

Transoniq Hacker

Briefly known as Transoniq Emu...

A Slight Change in Direction...

Long long ago, in what seems like a galaxy far far away, a brave little band of engineer/entrepreneurs decided to try the "impossible" and launch a new electronic instrument company to challenge the established giants. They figured that technical innovation gave them a fighting chance. Another gutsy thing they did was to tolerate — and even support — an independent, open-forum newsletter dedicated to covering their products.

It seems they were right on both counts. Even the old thorn-in-the-side newsletter worked to their advantage. Little bands of third-party vendors started up and customers developed a strange loyalty — almost a feeling of family. Sure an occasional raving soul would vent in the newsletter, but this actually became an opportunity for the company to explain tradeoffs and design decisions and to come off as the reasonable, open, good guys. People understood. The company grew.

Well, now we're told that those days are gone. Technical innovation no longer drives sales — it's a mature industry and all marketing-driven now. (Usually this is an early sign that an industry is "ripe" rather than "mature"...). We're also told that a public discussion of problems generates bitterness on the part of customers. We're told that we're publishing inaccuracies. (No specifics — if we hear 'em, we'll certainly pass 'em along. We've never claimed to be all-knowing here. Hardware, software, documentation, newsletters — there will always be bugs. The more important question is how you handle them. What we do is provide an open forum so things can get thrashed over and corrected. "Given enough eyeballs, all bugs are shallow." — Linus's Law.)

We dislike being cast in the old-fart role longing for "the way things were," but, by cracky, we don't think technical innovation is quite so secondary and it seems like trying to control what "gets out in public discussion" about your products in today's world is a lost cause — "those days are gone."

We've always had an open-discussion policy here and Ensoniq has always been given the opportunity to respond to things and fact check to their heart's content. They've become less and less involved with this. It should be noted that Eric Montgomery (bless his heart!) has been responding to letters, whenever possible, on a *volunteer* basis — not supported by Ensoniq, but just because he knew it was important to correct any misinformation and address issues raised in the Interface. We've repeated our offer to Ensoniq to review things and correct mistakes *before* they get printed, but we are told that there're no resources for that. We're not walking in their shoes and we certainly respect their right to brush us off, and maybe we're missing something here, but it's hard to understand how a small, growing company felt it was important and had the resources to go over all the letters, and now, what is literally part of a billion-dollar company can't devote the time to make sure we're giving customers the straight scoop.

With regard to generating bitterness — certainly not our intent. Our success depends on Ensoniq's success. And again maybe we're missing something here, but our impression of the overall "feel" in the letters and phone calls we receive is that people really understand tradeoffs and economic reality. What they're usually looking for is some sort of work-

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around or whatever to deal with some technical problem. About the only times we see what might be described as bitterness is when questions *don't* get a response from Ensoniq or published specs and projected capabilities don't pan out. Specs are just about always listed as "subject to change" so maybe folks shouldn't get miffed about it — but the Hacker's not responsible for those feelings.

Ah, well, so what's the bottom line on all this? Emu-Ensoniq has decided to no longer endorse this newsletter and include our flyers with their instruments. Barring unforeseen developments, our response to this is that we're going to have to close down — those flyers are our lifeline. Over the last few years Ensoniq's declining unit sales have had quite a toll on us. Years ago we reached a "steady-state" situation where new subscribers coming in equalled the number of non-renewals. This is the normal condition for 'zines unless something changes the balance. What changed the balance for us is Ensoniq's declining unit sales. If they ship a fraction of what they used to, eventually our circulation is cut to that same fraction. We've been trying to make up for some of this with the coupon offers and cutting back on the page count, but, for about the last year, this has been a break-even operation. By this we *don't* mean, say, "after salaries," we mean that after paying printing, postage, and writers, what's left is zero or close to it. This

is a fair amount of work for zero. We kept going at this in the hopes of waiting out the situation and participating in a turn-around. Now it looks like between the Emu merger and some products that might be pretty hot (like FIZMO), the turn-around may be here. But we're not invited.

We certainly don't want to poison whatever's left of our relationship with Emu-Ensoniq, but we do have to explain what's going on and why — and we certainly want to express our disagreement with their decision. They said it was a tough one, and we're sure they're aware of the tradeoffs. They gotta do what they gotta do. So do we.

We'd like to apologize to our subscribers — new folk in particular. This is probably not what you thought you were getting into but this is a surprise to us too. (Just a few short months ago Ensoniq was recommending us to their counterparts at Emu.) Our money-back guarantee still applies. However, before you go...

We're going to try like the dickens to go out with a little bit of dignity. Over the years we've all had magazines that just kinda stopped coming and we're not going to do that. The plan is to fulfill as many subs as possible by keeping going for the next year. There's a handful of subscriptions that extend out past a year — you folks we hope we can buy off or trade back issues or Hacker

t-shirts or wash your car or something when the time comes. New subscriptions that trickle in during the final year will be given partial-subs/partial-refunds (and their coupons) that will run through the last issue. Renewal notices will also be adjusted each month so the cost and the term fit the remaining number of issues to be published. Any subscriptions that come in from Emu owners will be given a note of explanation and their coupons and have their checks returned. This thing is going to wind down and it's probably going to shrink some — but we intend to get those issues out. Maybe things will even get more interesting.

As an important aside: Check out the advertisers you see in this issue. These are also folks who have stuck with us through these times. (Which have got to be hard on them too.) These are the ones who haven't disappeared. These are survivors. While many of them are healthy enough and have enough other means of reaching their customers that they will continue long after we're gone, this isn't going to make things any easier for them either. Support these folk.

And if you've been toying with the idea of writing an article or if you've got some comments or questions — better get going on it!

Take care,
Eric & Jane

HYPERSONIQ

New Product Announcements

Sound Engineering Announces: The first available native ASR-X CD-ROM.

Sound Engineering, a leader in sound and sample design since 1991, is proud to announce the availability of the first ASR-X CD-ROM — *Sound Engineering's ASR-X Volume 1*. This CD-ROM is available at the low price of just \$49.95 and is a compilation of its currently shipping Sound and Beat Libraries for the ASR-X. "Our ASR-X 20 floppy disk library, in combination with these groovy drum beats, take the ASR-X and the ASR-X Pro to new heights," said Noam Sane, head Gizmologist. "We have so many of our customers ask for these tools in CD-ROM format, we decided to make it happen." The 100 drum beats, programmed by drum beat maven, Joel B., is a fantastic tool for all ASR-X owners. The 20 ASR-X Session Files that include patches and samples, have satisfied hundreds of customers. Pricing: SEC-004 ASR-X Volume 1 is \$49.95,

with international shipping available.

Sound Engineering also announces Ensoniq ASR-10 CD-ROM: "The Art of Transwaves" by Derek von Krogh.

The new CD-ROM is available at a special introductory price of just \$129.95. "Derek is the master of the transwave, the proprietary loop modulation technique available only in Ensoniq products," said Noam Sane. "These all new sounds and samples, like most of our material we've developed over the years, really target the needs of the brooding Techno and Industrial composer. Best of all, they're studio tested." *The Art of Transwaves*, which is shipping now, is a fantastic collection of new material for ASR-10 owners. This disk turns an ASR-10 into a Transwave monster. Each sound on this disk takes full advantage of the modulation sources available in the power synthesizer engine of the ASR-10. Pitch wheel, mod wheel,

aftertouch, patch selects and custom effect programming appear on every instrument. A "SoundFinder" sub-directory set on the disk offers demo application sequences for each transwave instrument on the CD-ROM.

Sound Engineering has been a leading sound design firm since 1991, offering intense support for AKAI, Kurzweil, Peavey, Roland, Oberheim, Sequential, Yamaha, and Peavey products. It offered the first third-party product support for the ASR-X in 1997. It offers a full line of synth patches, sampler floppies, and CD-ROMs. Online ordering and a complete catalog are available online at: <http://www.soundengine.com/>. Contact: 610-519-WAVE (9283), Sound Engineering, PO Box 2226, Southeastern, PA 19399.

EMU-ENSONIQ Announces FIZMO

EMU-ENSONIQ is excited to announce FIZMO, an entirely new, interactive, 61-key synthesizer from Ensoniq. FIZMO is Ensoniq's latest keyboard synth that is tailored toward the modern musician. FIZMO utilizes real-time transwave synthesis, a powerful synthesis engine capable of 48-voice polyphony, state-of-the-art 20-bit output converters, 24-bit on-board effects that are powered by ESP-2 (the same chip found in Ensoniq's PARIS system), and a Flash OS that is user upgradeable via the internet or floppy disk. FIZMO has a suggested retail price of \$1495.

Real-time transwave synthesis

Ensoniq's sound design team created a new 4MB ROM specifically for FIZMO. Ensoniq's Transwaves form the foundation of FIZMO's sound. Each transwave is a wavetable of sound data with a number of loops, called frames, rather than just one. Each frame has a slightly different harmonic structure and they're arranged sequentially so that the timbres progress naturally from one end to the other. FIZMO is capable of a wide variety of timbres — morphing bell tones, analog favorites, resonance sweeps, as well as unique, physically modeled timbres. FIZMO's presets consist of up to four sounds that may be layered, split across the keyboard, or addressed via MIDI on separate channels. FIZMO's synth engine is capable of 48-note polyphony and its state-of-the-art 20-bit output converters ensure crystal clear sound with a wide dynamic range and an extremely low-noise floor.

Real-time control interface

A real-time control interface is coupled with FIZMO's advanced wavetable synth engine to create an entirely new, interactive playing experience. Every programming function has its

own dedicated knob or button. Five "FIZMO" tweak knobs provide real-time performance modulation to FIZMO sounds. Each knob controls all current sounds on the keyboard simultaneously and may address several controllers, allowing the player to make dramatic, instantaneous changes to a preset. In addition, all controls may be recorded in real time to an external sequencer. "FIZMO blends the best technical and musical qualities of a synthesizer. Anyone can get a groove happening on it in minutes!" says Joe Kramer, Ensoniq product manager.

On-board effects

On-board 24-bit effects are powered by ENSONIQ's ESP-2, the same powerful chip found in Ensoniq's PARIS Hard Disk Recording System. High-quality, global reverb with three adjustable busses is always available, and a separate insert effect may be used in a preset. FIZMO includes 41 legendary Ensoniq insert effects algorithms and a microphone input is provided so that the coveted sounds of vintage Vocoder are accessible.

Arpeggiator Players of all levels will enjoy interacting with the "Intelligent" Arpeggiator. Ensoniq engineers carefully crafted the software and presets so that complex, musically useful patterns are instantly available. A "Tap Tempo" button is provided, making it easy to lock in to a live performance. Performers may also set the tempo manually or sync to MIDI clock.

Flash OS

Also new to FIZMO is a Flash operating system that is user upgradeable over MIDI. OS updates are delivered on disk or via the Internet in Standard MIDI File (SMF) format.

Users simply load the file into any software program or hardware MIDI sequencer capable of SMF playback and "play the sequence" into FIZMO to perform the update.

Performance Features

- Five FIZMO real-time control knobs
- Four dedicated Sound buttons allow convenient selection, layering and key range assignment of presets
- 17 dedicated Sound and Effect editing knobs
- All four zones can play local sounds or external MIDI sources
- 48 dynamically assigned voices
- Dual layer voice architecture with the following parameters (per layer): Independent waveform selection, Volume, and Pan
- Four-pole dynamic digital low-pass resonant filters with key tracking (33 settings, including fractional scaling)
- Three envelope generators that can be modulated by velocity, key scaling, and response to release velocity
- 22 modulation sources, 8 modulation destinations
- One LFO (seven waveform choices can sync to Arpeggiator or external MIDI clock)
- Variable rate noise generator can sync to Arpeggiator or external IDI Octave, semi-tone, and fine tuning
- Pitch tracking (33 settings, including fractional scaling)
- 45 ROM pitch tables (256 steps per semi-tone resolution)
- Glide mode, glide time
- Mono/poly playback
- Programmable pitch bend range
- Sustain on/off

EMU-ENSONIQ — Following the acquisition of Ensoniq Corp. by Creative Technology, Ltd. earlier in the year, E-mu Systems and Ensoniq Corp. have joined forces to do business as EMU-ENSONIQ, Music and Audio Systems. [Specs subject to change.]

ASR-X/Pro Tips

Eric Montgomery

These tips are ones for the guy or gal who is just beginning with the X, or for people that are running into some snags while attempting to do some basic functions. The tips are derived from my using the ASR-X Pro and running into some brick walls. I am hoping that my headache will be a detour for you. Every item covered in this article pertains to the ASR-X classic as well. I hope these tips clear up some snags and get you on to writing some phat tunes. Good Luck!

While using the X to do some demos I found that I ran into some things that were different from the ASR-10 (my primary workhorse for years). For example, on the X, you have to do some memory management while sampling. The scenario began when I truncated a sample. I lost memory. What?!? That was contrary to expectations — after truncating you should gain memory. The other problem was that I was not hearing my edits. The sample was still the same after editing. Well,

the edited version of the sample is actually sent to the scratchpad after truncating (or any other edits like normalize, reduce sample bits or anything else in the Pad Process area). You have to send the new sample to the pads if you want to use the newly edited version. Think of it as an undo function. If you don't like the edit, you can always go back to the original and redo the edit.

I also found, that after editing a sample in the process area, I had additional copies of the sample (sample1, sample_001, proc1, proc_001 etc.) I did not want these in memory because I needed the extra ram for other samples. What I started doing was erasing the other copies through the Memory

Manager. I soon found that I had a special knack of erasing the wrong samples. Duh! I then figured out a different way of dealing with this issue. The process I now use is to take the sample like normal. Set the start and end times as needed. Go to Pad Process and choose my edit (Truncate in this scenario) and press Enter. Now, my edit is on the scratch pad. Select the Custom bank and select the original sample. Press and hold the Track Sound button, press the Exit/No button. The X will ask if you want to "Delete ---- and all references?" Answer Yes by pressing Enter. Select the user bank, select the sound that the original sample was sent to. Press and hold the Track Sound button, press the Exit/No button. The X will ask if you want to "Delete ---- and all references?" Answer Yes. Send the new sample to the pads and you are done. Now you don't have as many samples in memory. Yeah!

Now, you have the sample just the way you want it. You've already edited the sample and put it on to the pads. The idea now is to save the sound to floppy or to your hard drive. Go to the Custom Bank. This bank appears after you have something in RAM. It is located at the end of the list of banks (turn the parameter knob clockwise). Your sample is sitting there with a key-range that stretches from C-2 to C-7. Press SAVE. Be sure to select the "1-SOUND" file type. Name it and follow the directions on the screen. After it is saved, go to the Memory Manager and erase all the samples (Erase Memory Banks). Reload the instrument. Now you don't have a lot of copies reloading into memory. The other perk in saving this way is that you conserve storage space. That is, if you saved an ALL Session file, it would include all of the extra or unused samples.

If you want to edit your samples at a greater depth, use a waveform editor. You will then be able to see the waveform, which makes for easier editing. Some good editors (but not exclusive to) are *Sound Forge* from Sonic Foundry (Windows), *Cool Edit* from Syntrillium (Windows), *Peak* from Bias (Mac) or *Wavelab* from Steinberg (Windows).

Okay, back to the demo. I had these phat funky samples, and I started to sequence and put this stuff together. I put a few things together and the sequence started hiccuping. Was I doing something wrong? Well, not really, I was just taxing the X a little too much. Remember that the X is doing a lot of work. It is being a sequencer, multi-effects processor, sampler and tone module. I found that I could sometimes fix this hiccup by erasing the Bank and Program changes and controllers from each track. Don't forget to be creative with the X. Remember, you do have a feature that pulls everything together in a sequencer, Quantize! May be kind of a different idea, but try quantizing to shift the track forward or back a little and the sequence may "feel" a little better. To shift a track, press the Sequence Process button. Turn the Parameter knob till you see "Quantize track #?" Press Enter. Turn the parameter knob till you see, "Shift =3D." Turn the value knob and increase the percentage to push the track back, decrease the value and you will be pulling the track forward. You will get a similar result with using "Swing." Start off using small percentage changes until you find one that works for you. If you have all of the notes hitting at once, or when a sequence loops around, there is bound to be some sort of delay or hiccup in any sequencer. If one or a few tracks are shifted a few clocks, it could begin to take the shape you want.

If you require the sequence to be a little smoother or need to do in-depth editing, a software sequencer is probably an easier way to put it all together. Some good sequencer software programs are (but not exclusive to), *Cubase* from Steinberg, *Logic* from E-magic and *Cakewalk*.

Let's go a little further and think of another scenario. Say you have some really cool chords, a bass line and then you added some drums and you are finding that you are running out of polyphony. Here comes creativity! Do what the ASR-X/X Pro is designed to do, resample! Resample the chords by themselves. Resample the drum

pattern and create your own drum loops! Put these new samples back into your sequence and erase the drum track and chords track. Now you got polyphony back and you can add even more to your song! Also consider doing a resample with one of the 40 cool Insert effects presets. Use the same drum program, but with two different resampled versions of the drum groove, one with effects for a type of break down, and one dry for other parts of the song.

That is the end of my demo story. The rest is history, or a couple of demos that is. If you want to hear my 30-second demo (X-treme) as well as some other great demos, you can listen on an ASR-X Pro, or go to Ensoniq's website. On the ASR-X Pro, press and hold the Essentials #5 button. While holding the #5 button, press the Essentials #9 button. Release both buttons. Press Enter.

You can hear the ASR-X Pro demos on the web at the following URL:

<http://www.ensoniq.com/html/asrxpro/audiodemo.htm>

I hope you find these tips useful and fun to try. You might find that you could do more with an X than you think. As always, be cool, be funky, make music, think Ensoniq! ■



Bio: Eric Montgomery has written demos for Ensoniq products and Christian Music projects. Eric is now working on his next CD and enjoying that thing called life!

you may be out of luck in the commercial area. But there is still hope. Do it yourself!

The purpose of this article is to explain how to get information to and from your Ensoniq synthesizer using the basic WINDOWS application programming interface (API). Although most any programming language can be used, the example uses Microsoft VISUAL BASIC 5 (VB5). I'll take you step-by-step through a MIDI communications program. With this introduction you'll be on your way to writing your own

Communing with your Ensoniq

Part I

Bob Lang

You've got your Ensoniq synthesizer. You've got your WINDOWS based computer. You've got your MIDI interface card. Now what? I get a

lot of email from people asking for a sound editor for their Ensoniq synthesizer or a utility to do this or that. Well, if it is an old synthesizer

editor or utility. The source code and executable program are available on the Internet at: <http://www2.netdoor.com/~rlang/midispy.htm>.

MIDI Review

Before we jump off the deep end into writing your own Ensoniq editor or utility, let's briefly review the Musical Instrument Digital Interface (MIDI). In 1982 the primary vendors of keyboard synthesizers hammered out the specifications for MIDI, which was a combined language and transmission protocol which would allow the sending and receiving of information to synthesizers.

MIDI information is sent through the connecting cables serially, that is, one bit at a time, 31,250 bits/sec. When an instrument receives a MIDI command such as "note on" it must receive the eight bits of information that makes up the "note on" command, decode it and act upon it. MIDI commands are divided into status and data bytes. A byte is 8 bits of information. (See Hexadecimal sidebar.) MIDI Status bytes always have high order bit equal 1. Data bytes always have the high order bit equal 0. Figure 1 is the string of bits that will start a middle C with a velocity of pp on MIDI channel 1.

Special Ensoniq Extensions

In order to write an editor or a useful utility for an Ensoniq synthesizer, one must know what special system exclusive data (SYSEX) implementations Ensoniq has made to the standard MIDI specifications. Synthesizer manufacturers are free to define SYSEX messages any way they want as long as they start with F0 and end with F7. This documentation must be obtained from the manufacturer and is usually free of charge. You must have it! Write Ensoniq at the MIDI Specification Desk, 155 Great Valley Parkway, Malvern, PA 19355.

For example, in the SQ-1 external MIDI specification one will find such gems of information as, "to request a dump of the selected sound on the Ensoniq through the MIDI interface, one must send an F0 0F 06 00 00 00 00 01 F7 sequence." A single sound dump request is command type 01. All data in the SYSEX message has been nibble-ized (Ensoniq's word) by breaking each byte of data into two bytes: 01 becomes 00 01. Pretty cryptic, but nobody said this was going to be easy. Also in the external MIDI specifications one will find useful information like the formats of sound and sequence dumps and how to control the Ensoniq's many buttons through the MIDI port.

Operating Systems

This article will specifically talk about computers using Microsoft Windows 95/98/NT. A complete discussion of the inner workings of Microsoft Windows would require an entire book. A simplified version of the workings of Windows involves three key concepts: windows, events and messages. Think of a window as simply a rectangular region of the screen with

its own boundaries. There are many types of windows. A Microsoft Word document window, a commandbutton, a radiobutton and menu bars are all windows.

The Windows operating system manages all these types of windows by assigning each one a unique id number (window handle or WHANDLE). The system continually monitors each of these windows for signs of activity or events. Events can occur through user actions such as a mouse click, activity on a midi cable, key press or through programmatic control.

Each time an event occurs, it causes a message to be sent to the operating system. The system processes the message and broadcasts it to the other windows. Each window can then take the appropriate action based on its own instructions for dealing with that particular message (for example, repainting itself when it has been uncovered by another window).

I am not a devotee of Microsoft, but most people seem to be using it, so why buck the trend. There are enough books written on Microsoft operating systems that you should be able to find whatever information you need. Besides if you want to sell your great Ensoniq editor, you should look for the largest customer base possible.

Hardware

As mentioned earlier, in order to get information to and from your Ensoniq synthesizer you will need a computer with a MIDI port. If you have a SoundBlaster compatible sound card in your computer, chances are that it has a built-in MIDI port in combination with the game port. All you need is a special adapter cable. OP-CODE also makes a standalone MIDI port card for about \$60.

Software Drivers

A critical piece of software that goes with your MIDI port is the driver. The software driver provides the link between the hardware and the operating system. You must have a driver for your MIDI port that is compatible with your operating system. Fortunately many off brand MIDI ports are MPU-401 compatible and the WINDOWS operating system comes with a driver for this device.

Windows API

In the previous section we talked about how the hardware interacts with the operating system through the driver. In this section we will talk about how the programmer can interact with the operating system and by extension with the driver and the hardware using the Application Programming Interface (API for short). The API is implemented as a series of dynamic link libraries (those DLL files that take up all your disk space). Most programming languages can use these DLLs to interface with the operating system. Since these DLLs are part of the operating system there is no additional charge to use

them. Reference 1 provides an excellent source of information on the Microsoft Windows95/98/NT API.

Important API Functions

There are a number of API functions that were created specifically to interact with MIDI hardware. In order to use these API functions, the user must include the following declarations in the program. A brief description of these functions follows:

Declare Function midiOutGetNumDevs Lib "winmm.dll" () As Integer — This function returns the number of MIDI output ports. A similar function called *MidiInGetNumDevs* returns the number of MIDI input ports.

Declare Function midiOutGetDevCaps Lib "winmm.dll" Alias "midiOutGetDevCapsA" (ByVal MIDI_output_device_handle As Long, lpCaps As MIDIOUTCAPS, ByVal Size_of_MIDIOUTCAPS As Long) As Long — This function returns information about a selected MIDI output port in the MIDIOUTCAPS data type. The MIDIOUTCAPS data type has the following structure:

```
Type MIDIOUTCAPS
    Manufacturer_ID As Integer
    Product_ID As Integer
    Driver_Version As Long
    Product_Name As String * 50
    Type_of_device As Integer
    Num_of_Voices_if_Int_Synth As Integer
    NumofSimultaneousNotesIfIntSynth As Integer
    NumofChannelsIfIntSynth As Integer
    Specifies_Optional_Function As Long
End Type
```

The information of most interest in MIDIOUTCAPS is the Product_Name which can be used to identify the MIDI port that the Ensoniq is connected. *midiInGetDevCaps* provides a similar function for MIDI input ports. The MIDINCAPS data type does not include any of the information past the Product_Name.

Declare Function midiOutOpen Lib "winmm.dll" (lphMidiOut As Long, ByVal MIDIDeviceNum As Long, ByVal AddrOfCallback As Long, ByVal DWINSTANC As Long, ByVal Callback_flags As Long) As Long — This function opens a MIDI output port. *MidiInOpen* provides a similar function for MIDI input ports.

Declare Function midiOutShortMsg Lib "winmm.dll" (ByVal MIDIOutDevice_Handle As Long, ByVal MIDIMessage As Long) As Long — This function sends a short MIDI message to the MIDI output port. A similar function called *midiOutLongMsg* is used to send a SYSEX message.

Declare Function midiInStart Lib "winmm.dll" (ByVal MIDIInDeviceHandle As Long) As Long — This function starts the MIDI input on the specified port. Non-SYSEX messages are sent directly to the client when

received. SYSEX messages are placed in the buffers supplied by the function midiInAddBuffer. There is a similar MidiInStop function that stops MIDI input on the specified port.

Declare Function midiOutClose Lib "winmm.dll" (ByVal MIDIOutDeviceHandle As Long) As Long — This function closes a MIDI output port. MidiInClose provides a similar function for MIDI input ports.

There are some additional API functions that are only used in transmitting and receiving SYSEX data.

Declare Function midiInPrepareHeader Lib "winmm.dll" Alias "midiInPrepareHeader" (ByVal hMidiIn As Long, lpMidiInHdr As MIDIHDR, ByVal uSize As Long) As Long — This function prepares MIDIHDR for MIDI input. A pointer to the input buffer is contained in the MIDIHDR data type as shown below. A similar function called midiOutPrepareHeader prepares output buffers.

```
Type MIDIHDR
    pointertomidibuffer As Long
    dwBufferLength As Long
    dwBytesRecorded As Long
    dwUser As Long
    dwFlags As Long
    lpNext As Long
    Reserved As Long
End Type
```

Declare Function midiInAddBuffer Lib "winmm.dll" Alias "midiInAddBuffer" (ByVal hMidiIn As Long, lpMidiInHdr As MIDIHDR, ByVal uSize As Long) As Long — This function makes an input buffer available to the specified MIDI input device. Data buffer must be prepared with midiInPrepareHeader first.

Declare Function midiInUnprepareHeader Lib "winmm.dll" Alias "midiInUnprepareHeader" (ByVal hMidiIn As Long, lpMidiInHdr As MIDIHDR, ByVal uSize As Long) As Long — This function cleans up the preparation done by midiInPrepareHeader and must be called after the device driver fills the data buffer and returns it to the user program. midiInUnprepareHeader

must be called before reusing the buffer. A similar function, midiOutUnprepareHeader, is used for MIDI output.

Messaging

Getting information from a program out to the Ensoniq using the calls above is fairly straightforward. Getting information into a program is not as straightforward. The main thing on the input is that one never knows when the Ensoniq will decide to send data. The programmer needs a way for his program to recognize when data has arrived from the Ensoniq. The Windows operating system communicates with user programs through messages. The user program's window procedure receives messages that are sent to the application. In order to use the WINDOW messaging system we must introduce two more API functions.

Declare Function SetWindowLong Lib "user32" Alias "SetWindowLongA" (ByVal hwnd As Long, ByVal nIndex As Long, ByVal dwNewLong As Long) As Long — This function allows the user to replace the default window procedure with one of his own creation. For example: LPPREVWNDPROC = SetWindowLong (WHANDLE, GL_WPROC, AddressOf Mywindowproc) will replace the default window procedure with Mywindowproc.

Declare Function CallWindowProc Lib "user32" Alias "CallWindowProcA" (ByVal lpPrevWFunc As Long, ByVal hwnd As Long, ByVal msg As Long, ByVal wParam As Long, ByVal lParam As Long) As Long — This function passes a specified message information to a specified window procedure. This allows the user to pass non-midi messages to the default window procedure.

What window message are we looking for? It is called MM_MIM_DATA and it is sent to a window when a MIDI message is received by a MIDI input device. An MM_MIM_LONGDATA message is sent when a MIDI SYSEX message is received. The data is not timestamped. If you want timestamped input data you must use MIM_DATA.

Hexadecimal Nibbles Sidebar

Throughout these articles numbers will be expressed in hexadecimal form using the digits: 0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F. Why do this? Well the MIDI specification is written around bytes and 1/2 bytes (nibbles) of data. Because a nibble is four bits, it can be represented quite compactly in hexadecimal. For example, 0000=0, 0001=1, 0010=2, 0011=3, 0010=4, 1110=E, 1111=F. A byte (8 bits) is just two hexadecimal digits. For example, 11111111 = FF.

Table 1 Some Common MIDI Commands

Description	Status Byte	Data Bytes
Note off	8m	nn pp
Note on	9m	nn pp
Controller	Bm	rr ss
Patch Change	Cm	qq
Pitch Bend	Em	ss ss
SysEx Start	F0	
SysEx End	F7	

where:

m = a MIDI channel number, 0-F hex, 0-15 decimal

nn = A MIDI note number, 0-7F hex, 0-127 decimal. Middle C is 60 decimal.

pp = Note velocity, 0-7F hex, 0-127 decimal. pp = 40 decimal, ff = 90 decimal.

qq = Program or patch number to change to, 0-7F hex, 0-127 decimal. Harpsichord = 6 decimal, violin = 40 decimal in General MIDI standard.

rr = Controller number, 0-7F hex, 0-127 decimal. Volume = 7 decimal, Pan position = 10 decimal.

ss = One or two bytes of controller or pitch bend data. High order bit in byte is always zero. Volume = 0-7F, Pan Position = 0-7F, Pitch bend = 0-7F.

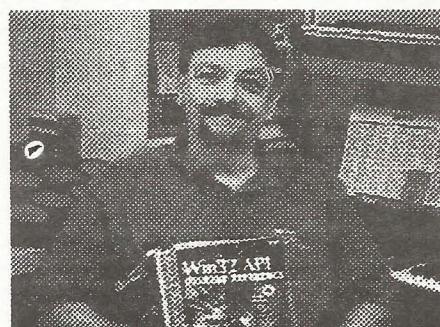
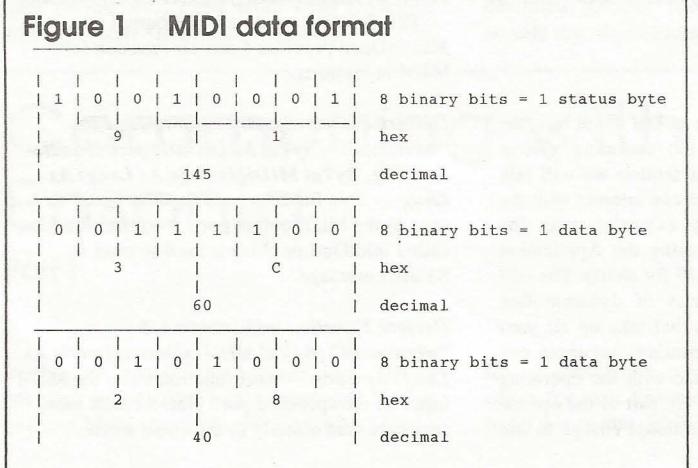


Figure 1 MIDI data format



Well, that is plenty to think about this month. Next time in Part 2 of this article we will take a look at a real program and see how the API and messaging works to allow you to communicate with your Ensoniq. ■

References

1. WIN32 API Desktop Reference, James McCord, SAMS Publishing, 1993.

Bio: Bob is an engineer by profession and a musician by inclination. He has worked with MIDI and synthesizers for the last few years then suddenly made an about face, rebuilding an 1841 square grand piano from rubble.

The Interface

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

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

Electronic mail - Internet: interface@transoniq.com. In many cases a quick answer can be obtained by posting to our interactive, on-line Interface at our Web site (<http://www.transoniq.com/interface.html>) or calling Ensoniq CS at 610-647-3930.

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

Dear TH:

I recently purchased my first Ensoniq - a 2nd-hand **SQ-80** and I am very pleased with it in general. Unfortunately, the disk drive doesn't seem to want to cooperate with me. Every time I try to format a new ds/dd disk, I get a "disk format failure - disk is unusable" message. When I resort to using the Giebler Disk Format program I get a "disk not formatted" error. I have reinitialized the unit repeatedly and cleaned the disk drive to no avail. Has anyone had any experience with this? How expensive is this to correct? Can anyone recommend a good bench charmer in the Philadelphia/Wilmington, DE/Baltimore area? Any help would be greatly appreciated.

Sincerely,
Christopher Dennis
cdd88@aol.com

[*PF - CD: Geez, never heard this one before (much!!!). Check out our "Related Sites" - Tech-Zam repairs floppy drives for around \$40...]*

Dear Sirs,

Since 1991 I have been using the ENSONIQ SD-1 music production synthesizer and composing on it. In 1992 the floppy disk-drive broke down. I replaced it with a standard one (1.44Mb) from a PC but that did not solve the problem at all. Now, for the sequencer to receive new information from the floppy disk-drive (at each change with a new diskette), I must switch off the synthesizer and then to switch it on again. However this is the lesser evil. A short while ago when I connected the amplifier to Audio-Out of the Synthesizer there followed an electric shock. So now the synthesizer does not work.

As I value this appliance very much, and there is no such authorized repair stations in Bulgaria, so I beg you to answer the following questions of mine:

1. Is it possible to send me a service scheme for the SD-1?

2. As I work with a PC and Cakewalk Pro Audio 7 would you please offer me an appropriate software product such as an editor for the SD-1?

3. How can I get new sound samples for my SD-1?

Since we are lacking information for this excellent instrument and technical aid and maintenance is hard to get, it is extremely difficult to create modern music.

I do hope you will reply to my desperate cry for help and remain,

Yours faithfully,

Petar
pib500@bse.bg

[*PF - Petar: Answers, in order:*

(1) No. The schematic is proprietary Ensoniq information, and available only to their Authorized Service Center Network. If a tech has the schematic set for the discontinued instruments and will let you copy it, well, that's between you and him...

(2) Try Unisyn for PC. Check out a free demo from www.motu.com...

(3) You can't. The SD-1 is a wavetable synth - as the waves are ROM-based, no further expansion is possible...]

Hey campers!

Have played the piano for 28 years (yikes that seems like a long time!). Have also been a computer geek for several years, so I have attempted to put the two together. I own an Ensoniq **MR-76** and a Roland A-90EX. The "manuals" read like gibberish. I have read a lot of the on-line questions, but I'm still so new to this a lot of sounds like greek to me. I'm looking for user groups in the Seattle/Tacoma, Washington, area that I might tap into.

Thanks for your help!
Briana Walder
Briana@quebim.com

[*WARNERPRD@aol.com - Briana; how you doing? New to the world of workstations? I was also at one time, but I had the golden opportunity to have a personal one-on-one lesson for most of one day by the ex-school master of the Ensoniq corporation, Roy Elkins. It was at the Tacoma American Music store when the TS-12 came out and they had the workshop hosted by Roy and the local NW Ensoniq rep, Dan Gallego, both of whom I understand are no longer with Ensoniq. To sum it up simply, no one showed up except me. I had been to the Seattle store workshop the day before and I was hungry at that time for knowledge when I had my KS-32, my first workstation, and the manual was all greek to me also. I ended up taking my video camera with me, my manual and a list of questions to get me going in the direction of progress and this new world of synth production. It was nothing less than a miracle to be schooled by the best. As a matter of fact when the MR-76 came out and they opened the new GuitarCenter here in Seattle, on opening day Dan cut me the serious deal no one could refuse and I bought my MR.*

Now to your question... no, I don't know of any user groups here in the Seattle area but I am willing to share my knowledge and experience if you are interested. Myself, I am continually surfing the

net looking for answers, web sights, Transoniq Hacker online, (by the way, Pat at the Hacker has helped me considerably lately), for MR-related stuff. If you aren't a subscriber to the Hacker you should be, it's a wealth of info every month. I am sure I could help you and you could possibly help me with the computer area. We all have the one same goal, "the quest for knowledge." E-mail me if you like here in Seattle at WARNERPRD@aol.com. Good luck, Kyle.]

TH -

I have an **EPS-16+**, that I bought from a friend of mine from Australia. I need to find out how to change the voltage of the unit so I don't need a stepdown. I have a electronics background so I would do it myself if I knew what I need to do. I guess if I had an owners manual this would be easier. I know you're very busy but if you could help me out with this, I would be very thankful. I've tried to get help from people here in Orlando but no one can help me with finding an owners manual or what I need to do to change the transformer and whatever other stuff needs to be done. I hope you can help.

Thanks,
Binky the Ancient
JASbinky@aol.com

[*PF - Binky the Ancient: Certainly someone of such descent must realize that the only way to obtain a 110V power xformer for an Ensoniq keyboard is to take the instrument to an Authorized Ensoniq Dealer and have your friendly Authorized Ensoniq Service Technician order this xformer for you.]*

[*Eric Montgomery, Emu-Ensoniq Technical Support - The other option is to contact Ensoniq Customer Service at 610-647-3930 and ask for an RA#. Send the unit to Ensoniq and it can be taken care of.*

To get a manual or any other accessories for the 16+, contact:

Syntaur Productions
500 West Prarie Ave.,
Eagle Lake TX 77434
(409) 234 2700
800-334-1288
Internet: <http://www.fatsnake.com/syntaur>]

TH -

I have an **EPS** with the 8-out expander. Can I assign 8 sounds from a single drum kit to its own channel while still having the drum kit playable on a single MIDI channel?

Thanks,
DJSur
djsurowr@webspan.net

[PF - DJSur: Depends on what you mean by "channel." If you mean MIDI channel, no. You'll need to assign those 8 drum sounds to a different track and MIDI channel # to access them separately.

But if you mean output channel, yes. You'll need to edit the drum kit at the wave level in the "Amp" page to assign the particular drum waves to the different output jacks. The only caveat here is that they will NOT be present at the "Left-Right" main output jacks. But yes, that can be done, and shows off the natural superiority of the Ensoniq line of loopboxes...]

TH -

I just got my latest issue of *Electronic Musician* and couldn't help but notice a new keyboard called "FIZMO." What in the world is a "FIZMO"? If this is a real instrument I imagine you will probably have a press release about it.....?

It's Emu/Ensoniq. At least that is where the WEB site points to. It's touted as a Realtime Transwave Synthesizer. It has Interactive Realtime controls, Ensoniq 24 bit effects, built-in Vocoder, Intelligent Arpeggiator, 48-Voice Polyphony.

I can't believe that they keep you in the dark like

this! After all the excellent service that you have provided for them over the years, I will continue to support your publication and hope to continue to be a contributor to your excellent publication.

James Rosand
jrosand@olympus.net

[TH - Thanks for the heads-up! We'll ping Ensoniq and see if we can get some more info...]

[PF - Gang: FIZMO is a cross b/w a Nord Lead, JP-8000, MC-505-ish genre beat-box/MPC clone! CSIX/Rave-O-Lution transwave-based box with realtime control over parameters. Marketed by EMU-Ensoniq but wearing an Ensoniq badge, this is a non-GM techno-box that promises to raise the bar on Wavestation-ish keyboards. VERY CSIX/ANI-x-ish, with vocoder and mic input (smells like Waveboy), the only question is the price...]

[TH - No news from Ensoniq yet, but they said they'd get us a press release when it's officially "out."]

[theoryc@netwide.net (Matthew C. Chinn) - Well, the press release says \$1495, but that means it'll probably be just under \$1000 in stores. I'd buy one, seeing that I ALMOST bought an ANIX. The sounds are amazing. I hope Fizmo sounds incredible. It houses the great DSP effects from PARIS, so that's a big plus, plus a great "intelligent" arpeggiator.]

[PF - Theory: Yeah, I've owned a CSIX "blue meanie" for about a year, and thought about an ANIX. In live performance, both are pretty tough to navigate around since all sound selection is by the numeric keypad. But they're fun little boxes to play with. They don't seem to have the sound quality of an Ensoniq in live performance use, but as a GM module/keyboard for computer/multi-media/game use, they're a great choice since they're cheap and light (12 lbs...).

I'll believe that \$1495 when I see it...]

[TH - Well, that's what's posted on their web site.]

[Eric Montgomery, Emu-Ensoniq Technical Support - If you want to read about Fizmo, go to our website (www.ensoniq.com). Click on the name "Fizmo." You will be able to read all about it. Fizmo is one of those units that you cannot explain, you just have to hear it. It is a Transwave synth (remember that term from the ASR/TS/SD/VFX days?). If you like the ANIX, Nord Lead, and the JP-8000, you'll love FIZMO! Knobs and phatt funky fun stuff. Eventually, there will be a demo on the website. It is all coming soon!]

[TH - The specs should be elsewhere in this issue.]

Help!

My MR-61 G2 key seems to have the sensitivity control set on max all the time. I recall reading a little about this in one of the back issues but no one

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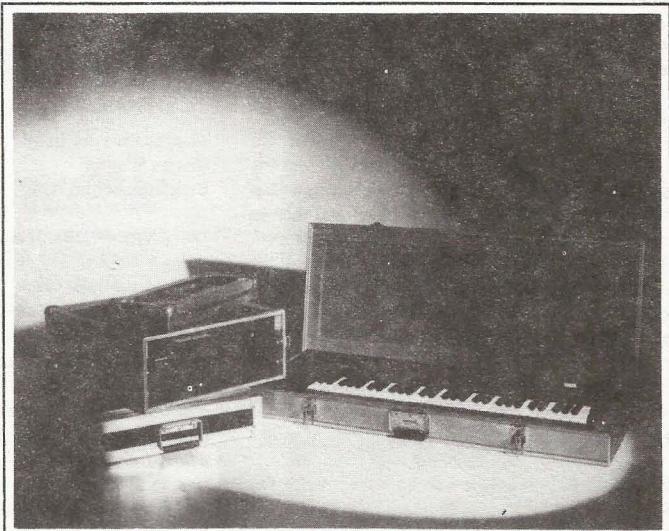
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else seems to have responded as to having the same problem. Is it just a matter of cleaning? Is there some kind of manual that gives a detailed instruction for disassembling an MR-61? Would appreciate any help on this matter.

Rene
bleutchka@email.msn.com

[PF - Rene: Yes, I, too, have had the same "Velocity 127" gremlin strike my MR's lowest G key. As it turns out, the contact was just dirty. The best disassembly manual is the Expansion Card Installation brochure that ships with every MR expansion card. Check with your dealer, as this is a pretty simple fix.]

TH -

You recently mentioned that the Joey DeFrancesco organ samples were pretty good. The Ensoniq Sound Library lists them as ESS-15. Where do you buy them? My dealer says that Ensoniq does not have a sound library anymore and he cannot get them.

Thanks for any info,
lfk
Lkavel@aol.com

[PF - lfk: If your dealer doesn't want to get involved, order them directly from Ensoniq at 610.647.3930. I think they're still \$39.95, and are still the best B-3 samples you're gonna hear. Highly recommended...]

TH -

I have problems with getting my internal Zipdrive to work with my Ensoniq ASR-X. I don't have the manual for version 2.55 (SCSI) so I'm really stuck! I think I have tried everything, but probably I have not...

Are there any pros out there who know the score?
Please help me:)

Cheers!
Toby
mattssons@hotmail.com

[PF - Mattsons: When you say "internal," what do you mean? An internal Zip drive on your ASR-X? Usually, SCSI problems on an Ensoniq piece boil down to an ID conflict or a termination problem. Zips only offer ID 5 or ID 6, so I'll bet your problem is termination or termination power. Check with the RCS homepage (www.soundcentral.com/~chickeneps) for the "Ensoniq-incompatible" Zip drive FAQ...]

Fellow TSers,

Is it possible to have a setup with a PC, a CD-R, Giebler's EDM, and a CD-ROM that the TS-10/12 can read from? Can the CD-ROMs listed on Ensoniq page read a CD-R burned disk? Is anyone doing this?

Marios Kefalopoulos
mariosk@megsinet.net

[PF - Marios: Answers, in order:

(1) Yes. Requires a SCSI interface for the PC and Rubber Chicken Software's Ensoniq Disk Tools. I don't think you can have all the stuff in the chain communicating with all peripherals all the time.

(2) Yes, as long as the media is burned in Ensoniq format.

(3) Probably. I use a Mac (since it's a native SCSI machine), so I really don't know on the PC platform...]

TH -

A while ago, I paid my fee to use EPSm MACintosh software that allows the Mac to read and transfer samples from a SCSI source.

I lost all my data in a major crash, including my registered version of EPSm. I am desperately trying to reach the author - Terje Finstad - to no help. All of his email addresses are down.

If someone is using this piece of software - very good (IMHO) - would you please send it to me. I miss it a lot.

As I said, I paid my dues. If the author shows up, I have the proof.

Thanks.
Sabin Farley
farleyd@cam.org

[TH - Actually, Terje shows up here every so often. Hopefully he'll spot this and help you out.]

[PF - Gang: You can reach Terje at <http://fysmac-elg01.uio.no/eps.html>.]

TH -

Have a 7-yr-old SQ2 - how do I change the battery? Or should I even bother?

Johnson
gj28210@mindspring.com

[PF - GJ28210: I wouldn't change it unless the SQ was giving you the "Warning! Battery Low!" message on startup. If this is the case, you definitely want to have an Authorized Ensoniq Service Tech replace the battery, as it may be a (a) coin-type or (b) 2/3AA lithium battery...]

Hello all,

A friend of mine has an EPS-16+ and when playing back samples from Cubase VST on IBM-clone

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When the music's over, ya gotta sell and move on! EPS-16+ turbo rack, all the goodies: \$800. ESQ-1 with E-PROM recordable: \$450. Alesis 1622 16-channel mixer: \$400. Roland U-110 PCM sound module: \$400. ART MultiVerb LT: \$200. Turtle Beach Pinnacle Hard Disk Recording Card (IBM compatibles), Cakewalk 5.0: \$400. Bernoulli 230 Hard Drive (for EPS+) PLUS CD-ROM: \$400. Rubber Chicken CD's I & II, Midiman 2x4 merge box w/2x2 addition: \$100. 2-In, 6-out switchable midi junction box: \$100. Will consider best offers by end of month. Call quickly. Kevin: (719) 568-5280.

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computer he gets an error message. He hits play on his song from the IBM and the EPS says "OS not found, insert disk, hit enter." He inserts disk, hits enter and the keyboard says "Error 131 reboot."

Do you know what is wrong or how to fix it?

Thanks,
Mark c/o Izzy.

[PF - Mark: The PC is sending out either incorrect or illegal data. The EPS is sensing it as some kind of Sysex request, asking for the OS, and once called, tries to perform whatever illegal operation Cubase is requesting. Switching Sysex off should cure it, although I can't quite determine your configuration from your letter: i.e., if you're playing back samples from Cubase VST on a PC, what's the purpose of the 16+?]

Could be the Sysex issue, or maybe Cubase is sending an illegal program change that the 16+ doesn't understand...]

To Transoniq,

I have an Ensoniq EPS-16+ and I have been having trouble booting off, or even accessing my EPS format SCSI inside my PC. Trouble as in it doesn't work at all.

The Ensoniq is connected to the external port of my Adaptec controller, and the EPS format drive is inside the box, as is another PC format SCSI drive. Before an unsuccessful SCSI cable extension (I don't know much about SCSI) and various other muckings around in my PC (Which I don't think affected anything) I was able to boot by EPS via this connection, and drive access was okay. But here's what has been happening ever since...

When the PC is on, I turn on the Ensoniq and receive the following:

Ensoniq EPS-16 Plus
SCSI Installed
Searching for SCSI dev (lasts for a few seconds – it used to be fairly instantaneous)
Please insert disk
File op error num= 011

If I switch it off, then on (keeping the PC on), it does not get to showing "File op error" but just repeats "Please insert disk," so I do. It boots of floppy okay, but when I change storage device to SCSI numbers 0-2,4-7 it displays "Invalid load device." (The disc is actually device 1). When I try to attach to device 3 it pauses for a while and displays "Disk not responding." I don't know what this means, I only use 0 and 1. When I do format SCSI disk, it says "Unconnected SCSI dev." Again for 3, it says "Formatting" then after a few seconds says "Disk not responding."

I have tried the above with a straight connection from my EPS-16+ to the drive (bypassing the Adaptec), and I get the same results.

Another thing, when the cable is connected between the PC and Ensoniq now, and I try to access my PC format SCSI disk (on the Adaptec) from Windows, my system seems to hang. This happens regardless of whether the Ensoniq is off or on. When I unplug the external cable from the Adap-

tec, things click back into place and have access to both drives from PC, but not from Ensoniq (duh).

I guess there is something wrong with the SCSI adaptor on my EPS-16+ – I cooked it when I tried to do that extension or something (btw, the extension was with serial cable. Don't worry about telling me, I realize this was a stupid thing to do).

If anyone can help, or know if it's possible to get things repaired then please contact me.

Thanks,
Alex
alex@senet.com.au

[PF - Alex: Then it's time to punt. Ensoniq doesn't manufacture the 16+ SCSI interface anymore. Contact Ensoniq Tech Support directly at 610.647.3930 – maybe they can shed some light on what's going on. Otherwise, post in alt.music.midi, Sweetwater Sound's Trading Post, or other newsgroups to locate a replacement 16+ SCSI interface, as these are RARE...]

Hello,

For the past couple of days I have left my EPS Classic on and loaded all day and night. When I go back to the samples, after all day, the "Error 144 reboot?" comes up. What does this mean?

Thanks in advance,
Tim
light111@earthlink.net

[PF - Tim: Error 144 is a MIDI buffer overflow. This doesn't mean much, as chances are what's really happening is the EPS overheated and passed out..]

Recommend shutting off a 10-year-old instrument when not in use just to preserve it...]

Hi Hacker,

It is nice to be back with you as I try to master my new ZR-76. The SD-1 was a piece of cake in comparison but I am slowly but surely working through the manual. I know there are a lot of others doing the same thing so I thought to throw out some thoughts and questions that might help everybody trying to '76.

1) The Oerfect Piano is perfect. Worth the board by itself I do believe. Plus the Idea Pad already has saved some great lines and melodies for me. All in all, I am very happy with the board. BUT...

2) Lots of drums but NO bossa novas!! And only a few jazz grooves. I hope to learn how to use the Rhythm Builder which I downloaded, and if someone out there is expert on it, it would be a nice how-to piece for the Hacker. I and many others would appreciate it. I did bump into Ensoniq's Rhythm City today. It is a site where people who have successfully used the Rhythm Builder can upload their masterpieces and others of us can come along and download them. It is a great idea and I hope it catches fire. I would like to find some cuts like on the old Miles Davis records and the Herbie Hancock/Miles records – and some great bossa novas.

3) I have been through the manual about three times and I guess I am resigned to the fact that there are NO SONG TRACKS on the ZR-76 that I can PLAY ALONG WITH. On my SD-1 it was easy to do 8-bar and 16-bar sequences with bass, drums, guitar, and maybe trumpet or flute – and then I could play along with the missing piano part. Nice deal.

The only way I can see doing that with the ZR-76 is to force the whole song into one big long sequence, using regions to break it up to where I can program the various instruments. I have not tried this yet, but is it what I have to do or am I missing an easier way??

4) I have the Unisyn loaded but it won't do anything, and I really do not know what it is supposed to do. Again, I doubt I am the only stupe who doesn't understand how to attack this probably wonderful program, and a piece in simple language would be much appreciated.

5) The Flash Board sounds interesting but what will 4 MB get me in sounds? Will I be able to load samples from CDs or will I just be picking up sounds from the Internet? The people who write the advertisements think everybody understands AIFs and WAVs, etc. Where would I get AIF and WAV files, and are they any good?

Hopefully, you have some readers who understand these things and could educate those of us stumbling around half blind in the new computer world.

Paul Adams
BigChord@aol.com

[TH - Actually, we have some writers who have been wondering what to write about – thanks!]

[PF - Paul Answers, in order:

(1) Yes, the Oerfect Piano is oerfect (couldn't resist!). Glad they made it available as an expansion card for we MR users.

(2) Yeah, I think the Yamaha PSR-line of keyboards (you know, the ones with built-in speakers) has the patent on bossa-novas, but I could be wrong. The Drum Machine is a VERY cool addition; wish you could program it just like the SD-1 (IMHO)...

(3) Yeah; isn't that shagadelic? The workaround is to select a track in each sequence, assign it the piano patch, and save it with the piano track as the active track (Track LED lit). Do this on all the sequences of your song; that way, when you call the song and play it, that piano track will be linked to the keyboard thruout the song...

(4) Unisyn is a patch editor for constructing sounds. It's pretty straightforward ONCE you get it installed and configured. Call MOTU for the details: they really do pick up the phone once in a while...

(5) I suppose the Flash Board is cool, but I use an ASR-10 for samples, so I'm spoiled. The MR/ZR-series has no sample editing functions, so unless your sounds are already looped and massaged into a playable and musical form I'd pass on it. Then again, I thought Bill Clinton would be able to weasel his way out of it, so...]

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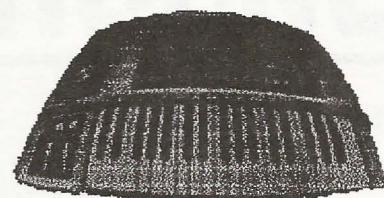
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Subscriptions: 12 monthly issues. US: \$25/year, All others: \$34/year.
E-mail version: \$19/year. Payable in US funds.

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