashes when I try to append one sequence to another on which I have ERASED/UNDEFINED some of the tracks (2.10 performs this function correctly). What exactly is ERROR 129??? Furthermore, why are we prompted with REBOOT?, but then ignored when we try to enter "NO?" Is there absolutely no way to recover at this point? I can see where a person could be in deep doo-doo were this to happen for some reason during a live performance, and they missed their solo because they had to wait for their instruments to reload.

Grrrrrr... (I didn't get what I wanted for Christmas, so if anybody wants to make somebody ecstatically happy, drop by and leave a Mac-II on my doorstep.)

And while I'm on the subject of wishful thinking... I quickly tire of entering parameter values via the up/down-arrow keys and data entry slider. While these can be a great source of accidental inspiration when you don't know exactly what you want, what you're doing, or are just casual-tweaking, they soon become extremely tedious and frustrating when you're trying to accomplish any serious work (e.g. Multi-layer envelope sculpting).

How about this: Use the numeric keypad as a Numeric Keypad. (Whaddya think, too novel?) Double-click on something (ENTER/YES, for preferable instance) to put the pad into numeric mode so as to allow Direct Dialing of parameter VALUES (in the envelopes example, from 11 to 99). Punching one of the MODE buttons could then shift the keypad back for one-shot page-select mode, and a single punch of CANCEL/NO could return it to its standard function.

Another thing I'd LOVE to have is key Macro capability. Often times there are sequences of five or more button presses that I use repeatedly, and it really gets to be a drag. It would be wonderful if we could use the unused Command Mode keys (2, 3 and 5) for temporary user-defined macros, so one key press would do what before took many.

I propose this: The macros be constructed and stored in memory as SYSEX Packets (very little memory used) containing Virtual Button Press command sequences, one for each of the corresponding buttons. When the user-defined button is pressed, the packet will be inserted into the datastream and the OS tricked into thinking that it came in over open loop MIDI. (Or am I doing it the hard way?)

If the issue of space is an argument, I'd MUCH rather have either of these functions on board than some of the other ones, and I think other people would find them to be invaluable tools as well.

Moving right along, any chance of a programmable arpeggiator (even if it's performance-only), maybe using some of the existing sequencer code?

Sorry to be such a whiner. I love my EPS. It's a great machine and does a lot of neat stuff, just not as much as I'd like to see a machine of its calibre do. 64K. Hmmm... Oh well. Yes, I know this thing ain't a PC, but features like Direct Dialing of parameter values and Key Macros are more than just niceties. They'd make the product more appealing to potential customers, and they only make sense, don't they? Don't they?? TH? Or am I just getting too goofy for my own good? Anyway, I greatly appreciate having the opportunity to present my thoughts and get decent feedback on them.

Here's something kids: I sampled all the tones off my touch-tone phone. I've been picking up the receiver lately, turning up my amp and dialing around to friends without touching the phone buttons. I have a few of the more frequently called numbers sequenced to dial at lightning-speed... Alright! So I'm bored! I'm off work for a week! I'm snowbound! I'm slowly losing touch... NORMAN!?! ...coming, Mother...

Sincerely,
Gregg Lentz
Litchfield, MN

[Ensoniq's response - The APPEND function was recently corrected in OS 2.35 (see Random Notes). The REBOOT prompt indicates that the system must be rebooted. This can usually be accomplished by pressing any button.

The error numbers that appear in the display are special codes that were implemented for use by the software writers for engineering purposes. The numbers and what they represent would be of no use to the end user (with the exception of ERROR 144 - out of system buffers, which usually indicates MIDI data overflow.

The keypad already functions as a numeric keypad allowing direct selection of parameter numbers and file numbers. However, it cannot be used to enter parameter values. It was felt that the potential confusion of adding another mode out-weighed the convenience.

A Macro capability is a good idea, however there is no room left in the operating system at this time to implement that function. It wouldn't be feasible at this point in the life of any product to remove features that people use everyday.

There no plans at this time to implement a programmable arpeggiator feature.]

Dear TH,

In response to Tom Jordan's expression of frustration over TX81Z/EPS incompatibility (Dec, '88): AMEN!!!

The problem is that the **EPS** sends a foot controller (FC) setting of { } whenever you click on a new instrument. Actually, in and of itself, that is not a problem. HOWEVER, the TX81Z interprets FC data in 3 ways, 1 of which is volume. (This is separate from and unrelated to MIDI volume data) You can go through the internal back (RAM), and remedy this situation by setting the FC VOLUME= to { }. You will then be able to use any patches in the internal back which have been edited without incident. Unedited patches or patches in ROM Banks A-D will most likely still have a FC VOLUME setting of 99 and consequently be problematic in those all too familiar ways. Anyone tried the TZQUAD RAM expansion?

I called Ensoniq to raise questions about this problem and was told, as Mr. Jordan was, that they "hadn't heard of any incompatibility problems". That was in September, which leads me to believe that someone was less than honest with Mr. Jordan, or with me. I even tried to point out to Ensoniq that given the popularity of the 81Z and the EPS this was sure to be a major problem, but all they could tell me to do was call Yamaha. The service rep at Yamaha was A) committed to solving my problem, B) more committed to A) than to pointing the finger at some other manufacturer's misimplementation. I cannot say this of the Ensoniq rep.

Surely the folks at Ensoniq realize that in addition to making the EPS "right" with a capital R, they have a greater responsibility to making it work with equipment already in the marketplace in mass quantities. Since the EPS has an OS which is software based I am especially baffled by what appears to be an unwillingness to solve this problem as part of an OS update.

Surely Ensoniq could solve this problem if they wanted to. Until they do, EPS owners who plunked down $2000 + dollars for this technological wonder will continue to turn cartwheels to get it to work with their 81Z. That is neither my idea of value or service. Ensoniq can do better and we deserve better.

Thanks for this forum and for a great source of info on the EPS and keyboarding in general.

Jonathan Ellwanger
Oak Park, IL

[TH - By now you've probably seen Dick Lord's article on the problem in Issue #43 and Ensoniq's responses to additional letters that appeared in #44. (But if you haven't - check 'em out.)]

[Ensoniq's response - If you look back at Dick Lord's article, he explains why the dual controller problem needs to be corrected by Yamaha. In this case we enhanced our software to allow users to work around the TX81Z's problem.

In EPS OS versions 2.3 and higher, the EPS sends out the current state of controllers when you select an Instrument. If the CV pedal is used as a MOD pedal (MIDI Controller #4), the EPS will send the current value of the pedal for Controller #4 and full value ($7F) for Controller #7.

If the CV pedal is used as a VOLUME pedal (MIDI Controller #7), the EPS will send the current value of the pedal for Controller #7 and an OFF value ($00) for Controller #4.

Therefore, if you want to use ROM factory presets on the TX, you must have a CV pedal plugged in and you should set the pedal to MOD (EDIT/SYSTEM page). As long as the TX81Z interprets Controller #4 as Volume, there won't be anything more that we can do to solve the incompatibility problem (we have found the same situation exists when using the Roland MKS20).]

Dear TH,

When I read Wayne Dooley's review about Valhala's **ESQ** librarian (Oct '88), I knew I wasn't alone in my problem. When he said, "it's a pity that this is not a patch/sequence/SONG librarian" he hit the nail on the head. I do not know of any program that runs on the Commodore 64/128 that can dump and load individual songs with my ESQ and its 20k memory.

I currently use Blank Software's Sound File and it crashes every time I try to cut and paste my own songs into banks of ten. I think I speak for a lot of club musicians when I say we need a patch/sequence/SONG librarian for the 64/128 which is still the major computer being used by musicians as reported recently by Hacker and EM. Are you listening Mr. Programmer or Businessman? There is a big unfulfilled market out there. If you don't have any software in mind that would do the job would you then please print my name and address for help.

Thanks,
Gary Savage
9999 Foothill Blvd., #80
Cucamonga, CA 91730

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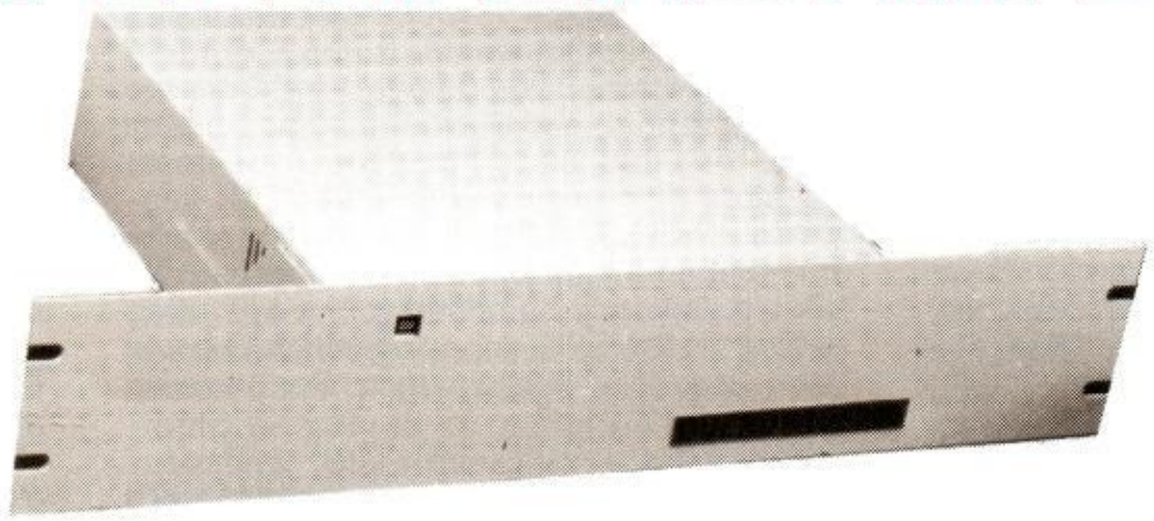

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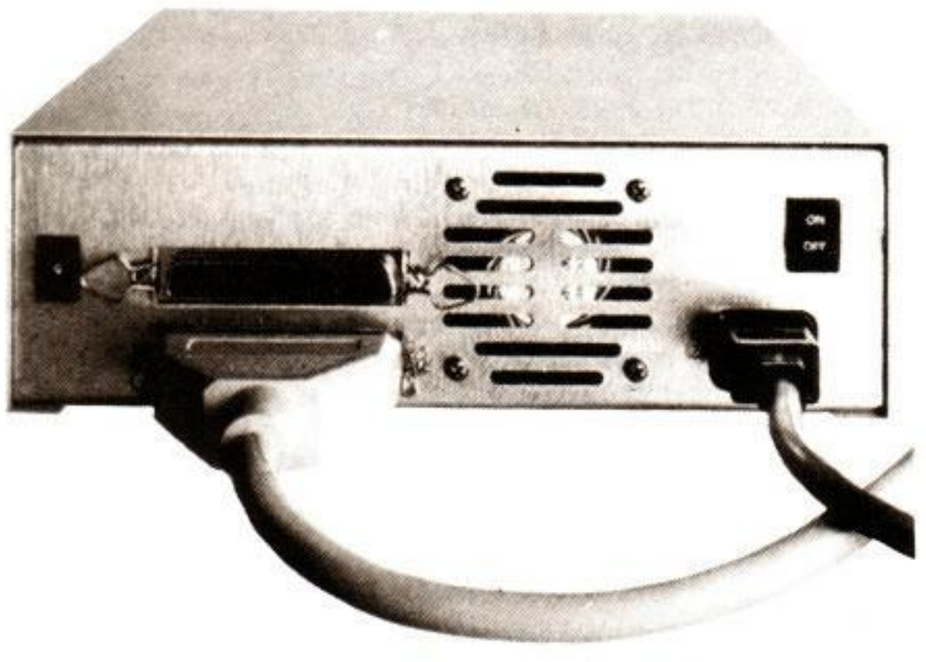

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Dear Hacker,

I own an **EPS** and am extremely happy with it. It does just about anything I would ever want it to do, and a lot more besides. However, there are two suggestions that I have which I believe would be relatively simple to incorp- orate into the next update of the operating system.

I do a considerable amount of live performing with a rock band. I have found that the performance features (such as performance presets, banks, and being able to load a new bank while playing) are extremely helpful. It is wonderful being able to use those complex sounds in a situation where you must be able to switch sounds and setups instantly. With each bank I load, I may have anywhere from 5-8 performance presets. Unfortunately, I can never seem to remember which preset I am currently playing and which one I need to select next. Therefore, I must tape a piece of paper to my keyboard that describes which presets are used where in what song. Of course, then I find myself straining to see all of my directions in the dark.

My first suggestion is this: give us the option on the Edit-System page to allow the auxiliary foot switch to either start and stop the sequencer, act as the left-hand patch select button, OR be used as a performance preset select. In this way, I would be able to bump up to the next preset without having to know what number it was. It would then be even more helpful if we would be able to determine beforehand what order the presets would advance and save this order as part of the bank. For example, I should be able to step through the presets in this fashion: 1, 2, 3, 2, 4, 1, 5, 6, 5, 6, 7. This would be quite usable, as many songs I do have different setups for the verses, choruses, and bridge. Under the current system, a song that goes (1) verse, (2) chorus, (3) verse, (4) chorus, (5) bridge, (6) chorus, would use up 6 of the 8 possible presets, even though 1 and 3 are the same and 2, 4, and 6 are the same. I need more than that, since I load the instruments for more than one song at a time. My suggestion would cut the number of presets in this example in half: 6 to 3. I feel that this should definitely be added to the operating system of the EPS, especially since Ensoniq advertises this keyboard as a "Performance Sampler."

There's also one more thing that would make things a little easier in performance. When I get to my last preset in a bank and load the next bank while playing, I find that I'm not able to instantly call up my next preset in the new bank. The display reads "FILE LOADED," and if I try to call up a preset, I get the message, "NO SUCH FILE." I find that I must press one of the Instrument/Track buttons and call up an instrument before I can call up the first preset. It sure would be nice if I didn't have to go through this with every bank. Can the operating system be modified so that the presets can be called up as soon as the bank is loaded?

I think that both of these suggestions would help the EPS become even more of a Performance Sampler. Thank you for your time.

David Pritchard
Denver, Colorado

[Ensoniq's response - The auxiliary footswitch used as a preset select is a great idea that has already been considered. At this time there is no room left in the OS.

The reason why presets cannot be called up as soon as a bank is loaded is because until an Instrument is selected, the numeric buttons are selecting file numbers, not presets. This is the fundamental logic of LOAD mode, and there is really no way around it.]

Dear Hacker,

I'm pissed. After almost 20 years in the music business, as a player, producer, instructor and sound designer, I don't think I've ever been so mad.

I mailed Glen Javaheri (Heaven) $33.00 on November 22, 1988 for both advertised **ESQ-1** sound banks (November '88 Hacker). He cashed my check on November 28, 1988.

Finally, on December 12 I contacted Jane Talisman at the Hacker and explained that I hadn't received my tape. She promised to try to contact him and at least ask him to return my calls. Well, lo and behold he called on December 22 and promised delivery.

Well, damnit, it's January 25, and I still haven't received my tape and he won't return my calls. The stupid messages on his answering service change every other day, but no call, no nothing.

I sincerely hope his ads are pulled, and someone needs to tell this asshole that mail-fraud is a federal offense. I've waited long enough, and I won't be ripped off! He will be prosecuted!!

Not finished yet,
Phil Daniels
Philadelphia, PA

[TH - You certainly won't see his ads here anymore. (Actually, he owes us several times what you lost....) We haven't had any luck contacting him since early December, either. Although we're trying to avoid assuming the role of "third party police," we've warned him several times that he can't keep operating this way. (We've been assuming that it's just careless business practices and nothing intentional.) We're sorry to hear that it's come to this.

As a note to other readers: If you still want to order from Heaven even after all this, we strongly recommend (as we have before) that you at least do it C.O.D.!]

Dear TH,

I'm having a problem with my **EPS** and the Wave Sample Volume. It seems now and then while I'm playing the wavesample volume goes to 0 and I have to stop playing and set it back to 99. I've had the EPS for quite some time and have used every O.S. since 1.50, and this never happened until I used 2.15. Any suggestions?

Also, how about a "Disk Copy" for the EPS? I love the way the disk format is arranged, but when I want to copy the disks, I have to re-load/save and basically re-set up the whole disk.

I LOVE the Hacker!!! I've owned a Mirage, an

ESQ-M and an EPS for quite some time and find the TH invaluable! Great Job!!!

Daryl K. Powell
Scottsdale, AZ

[Ensoniq's response - We suspect you mean Instrument Volume when playing sounds in LOAD mode. Try keeping the Data Entry slider all the way up when in this mode. Also, always use the latest OS which is 2.35 (see Random Notes).

The disk copy function for the EPS will be released in a future version of the operating system.]

Dear TH,

I recently purchased an **EPS** (which, incidentally, I love) and am relatively new to and unknowledgeable about synths and samplers. With my EPS I have basically two editing problems which I thus far have been unable to solve:

(1) When playing, for instance, Mirage sounds, I've noticed that the higher notes are relatively louder than the lower notes. Without getting into filters (unless absolutely necessary), is there any way to manipulate the volume throughout various sections of the keyboard much like one would control the bass, midrange, and treble on a home stereo?

(2) Again with Mirage sounds (among others), e.g. wooden flutes and pipe organ positive, I've noticed that the attack of the sound gets longer the further one plays down the keyboard. Is there a function in the EPS that would make the attack exactly the same length throughout the whole range of the keyboard?

These two matters seem to me very basic and fundamental. Should the EPS lack the functions to perform these two important tasks, then it seems to me sadly deficient. Perhaps, if so, it could then be remedied with a new O.S.

Thx,
Dave Stamos
Toronto, Canada

[Ensoniq's response - 1) The volume of higher samples could be reduced by editing the Wavesample Volume.

2) This is a characteristic of sampled sounds - time distortion. Transposing a sound down effectively slows down the playback rate of the sample, making the attack take longer. It is possible to modulate the sample start point with the keyboard position to trim off more and more of the attack as you play down the keyboard, but at some point the attack will be cut off completely.]

Dear Transoniq Hacker and Ensoniq:

I purchased an **ESQ-1** in September, 1987. As a musician of many venues I use this keyboard for rock and roll, composing, recording, and sequencing. In short, I need this keyboard to make a living.

Shortly before the warranty expired my ESQ-1 developed a disturbing problem. When I first turned the instrument on it would randomly drop notes (for example, if you played a chromatic scale certain random notes wouldn't play). However, after the instrument warmed up it functioned normally. I called my salesperson at Sam Ash in New York City who informed me the problem was not serious and there was nothing to worry about. All I needed to do was bring it to Sam Ash, at my leisure, and they would reboot it. Soon after this conversation the problem seemed to disappear and I continued on my musical way and dismissed the problem from my mind.

Much to my chagrin, the problem recently reappeared and, to my horror, did not go away after the instrument warmed up. I recontacted my Sam Ash salesperson who assured me the problem was minimal and could be solved by a simple (and free) rebooting. After examination of my ESQ-1 at Sam Ash I was informed, days later, that they could do no repairs of any kind as my warranty had run out. They told me the problem was more serious than a rebooting, but would cost no more than $60 maximum. So, to be repaired my ESQ-1 had to be sent to another repair shop. There I was informed the job would cost at least $175!!!! Shock of shocks - as I was led to believe for months that this wasn't a serious problem and wouldn't cost anything to be repaired.

This became a costly repair and one I feel I shouldn't have to pay for as it initially developed (and disappeared) during the warranty period, it then reappeared after the warranty had expired. BEWARE - fellow Ensoniq users - though this is one terrific machine, repair jobs are very costly because of Ensoniq's quality control guidelines. Rather than replacing the one bad part on a circuit board, the whole board must be replaced!!!! Ensoniq refused to give schematic diagrams to their authorized repair shops!!!! Very costly for most musicians. Thanks for the ear.

PS - Ensoniq, please give me some sort of a written response to my address. I love your keyboards, but can't afford to have this kind of thing happen.

Sincerely,
Christopher Baum
700 West End Ave,#3-A
New York, NY 10025

[Ensoniq's response - We contacted Chris on January 6, 1989. At the time of our conversation, Chris had already spoken with some of his technically oriented friends who explained to Chris why modular exchange makes sense with today's digital technology. His real issue was misinformation provided at the dealer level. Chris stated that he would have paid the actual repair price without a problem had it been quoted in the first place.

The modular exchange program provides known and consistent service costs, time, and quality, and is by far the most beneficial service method for the majority of our customers. It is difficult for a service technician to quote a price or a time schedule for repair when performing component level repairs. Quite often, if the problem proves difficult to diagnose, the final cost and amount of time needed for service can be far greater than originally estimated, especially with today's digital technology.]

TransHacks,

Having seen your 'zine deteriorate into rah-rah blurbs for every add-on or doo-dad that can be added or dadded to an Ensoniq pooter, and the first publication dedicated to the first affordable sampler overrun by wavetable synthesis mania, I cannot with clear conscience renew my subscription.

Please process however my change of address, that I may read the balance of my current subscription's issues with the hope that this alarming trend may reverse itself, and the Hacker's original mandate may be fulfilled.

We're still out there, those of us who make the Hacker a reality with our charter subscriptions, and we're waiting for you to make good. Is the sampler with the world's largest installed base indeed a dinosaur, as your editorial policy purports? Or are you simply jumping on whatever Q-chip blue-chip comes down the Pennsylvania Pike and devoting your efforts and inches to same? Is this how you intend to fuel the re-subscription habit?

Thank you.
David C. Bloom
Ann Arbor, MI

*[TH - We've given our reasons for covering the newer Ensoniq gear several times - most recently in last month's RND NOTES. Yes, actually we ARE going to jump on whatever new blue-chip "comes down the Pennsylvania Pike" - so we can stay viable and still continue to cover the older instruments. If all we had was **Mirage** readers, advertisers, and articles, you wouldn't even have a renewal offer to turn down! But by no means have we forgotten the Mirage. It occupies a smaller portion of our mag (natch, it used to be 100% when it was Ensoniq's only product), but if you look at the actual word-count devoted to the Mirage over the last several months it's at least as large as it was when you got your charter subscription. (Which is not to say that it's always going to be that way.) Just ignore those other articles - in your case, they're only there to pay the freight.]*

Dear Hacker,

This letter is long overdue. First, I'd like to thank Transoniq Hacker for creating a forum for users of the Ensoniq line. This magazine is superior to that of other product support magazines. Second, a special thanks goes to Danlar Music. Their original music is top of the line and I'm proud to have them in my collection. Before this begins to sound like a thank you speech, I'd like to say thanks for the special help from Technosis, Mr. Wavesample and Charles R. Fisher. My apologies for anyone I may have left out.

Now to get to my problem. I placed an order with **Heaven** the early part of 1988. The order took quite some time to fill - we all know the story. Anyway, after so many calls I finally got to talk with Glen of Heaven and he assured me that my order was on its way and that he would give me a "Free" cartridge of set B for my time and trouble. I thought that this was fantastic considering that I had already planned on purchasing set B because I enjoyed the sounds I heard on the demo tape.

To make a long story short, months have passed and I haven't received my cartridge. I have written Glen and made several calls but got no answer. I also wrote to the Postmaster in his area. I'm presently awaiting the outcome. It's sad to think that there are some third-party dealers who do not honor their work and value their customers. I won-

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I can't really emphasize this enough: IF YOU HAVE THE TALENT AND ABILITY DON'T LET THIS OPPORTUNITY GO BY FOR YOU TO GROW, MAKE MONEY AND HAVE THE MOST FUN YOU WILL EVER HAVE AND CALL IT WORK. OR LOOK AT IT THIS WAY . . . IF YOU DON'T THINK THAT YOU HAVE ENOUGH TALENT TO EARN $379.00—PLEASE DON'T BUY THIS COURSE. AS THE OLD SAYING GOES, "IF YOU THINK YOU CAN OR CAN'T
. . . YOU'RE RIGHT!"

WRITING THIS AD IS SO FRUSTRATING . . .

If you only could have sat beside me while I wrote this ad. You would have literally felt my enthusiasm for the Jingle Business. My biggest concern as I wrote this ad is whether or not I answered all of the questions that will come to your mind as you read it. So I decided to do something I hadn't planned on doing. Here is my phone number 801/262-6501 and I want you to call me if I have not made something clear to you. Maybe you have a question that I have not addressed in this ad. Maybe you need some special arrangements to pay for the course. I remember, once, a jeweler who paid for my Jingle package with a diamond ring. I also had a nightclub owner that paid for a $2000.00 Jingle package with the quarters from his video games and pool tables. FLEXIBILITY—THAT IS THE KEY!

If you have already decided that you have the talent and desire to be in the Jingle Business send your order within the next three weeks, and I will reward you with an offer you can't refuse.

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IF YOU ORDER "THE JINGLE PRODUCTION COURSE" IN THE NEXT THREE WEEKS, I WILL INCLUDE THIS CONDITIONAL GUARANTEE.
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Richard Street Marketing
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Salt Lake City, UT 84115

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I understand if after 12 qualified Jingle presentations that result in no sales, you will personally sell a Jingle package and refund my $379.00 with the proceeds of that sale. You will keep any excess money from the sale above the $379.00 refund you send to me. Verification of the 12 presentations will include a cassette tape of the 12 Jingles plus names, addresses and phone numbers of the qualified prospects. On that basis, enclosed is a check or money order for $379.00.

_____
Name

_____
Address

_____
City State Zip

If you wish to put the course on your American Express please send CARD #-EXPIRATION DATE AND SIGNATURE

der if anyone else has had the same problem.

Sincerely,
SIR ROBERT
Robert Robinson Jr.
Atlanta, Ga

[TH - Yes, unfortunately you're not alone. See the letter from Phil Daniels and our response above.]

Dear TH,

I wrote to Ensoniq about a problem I'm having when I try to reload a data cassette with patches or sequences. No answer yet. My **ESQ-1** recognizes the leader tone and goes into data receive mode. The problem is that it never comes out of data receive mode. After 10 minutes, I lose patience and power off the unit. Whatever was in the internal bank of patches is wiped out and I have to reset the ESQ-1. By listening to the cassette, I know that the data transmission finished several minutes ago, but either the ESQ-1 didn't recognize the end-of-transmission signal or it never received anything at all.

I don't know how to determine which is the case, but I'm not sure it would make a difference as far as solving my problem goes. I am using an expensive AIWA walkman as the cassette player. Should I dismantle my stereo to try it or does the fact that the ESQ-1 recognized the leader and went into data receive mode indicate that I have a problem? As you can tell, I am highly reluctant to take my tape decks out of their current configuration. Any ideas or suggestions?

Thanks,
Benny Lebovits
Jerusalem, Israel

[Ensoniq's response - Higher versions of the ESQ-1 operating system won't indicate when an error has been detected during data transmission and may seem like it's forever in data receive mode. This would mean that you need to experiment with different volume levels for data transfers.]

Dear TH,

I recently purchased the 2X expander and SCSI port, and I must say; this system kicks butt! I can load the entire memory (around 1 meg) in under 6 seconds! I can load 300 61-K samples as if there was a zero wait state! So sell your Emax, sell your S-550, and get this system!

And now some requests (and questions):

1) I would like to eliminate the "Load Song too?" prompt. (I've never answered no.)

2) Can I somehow program my sequencer to load the next song when it's done playing the present song? (i.e. inserting the command as the last sequence?)

3) Is there a recommended procedure for turning on and turning off the **EPS**? Actually, I'm referring to when I turn the machine off. (The screen has all sorts of garbage when I shut down. Is this O.K.?)

4) Does it help to put a fan on the heatsink, the part on the back that gets so hot?

5) How about a rackmount module like the Kurzweil series?

6) Is there any word yet about software like "Soundprocess" or stuff like "The Iguana," for the EPS?

7) Why does there seem to be a confusion about the amount of memory the EPS has and the general specifications of the instrument? (I've heard the machine referred to as a 12-bit, 256k byte sampler.)

8) I've seen a 4X expander advertised for $899.00 in TH (Issue #44). They also mention a rebate program for the 2X. Is this you, or endorsed by you? How much would the rebate be?

9) Why is the 4X so pricey? I know the price of the chips skyrocketed, but a 2M expansion for my Mac plus was only $399.00.

10) Can I partition my EPS hard disk for use with my Mac Plus?

Enough questions for Ensoniq - now for TH.

How about going bi-monthly? And when is Dick Lord going to write some more technical stuff about the EPS?

In closing, I have a tip for other hard disk users:

I discovered, through trial and error, that banks on the hard disk must be saved into their own file. And this file is accessed each time you want to lead a new bank. I also discovered that you cannot access a file when the sequencer is playing; so you can't scroll through your song bank while your present song is playing.

After loading a bank, if less than 8 instruments are used, the EPS winds up in the file of the last sound loaded. If you were previously in your banks file, and now you press "instrument" to scroll through your banks, your display promptly reads "disk has been changed!

I've been told by Ensoniq that the default Macrofile, the file that is automatically installed after formatting (Well, not automatically; you are asked if you want it or not by a prompt. Ensoniq recommends answering yes to this prompt in their book.). reverts to the floppy drive; the default file 1 not seen on the screen. (I hope Ensoniq will comment on this to clarify.)

This caused me some problems for a while, but I've found a way around it. It seems as long as a bank consists of 8 instruments, it will stay in the bank file; allowing the user to scroll through this file, even while the sequencer is playing. So for the banks that don't have all instruments used, I created a "dummy" instrument or "blank" instrument to fill up the holes. It's only 2 blocks, so it doesn't affect loading time (it's actually a MIDI instrument with no name.)

Also; only put finished work on your hard disk! Or be careful that the amount of blocks hasn't changed (i.e., you can tweak a parameter here and there an re-save, but don't change the amount of memory.) What happens is called "fragmentation", and it's really a drag! If a sound becomes fragmented, it takes just about as long to load as it would normally with 3.5 inch disk drive. Sometimes this happens inadvertently, and I actually save the

same sound twice, in the same file, under a slightly different name. It fills up the holes, but it sure eats up memory. But knowing that someday I am going to start all over again (crash!), it doesn't bother me that much.

Thanks,
John
IL.

[TH - Dick Lord will return - we just don't know when. Going bimonthly is scary just to think about.]

[Ensoniq's response - 2) The sequencer cannot command the disk drive to load.

3) What you actually see is all of the display segments lighting up during shut-down. This is quite normal.

4) A fan can't hurt, but it isn't necessary. The important thing is not to block airflow to the heatsink.

5) See the Introduction of the EPS-M in FRONT PANEL (TH Issue #44).

6) The EPS can already do most of the things the 3rd party operating systems for the MIRAGE could do. We haven't yet heard of anyone hacking the EPS OS.

7) The EPS stores sample data as 13-bit words in sample RAM. The basic EPS has 256k words of memory (which is 416k bytes), expandable to 1 megaword (1.7 megabytes).

8) The ad that you are referring to is from PS Systems of San Diego, CA. (See Random Notes in this issue.)

9) Due to the differences in the volume of chips used, memory for computers can be much less expensive than what we have to pay.

10) You can't, at this time, partition a hard drive between the EPS and a computer. The hard disk must be formatted for either one device or the other.

We have come across the same situation when trying to load a bank from the hard disk. We hope to have more information in the future.]

Dear Transoniq,

First - on the gripe side - I'm running 2.2 O/S now (so there should be no problems there) - I can hear various levels of noise from any of the **EPS** outputs which seems to be related to how the keyboard scans. Like when I turn down the EPS volume control to off, play randomly across the keyboard and listen to the noise level jump up and down. Two other EPS units I've tried this on do it much worse than mine, so I guess I'm not doing too badly. But in some cases of quieter instruments, or ones which have been merged or mixed (notice the volume drop even with 'normalise gain'), the background noise can be a little high. Any comments, mods, or info? My unit is S/N.500433-F.

I didn't believe my ears when I heard the imminent release announcement of an EPS rack complete with 8 outs, 4x memory and 40 meg internal hard drive - you guys knew all the time, didn't you?

Okay, bitching out of the way - on the positive side, I'm using a library of some 200 samples now comprised of my own, Ensoniq, some American, Australian and Japanese "in the field" stuff, and some Livewire Audio disks. For a sampler all of six months old I find this nothing short of amazing. (Just look at the support of the FZ-1 - still!) Congratulations to all involved. A note to readers - I found the Livewire disks and service just first rate. Perhaps we could see an informed review sometime soon in the Hacker?

I also managed to get a full cup of coffee spilt down the right side of the keyboard - through all the pressure sensing pad and (HORROR) right down through the main board and those lovely big Motorola's - talk about freak out - you've never seen musicians move that fast, that early in the day - EVER. Anyway, we cleaned it out and dried it all thoroughly (I didn't think that warranty might apply. Sorry, Mr. Ensoniq I did have to unscrew those funny little hex bolts). It works just fine. I've got a feeling that this fella is just a bit more robust than the Mirage. In any case I'm most relieved.

Here's some questions - What's the story on the new "Benulli/Berulli" (or however it's spelt) floppy drives that I hear mentioned as potential storage for the EPS? Why not one fitted straight in the front of the new Rackmount? When can we realistically expect to see the 4x or even 8x expander? I've found that that while the EPS with 2x may not be hopelessly short of memory for playing back samples, it is most certainly deficient when trying to process them. The "NO ROOM FOR OPERATION" message comes up just a little too often.

Speaking of memory upgrades - can you give me any information on third-party European companies who are supposedly working on large memory upgrades, one in particular being a German company - "PA Decoder".

Apparently, the Australian company "Venue Music" in Sydney, is working on an EPS/SCSI to Atari ST/software visual sample editor. Is anything happening in America or Europe yet? Is there any more info generally regarding dedicated SCSI editors?

Well, that's it for now. Thanks for your time and space. How about you keep those "Hacker" issues coming? I enjoy them immensely and look forward to their arrival each month.

Yours faithfully,
Paul Draper
Brisbane, Australia

[TH - Regarding the EPS rack: we found out about it just before we went to press last month (hence the announcement in RND NOTES) - just about the same time we received your letter. Our question is, "How did you find out?!"

Regarding the 3rd party memory expanders: see Random Notes for the latest on PS Systems and see Hypersoniq for info on a French company (DCI). PA Decoder does have 2X ($520) and 4X ($1350) expanders for the EPS - but we've been having a heck of a time getting their US distributor to return our calls. (PA Decoder, 1801 N Carson Ave., Los Angeles, CA 90046, 213-850-6901.)]

[Ensoniq's response - Background noise is normal in any digital system. The volume control on the EPS is performed digitally. As with any digital playback system, the best signal-to-noise quality is achieved with the volume at maximum.

Due to the relatively low volume of units, we cannot build in a hard disk for anywhere near the price of those available for the Macintosh.

The ME-2 4X expander is available now (see Random Notes), while the 8X could never be a reality because the design of the EPS can only address a maximum of a 4X memory expander.

Both Alchemy and Sound Designer communicate with the EPS over SCSI.]

Attention EPS Owners!

Don't let your **EPS** contract leprosy from lower quality Mirage disks! Are you one of the many EPS owners who believes this myth? I sell Mirage samples and in talking to various EPS owners, I have gotten the impression that they feel that using a Mirage disk will lower the EPS standards.

I turned to Steve Coscia at Ensoniq for the facts. I asked Steve if this was the case and he said no. He went on to say that both the EPS and the Mirage read numbers, NOT musical sounds. Furthermore, the EPS will give the Mirage samples better high fidelity. The EPS sample rate is 52 kHz, whereas the Mirage (utilizing the Input Sampling Filter) yields 50 kHz. So you can see that they are comparable.

Therefore, as long as you put quality in, whether Mirage or EPS, you're going to get

quality out.

Jack C. Loesch
Keyport, NJ

[Ensoniq's response - EPS owners wishing to edit Mirage samples can refer to TH Issue #43 pg. 20 - "Top 5 Most Commonly Asked Questions About the EPS."]

[TH - Issue #36 had an article by Clark Salisbury which went into detail on converting Mirage sounds for EPS use.]

Dear Hacker,

I was taught in school somewhere, you should never use the word "never." So I was interested to see Ensoniq's response to Peter Kok's letter in the November issue of Transoniq Hacker about his problem with a flaw in the velocity-sensitivity in which the black keys play louder than the white. Ensoniq replied that they "never had any complaints before with over 50,000 of the keyboards out in the world." I would just like to remind Ensoniq of my letter in the March, 1988 issue of TH that addresses the very same problem, and another of Ensoniq's "never" replies. On my ESQ-1 the difference in touch is such that I find it very difficult to use it as an accompanying keyboard for solos and ensembles, and just very annoying the rest of the time.

A feature that I would like to see added would be the ability to accompany "live" and have the sound transposed as it does through the sequences. This would be great for accompanying vocal solos that are too high or too low.

Sincerely,
Don Carlton
Grand Duchy, Luxembourg

[Ensoniq's response - In the March issue we simply stated the fact that we had never experienced that particular situation before, while in the November issue we responded with an explanation as to why this would be a common occurrence.

For those of you who missed out or don't remember, it goes as follows: The distance the black keys travel is somewhat less than the white keys, producing slightly higher velocity response. This is inherent in the keyboard itself as all velocity-sensitive keyboards will be somewhat inconsistent from key to key. The differences tend to be subtle, and with the exception of these two situations, we still to this day have heard no other complaints with more than 50,000 of these keyboards out in the world.]

Dear Transoniq Hacker,

Help me on this if you can. I have an **ESQ-M** and a Roland MC300 sequencer/micro-composer. Since I have no Tape In/Out jacks on my ESQ-M for saving my patch data to cassette, is there a way to store my patch data other than by way of RAM cartridge? Are all RAM cartridges subject to eventual erasure? The MC300 is able to store patch data via MIDI, however, I've been unable to make it work when using their basic MRC-300 operating system disk.

By the way, I found some interesting sounds on Patch/Works Q-Spectrum II Volumes 3 and 4. Will you be doing a review on this collection of ESQ-1/M sounds? We sure do need to keep our third-party sound makers (and the good ole Hackerpatch) around for those whose programming time is limited.

Keep up the good work. Other magazines need to take note.

John B. Clark
Reston, VA

[TH - We try to fit in reviews of all third-party collections that are sent to us for evaluation.]

[Ensoniq's response - If the MC300 is capable of sending and receiving system exclusive data, follow the procedure on page 86 of the ESQ-M Musicians' Manual.]

Dear T.H.,

I'd like to address this letter to the readers out there! I'm interested in organizing an **"EPS"** Sequencing group - similar to Parker Adams' "MC-500 Group." If any of you are interested, please contact me and we'll put together some ideas on trading sequences. My current system (one I'm sure to keep for years to come), is my EPS, Roland MT32, Yamaha TXIp Piano Module, Akai S612 Sampler (used for strings and voices), Yamaha RX15 Drum Machine and, of course, my Mirage/Soundprocess.

I currently have an extensive song list on my EPS. We can also discuss techniques for recording, MIDI match-ups and mix-ups, MT32 programs, etc. I can also use Craig Anderton's PAIA Cocader and have some neat ideas with it! I'm also interested in trading samples on Mirage/S.P., EPS or Akai S612. I have an extensive library (approximately 700 Sounds!) - so please contact me at the address below.

Bob Spencer
"Bagfed Music Works"
703 Weatherby Lane
Greensboro, N.C. 27406

Dear Transoniq Hacker,

1) I've heard rumors about a direct-to-disk option for the EPS and the hard disk, which I ordered and hope to get very soon. What can you tell me about such an option?

2) What is the "Save Macro File" option, under Command/System, intended to do?

3) The two central positions of the pan positions are not so central as Ensoniq stated them to be (my VU-meters are not lying!); is it really so difficult to add a ninth position? Without a proper manual it's so difficult to live - especially with a powerful device like our EPS. I already sent my warranty card so please Ensoniq Europe, send me my manual!!!

And you, dear Hacks, go on like this and keep helping us.

Sincerely,
Marino Paire
Torino, Italy

[Ensoniq's response - 1) There are no plans to implement a direct-to-disk option for the EPS.

2) The SAVE MACRO FILE command is for use with the EPS and a hard drive. Macros provide a way to move quickly from one place in the directory structure of the hard disk to another.

3) It is true that the two middle positions are not perfectly centered. It isn't possible to add a "ninth" position as this is not a multiple of 2. To add a ninth position would eliminate the solo output option and add much additional cost to the mainboard.]

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Direct Drive 100
Direct Drive 140

Rodime

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60plus
100plus
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OVD-20
OVD-30
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