Transoniq Hacker

The Independent Ensoniq User's Newsletter

MASOS FOR THE MASSES

PART ONE

By Clark Salisbury

Greetings! Well, here we are again, back with some more of that how-to stuff I know you're all craving. This trip we're going to dive into this nutty MASOS thing, and try to make some sense of it all. Now, the thing I know you're all wanting to hear more about is the dreaded "Moving Wavesamples All Over The Place And Doing Silly Things With MASOS and The Mirage Until You Get So Completely Lost You Start Thinking About Going Back To School And Finishing Up That Degree In Marketing So Maybe You Could Get A Real Job Like Your Mother Always Wanted You To And Stop Being A God Of Sampling After All." Calm down, already! I'm here to tell you that, contrary to popular belief, sliding that upper keyboard piano sound down to the lower half of the keyboard next to those fine rock drums ain't all as hard as it seems - if you approach it systematically enough. And once you've got that part of it down, the rest of MASOS starts to fall right into place.

First of all, Issue #6 of the Hacker has an excellent tutorial on copying wavesamples and moving them around. It was written by Steve Coscia of Ensoniq - one of the nicest customer service people you're likely to meet. If you have that issue handy, now might be a good time to get it out for reference. In my experience with Mirage owners, though, a lot of you are still having trouble with this stuff. So we're going to try approaching it here from a slightly different angle. Let's see where it takes us.

There are really only two things to worry about when moving sounds around using MASOS copy functions. As a matter of fact, these same two things will seem to pop up whenever it comes time to manipulate some data, MASOS-wise. The first is, "Where are we now?" The second is, "Where are we going to?" (Kinda reminds me of my last vacation.) In other words, if you want to put that accordian sound from the upper keyboard along with that fine bazouki sample on the lower, (don't laugh - there's probably some Mirage user out there who's going to use this in his Zorba the Greek/Beer Barrel Polka medley) you have to figure out just where in memory the accordian sample is located, and where in memory the bazouki is located, and also if there's enough memory left over down around the bazouki that you can cram that silly accordian into. So, let's talk memory for a moment.

As you no doubt remember from previous articles, the Mirage has a total of 128k of RAM (random access memory) into which we can stick our samples. This 128k is divided into two halves of 64k each - one for the upper keyboard, and one for the lower. Each 64k of memory for one keyboard half can be further divided into 256 "pages" of memory, with each "page" made up of 256 individual samples (256 x 256 = 65,536 - loosely referred to as 64k remember?). We can use as many or as few of these pages as we need for up to eight different samples on either keyboard half, and each sample can have as many pages of memory as it needs, as long as the total number of pages does not exceed 256. For example, we could have eight 32-page samples, or two 128-page samples, or one 48-page sample, or one 1-page sample and one 255-page sample (not likely, but possible). And since a mind is a terrible thing to waste, all numbering is done in hexadecimal (base sixteen) so that we get to use our minds learning a numbering system that goes from "1" to "F" instead of "1" to "16" (in hex, "10" is equal to "16" in decimal.) They tell me that programmers like this system.

This is all well and good, but it means that if we want to successfully execute any of these mystical MASOS functions, we have to know a few things. The first is, "which wavesample do I want to manipulate?". That's easy. Let's work with the saxophone sound from Disk #3. Go ahead, load Sound #1 from Disk #3 into your Mirage and select the first saxophone sample. But wait. The saxophone happens to be multi-sampled. Since MASOS doesn't allow us to work with more than one wavesample at a time, we need to know which of the saxophone wavesamples we want to manipulate. A good choice would probably be the first (or lowest) saxophone sound we encounter on the keyboard. That should be Wavesample #1, right? Wrong. At least in this case. If you load the saxophone sound into the Mirage and listen to Upper Program One, you won't hear the baritone sax samples stored in Wavesamples #1 and #2. Those sounds are used in other programs. What you are hearing as the first wavesample turns out to be Wavesample #3, actually. Check Parameter (27) Initial Wavesample. Yup. It's set to #3. This points out a major caveat when using MASOS. Never assume you know which wavesample you are dealing with - check it out first. The way I like to do this is to perform some quick, easily undo-able operation on the

wavesample I have selected - an operation which will obviously change that wavesample's sound, like switching its octave. First, I'd select the wavesample that seems most likely to be the one I want to work on. If I really don't know which one it may be, I'll simply start with Wavesample #1 and work my way up through the rest until I hit on the right one. With MASOS booted, the wavesample is most easily selected by hitting REC SEQ for the upper keyboard or PLAY SEQ for the lower, and then a number from 1 through 8 to select which of the eight wavesamples I want. This can also be accomplished with Parameter (26) Wavesample Select, but it's more time consuming. Next I'll select Parameter (67) Coarse Tune Adjust and increase or decrease its value by 1, which lowers the pitch of the selected wavesample by one octave. Finally, I'll play the wavesample on the keyboard. If I have selected the correct wavesample, its pitch should sound an octave above or below where it originally was, and I'll know that I'm working with the right wavesample. If this operation doesn't seem to have any effect, I'll know that I have selected the wrong wavesample, so I'll set the value of Parameter (67) back to where it originally was (since I may have changed the octave of one of the other wavesamples, and I may want to work with it later on) then move on to the next wavesample.

Now that we've figured out which wavesample we're starting with, the next thing we need to know is where we are going to put it. Let's stick with the saxophone sample, specifically saxophone Wavesample #3 for the time being. And for the sake of discussion, let's assume that we wish to copy it into the lower half of the Mirage keyboard. If there are no other sounds in the lower keyboard that we wish to keep, the operation is relatively straight forward. We'll simply copy Upper Wavesample #3 into Lower Wavesample #1. (Of course, if there's a sound we wish to keep occupying Wavesample #1, then we'll need to copy our sax sample into Wavesample #2, or one of the other wavesample locations). The first thing we need to do is to block out a chunk of memory in the lower keyboard that we know the sax sample will fit into. So how do we know how big a chunk to block out? Simple. By looking at how big a chunk the sax sample is presently occupying. First, hit REC SEQ, 3 to select Upper Wavesample #3. Hit Parameter (60) Wavesample Start, and note the number. This is the page number that this particular wavesample begins on. Next, hit Parameter (61) Wavesample End, and again, take a reading. Logically, this is the page number on which the wavesample ends. To figure out how much memory the wavesample occupies, simply subtract your first number from your second - the value of (61) minus the value of (60). Remember, you're dealing with hexadecimal here. You will have the exact number of pages that the current wavesample occupies. Now hit PLAY SEQ, 1 to select Lower Wavesample #1. Hit Parameter (60). If Wavesample #1 is at the top of the memory, you should get a value of 0.0 Simply add the value that you calculated for the upper wavesample to this number, and enter it as the value for Parameter (61). For example, if the number of pages for the upper wavesample is 2F (hex, of course) then the value you would enter here is 2F. Things may become a bit more confusing, though, when you perform this operation for a lower wavesample whose first page begins on a number other than 00. In this case you must add the page count number from the upper (source) wavesample to the wavesample start number from the lower (destination) wavesample, and since these numbers are in hex, you may wish to consult the dec to hex conversion chart in the back of your manual. But the basic concept is pretty simple. You need to have enough memory open on the lower half of the keyboard to hold whatever sample you want to copy into it.

Anyway, for simply copying the upper wavesample to a lower position, as in this example, the rest of the operation is pretty straight forward. Simply hit Parameter (17) Copy Current Wavesample to Lower Wavesample (n), respond to the flashing prompt in the Mirage display by punching in number 1 (if that's the wavesample number where you want your upper wavesample to end up), hit ENTER, and presto! A successful wavesample copy. Except that it's not very likely that the program parameters currently in effect on the lower keyboard half are the same as the settings on the upper half, but that's easily fixed. Select upper keyboard, Program 1, hit Parameter (15) Copy Program to Lower, hit 1, (to locate the copy in Program #1 on the lower half) and press ENTER. We have now duplicated at least part of the sax sound from the upper keyboard half on the lower keyboard. If you wish, you can repeat this procedure as many times as necessary to copy all of the pertinent sax wavesamples to new locations. Of course this procedure works just as well when you want to copy a lower wavesample to an upper location (just uses Parameter (18) Copy Current Wavesample to Upper Wavesample (n) or even for copying a wavesample on one half of the keyboard to a new location on the same keyboard half, which can be extremely useful if you wish to do a bit of re-arranging with the factory disks. One sort of fun application would be to use this operation in conjunction with some of the things you can do with mix mode. Since you've already got part of the sax copied to the lower half of the keyboard (you have been following along, haven't you?), load the trumpet sound from the same disk (#3) into the upper half, leaving the sax in the lower half. Verify that the trumpet sound is Wavesample #1. Now move the sax sample (Wavesample #1, lower half) back to the upper half of the keyboard, locating it in Wavesample #2. Turn Mix Mode (28) on. Make sure Parameter (33) Detune is set to 00. Then set Parameter (35) Mix Velocity Mod to 00. And make sure that LFO Frequency (31) is also set to 00. Now you can use the Mod Wheel to mix back and forth between the sax and the trumpet samples. Neat, huh? Those of you who own instruments that feature after-touch (Korg DW-8000, Roland JX8-P, Yamaha DX-7, etc.) can really have some fun with this. Try setting Parameter (79) Mix Modulator Source to 8, allowing mix mod to be controlled by the pressure sensing on your master keyboard. Press lightly and you've got trumpet. Press harder, and you bring in the saxes (or accordians, or whatever). Another application would be to set Initial Wavesample (27) to a value of 1 for Program 1 on the upper keyboard, and a value of 2 for Program 2. This will allow you to quickly switch from sax trumpet without having to load each sound from the disk when you need it. Just switch from Program 1 to Program 2.

Anyway, if I have one major point to make, it is that with any of these MASOS functions it is imperative to know which wavesample you are working with as a source, how much memory space it takes up, which wavesample number is your destination, and how much memory it will need to have allocated to it. As we delve further into MASOS in future arti-

cles, we'll also take a look at manipulating smaller chunks of memory from within a wavesample - how to chop out a few pages, or even a single page for some pretty trick processing. Stay tuned.

And now for something completely different. Random notes. Tips from the field. Sampling styles of the rich and famous.

Award for tip of the month goes to Bill McCutcheon, Ensoniq employee and sampler extraordinaire. Ever have trouble getting the filtering just right across the keyboard when using only one or two samples? Or does a sample's attack sound good on low notes, but seem too quick and pinched on upper notes? There's something you can do with the Mirage that I was unaware of until Bill pointed it out to me. You can assign different wavesamples to play the same chunk of memory. In other words, say you have a sample that goes from page 00 to page 4F. For Wavesample #1, give Parameter (60) Wavesample Start a value of 00, and Parameter (61) Wavesample End a value of 4F. Then assign the same values for Wavesample #2, 3, 4, etc. Now you can then freely assign those wavesamples to a number of areas on the keyboard, and even though you still have the same wavesample across the keyboard you can go in and make adjustments to the relative filter, amplitude, and tuning settings for different areas of the keyboard. And if your wavesample has a few pages of silence at its beginning, you can tell Wavesample #1, for example, to start on page 04 and end on page 4F, and Wavesample #2 to start on page 00 and end on 4F. By using Wavesample #2 on higher notes, you can get a bit longer attack for the upper notes. If you don't know how to put few blank pages at the beginning of a wavesample, we'll be covering that in upcoming MASOS articles. Thanks for the cool tips, Bill! We'll have more next month. Until then, smooth samplin', y'all.

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AN INTERVIEW WITH ENSONIQ'S SAMPLING WIZARD: THOMAS METCALF

Part II

by Richard Boulanger, PhD

DYNAMIC RANGE

Boulanger Since we've sort of gotten into the specs of the instrument here, how do you address the criticism about the dynamic range of the Mirage, the limitations of an 8-bit machine?

Metcalf As far as the dynamic range is concerned, the engineers here tell me that this 8-bit system comes in around 50dB. Basically our machine is 8-bits going in and 16-bits coming back. What that means is that if you look at the sample you've only got eight bits of resolution, but when it is played back, it goes through a multiplying DAC. The multiplier is the envelope. Given that our wave information is 8-bits and our envelope data is 8-bits, the result, via multiplication, is a 16-bit dynamic range at the output.

For me, the bottom line is how the machine sounds. From my years of diddling with electronics, I have found that a lot of times you dismiss things based on their specs which, if you had actually sat down and tried them, you might have found that they work in the context of music. I think that the Mirage definitely fits into that category. On paper it's not as good as some other things.

Boulanger On paper, the Mirage is a budget system with a lot of extras.

Metcalf Exactly right.

NOISE MODIFICATION OF PRE-86 INSTRUMENTS

Boulanger Tell me how the new quieter instrument relates to the noise problems we have just discussed? What do I get when I modify my pre-'86 Mirage?

Metcalf In the earlier Mirages, there was a fair amount of quiescent noise. We went in and tweeked the values in the playback chain. It seems that we had been cheating ourselves out of a little of the high end and we went in and got that. Also we quieted the amplifier stages somewhat.

VISUAL EDITORS

Boulanger How did the visual editor help you make the factory disks?

Metcalf Well, first of all, doing short loops is fairly straight ahead. You line it up, you sample it, and you keep moving around until you find a page that works.

Where the editor really became important to me was in fixing up long loops. There, you more often than not, run into situations where the sound that you get is just not going to loop as well as it could. If you go in there and you do some heavy diddling on the sound data you can force the thing to work.

Boulanger On which disk was the visual editor first used?

Metcalf I guess the place where it really started was on the strings and cellos (#3). The cellos disk was the first time I did any crossfading to fix a loop. As a matter of fact, that was done on a real primitive version of the Apple Visual Editor. And again, it worked so well that it was incorporated into the MASOS functions.

Boulanger What would you say is the most useful feature of the Apple Visual Editor?

Metcalf What it enables me to do is predictably go in and fix things. Without it, you are working in the dark. Its going to the casino - hit or miss. For me, it was a must. I'm expected to get a reasonable amount of stuff done in a reasonable amount of time. What it comes down to, for someone doing this on their own, is how much time do you want to spend fixing waveforms versus playing music?

Boulanger You obviously have both the Apple Visual Editor and the Soundlab Editor. Which do you use now and why?

Metcalf I love both systems. They work, and they have made my work a lot easier. These days I tend to use Soundlab more. For doing big loops it enables me to see the whole thing at one time. The MAC is a visually oriented system to begin with, and the mouse makes things quite fast. For example, a 3dB fade in and fade out are single step operations on the MAC. On the Apple IIe these are several step operations.

INTERPOLATION

Boulanger Have Soundlab's interpolation and compression features worked to your advantage?

Metcalf I had a lot of input on that package when they were writing it. So the interpolation feature was one of the things I asked for, and they put it in. The main thing that interpolation does is eliminate the need to sample at outrageous sample rates in order to get the high notes to fit one cycle per page.

If you do a quick calculation, you'll see that to fit a single cycle of a really high note on a single page, your sample rates would have to be incredibly high - on the order of 400kHz! With interpolation you can sample the note at a reasonable rate, and then interpolate it so that it stretches out to exactly fit one cycle per page. For me, one of the real features of Soundlab is that it allows me to get those really high notes on instruments without having to figure out some weird way of sampling it at a higher rate.

Boulanger You mean like speed changing on your playback recorder?

Metcalf Exactly.

Boulanger Have you ever used this varispeed playback technique to extend the frequency range of the Ensoniq sound library?

Metcalf No. We never have. We don't have the equipment here to do it.

COMPRESSION

Boulanger Does Soundlab's compression feature come in handy?

Metcalf As it stands right now Soundlab's compression isn't working exactly right. It's being rewritten. Ideally using what's in the Soundlab will be great, but it isn't happening right now.

The main problem I've had with external compressors is that they often don't respond quickly enough. Compression solves some problems, but it can also introduce some of its own. A lot of times straight ahead compression doesn't do the whole thing for you. In many cases, what is bothering you in a loop is not a volume or power thing, but rather, it's a tonal thing. A compressor can't know that.

Ironically, by just dropping the volume in the loop at the location where things get brighter you can actually smooth the sound out. This is so strange because you've actually put a bump in your loop, and the result is a smoother sound.

Boulanger So what you are pointing out here is an example of why a fully automated editor might fail. In many cases the problems with the loop are not numerical ones - i.e., recognizable by some simple algorithm - but rather, the problems are more often psychoacoustic ones - reflecting, in essence, the imperfections of our physiological system.

Metcalf Exactly, that's why so much of sampling is a judgement call. You fiddle with it until it sounds right.

DISK TIME

Boulanger How long do you spend on a disk? On a single sound? What was the easiest sound to do?

Metcalf Probably the easiest sound to do was the "stacked strings" (#11). It was the easiest because it was single wavesamples and it was made at a time when I had done enough long loops to know how to make these things work. On the other hand, comparing this to the cellos and violins, which were also long loops, they were fairly painstaking. At that time I had never done a long loop.

Boulanger What you are saying is that, like any skill or craft, one gets better and quicker at it with practice and experience.

Metcalf That's right. The other disk that was quite easy to do was the percussion (#4). The only thing that was looped on there was the gong, and it was a fairly easy loop.

Boulanger I imagine that the latin percussion disk was quite easy too?

Metcalf Actually that disk was done by the gentleman I instructed from Japan - Yashi.

Boulanger When you do your crossfades, do you have a standard template which you fade into? I imagine that you might have some disks in the library which are actually acoustic/synthetic hybrids.

Metcalf Everything that is looped is the "real" sound. We don't do any heavy-duty computer manipulations. We don't do any resynthesis. The sound you hear is the real sample.

INSIGHTS INTO SOUND STRUCTURE

Boulanger From all your detailed work with acoustic waveforms you must have gained some insights into instrumental identity?

Metcalf One thing that I found interesting is that there are these funny little noises that a guy makes while he plays his instrument. Let's take the bass for example. When I was recording this guy playing upright bass in the studio, I started off by having him play four notes in a row. It didn't sound right. So I asked him to play a walking-bass line. This performance had a certain life to it - a certain character.

What I discovered was that there are these little sounds in there that are made when the player goes from one note to the next. When you ask a player to play tones (rather than notes) in a sterile way, these elusive musical components, which contribute significantly to the instrument's identity, are missing.

When I finally figured out what was going on, I had the guy essentially play a walking bass as slowly as he could, and took my samples out of that musical context.

Boulanger I recognized this from fairly early on. I noticed it particularly in the sax (#3). When playing single sax tones from the keyboard, the attack sounds somewhat blurred, but in context - as you demonstrate with your sequence - the sound really works. The sample works so well in an ensemble context because you took it from somewhere in mid-phrase.

INSIGHTS INTO PLAYING TECHNIQUE

Metcalf Right. That's exactly the thing. Related to this, we got complaints from people about our upright bass. Most of the folks were upset by the slight delay between when the key was depressed and the note would sound.

Yes there is a delay. The reason for the delay is that when a player plays a bass note, there are little things he does, and little sounds he makes, before he actually "plays" the note. These little sounds happen before the note, but they are actually a part of the "note."

Just because these acoustic wavesamples are connected to a keyboard, doesn't mean you can

play, for example, a sampled bass like a piano. When playing a sampled sound, you have to keep in mind the way that the instrument is played. You have to envision that you are moving your finger to the string and making those little sounds. At the keyboard this may mean that you have to play on top of the note to keep it in time.

Boulanger I have had a similar experience with your guitar disk. I am a guitarist, but I haven't yet mastered the technique of transferring guitar stylings to the keyboard. When I play the nylon guitar I have a hard time making it sound like a guitar. Yet I am convinced that it can be made to sound quite like a guitar by your demo.

Metcalf That's exactly why we put those sequences on there. We don't want to lose a sale because someone in the store can't play "guitar" from the keyboard. This fundamental requirement to revamp your playing technique was true of synthesizers too, but it is even more true of sampling machines. A great deal of how much the sample sounds like what its supposed to depends upon the technique with which it is played.

A DISK PREVIEW

Boulanger What disks are you currently working on? Can you give me a preview of what's coming up?

Metcalf I've been heavily involved on a new product over these last few months - the Ensoniq piano. So the last sound disk I worked on was #14 - the solo cello and flute. A short while ago I had an opportunity to do some nasty things to a piano. It will result in a wonderful prepared piano disk.

Boulanger You mean the "Television Suspense" Disk?

Metcalf That's it. I also did a vocal session. The resulting disk will be ideal for jingles. It will consist of five voices singing "doo" in octaves. Up to this point, all the vocal things which have come out - except for David Miller's "tah vocal" disk (#17) - have been things which were just lying around here. On this new disk we actually went into a studio and did a serious session. There should be some neat things to come from it - not merely one, but several disks.

As far as Bill McCutcheon's work is concerned, he's been involved on our new synthesizer. The synth is, in essence, a really versatile analog machine with digital sampled waveforms. It also features a phenomenal 8-track sequencer. I'm not sure whether to think of it as a great synthesizer with a sequencer, or a great sequencer with synthesis possibilities. It can sound like a PPG, a DX, a CZ, an analog synth, whatever.

As regards the library, Bill is just finishing up a really killer sax disk. It's for lead work - a raunchy, hard edged, rock sax.

Boulanger Do any of the disks in the library stand out as having been particularly difficult to make?

Metcalf The pipe organ pops out, but let me think for a minute. I've done so many disks that it's tough to remember. Well, I'd say that the pipe organ was pretty tough (#12). Initially, it was difficult to think through where to put things. I finally decided to put the bassmix on the lower half of the keyboard.

Boulanger I did find it odd determining where my pedals were.

Metcalf The big loops on there were tough too. It's sort of funny, you play a sample without a loop and it will sound smooth. The minute you start to loop it, all of these tonal shifts stick out like a sore thumb.

LONG LOOPS: SOME GENERAL OBSERVATIONS

Boulanger What are some of the problems you run into when making a long loop?

Metcalf Long loops as a general category hit you up with the same sort of problem. Its just that every time it's a little bit different.

Boulanger Can you describe this "same-but-different" problem and, of course, tell me your solution?

Metcalf Tonal Inconsistency. The hardest problem to deal with is a tonal inconsistency. The only solution is to get rid of it by some means - like resampling. Or, if it happens to

be at the end of the loop, you might want to do one of these reverse-crossfade things; then you are essentially looping on the beginning sound data only. This way you essentially never get to the tonal change. With a long loop you just keep at it until you get it to some acceptable point.

Boulanger On a number of the factory disks (even, for example, the "stacked strings" which you claimed to be the easiest to make), I've noticed that on certain keys, and in certain registers, you can hear the sample clicking through the loop. This is particularly apparent at the top of the keyboard. How do YOU determine this "acceptable point."?

Metcalf The high end of things generally suffers. This is because of two things. First, at the high end the loop gets shorter, and the shorter the loop is, the more noticeable it becomes. Second, because of the sample skipping technique of transposition, as you move up the keyboard certain keys will have associated clicks.

The only thing that really helps, given the inherent design of the system, is to design your loops, as best you can, around the system. The loop should always begin at value 80 (hex). Now if your waveform has a section which sort of hangs out around the midpoint - if it has a spike in it and then settles around the amplitude value of 80 (hex), put that part of the waveform at the end of the loop. What this will do for you is greatly increase the chances that your loop, after it has sample-skipped to the correct pitch, will end near a value close to the starting value of 80 (hex).

Another strange thing which I have noticed when transposing my long loops up the keyboard has to do with tonal inconsistencies. There will be certain tonal characteristics of the loop which, at the top end of the keyboard, sound like a shift in volume. After you've pulled it out at the top of the keyboard and you play the "smoothed" sound at the bottom of the keyboard, it will sound like a volume drop. This is one of those cases where you discover a thing it appears to be doing, and there is no way around it. All you can do, in such cases, is find some middle ground and go with that.

Boulanger I was always under the impression that an external compressor would help to solve these volume discontinuities. Do you use one?

Metcalf If volume discontinuities are the problem, you are better off using a compressor on the signal as you sample it. I may have actually done that here on some of these sustained sounds. I do have a compressor, but I don't use it a lot. When you start getting involved with doing amplification on sounds that are already sampled, because it is an 8-bit linear system, you often add more noise in there because of the sample errors. I don't use a compressor to smooth out a sampled sound.

SAMPLING IN GENERAL

Boulanger Let's get right down to it. How do you get such good samples?

Metcalf A lot of patience is necessary. Both Bill and I spend a great deal of time sifting through tape to find the perfect note. As I said before, there are these funny things about certain instruments, and you either capture that on tape or you don't. Furthermore, it's not only a matter of capturing that certain aspect of the sound, but also you have to find a segment in which there isn't too much of that same essential characteristic. Sometimes if you get too much it really gets in the way.

For example, take an instrument which is characterized by the way it bends into the note - like a saxophone. Now this sounds very natural if you play just one note, but when you play lines on that instrument and ALL the notes bend in the same exaggerated way, it sounds very unnatural.

Sometimes you have to find the recording which has just enough of that bend to clue the brain in on the family of the sound, but not too much so as force the observation: "Man that's a really strange saxophone."

Boulanger Actually what we say is "God, that saxophone is terrible." or "They call that a saxophone?"

Metcalf Right.

Boulanger So the selection process is very important. The goal being to discover essential timbral cues, and include them to the extent that they don't limit the general utility of the sample in a wide range of musical contexts.

Metcalf Exactly. The first step is sifting through things. Now that means that I have to listen to many samples to find the right sound, one that will loop. To maximize the possibilities of finding a multi-purpose sample, we ask the players to play the same note several times so that we have a choice.

Conclusion Next Month.

BACK ISSUES

Back issues are available for $2 each. Some back issues are no longer available in their original printed form and a photocopy will be substituted.

CHANGE OF ADDRESS

Please let us know at least four weeks in advance to avoid missing any issues. The Post Office will not reliably forward this type of mail. 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!)

What Makes The MIRAGE Tick ?
A Hardware Overview

Richard H. Lord

Many HACKER readers are undoubtedly curious about how their favorite keyboard really works inside. Some of you may have actually opened up the case and started looking at the insides. Well, I have done just that, and for those of you who haven't got it all figured out yet, here is the inside scoop.

The MIRAGE has an excellent system philosophy behind its design. Unlike some of its competitors, this keyboard is controlled entirely from software that can be loaded in from floppy disk. The manufacturer chose this design so that the keyboard would not quickly become obsolete in a highly competitive marketplace. This also means that there are many possibilities beyond those supplied in the MIRAGE operating system. This keyboard really represents a hardware breadboard which the true hacker can re-configure to suit his or her needs.

The definition of Q-chip registers and the actual schematics cannot be covered in a single article. Instead, this will be an overview of the essential pieces that make the instrument work. The MIRAGE is really a micro-computer with memory and input/output ports. It is based on the MC6809E micro-processor developed by Motorola and used in the RADIO SHACK color computer.

Two integrated circuit chips make the MIRAGE unique. These are the keyboard scanner and the Q-chip. The keyboard scanner is a 40 pin IC that monitors the switch contacts under the 61 note keyboard. Each key has two contacts mounted in such a way that one closes near the beginning of the key travel and the other closes near the end. When the key is released the latter opens before the former. Attack velocity is derived from the time that elapses between the closing of the first and the second switch. Release velocity is derived from the time between the opening of the second and opening of the first switch. The keyboard scanner chip keeps track of all 122 switch contacts and actually generates the MIDI commands for key-down and key-release inside the chip. The MIDIfied key data is sent serially to the CPU through the VIA chip. The sustain pedal is also encoded by the scanner chip. This chip greatly simplifies the efforts of the CPU since it only has to handle MIDI key information and doesn't have to be bothered with the scanning process.

The 6522 Versatile Interface Adapter contains two timers, one serial and two parallel interfaces. The serial port receives key data from the keyboard scanner. One of the two timers is used to generate the MIDI clock rate. One of the parallel ports connects to the front panel and listens to the entry keypad and operates the display. The other port monitors the floppy disk drive and controls a number of important internal functions including the wavetable memory bank-select and the selection of mod. wheel, pitch-bend wheel, line or microphone inputs to the A/D converter.

The 1770 Floppy Disk Controller manages all the communication with the disk drive. Only the drive enable and disk presence lines connect to the VIA. The 6850 UART manages communications with the MIDI bus. Incoming MIDI data generates a fast interrupt at the CPU's FIRQ input so that it will receive immediate attention.

A 2732 EPROM supplies the fixed program of the MIRAGE. This ROM contains the disk routines necessary to load the operating system and a few data tables that are used by the operating system. All remaining software is loaded into the 16K operating system RAM at hex 8000-BFFF. The 128K of waveform sampling RAM represents too large a memory space to be addressed by the CPU. It is split up into four pages (two upper and two lower) and appears to the CPU as a single 32K block at hex 0000-7FFF with page selection by the VIA.

The major element of the MIRAGE is the other special IC, the Q Chip. Since this is custom manufactured, it is not easy to get documentation on its inner workings. Details must be derived from observing its operation. I still have much to learn about this chip, but it shares the waveform RAM with the CPU. In the 6809E, the processor does not use the data bus during 50% of the clock cycle, and it is during this time that the Q-chip fetches waveform data over the same bus. Amplitude envelope information is generated in the operating system software and fed to registers in the Q-chip. The chip serves as both digital oscillator and digitally controlled amplifier.

The output of the Q-chip is separated into 8 audio channels that each have their own Voltage Controlled Filter, the CEM3328. Cutoff frequency and resonance for each of the eight active notes is controlled by these VCF's. The control voltages are derived from a digital to analog converter and 16-way multiplexer that are controlled by the CPU. The filtered outputs are re-combined again and pass through a Voltage Controlled Amplifier that is controlled by the front-panel volume control. This VCA is

turned off during sampling.

The original Q-chip was supposed to be able to digitize the input signal. Evidently the factory had problems with this part of the very complex Q-chip and decided to use a separate A/D. This and the Q-chip are mounted on a separate circuit board that attaches to the main board through the original Q-chip socket. The 7574 A/D converter digitizes the modulation and pitch-bend wheels when it is not being used to sample. Sample inputs pass through one of the VCF chips and then into the A/D. This is the mechanism used to filter the sample input when using internal sampling. The external sampling module has its own filter and A/D converter and is not subject to the same limitations imposed on internal sampling by the use of one active and seven de-activated VCF's all adding noise to the sample.

There are many details necessary to fully understand how to program the MIRAGE. This article does not get into specific information. It is intended to provide you with an overall concept of how the MIRAGE operates and a starting place for further understanding.

CLASSIFIEDS

USER GROUPS

Want to form Mirage User's Group in Hawaii. Contact Kelly Randall c/o KKUA, 765 Amona St., Honolulu, HI 96814. (808) 946-2869.

Milwaukee/Madison area - are there any other Mirage owners out there? I'm interested in sharing ideas, set-ups, custom sounds, etc. Call or write if you're interested. Mike Shawaluk, 2710 Horseshoe Bend, Hartland, WI 53029. (414) 367-4838 nights. (414) 382-3454 days.

SYRACUSE AREA MIRAGE OWNERS UNITE: MIDIOTS is a growing Mirage user-group. Meetings, sample trading, and techniques are just the tip of the iceberg. If interested, contact: JIM LOGAN, 339 BURNS AVE, SYRACUSE, NY 13206. (315) 437-8761. Motto: Don't be an idiot, MIDI-it.

Recording studio interested in contacting other Mirage owners in N.Y.C. and Westchester area to start user group, exchange sounds and info. Al Hemberger, LIPS MUSIC, (914) 961-9637, Bronxville.

NY, NJ, CONN - Tri-state area. Exchanging samples and ideas. Will consider mailing across country with honest and sincere Mirage owners. Any interesting and clean samples out there? Gordon G. G. Gerbert, G4 Productions, 622 Odell Ave., Yonkers, NY 10710. (914) 969-5682.

SAMPLES

Wanted: The sound used by Loverboy in "This Could be the Night." A bright bell attack with a light synth body. Also wanted: The vocal sound used by ZZ Top in "Rough Boys." P. Wacker, 4221 W Dunlap #250, Phoenix, AZ 85021.

MIRAGE ENTHUSIASTS: We at I.A.M. Productions have created one of the hottest sound disks ever. These new sounds not only explore new dimensions in percussion, but they also give a new twist to present day drum realism. Disk 1 "Exploration in Percussion and Drums" is now available. It contains 20 different percussive and drum sounds. Everything from our version of the everyday snare, to our own 3T bass. The price is $17.95 + $2.95 shipping and handling. Mail personal check or money order to: I.A.M. Productions, 412 North Eleventh Street, Newark, NJ 07107. Ask for details on upcoming sound disks and our future sampling contest.

NEW SOUND DISK FOR MIRAGE with Sequential Prophet 5, "The Legend," best sounds and Fairlight "Breathy" voices. Recorded in 24-channel recording studio. Sounds guaranteed faithfully. Price: $29.95. Please send check or international money order - account: Ljubljanska Banka Zagreb, Acc. No. 30101-620-42-727-70170-4298/99/. Address: DARANK DIGITAL, Davorin Chuvalo, Konjscinska 21, 41040- Zagreb, Yugoslavia, Europe.

MIRAGE OWNERS. New from OASIS - A virtual sound effects library at your fingertips. 10 new disks, 24 effects per disk, $19.95 each. Send $1 for catalog or $5 for catalog plus demo cassette (refundable with first purchase). To: OASIS SOUND LIBRARY, PO BOX 1006, FULLERTON, CA 92632.

I would be interested in trading or purchasing more usable samples with anyone in the Detroit metro or suburb area. Brian Caldwell, West River Rd., Grosse Ile, MI 48138. 671-1585 (around noon).

K-MUSE INC.'S "SOUND COMPOSER'S SERIES" The first comprehensive professional sound library produced by professionals. Simply the newest and best available! Set of ten disks: $199 retail, 10% discount for COD or prepay. The first sets available: R&B, ROCK & ROLL, LONDON, NEW YORK, SPIRITUAL, CLASSICAL, and COMEDY. K-Muse Inc., 18653 Ventura Blvd., Suite 359, Tarzana, CA 91356 or call (818) 703-1562 for info.

WANTED: A clean sample of a DX-7 electric piano (Bell-piano...) with plenty of "metallic-bell" attack content. Please contact Mark Wyar, 1121 Middle Ave., Elyria, OH 44035 with price and info. Thanks!

Buffalo and Niagara Falls Mirage owners: Interested in exchanging sounds? Call or write: Chris Ott, 6871 Sy Rd., Niagara Falls, NY 14304. (716) 731-3752.

I am interested in exchanging sounds by mail. I have a good size collection of user-created sounds. I am also using an Apple II+ with Passport interface and software (in case you would like to swap sequences or programs). If you are interested, please send a list of your sounds/programs to: Paul Mattioli, 1106 2nd St., #335, Encinitas, CA 92024. I will forward a list of my sounds and programs.

SERVICES

Don't have time to wade through MASOS to customize disks for specific song/set needs? Need cowbell, clap, and crash on keys 1-3, choir and organ switchable through programs to synth and voices or piano and organ or...? You set the requirements. P. Wacker, 4221 W Dunlap #250, Phoenix, AZ 85021.

EQUIPMENT

Ensoniq Mirage (original version) Digital Sampling Keyboard. Perfect condition, with 8 disks. Six months old. $1300 or trade for rack-mount. Markus McDowell. (805) 987-9932.

MASOS and formatting diskettes and original "Advanced Sampler's Guide." (I had an old Mirage & got a new one.) Also - I'm looking for a clean Fairlight thick breathy flute and a Roland Jupiter samples. Write: Don Carineri, 8329 Hillendale Rd., Baltimore, MD 21234.

MIRAGE for sale. 5 months old. Dago hard shell case. $1585. David, (303) 449-7073.

Mirage for sale. Still under warranty. Over 30 disks and Sampler's Guide. I'm upgrading. $2000 firm. Yamaha CS 60 with all accessories: $695. Cerwin Vega cabinet: $165 or free with purchase. Gordon Gerbert, 622 Odell Ave., Yonkers, NY 10710. (914) 969-5682.

ANNOUNCEMENTS

Anyone having a C-64/C-128, modem, Passport interface, and the new Sonic Editor from SONIC ACCESS, and who wants to upload and download sounds to your disk drive, call Tom at (803) 356-1597.

SOFTWARE

IBM-PC and Mirage owners! Software is now available. For information, write: DSKIS, PO Box 8303, Cherry Hill, NJ 08002.

FREE CLASSIFIEDS!

Well, - within limits. We're offering free classified advertising (up to 50 words) to all readers for exchanging or selling your sampled sounds on Mirage-readable disks. Additional words, or ads for other products or services, are 15 cents per word. (Unless renewed, freebie ads are removed after 5 issues.)

DISK REVIEWS

DISK REVIEW #17

Disk 17 is completely dedicated to vocals, from church choirs to "Manhattan Transfer" and "Four Freshmen" vowels.

Bank 1

Upper	Lower
"Tah"	"Tah"

The upper and lower sounds work together as one, so my comments will apply to both. L1 & U1 are a male voice singing the syllable "Tah." They do not appear to be multisampled. Because of this, the most useful range is the middle 3 octaves. The lowest octave is useful only for special imaginative effects. The top octave has noticeable loop clicking and too much background noise to be useful. It also suffers from the Mickey Mouse effect - voice being sped up too much. Multisampling could have corrected some of this. In defense of the sample, vocals of this nature are very difficult to loop. So, the middle three octaves are very useful, chorused to add depth and to help mask looping. Sequence 1 shows them off nicely with a modern, jazzy type vocal arrangement. I have taken several sequences I've done for horns, piano, strings, etc. and almost anything works within the middle range. They are very useful for adding new texture to familiar arrangements.

L2 & U2 are not chorused and the "T" has been removed from the beginning of the waveform to leave an "ahh" sound. You can use this to great advantage by having a vocalist sing consonants along with the "ahh." (e.g. "Tah, "La," "Na, "Ma," etc). You tend to hear all of the parts sung with that consonant.

L3 & U3 again have the "T" removed and have a slightly slower attack. They also are chorused. I actually prefer chorusing on these types of sounds because it helps to mask loops and gives the illusion of many singers.

L4 & U4 have a very slow attack and have a lot of the high end cut off. There is also a slight filter sweep. Very useful for meditation in the morning; Gegorian chants, drones etc. We always needed a good Ommmmmmmmm.....

Bank 2

Lower	Upper
"Doo"	"Doo"

L1 & U1: "Doo" instead of "Tah" - otherwise the same stuff applies. The sequence uses chord changes you would use in a standard type tune. This sound might be more useful for Dowop type singing - you know, 50's vocal stuff. I like using "Doo" (Bank 2, L1) in the left hand and "Ahh" (Bank 1, U3) in the right hand. Great for Oldies But Goodies.

L2 & U2: The "D" has been chopped off to become "ooh." There's a little less high end. For me this tends to sound a bit like a chord organ.

L3 & U3 is a "Doo" again that is filter swept when you release the note. If you play staccato the sweep seems very quick and if you play legato it seems longer.

L4 & U4: Pretty much the same as L4 & U4 from Bank 1, only this time "ooh." I tried combining this sound with bells and strings from another synth and found lots of useful combinations. This holds true for most of the above sounds.

Bank 3

Lower	Upper
Male Choir	Female Choir

L1: Sequence 3 spells this sample pretty well. It's the choir intro to the Rolling Stones tune "You Can't Always Get What You Want." These again have a limited range of usefulness. L1 is good in the second octave from the bottom C-C. Below that point is pretty marginal. It's just not very natural sounding. From the third octave up to the end of L1 it's ok, but the vibrato gets pretty fast.

U1 is pretty good from F-F in the top octave. Below that point, a voice stands out that is definitely right out of munchkin-land. Above this point is ok, but it loses some of the vocal quality. If most of your chord voicings are in these good ranges with just a few notes outside of it, you should be just fine.

L4 & U4: Pretty near the same as L1 & U1, but it has an instantaneous release when you release the keys. This can be effective for producing sounds like a tape recorder running backwards. The beginnings of the notes are slow and the ends are fast.

I've had a preliminary copy of this sound for some time and had hoped that this version would be multisampled to give better range and possibly a few more vowels. All in all, this disk is a good effort. There is a lot of useful stuff here. I especially love the "Tahs."

Erick Hailstone

Erick Hailstone studied composition and arranging at the University of Nevada and at the Berklee College of Music. He has been involved with synthesizers and related technology for the past seven years and is a partner in "The MIDI Connection," a Portland-based consulting firm. Primarily a guitarist, his orientation has been in performing and recording with these devices.

WAVEFORM EDITORS FOR THE MIRAGE

Program Name	Price	Publisher	Comments
VES Distributed by Ensoniq: No. ASP1	$300	Ensoniq 263 Great Valley Parkway Malvern, PA 19355 (215) 647-3930	Apple IIe, II+ Announced: Iss 1 Review: Iss 6
Sound Lab Distributed by Ensoniq: No. MSP1	$400	Blank Software 1034 Matoma St. San Francisco, CA 94103 (415) 863-9224	Macintosh Announced: Iss 4 Review: Iss 10
Sonic Editor	$175	Sonic Access PO Box 4024 Santa Clara, CA 95054 (408) 942-9061	C-64/128 Announced: Iss 7 Review: Iss 9
Vision Distributed by Ensoniq: No. ISP1	$350	Turtle Beach Softworks 1912 Alcott Rd. York, PA 17402 (717) 741-4972	IBM-PC Announced: Iss 9 Review: Pending
DSKIS	Call	Jeffrey Richter PO Box 8303 Cherry Hill, NJ 08002 (215) 672-4425	IBM-PC Announced: Iss 9
Oasis Sample Editor	$188	Hybrid Arts 11920 W Olympic Blvd. Los Angeles, CA 90064 (213) 826-3777	Atari 130XE Announced: Iss 9
Synthassist	$300	Northeast Visions 68 Manor Dr. Glenmont, NY 12077 (518) 439-0967	IBM-PC Announced: Iss 9
Visual Display System	$100	Enharmonik PO Box 22243 Sacramento, CA 95822 (916) 456-6243	C-64/128 Announced: Iss 10 Review: Pending
Sound Designer	$237	Digidesign 920 Commercial Palo Alto, CA 94303 (415) 494-8811	Macintosh Announced: Iss 10
MVES Distributed by Ensoniq: No. CSP1	$150	Ensoniq 263 Great Valley Parkway Malvern, PA 19355 (215) 647-3930	C-64/128 Announced: Iss 11 Review: Pending

Please send corrections and additions to Transoniq Hacker, 5047 SW 26th Dr., Portland, OR 97201. If you've got one of the programs that we haven't reviewed, please consider sending us a few words on your impressions. (A few readers have almost paid for their software this way.) Reviews presently in the works: MVES, Vision, & Visual Display System.

RND(♪)

MIRAGE-NET

The following people or organizations have agreed to help with questions:

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

Sounds - Martin Smith, Lavitae Contrar Studios. Pacific time zone (Vancouver, BC). Business hours. (604) 255-1025.

MIDI & Sequencing - Leslie Fradkin or Elizabeth Rose, MIDI-MAX Studios. Eastern time (NY). Calls between 10am and 9pm. (212) 628-5551.

MIDI & Sequencing - Markus McDowell. Any ol' time. (805) 987-9932 (Calif.)

Mirage hardware & firmware - Scott D. Willingham. Eastern time (NY). Days. (716) 477-8089.

Mirage Operating System - Mark Cecys. Eastern time (NY). Days. (716) 773-4085.

MASOS - Pete Wacker. Mountain time (AZ). 3 pm to 9 pm. (602) 937-1177.

If you're interested in being listed on the Net, please give us a call. (503) 245-4763.

THE INTERFACE

To Whom It Concerns:

I have been using Octave Plateau's Sequencer Plus software (rev 2.0) with a Tandy 1000 HD computer for doing live Top 40 type gigs. I run several MIDI keyboards, tone generators, and effects in my system and usually string several songs together in medleys - which means that my song files are quite large (200k), hence the need for the hard disk drive - for rapid I/O and storage capacity.

Two problems I have run across and have been able to solve might help someone else out there:

1. The Tandy Computer with the Ten Meg HD comes configured with IRQ #2 jumpers joined on the hard disk controller board. This is in definite conflict with the Sequencer Plus software. I lived for a month loading songs from floppies until I merely moved the jumper over to IRQ #5. Apparently, the EPROM on the controller board looks first to see which jumper is used and then automatically configures itself - Way to go Tandy! The Octave Plateau software is marvelous - I could offer some enhancement suggestions if they want to get in touch with me - but the software is virtually bugless.

2. One of the MIDI keyboards I use is Ensoniq's Mirage - A simply awesome bang for the buck. One problem though that exists when using the Mirage with Sequencer Plus is that each time you start a song - from the beginning or any point, the software sends out program change information to make sure that each instrument is at the appropriate point. You can opt for turning off that function, but with all the changes I put my machines through this would be suicidal. This becomes a problem for the Mirage because program change means Disk I/O, which in turn means 6 - 12 seconds of no sound from the Mirage. The way around this is to start the song then immediately stop it while the Mirage is loading. Then once the sound is in the Mirage, pull out the disk and start the song. The Mirage will flash "nd" but will play. If you have other program changes built into the song which require disk access then push the appropriate disk back in after the I/O LED goes off and when the time comes in the sequence the Mirage will load the new sound and patch.

Yours truly,
Woody Haugh
Centereach, NY

Dear Ensoniq U.S.A.
c/o Transoniq Hacker,

Having spoken with Peter Loll at Ensoniq U.K. I've agreed to undertake setting up a Mirage owner's user group in this country. Michael Kelly at Pacifex, who apparently used to deal with your products, recommended that I contact you as he was under the impression there was a group already under way in your country and that you would know who to contact and where. I hope this is true and am keen to know of your interest and hear any advice you might proffer.

Thank you in advance for your help. I look forward to hearing from you soon.

Yours faithfully,
Matthew Newman.
East Sussex, Great Britain

[Ensoniq's response: Ensoniq has established an "online" users group on the PAN Network. Contact PAN at P.O. Box 162, Skippack, PA 19474 for more details. Also, users groups advertise here in the Hacker. Perhaps some of the G.B. subscribers will create one with you.]

Dear TH:

Be apprised that I sent for information on the "Master's Touch" stand-alone breath controller mentioned in your recent issue. When I got the information I learned the following:

a. This unit does not have anything to do with MIDI breath control implementation.

b. It is a signal processor which plugs in-line between the instrument and the board, and apparently does analog envelope generation based on breath and bite controllers.

c. It costs $100.

Since I own a PAIA Vocoder which I bought as a kit ($95) and dumped on my hardware friends to turn it into a working unit (it's a fairly complicated kit and took about 40 hours and some heavy-duty electronics knowledge to construct), and since this unit does an excellent job of analog envelope generation from a microphone (as well as sound effects, "doo-wops," etc.) I have decided to bypass the opportunity to own the "Master's Touch".

I am therefore looking for a MIDI breath control code generator, preferrably one which could mix the MIDI breath codes with an existing MIDI data stream without needing a separate mixer.

Be additionally apprised that I sent for information on the "Sonic Access" software waveform and parameter editor mentioned in your recent issue. The information I received was fairly sketchy, and not really enough to make a purchasing decision which for me would also have to justify owning a C64. But I did learn the following:

a. It will store 78 separate waveform/parameter sets on a Commodore disk.

b. It will assist you in selecting loop points using graphic displays on the Commodore screen.

c. The information I received completely overlooks, once again, the fact that many of us are looking for a computer program which will print out reference sheets of the parameters and program settings on paper.

d. It costs $175.00.

I have yet to find any of the sonic editors which have the basic important feature of printing out reference sheets. Without this feature any editor is useless regardless of the other wonderful things it may do. I have owned many computers, but don't own one now. However, I will probably buy the computer that runs the first software package that I can find which will do what I need, and first on my list of things I need are printed reference sheets.

I came across (another) something nifty about the Mirage and the way it uses its sustain pedal the other evening that I wanted to share. In experimenting, it became apparent that, although the sustain pedal is not velocity sensitive to release velocity, if you program the parameters to make your patch "release velocity" sensitive, and release the keys with the sustain pedal held, the Mirage "notes" the velocity with which you pulled your fingers off the keys and "remembers" that information for each of the keys which are playing, and releases the notes with the "remembered" velocity information when you release the sustain pedal. Just another something wonderful about the Mirage.

In reference to the PAIA Vocoder (PAIA is in Oklahoma City), it is a valuable addition to my studio, and does many wonderful things. It can make instruments "speak" with remarkable clarity, and can also be used with a drum machine's output to "drumcode" parts of a tune. If you listen carefully to the first two measures of the intro of the extended version of Stevie Wonder's "Go Home" you will hear the "drumcoded" material, and it sounds VERY much like a PAIA Vocoder. It is, however, very tricky to get set correctly, and it doesn't like a lot of dynamics in it's coding signal. So if you get one, plan to use a compressor-limiter (and maybe a de-esser) on the coding signal to get best results.

While I'm doing product endorsements, I have owned a Fostex 1/4" 8-track R-R recorder for over a year, and have been tickled pink by being able to use 1/4" tape for 8-track recording. I use my Roland TR707 to lay a sync track on track 8, then slave it to the sync track on playback, and use the MIDI clock out from the TR707 as the host to use my sequencer to layer multiple synth parts on tape. Although the TR707 documentation does not say that it will do this, it works just great.

I still cannot get a MIDI clock out of the Mirage when the sequencer is running. Is anybody else having this problem?

Your forum is a great opportunity to share information, keep it up.

Sincerely yours,

Jim DuLaney
Corpus Christi, Texas

[Ensoniq's comments: Check to see if your MIDI OUT works at all. If it does, MIDI clocks must be coming out. The Sequencer should be set to Internal Sync, MIDI Clock Sync and the MIDI OUT jack should be set to MIDI OUT (not THRU) Mode.]

[Ed. comments: You probably have a hardware problem if you're not getting a clock when the sequencer is running. Regarding print outs: I've seen examples of print outs from several of the programs, so there must be some way to do it. Taking a quick look through the literature we have on hand, I notice that the Oasis package (for an IBM) from Turtle Beach Softworks (1912 Alcott Rd., RD 22, York, PA 17402) explicitly states that you can send the Mirage program info to the printer. We're going to start putting together a "Master Chart" for all of these different editors that are coming out - it's getting confusing!]

Dear Hackers:

There is an article by Tom Peters in the April issue of High Technology where he makes the point, generally, that a high tech company must maintain contact with its customers' ideas about its products. It is so refreshing to see that Ensoniq must understand this. When I bought my Mirage about a week ago, there with the other paperwork was the recent issue of the Transoniq Hacker! When I bought my first computer six years ago (an Atari 800, because of the great graphics; there are plenty of "workhorses" where I work if I need muscle), Atari seemed to be tight-lipped, perhaps out of fear that they would lose their monopoly on the software. Just compare its popularity with the Apple's and see where it got them. Keep the lines open, Ensoniq!

Speaking of my computer, I have an RS-232 interface that can do 4800 baud as selected by Parameter 92. However, although I haven't found out for sure yet, I guess the interface remains at MIDI electrical levels. (I DON'T want to use the expansion port, because of the hard-to-find connector and it's not buffered. By the way, I know this because someone at Ensoniq was nice enough to send me the spec!) Does anyone know of a cheap but nicely made one? I would make one myself but I usually have wires all over and don't work on the packaging once it starts working.

Also, I'm sure I would like some (maybe all) of the back issues of the Hacker but how can I order one if I don't know what's in it?

One last thing: Dear Ensoniq, I would buy your formatted disks if the price were mainly the cost of the disk. Thanks for the formatting program, but since a disk with the O.S. lets you save the configuration, I would like ALL my sound disks to have it. At thirteen bucks a shot I'd rather live without it, or better yet, figure out the disk format and make my own. I have heard it's been done before, so could someone tell me the format and save me a little trouble?

Paul Braun
Simi Valley, Cal.

[Ed. - Actually, the back issue orders are very time consuming and, at least for now, we don't really want to do anything to encourage more. As a general rule of thumb, the further back you go - the skimpier the info. Regarding copying the operating system; Triton Corp. (1869 Whitehaven Rd., #111, Grand Island, NY 14072) makes a utility disk (for $39.95 last we heard) that will do just that.]

[Ensoniq's response: 4800 Baud, RS232, is so much slower than MIDI it is hardly worth the effort. MIDI interfaces are available for virtually all major computers. Check with Hybrid Arts for an Atari Interface and their new Visual Editing Program. 11920 W. Olympic Blvd., Los Angeles, CA. 90064 (213) 826-3777.]

Dear TH,

Any chance of seeing the new ESQ-1 Wavetable synth in a rack-mount version? If so, will it include the on-board 8-track sequencer? Thanks, and keep up the great job!

Sincerely,

Tony Cardinale
Brooklyn, N.Y.

[Ed. - It certainly wouldn't be wise for Ensoniq to say anything about this, but you know how these things generally develop in the music biz. A lot will probably depend on just how well the ESQ-1 does.]

Dear Hacker(s):

I really liked Tractor Topaz's article on how to alter the VES (Apple II version) in order to print out the waveforms. I have encountered two problems in attempting to do this. (1) How do you enter Basic once the program is booted? I can't seem to escape from the program itself, it only accepts menu commands. (2) I have a "Grappler +" graphics interface that came with my computer (which was used and has no documentation on the 80-col graphic screen dump command). I have an Epson MX-80FT printer with Graphtrax Plus upgrade, does anyone know the command out there!?? I never received the follow up articles by Tractor Topaz on how to alter the program so you can boot another program without dumping memory - sounds great - how is it done?

Good news! I understand that CTM Development has

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TRANSONIQ HACKER, 5047 SW 26th Dr., Portland, OR 97201.
(503) 245-4763.

produced software which allows translation of MIDI-files into binary code for modem transfer ($50.00) for Apple II. Are there any hackers out there into swapping sequences!?? If so, drop me a letter or respond in the next issue of the Hacker.

Respond to: Paul Midioli
P.O. Box 12411
La Jolla, CA 92037-0640

P.S. CTM Development for those who are interested is at:

CTM Development
Case Postale 82
Ch-1213 Petit-Lancy
2 Switzerland
Phone (41-42) 33 22 43 or
(41-22) 21 35 35x3866

Dear Hackers,

Has anyone done a VES for the Yamaha CX5?

A F Farrant
London, England

[Ensoniq's response: Not us, perhaps you could contact Yamaha and let us know?]

Dear Sirs,

Greetings, I have owned my Miage for about 3 months now, and am amazed at its capabilities and potential. I would like to access its user port, however, because I own a portable Commodore 64. If you would please send along the Mirage's pin configuration (or if it's already done, the cable configuration!) I would greatly appreciate it! Looking forward to further explorations.

Regards,

Jim Rowan
Boston, MA

[Ed. - The pin-out for the Mirage expansion port can be found in Issue #3.]