Transoniq Hacker

The Independent Ensoniq Mirage User's Newsletter

SPLITTING AND THE MIRAGE

by Clark Salisbury

Felicitations, samplers! This time out I want to ramble on about some stuff you can do with your factory sounds, with some (hopefully) helpful ideas that will apply to your own sampling as well.

I work in a music store (it's a dirty, rotten job, but somebody's got to... well, never mind) and one of the things I'm asked most frequently is how to deal with the rather novel approach to keyboard splitting that the Mirage uses. It's a somewhat complicated area, but as we'll soon see, complexity can be the price one pays for flexibility.

As is often the case, the Mirage organizes things somewhat differently when it comes to split-keyboard effects. As a matter of fact, "splitting" may be something of a misnomer. I tend to think more in terms of "covering and uncovering" when dealing with the Mirage. Here's what's going on.

Let's say you have a slap bass sound sampled on the lower half of the Mirage keyboard, and a guitar sound on the upper half, with the guitar sounding on all the keys above F3. The way to look at it is that the guitar sample is actually on all the keys of the keyboard, but the bass sample is covering it up on the lower half of the keyboard. This is where Ensoniq's unique "top key" system comes into play. We can say that the "top key" that the bass sample plays on is the F3 key, or key #30 (counting from the lowest up). We can now bring the split point of the Mirage down a key by selecting a new top key for the lower (bass) sample. First, make sure that you are editing the lower keyboard half. Press the 0/Program button until the display flashes L and a number from 1 to 4. Press the number (1 to 4) of the program you wish to edit. (Yes, split points can be different for each program.) If the sound is a single-sampled sound, simply call up Parameter 72 (top key) and use the cursors (up and down buttons) to choose a new top key. If you bring the top key down to 29, for example, the bass sample will play up to the 29th (or E3) key, uncovering the guitar sample on F3 and the keys above.

Simple, right? Well, not always. If the lower keyboard has been multi-sampled (as is the case with the slap-bass sound) you would have just set a new top key for the first sample on the lower half - which is not necessarily the highest sample. This is one place where Parameter 26 (wavesample select) comes in handy. If there are two or more different samples on one half of the Mirage keyboard, you have to tell the Mirage which sample to set the new top key for.

Matters become further complicated when you discover that the first wavesample isn't always the lowest sound on the keyboard. So how do you determine which wavesample is the one in the area of the keyboard you're working with? Well, one way is to count the keys up from the bottom of the keyboard to the split point. If the last key that your lower sound occurs on happens to be, say, key 30, then go to Parameter 26 (wavesample select), select #1 (with the cursor buttons), then select Parameter 72 (top key) and hit the Value button. If the display reads any number other than 30, you will know that the wavesample that you've selected is the wrong one, since its top key doesn't match the top key of the sample you want to work with. Return to Parameter 26, select wavesample #2, and repeat the process. You may have to look at all eight possible wavesamples (per keyboard half) to find the right one, but eventually the magic number (30, in this case) will appear, and you can rest assured that you've probably found the right wavesample.

"Probably?!!" you say. "What's this 'probably' stuff?" All in good time, dearie. All in good time.

First, I want to make a couple of points. One, the top key function doesn't necessarily have to be used only for changing keyboard split points. It can be used to redistribute sounds within one keyboard half. Don't care so much for the octave-plus of toms on the electric drums preset? Locate the snare drum wavesample, and set its top key for something like 20, and presto! Two octaves (almost) of snare drums. And as long as you've got the snare drum wavesample

as the current sample, key in Parameter 67 (coarse tune) and use the cursor buttons to lower the snare's pitch an octave (or two, or three). Now you're getting the hang of it. Fun, huh? Now, let's do something with those pesky cymbals...

Here's an interesting idea from a friend of mine who has no fear of performing tedious operations; try locating drum sounds on just the black keys, with keyboard sounds on the white keys, so you can play all five octaves (in the key of C) and have some percussion, too!

Anyway, if this stuff doesn't keep you busy for a few months, let's return now to why I used that most hideous of words to programmers, "probably" a couple of paragraphs ago.

Occasionally, when working with changing split points, you may locate what you think is the appropriate top key number, but if you lower the top key number either nothing happens, or else you find you now have a totally different sound between your lower and upper keyboard sounds. What has happened is this: you have "uncovered" another higher-numbered wavesample on the lower keyboard half. To proceed, then, locate the number of the offending wavesample, and lower its top key also. That should take care of that. But wait, there's more...

You can use this method to actually get more sounds on one disk than you're supposed to.

HOW TO GET 24 SOUNDS ON A DISK

Probably the easiest way to check this feature out is to boot up the disk labeled "This disk contains 12 lower and 12 upper sounds..." etc. You should have received it with your Mirage. Load Lower Sound 1. Sound L1 is a nice tubular bells type sound. L2 is an (ahem) electric piano, L3 is an organ, and L4 is a Martian clavinet. The way Ensoniq gets four distinct sounds for each of the four programs (L1 - L4) is through multi-sampling and by using Parameter 27, initial wavesample.

First, the tubular bells sound is sampled and stored in wavesample #1 and #2. (If you've read your manual thoroughly, you may remember something about Mix Mode, Parameter 28. When Mix Mode is activated, as it is with this disk, multi-sampled sounds in even and odd numbered wavesamples are paired, i.e. #1 with #2, #3 with #4, etc.) The electric piano is stored in wavesamples #3 and #4, the organ in #5 and #6, and the "clavihetron" in #7 and #8. When the presets are being organized, then, Parameter 27 (initial wavesample) is invoked. For preset L1, initial wavesample is set to

#1. Since we're in Mix Mode here, wavesample #2 is paired with #1, and they act together as a single sample. Top key for this sound is set to 61, effectively covering the entire keyboard with the tubular bells sample. Now on to preset L2.

Since we want to distribute our electric piano sound across the entire keyboard, we'll set initial wavesample (Parameter 27) to #3 (remember, wavesamples 3 and 4 are paired). Then we set the top key (Parameter 72) for 61 and viola! Five octaves of electric piano. We can repeat this process for programs L3 and L4, thus yielding four distinct sounds from one lower keyboard disk load. And we can repeat the process with lower keyboard L2 and L3, of course. And we can repeat it again to get 12 sounds on the upper keyboard. But wait - if we have all of our lower keyboard sounds set with a top key of 61, how can we hear what's in the upper keyboard programs?

Well, we can't. Not unless we "uncover" the upper sounds with one of our lower presets.

Boot up Lower Sound #3 from the synth sounds disk, and key in program L4. On the lowest key of the keyboard, you should find a rock band endlessly thrashing away at an E minor vamp. The rest of the keyboard will now have whatever sound was on the upper keyboard half before you loaded the lower sounds from the synth disk. The idea here is that this sound (Lower 3, L4) has its initial wavesample set to #7 (paired with #8) and a top key of 1, thus "uncovering" the upper keyboard sounds. Now you can go ahead and load the upper keyboard sounds. The only catch is that you'll have that damn rock band on your lowest key for all the upper sounds - but it seems a fairly small price to pay for the added flexibility of having so many sounds on a single disk. As a matter of fact, it seems to me that if any of you die-hard samplers out there want to try this procedure on your own, but with Mix Mode (Parameter 28) set to off, you should be able to get 12 lower and 12 upper split keyboard sounds by sampling a new sound to each of the eight wavesamples per keyboard half.

In other words, sample a bass for wavesample #1 and a piano for wavesample #2, then arrange them into a "split" sound in Program L1. Then sample a zylophone for wavesample #3, and a flute for wavesample #4, and arrange them into Program L2. See what I mean? Time consuming? Yes. Rewarding? Maybe. Will it teach you something about the Mirage? You bet.

Anyway, that's it for this month's ramblings, but I have one more final comment. I know that there are folks out there who are preparing to market their own custom sounds for the Mirage, but how about some of you less ambitious folks making use of Hacker's classified section for some old fashioned trading? You know - "Discreet young sampler with excellent pan flute and bongo looking for adventurous samplee with gorgeous bagpipes. Object: 3-way split."

Nuff said? See ya later. I gotta split.

Clark Salisbury

Clark Salisbury is Product Specialist with Portland Music Co. in Oregon, and is also a partner in "The Midi Connection," a Portland-based consulting firm. He has been actively involved in the composition, performing, and recording of electronic music for over five years, and is currently involved in producing and marketing his own pop-oriented compositions on cassette tapes.

LETTERS

Hello Hackers of the World,

I am writting this letter for a number of reasons. I have a few questions, a few bitches, and an announcement.

First, the questions:

1) In your first newsletter, Clark Salisbury mentioned a method of multi-sampling for layered effects. He mentioned something about "pairing the even and odd samples together to get two distinct sounds under each key." Could he better describe what he is doing and how to do it?

2) What are the pin-outs for the RS-232 port on the back? I have an Atari computer that I'm itching to hook it to!

3) Is there any R & D going on to interface the Mirage to an Atari? (The market price for the Atari 800XL just dropped to under $60 in some places... much cheaper than a IIe!)

Now for the bitches:

1) Why can't the Mirage format their own disks? It seems to me that this is a pretty sleazy way for Ensoniq to charge $12.95 for a $4.00 disk! Why couldn't the Operating System include a formatting option?

2) Why did I have to spend an additional $49.95 for a manual (Advanced Samplers' Guide) that was as necessary toward the operation of the Mirage as the AC power cord? The Musician's Manual showed you how to plug the keyboard in and turn it on, but without the Advanced Sampler's Guide, you might as well go out and buy a Casio! It is mandatory that you have that guide in order to even start utilizing the functions of the Mirage, so why not just admit the system costs $1750 instead of $1700?

3) Why should a foot switch cost $16.95?

And now for the announcement:

I will be opening a new business called "Sampliq" that will be offering a library of disk sounds ranging from musical instruments to sound effects. I own and operate a large 8-track studio and plan to utilize it to its fullest to bring you (the Hackers) the best sounds possible for much less than $39.95! I will keep you posted through the T-Hacker's (free) classifieds.

All in all, the Mirage is an amazing system that has not yet been pushed to its limit. I just hope I can come close!

Tracy Lord
Georgia, VT

Ed.: Thanks for the news about "Sampliq." Regarding your questions; we've passed the first one on to Clark, and you'll find his response following ours.

A diagram of the pin-outs for the expansion port may be found elsewhere in this issue - but, it's not really an RS-232 port. It does have transmit and receive

lines (these are the same as found on the MIDI port). Parameter 92 can be used to set the baud rate for 4800. Note that when you do this, your MIDI port will also be at 4800. At the present time, Ensoniq is not developing any software that uses this port, but they may do it the future. Ensoniq is concentrating on the MIDI port because that's where they feel the action is and it will do the same job as the other port - and much faster. Regarding the Atari 800 XL, if you did get them to talk, you'd still have the problem of finding software for the 800 XL - as mentioned elsewhere in this issue, there's no work being done as far as a Visual Editing System for your computer is concerned. (Hybrid Arts, 11920 W. Olympic Blvd., Los Angeles, CA 90064 does offer MIDI sequencer software for the 800XL.)

Regarding your bitches: We don't want to do too much second-guessing about Ensoniq's marketing strategy, but it should be mentioned that even the blank disks aren't just formatted but also contain the latest operating system. The policy with options is pretty typical in the computer field - what can you do with your 800XL without a monitor, printer, etc.? I believe that Ensoniq probably felt that there really were different levels of interest in using the Mirage for sampling, and that those who just wanted to buy and trade disks would probably bitch about paying $1750 to include a bunch of sampling info that they weren't going to use. Time will tell.

Clark Salisbury's response:

To achieve layering effects, one must activate Parameter 28, Mix Mode. When Mix Mode is on, the Mirage will pair consecutive even and odd numbered "oscillators" (i.e. #1 with #2, #3 with #4, etc.). You must be in Multi-Sampling Mode (Parameter 77). If you then sample one sound for the even and another sound for the odd numbered oscillators (i.e. piano on oscillators 1, 3, 5, and 7, and flute on oscillators 2, 4, 6, and 8), both samples will play from each key. Also, the mix (or balance) between the two sounds can be controlled by Parameter 34 (D. O. Balance) or Parameter 35 (D. O. Balance VS).

As always, comments from other readers are very welcome.

RANDOM NOTES

Unsubstantiated rumor has it that an independent software house ("Blank Software" of San Francisco) is developing a Visual Editing System for the Mirage that will run on the Macintosh. It's supposedly going to be available this fall. (Since the Mac uses the same processor as the new Atari ST, many software houses are porting their Mac programs to run on the ST - so maybe someday we'll also see a VES for the ST.)

Ensoniq Corp. has released their sixth sound disk by the time you read this. It's contains guitar sounds. Sound disk number seven is also in the works and will contain woodwind sounds. Hopefully, these will start coming thicker and faster because they've also been increasing their in-house sound development department.

Evidently, there's a lot of serious Mirage users out there - Ensoniq reports that they've sold more Advanced Sampler's Guides than they've sold Mirages.

THE MUSIC AND SOUND ELECTRONICS RETAILER, an industry trade magazine, reports that the Mirage placed third in their May Top Ten Products Survey.

Some early ads for the Ensoniq Visual Editing System may show the price as $349.95. The correct price is $299.95.

CLASSIFIEDS

USER GROUPS

San Diego County Ensonic Mirage Owners: Let's start a user group to exchange sounds and ideas. Call Paul at (619) 942-3027.

Wanted: Mirage owners in my area - to start an area user group. Contact: J. W. Adams, 269 Cayuga, Elmhurst, IL 60125.

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.

THE MIRAGE & RECORDING

Erick Hailstone

Last month's article compared the MIRAGE to conventional synthesizers and sequencers. It also showed what the MIRAGE could add to these conventional systems. These same abilities make the MIRAGE a powerful recording device by itself, with a variety of other recorders, and with other sequencers and similar devices.

Because the MIRAGE has its own on-board sequencer it is a recording device itself. The Mirage can create and store (on disk) eight 333-event sequences. Depending on what sampled sounds you have loaded in the Mirage, you can have quite a variety of sounds to choose from at any given time.

Let's start with one of the disks that come with the Mirage. Take Disk 1 and load Sample 1 (the piano) into the upper half of the keyboard and load the Drum/Synth Bass to the lower half of the keyboard. Let's record a sequence. We will start with the lowest key (the bass drum) and play this figure:
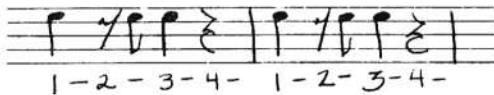
The snare we will place on beats 2 and 4.
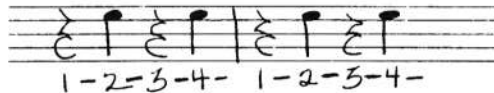
The hi-hats will be 8th notes. (Some may find it easest to do these first.)

The whole figure looks like this:

Now we can use our bass sample and play a bass part over the drum part:

Finally, we play chords on the upper half using the piano sample. We have the equivalent of three musicians playing at one time. We still can play the Mirage while the sequence is running so we sound like four people at once. This is just a small sequence - with the Mirage's Expander Cartridge we can write 1,357-event sequences. This is enough to write whole songs giving us greater creative freedom. Because we can overdub each of these parts as we listen to what's already been recorded, we can build songs up a piece at a time.

Here are some tips to make this process easier and more coherent. Use a metronome or some other timing device as a reference so that everything will be true to each other. Secondly, since you can't go back and separate these parts if you make a mistake, after you have the first part down, save it on a disk. The longer the song or idea the greater the chance for error. You may choose to play the bass and snare drum together as they tend to give balance to each other. I would do the hi-hat by itself and be very careful because these repetitive patterns can be hard to keep accurate. Depending on your skills and abilities you may choose to perform the bass (synth) and piano together. Again, they can lend balance to each other. Don't forget the metronome. Pitch bend and modulation will also be recorded. The pitch bend is especially useful with the electric tom-tom sound. Even though there is only one sound you can get the equivalent of several tom-toms by bending the pitch. Pitch and modulation are also valuable with the bass sounds to get inflections more like an actual bass. A slight pitch bend is like sliding your finger on a bass and the modulation can add vibrato. These can also be applied to the piano to create effects a normal piano could never do.

This is the Mirage by itself. If we have a conventional recorder we can play along with our sequence and add parts. Let's add a drum machine to our equipment. There are several on the market with prices ranging from $200 to

several thousand dollars. Fortunately, there are many under $1,000 that are very good. By taking the drum task away from the Mirage, it is freed up to use other samples. Also, a drum machine is a dedicated device that does nothing but rhythmic phrases and is generally easier to use at that task. It also gives us an excellent timing reference for creating the rest of our arrangement.

Generally, the drum part should be written first, although this is not a fixed rule. You can perform other parts on the Mirage while you listen to the drum arrangement. The Mirage's sequencer can be synced to the drum machine so they play together smoothly.

We now come to the multitrack recorder. The simplest multitrack recorder allows you to record on one channel or track and then record that channel and something you are playing onto another track. This takes everything we have already done and allows you to do even more. Most common multitrack recorders will have 2, 4, 8, or 16 tracks. Professional recorders will have 24 or more tracks. There are many 4-track recorders with mixing capabilities built-in. These can be cassettes or reel-to-reel. There are several 4-track cassette types with mixing capabilities in the $500 to $1000 range. With these machines the first sequence can be recorded

on one channel with other people playing along with it, then overdub on the next channel while listening to the first channel. Since we have four channels we can have many of the Mirage samples (even from different disks) playing simultaneously.

The drum machine is even more useful with the 4-track because it gives you more freedom with the Mirage. A good drum will have a feature called Sync-to-Tape or Tape Syncing. Here's how it works. Once you have written the drum arrangement you can connect a specially marked output to one track of your recorder. Turn the recorder on in the record mode, then turn on the drum machine. Do not have the drum sound output connected to the tape recorder. When the drum machine stops, stop the recorder and rewind to the beginning. What we have done is record a code that will turn the drum machine on and off. This allows us to write a sequence on the Mirage, sync it to the drum machine, have the recorded sync code turn on the drum which then turns on the Mirage. This all gets recorded on the second channel. Then we can write an additional sequence on the Mirage that compliments our first sequence. First, rewind again and set the recorder to record on the third channel. Start the recorder which starts the drum and the Mirage and play the new sequence. It will be synced. When we have three channels recorded, we can record new parts over the sync code on track 1 since we no longer need it.
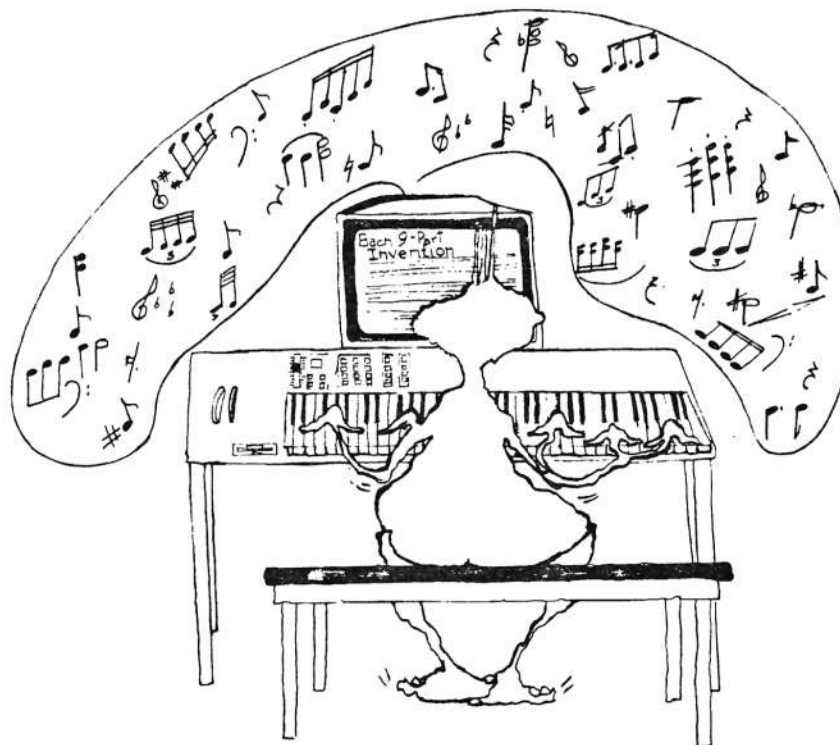
TALISMAN

Some of these recorders allow you to bounce tracks. Here is an example of this technique. On Channel 1 we record our sync code. On Channel 2 we record the drum machine and the Mirage with slap bass and piano. On Channel 3, we record the Mirage playing trombones and trumpets. On Channel 4, we record Mirage strings. Since we no longer need the sync track, we can take the outputs of Tracks 2, 3, and 4, and feed them to the input of Track 1. (With some machines, this is accomplished with a series of switches - and on others you'll need an external mixer.) The end result is that everything is now on Channel 1 and the other channels are freed up to repeat the process with even more material.

One trade-off of this technique is that each time you bounce tracks there will be a slight loss of fidelity. How many times you can do this before it becomes noticeable will vary from machine to machine. (The important specs to watch for are the highest possible signal-to-noise ratio, then high bandwidth and low distortion.)

Another device that allows us to take advantage of the Mirage's MIDI capabilities and open even more doors is a sequencer. A good sequencer will have features that will make arranging music easier. First of all, many will give a visual reference to our music - where we are measure by measure and beat by beat. We can start or stop at a given measure or beat. This makes it much easier to punch in and out when doing overdubs.

We can also slow things down to a standstill for playing difficult parts. Some will have an auto correct function that will compensate for less than perfect playing. Some will also have step loading which allows you to play the melody and harmonic notes on the keyboard, then apply the time value (notes, rests, ties, etc.) from the sequencer. This gives you extremely tight accuracy.

Every nuance of the Mirage can be recorded by the sequencer. You can do overdubs without risking your original - it will allow you to record each part separately, then merge them to one later. (Or write several different sequences and try them in different combinations.)

Recording is an art in itself and perfecting certain techniques with the various types of equipment will take time and practice, but the rewards are well worth the effort.

Erick Hailstone studied composition and arranging at the University of Nevada and at Berklee College of Music. He has been involved with synthesizers and the related technology for the past seven years. Primarily a guitarist, his orientation has been in performing and recording with these devices.
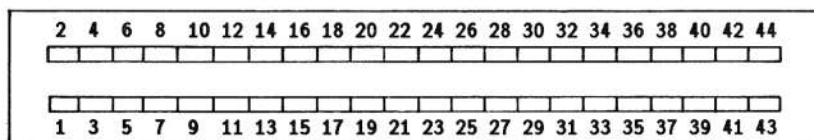
THE MIRAGE EXPANSION PORT

The following describes the lines to be found on the Expansion Port on the rear of the Mirage.

Extreme care must be exercised when connecting anything to these lines. Most of them are static-sensitive. Most of the signal and supply voltage lines aren't buffered or current-limited and can be overloaded - so watch it!

Ensoniq will not perform any warranty repairs on instruments that have had non-approved devices attached to the Expansion Port. Right now, the only approved devices are the Sequencer Expander and the Input Sampling Filter.

Also, note that the pin numbering scheme is a little different than most edge connectors.

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43

Pin#	Name	Description
1	GND	System Ground Reference
3	-8V	Regulated -8 V (100 mA MAX)
5	+12V	Regulated +12 V (100 mA MAX)
7	R/$\overline{\text{W}}$	Read/Write Control line from Microprocessor. (Unbuffered MOS output with 510-ohm pull-up. One LSTTL-load MAX.)
9	$\overline{\text{RES}}$	Negative-Active Power-on reset output. (Unbuffered bipolar output. One LSTTL-load MAX.)
11	NC	No connection.
13	NC	No connection.
15	NC	No connection.
17	NC	No connection.
19	GND	System Ground Reference.
21	$\overline{\text{IRQ}}$	Negative-Active Interrupt input to Microprocessor. (Unbuffered MOS input with 2.4k-ohm pull-up.)
23	$\overline{\text{HALT}}$	Negative-Active Halt input to Microprocessor. (Unbuffered MOS input with 2.4k-ohm pull-up.)
25	D0	Data Bus Bit 0 from Microprocessor. (Unbuffered, one LSTTL-load MAX.)
27	D1	Data Bus Bit 1 from Microprocessor. (Unbuffered, one LSTTL-load MAX.)
29	D2	Data Bus Bit 2 from Microprocessor. (Unbuffered, one LSTTL-load MAX.)
31	D3	Data Bus Bit 3 from Microprocessor. (Unbuffered, one LSTTL-load MAX.)
33	D4	Data Bus Bit 4 from Microprocessor. (Unbuffered, one LSTTL-load MAX.)
35	D5	Data Bus Bit 5 from Microprocessor. (Unbuffered, one LSTTL-load MAX.)
37	D6	Data Bus Bit 6 from Microprocessor. (Unbuffered, one LSTTL-load MAX.)
39	D7	Data Bus Bit 7 from Microprocessor. (Unbuffered, one LSTTL-load MAX.)
41	TXD	Serial Data Output from ACIA. (Unbuffered, one LSTTL-load MAX.)
43	+5V	Regulated +5 V supply. (See pin 44.)

Pin#	Name	Description
2	GND	System Ground Reference.
4	A0	Address Bus Bit 0 from Microprocessor. (Unbuffered, 3.3k-ohm pull-up. One LSTTL-load MAX.)
6	A1	Address Bus Bit 1. (See A0.)
8	A2	Address Bus Bit 2. (See A0.)
10	A3	Address Bus Bit 3. (See A0.)
12	A4	Address Bus Bit 4. (See A0.)
14	A5	Address Bus Bit 5. (See A0.)
16	A6	Address Bus Bit 6. (See A0.)
18	A7	Address Bus Bit 7. (See A0.)
20	GND	Sytem Ground Reference.
22	A15	Address Bus Bit 15. (See A0.)
24	A14	Address Bus Bit 14. (See A0.)
26	A13	Address Bus Bit 13. (See A0.)
28	A12	Address Bus Bit 12. (See A0.)
30	A11	Address Bus Bit 11. (See A0.)
32	A10	Address Bus Bit 10. (See A0.)
34	A9	Address Bus Bit 9. (See A0.)
36	A8	Address Bus Bit 8. (See A0.)
38	$\overline{\text{CART}}$	Negative-Active Chip-Select for Cartridges. Decode address range $C000 to $DFFF. (Buffered TTL output. One TTL-load MAX.)
40	E	1.0 MHz Master Bus Clock of Microprocessor. (LSTTL output with 1k-ohm pull-up. One LSTTL-load MAX.)
42	RXD	Serial Data input to ACIA. (Unbuffered MOS input with 200-ohm pull-up.)
44	+5V	Regulated +5 V supply. (Combined output of pins 43 and 44 is 250 mA MAX.)

NOTES:

1. Early Mirages (before Serial Number 11250) used a -12 V supply instead of -8 V.

2. The Address Bus and Data Bus are shared by the microprocessor and the Q-Chip (tm), resulting in an effective bus speed of 2 MHz. The processor is active when the E clock is high, while the Q-Chip is active when the the E clock is low.

3. The R/$\overline{W}$ output is gated with the E clock. A write can occur only when the E clock is high.

4. The $\overline{RES}$ signal is an output. Do not pull this line low.

5. When pulled low, the $\overline{HALT}$ line will tri-state the Address Bus, Data Bus, and R/$\overline{W}$ line. Pull-up resistors will cause the Address Bus and R/$\overline{W}$ lines to float to a high state.

6. A15 is a special control signal output and is treated differently than the other address lines. A15 reflects the state of internal bank-switching circuitry and is not a direct connection to the microprocessor.

7. The $\overline{IRQ}$ input is a common connection for many internal devices which generate interrupts. If an external interrupt is generated, the standard Mirage operating system will ignore it. If an external device holds this line low, the Mirage will lock up.

8. The $\overline{CART}$ output is gated with the E clock, therefore, a chip select can only occur when the E clock is high.

9. TXD and RXD are direct connections to the ACIA and operate at LSTTL levels. The serial data which appears here is the same as on the MIDI port. The baud rate can be set for MIDI rate (31.25 kbaud) or 4800 baud. When using these pins, the MIDI port should be left unconnected to avoid a conflict.

10. If $\overline{CART}$ is not used and additional chip selects are decoded off the Address Bus, these chip selects should be gated with the E clock to ensure that they can only be valid during the E clock high time.

11. The E clock has a 60% low, 40% high duty factor.

QUESTIONS & ANSWERS

QUESTION: My Pitch Wheel goes up a major 7th and down a minor 7th. Keyboard Magazine (June 85) said it goes up a minor 7th and down a major 7th. The manual says it has a two-octave range. What should it be?

ANSWER: The range of the Pitch Wheel was changed in disks with Operating System 2.0 and greater to go up and down the same amount. Parameter 22 controls the Pitch Bend Range. The maximum setting (34) should yield at least eight half steps or a minor sixth. Any less means that your pitch wheel is probably mounted off-center.

QUESTION: Keyboard Magazine (June 85) mentioned that some of the factory samples have noticeable looping. Does this mean the loop didn't have a click-free splice?

ANSWER: We haven't noticed any clicking on the samples we've heard. "Noticeable looping" may mean different things to different people. They may be referring to any differences in volume, frequency, or harmonics

that occur between the end of one go-around and the beginning of the next. Sometimes this can show up almost like a low beat-frequency (sub-harmonic).

QUESTION: How do you enter hexidecimal numbers when there are no alpha keys to enter? (Sorry, I haven't finished reading the manual yet.)

ANSWER: As you've probably discovered by now, these are entered with the Down/Off and Up/On buttons.

QUESTION: I had trouble syncing my RX-15 Drum Machine with the Mirage internal sequencer. What triggers the first beat so they are playing together?

ANSWER: After recording a sequence on the Mirage along with a drum pattern on the RX-15, press the sequencer Play button, then start the RX-15. Make sure that the sync is set to External, MIDI Jack (Parameter 85: ON, Parameter 86: OFF).

QUESTION: Just how fragile or durable has the Mirage (especially the disk drive) proven to be out on the road?

ANSWER: We need to hear from readers to develop some history on this. Unless there's a serious problem, it's probably too soon to tell right now. Clark Salisbury tells us that they've been using the same Mirage as a demo unit in their store for 9 - 10 hours per day, six days per week, for five or six months with no problems. Out of the 30 or so that they've sold, they've had what's known as "infant mortalities" (usually weak components that go bad during the first few days of use) show up in only two units.

QUESTION: Can sounds be moved from lower keyboard positions to upper keyboard positions? For example, how could I get synth sounds from one disk (lower #1 sound) and horn sounds from another (lower #2 sound) moved to the lower and upper halves of a third disk?

ANSWER: Without MASOS this can't be done. With MASOS, use the Copy command (Parameters 17 and 18). But remember, the split point will cause the tuning to be off. The first key of the lower keyboard half is a different pitch than the first key of the upper keyboard half.

QUESTION: Is it possible to doctor up a sample after it's been stored and the source is gone to eliminate the noise left over after the end of the sound?

ANSWER: This can be done by selecting parameter #61 (Sample End), and lowering the value. Be sure to save a copy to disk BEFORE you do this, so you don't lose some data that you wish you hadn't.

QUESTION: The MASOS manual describes an "Invert" function on pages 28 and 66, but it doesn't really say how or why to use it.

ANSWER: This is supposed to be a handy little tool to use when you're trying to get the kinks out of a waveform loop. Unfortunately, according to Ensoniq, it's difficult to use properly without their Visual Editing System. It will be explained more in the VES manual. We'll pass on any useful information when we get a review copy.

QUESTION: Could the Mirage's internal sequencer have a hardware upgrade to make it capable of holding 7,000 or more notes?

ANSWER: The Expander Cartridge will get you to over 1,300 notes. According to Ensoniq, getting to 7,000 or more would require a change in their operating system software. There presently is no room in the Mirage's internal memory to offer both sound and a larger sequencer. They didn't rule out the possibility that in the future they might offer a different version of the operating system that could handle this by, say, dropping some of the sampling functions, and turning the Mirage into a dedicated 20,000-note sequencer with disk storage.

QUESTION: Will Ensoniq be marketing a visual editing system for an Apple II+? If not, can the one for the Apple IIe be modified to run on a II+ that's got an extra 64k of block-switched RAM?

ANSWER: Yes. The VES will be sold to support both the IIe and the II+ with a Videx-compatible 80-column card.

QUESTION: Does anyone know how to format a blank (generic) diskette?

ANSWER: Not yet. Ensoniq tells us that they're even having trouble finding someone that can mass-produce them for THEM. (They aren't just formatted, they also contain the latest version of the operating system.)

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NEW PRODUCT RELEASES

SynthArts Introduces New Synthesizer Instruction Series.

SynthArts introduced a new education package, Secrets of Analog and Digital Synthesis, at the recent NAMM. The package includes a two-hour video tape, a 130-page illustrated text, and a one-year subscription to the SynthArts User Support Group. The package is intended to be a unified, logical and straight-forward instruction series that demostrates musical applications of electronic music theory. Distributed by Cherry Lane Technologies. ($129.95)

Manufacturers are requested to send information regarding new products to: PRODUCTS, Transoniq Hacker, 5047 SW 26th Dr., Portland, OR 97201.

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