TRANSONIQ HACKER

The Independent News Magazine for Ensoniq Users

Tiresias: Parameter Editing Program for the EPS

Reviewed by Bryce Inman

For: EPS and Macintosh computer.
Product: Tiresias - Editing software.
Price: $80.00.
From: Bokonon Technologies, Suite F, 1656 W. Farwell, Chicago, Ill. 60626.

According to the manual that accompanies this software, Tiresias was a mythological figure who could see the future but not the present. (For an explanation of how Tiresias got himself into this predicament, you'll either need to find your old mythology textbook or buy this program and read the manual). Similarly, this program has been titled "Tiresias" because it sees the parameters of a wavesample, not the wavesample itself.

Take Note: This is not a wavesample editing program; it is a program for editing wavesample parameters (and other related EPS parameters). As such, this program will not let you do anything you can't already do on your EPS. What this program does do is make the job of editing the EPS's seemingly endless number of parameters a much easier task. Tiresias represents what you might get if Ensoniq were able to attach a full-size computer screen to the EPS.

Enough introduction, let's take a look at what this program does.

Before you get started, you need to connect your EPS to your Mac through MIDI so the two machines can talk to each other. When you first open the program, Tiresias displays a couple of windows which help you make sure everything is hooked up correctly. After everything checks out, Tiresias takes a few seconds to load the information it needs from the EPS and you're ready to go. From this point on, your computer works like an extension of your EPS. Since both the MIDI In and Out ports of the EPS are connected to your computer, any changes made on the computer are also made simultaneously on the EPS and vice versa.

At this point, you'll see the title "Instruments" on the menu bar. Pulling down the Instrument menu displays all of the Instruments currently loaded into the EPS. From here, you can select the Instrument with which you want to work.

When you select the desired Instrument you are presented with a window that displays all of the Instrument-related parameters. This includes things like active layers, patches, key up and down layers, MIDI information, and Instrument range and transposition. While in this window, any of these parameters may be edited easily.

Since the changes made in this window (and all others) are sent to the EPS immediately, you can play the EPS and hear the changes as they are made on the computer.

In the EPS, the next level of hierarchy after the Instrument is the Layer. So, from the Instrument window all you do is click the desired Layer and a window for the selected Layer is opened.

As you might guess, the Layer window displays all of the parameters relating to that particular Layer: Glide Mode and Time, Legato Layer, Pitch Table and Velocity parameters. Also displayed in this window is a keyboard which shows exactly which wavesample is assigned to each key. Simply click any wavesample

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number and you open a window which displays the parameters for that wavesample.

Because there are so many parameters related to each wavesample, this window can appear to be a bit complicated at first; a closer inspection, however, shows that this window is laid out quite logically. One box contains all the parameters for the Pitch, another box has all the LFO parameters and so on. From here, you can click a box representing one of the Envelopes and open a window for that Envelope. (This, by the way, is the end of the succession of windows.)

In my opinion, the Envelope windows are the most useful part of this whole program. Each Envelope window displays not only the parameters of that envelope, but also a graphic representation of that envelope similar to the graph permanently painted on the EPS's front panel. If the Soft Velocity Curve is On, the window displays both a Hard velocity graph and a Soft velocity graph. As you change the values for the times and levels, the graphs are updated to show these changes. Something I wish they could implement into this window would be the ability to grab some point on the graph and drag it to a new position. This would really make editing envelopes a breeze. Of course this would involve changing both a time value and a level value at the same time—maybe the EPS can't handle that. Oh well, just a thought. [*Ed. note: As we go to press, Bokonon tells us that this feature has been added to Tiresias.*]

So, what's my evaluation of this product? Personally, I've worked with the EPS long enough that I don't find it that difficult to work with its parameters. However, Tiresias certainly makes the process much easier. If you're one of those people who tends to get frustrated and confused from flipping through the seemingly endless number pages on the EPS, this program might help cure your phobia of programming.

The manual that accompanies this program is clear and straightforward. You'll find, however, that Tiresias is so logical and easy to use that you'll be able to put it aside after five or ten minutes. The tutorial is a gold mine in itself. And included is a disk containing some unedited Marimba samples. To acquaint the user with Tiresias' features, the tutorial goes through the various steps of editing these samples. Included are sections covering filters and envelopes and the more advanced procedure of performing crossfades.

From time to time the *Hacker* prints letters from readers who are frustrated by the fact that the EPS manuals only tell what the various functions do—not the theory behind their uses. The fact is, however, that this simply would not be practical. If you're having difficulty getting into the whole realm of synthesizer programming, the tutorial is an excellent starting point. The lessons are by no means comprehensive (nor are they meant to be) but, by the time a person completes the tutorial, he should have a pretty good grasp of some important fundamentals of synthesis.

This is a nifty little program that's easy to use and works flawlessly. It certainly makes the chore of editing parameters on the EPS a much easier process. If you're already an ace on the EPS, this program will make your life easier; if you're just getting started, it'll help make the learning curve much shorter. About the only question you have to ask yourself is whether or not it's worth $80 to make your life easier. ▬

Front Panel

RND (♪♫♪)

News from Ensoniq:

Sounds, sounds, sounds... We have a lot of new and exciting sound releases for our instruments. Here's a brief listing:

VFX-SD: *ISD-3* the first disk release of sounds for the VFX-SD. *ISD-3* is the Australian Collection, the third volume in our International Sound Series. 60 sounds, 20 Performance Presets and documentation on the Australian music scene. $19.95 Available now! And—*VSD-1000:* A mega-disk of unique synthetic sounds and drum kits for the VFX-SD. Over 300 sounds (that's 1320 sounds including Patch Selects!). Created by top programmers such as Clark Salisbury, Scott Frankfurt, John Greenland, and Rick Stevenson, this is a wealth of new textures for your music. $19.95 Available now!

SQ-1/SQ-R: *SC-2,* 160 sounds and drum kits developed by top sound designers from around the country. $99.95. Available December.

EPS-16 PLUS/EPS: *ESS-12,* Nile Rodgers Vol. 2. The long-awaited second release from industry giant Nile Rodgers features new Drums, Industrial Noise from the streets of NYC, and an incredible Hammer Dulcimer. Compatible with all EPS products! $39.95 Available now! And—*SL-1:* Hi Fi Drum Kits, 5 disks of 16-bit drums taking full advantage of the fidelity and effects processing capability of the EPS-16 PLUS. Compatible with the EPS too! $39.95 Available December. And—*SL-2:* Voices, 5 disks of unique vocal samples including the first Male Rock Vocal sounds for the EPS family of instruments, and vocal percussion effects. $39.95 Available December.

New O.S. for the VFX-SD. We've just released Sequencer O.S. 2.10 for the SD, which improves the functionality of multi-track recording and MIDI Song Position Pointer implementation. This disk-based upgrade is free and available from all Authorized ENSONIQ dealers, just bring a formatted floppy disk to copy the new sequencer O.S.

New O.S. for the EPS-16 PLUS. We also are releasing O.S. 1.1 for the EPS-16 PLUS which implements the Multi-Track record function as we promised. This O.S. is also needed for FLASHBANK™ memory to be used. EPS-16 PLUS keyboard owners can get 1.1 from their Authorized Ensoniq dealer free of charge. Just bring in your own formatted floppy disk. The EPS-16 PLUS rackmount will be released with O.S. 1.1 from initial shipment.

The EPS-16 PLUS rackmount begins shipping at the beginning of December. It comes with 2 Meg of RAM standard, and includes the OEX-6 output expander, giving you 8 outputs to work with. SCSI (SP-2) and FLASHBANK™ memory are still options for the rack configuration.

News from the Hacker:

Error Alert: (Again.) More corrections to Sam Mims' VFX Piano patch in Issue #64 (actually, the parameter printing program that Sam's using does things in a slightly different order, which led to most of this): Under "**Waves,**" wave class 1 – 5 should be "string sound." #6 should be "waveform." Delay 1 – 6 should be 0. Direction 1 – 5 should be "Forward." Under "**Env 1,**" Initial value for #3 & #5 should be 99 (not 256). Under "**Effects (2),**" the Rate Mod should be 0 and the Depth Mod should be +8.

* * *

Any third-party sound vendors (samplers or synths) interested in participating in a survey for publication in the Hacker please contact John Bolles at 34 Buckwalter Rd., Rogersford, PA 19468, phone: 215-948-4201. You will be asked to complete a questionaire and provide a minimum of five sounds for review.

* * *

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HELP WITH QUESTIONS

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

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

EPS QUESTIONS - Erech Swanston, Maestro Sounds. 718-465-4058. Call anytime. (NY) If message, 24-hr callback.

VFX QUESTIONS - Sam Mims, Syntaur Productions. 818-769-4395. (CA). 10 am to 11 pm PST.

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

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

EPS & EPS-16 PLUS QUESTIONS - Garth Hjelte. Rubber Chicken Software. Pacific Time (WA). Call anytime. If message, 24-hour callback. (206) 242-9220.

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

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

MIRAGE 24-HOUR HOTLINE - M.U.G. 212-465-3430.

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

MIDI USERS - Eric Baragar, Canadian MIDI Users Group, (613) 392-6296 during business hours, Eastern Time (Toronto, ONT) or call MIDILINE BBS at (613) 966-6823 24 hours.

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

SQ-1 QUESTIONS - Pat Finnigan, 317-357-3225. 8:00 am to 10:00 pm EST.

HYPERSONIQ
NEW PRODUCT RELEASES

Frontera Electronics has introduced a line of rack-mount hard disk systems for the SCSI-equipped Ensoniq EPS, EPS-M, and EPS-16 PLUS. The new *cove* series features storage capacities from 40 MByte to 1.6 GByte and includes a 44 MB removable-disk drive. All drives are double-shock mounted in 2-space rack enclosures for increased protection and include warranties of up to two years and a free sample library. For further information: Frontera Electronics, 1318 E Mission Rd., Suite 202, San Marcos, CA 92069. Voice/Fax: (619) 727-3410.

Prosonus, famous for its high-quality CD library of sounds for samplers, has contracted with author and musician Craig Anderton to develop disks for the new *Prodisk* library for the EPS. People who buy *Prodisk* also become members of SampleNet, an organization offering cash discounts, bonus products, and a subscription to the *Prodisk* quarterly newsletter. Prosonus will be releasing three new sets per month for their *Prodisk* library. Prosonus, 11126 Weddington St., North Hollywood, CA 91601, info: (818) 766-5221, orders: 1-800-999-6191.

New Sound Music announces the release of *Jazz Through MIDI*, a new Jazz Improvisation course designed to teach many different Jazz styles quickly and easily through the use of a MIDI setup, 50 different Jazz patterns and solos, chord charts, and a manual full of instructions and tips. The patterns and solos are available in VFX-SD, EPS, SQ-80, and ESQ-1 sequencer formats. Retail price: $39.95. For information: New Sound Music, PO Box 37363, Oak Park, MI 48237, phone: (313) 355-3643.

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- Sound Effects 8 - Military and War FX
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- *f*airlight II Soundtrax 1
- *f*airlight II Soundtrax 2
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- *f*airlight III Brass 2
- *f*airlight III Orchestra
- *f*airlight III Reeds
- *f*airlight III Strings 1
- *f*airlight III Strings 2
- *f*airlight III Vocals
- *f*airlight III Percussion
- *f*airlight II Orchestra hits
- *f*airlight II Orchestra hits 2
- *f*airlight III Orchestra hits
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- *f*airlight II Soundtrax 4
- *f*airlight II Soundtrax 5
- *f*airlight II Soundtrax 6
- *f*airlight II Soundtrax 7
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- D-50 3
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- M1-10 – Bottlebell, Metal Hit, & Windbell
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- Oberheim 1 – Xpander Bass & Brass
- Oberheim 2 – Matrix 6-1
- Oberheim 3 – Matrix 6-2
- Oberheim 4 – Matrix 12
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- MiniMOOG - 2
- MiniMOOG - 3
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- Super JX/MKS-70
- Juno 60/106
- Prophet 10 - 1
- Prophet 10 - 2
- Korg DW-8000
- ESQ-1
- SQ-80
- Kurzweil 250/1000
- Arp Oddysey
- Arp 2600
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- Mellotron 2 - Flute & Choir
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The ESQ1 Sequencer Internals Revealed
Part 3 – Sequence Dump

Joe Slater

We continue this series of articles by discussing the format of the one sequence MIDI dump data from the ESQ1 sequencer. For the most part, the information given should also apply to the SQ-80 sequencer (but I don't have one). I have heard that the SQ-80 can read ESQ1 sequence dumps, but the reverse is not true. I suspect that the reverse is not true ONLY when dealing with ALL sequence dumps, not ONE sequence dumps. I will comment on suspected differences, but these are *assumptions!*

Warning: The accuracy of the information revealed here has not been confirmed by Ensoniq, so be forewarned!

The remaining articles in this series is geared primarily for computer programmers. The ESQ1 Manual describes the format and content of the MIDI messages for sending and receiving sequence dumps, but does not explain the content of the sequence data itself. This data is also sent as a sequence of nybbles, but this article will describe the data in terms of bytes, with each pair of nybbles already combined as a byte. Here we go...

Each one sequence dump contains 33 bytes of header and track information, followed by zero or more bytes of performance data. This article will discuss the 33 bytes of header and track information, while the next article discusses the performance data.

The first nine bytes are header information, constructed as follows:

Byte 1 → HHHHHHHH : High Byte of Sequence Size
Byte 2 → LLLLLLLL : Low Byte of Sequence Size
Byte 3 → HHHHHHHH : High Byte of Number of Bars
Byte 4 → LLLLLLLL : Low Byte of Number of Bars
Byte 5 → NNNNNNNN : Sequence Number
Byte 6 → HHHHHHHH : High Byte of 64-Quarter Note Event Mark Offset
Byte 7 → LLLLLLLL : Low Byte of 64-Quarter Note Event Mark Offset
Byte 8 → LSSSSSSS : L = Loop OFF/ON, SSSSSSS = Time Signature
Byte 9 → TTTTTTTT : Tempo

Note that the ESQ1 has certain value limitations less than the possible range of values that can be stored in the above bytes. Violating some of those limits undoubtedly can cause havoc to your ESQ1, requiring the need for a SOFT-RESET.

The first two bytes combined is a 16-bit value representing the total size in bytes of the sequence data. Note that the MIDI system exclusive one sequence dump alert message also sent this size value, but in reverse order. The next two bytes combined is a 16-bit value representing the total number of bars (measures). This value can be zero if no data has been recorded. Otherwise, the ESQ1 limits this value to a range of 1...999.

The next byte represents the number of the sequence. The ESQ1 limits this value to a range of 0...29, which represents SEQ-01...SEQ-30 respectively (I *assume* the SQ-80 allows values of 0...59 representing SEQ-01... SEQ-60).

The next two bytes combined is a 16-bit value representing an offset from the previous byte to the first 64-Quarter Note Event Mark. This can be 0 if the total length of the sequence contains no more than the equivalent of 64 quarter notes. Otherwise, this offset points to the performance data, so this will be more fully explained in the next article (sorry, you'll have to wait).

The next byte combines the values for the LOOP setting and the time signature. The high-order bit is the LOOP value; 0 = OFF, 1 = ON. The remaining bits are a value representing the time signature, in the range 0...30. Each of these values represent one of the 31 different time signatures handled by the ESQ1 as follows:

```
 0 = 1/8     1 = 1/4     2 = 2/8     3 = 3/8
 4 = 2/4     5 = 4/8     6 = 5/8     7 = 3/4
 8 = 6/8     9 = 7/8    10 = 4/4    11 = 8/8
12 = 9/8    13 = 5/4    14 = 10/8   15 = 11/8
16 = 6/4    17 = 12/8   18 = 13/8   19 = 7/4
20 = 14/8   21 = 15/8   22 = 8/4    23 = 16/8
24 = 17/8   25 = 9/4    26 = 18/8   27 = 19/8
28 = 10/4   29 = 20/8   30 = 21/8
```

You may wonder why the list doesn't continue with 11/4, 22/8, etc. If it has anything to do with the number of MIDI clock ticks in one measure, then it can be explained. There are 24 ticks per quarter note (and therefore 12 ticks per eighth note). For a time signature of 21/8, this gives a total of 252 (21 * 12) ticks per measure. For a time signature of 11/4, this gives a total of 264 (11 * 24) ticks per measure. The value 252 can be stored in one byte, whereas the value 264 cannot. Well, it could explain it...

The last header byte represents the tempo. The ESQ1 limits this value to a range of 25...250.

The remaining 24 bytes are actually eight sets of three bytes, one set for each track. These sets are in order for tracks 1...8. The three bytes of track information are con-

structed as follows:

Byte 1 → PPPPPPPP :
Voice Program Number
Byte 2 → SSDRCCCC :
SS = Status, D = Data,
CCCC = MIDI Channel
Byte 3 → MMMMMMMM :
Mix Volume Level

The first byte represents the program number. I prefer to think of it as a signed 8-bit quantity, with a range of possible values -1...127. If the value is -1 (i.e., FFh), the track is UNUSED. Otherwise, the values 0...127 represent the MIDI program change number (0...119 for the internal banks and cartridge voices).

The second byte contains the track status, whether data is recorded for the track, and the MIDI channel. The two high-order bits represent the track status with values 0...3, which represent the following:

0 = -SEQ-
1 = LOCAL
2 = MIDI
3 = BOTH

The next bit indicates if a DOT to the left of the track program name is to be displayed. This is supposed to represent if any track data has been recorded (which may or may not be true). The value 0 indicates NO, and the value 1 indicates YES. The next bit I call the "redundant" bit because it ALWAYS has the same value as the previous bit. I suspect it is needed internally; perhaps to indicate whether the DOT has actually been displayed.

The next four bits are the MIDI channel assigned to the track. Valid values are 0...15, representing MIDI channels 1...16.

The last track byte indicates the Mix Volume Level. The ESQ1 sequencer allows volume levels of 0...127, to correspond with MIDI Volume Controller levels. On the ESQ1 TRACK MIX page, the value displayed is the volume level divided by two, with any remainder discarded. It is therefore impossible for example, to differentiate between a volume level of 127 and 126 on the ESQ1; it will show 63 for either value. It is however, possible to differentiate between a volume level of 1 and 0 on the ESQ1; it will show 00 for a volume level of 1, and OFF for a volume level of 0. Odd-numbered volume levels can only be set externally via MIDI. The ESQ1 allows you to set volume levels of 0...63, which is then merely multiplied by two before storing in memory.

The remaining bytes that follow are the sequencer performance data (if any), which will be covered in the next article. To wrap up this article, the following is sample code (Turbo C for the IBM PC) used to display the discussed values of a one sequence MIDI dump:

```
const char Statuses [4] [6] = {
   "-SEQ-", "LOCAL", "MIDI ", "BOTH "
};

const char Signatures [31] [5] = {
   "1/8 ", "1/4 ", "2/8 ", "3/8 ",
   "2/4 ", "4/8 ", "5/8 ", "3/4 ",
   "6/8 ", "7/8 ", "4/4 ", "8/8 ",
   "9/8 ", "5/4 ", "10/8", "11/8",
   "6/4 ", "12/8", "13/8", "7/4 ",
   "14/8", "15/8", "8/4 ", "16/8",
   "17/8", "9/4 ", "18/8", "19/8",
   "10/4", "20/8", "21/8"
};

#define RevBytes(w) ((w) >> 8) | ((w) << 8)
#define TRACKS 8

typedef struct {
   unsigned int Size;
   unsigned int Bars;
   unsigned int SeqNum : 8;
   unsigned int Off64Q;
   unsigned int Time   : 7;
   unsigned int Loop   : 1;
   unsigned int Tempo  : 8;
} SeqStart;

typedef struct {
            int Pgm  : 8;
   unsigned int Chan : 4;
   unsigned int      : 1;
   unsigned int Dot  : 1;
   unsigned int Stat : 2;
   unsigned int Mix  : 8;
} SeqTrack;

typedef struct {
   SeqStart Hdr;
   SeqTrack Trk [TRACKS];
   unsigned char Data [1];
} Sequence;
```

```
void ShowSeq (Sequence *Seq) {

    unsigned int i;

    printf ("Dump of  [SEQ-%02d]\n", Seq->Hdr.SeqNum + 1);
    printf ("Sequence Size  = %u\n", RevBytes (Seq->Hdr.Size));
    printf ("Tempo          = %u\n", Seq->Hdr.Tempo);
    printf ("Bars           = %u\n", RevBytes (Seq->Hdr.Bars));
    printf ("Loop           = %s\n", Seq->Hdr.Loop ? "ON" : "OFF");
    printf ("Time Signature = %s\n", Signatures [Seq->Hdr.Time]);

    for (i = 0; i < TRACKS; i++)
       printf ("Trk: %u Pgm: %3d Mix: %2u Ch: %2u St: %s Data: %s\n",
               i + 1,
               Seq->Trk [i].Pgm + 1,
               Seq->Trk [i].Mix >> 1,
               Seq->Trk [i].Chan + 1,
               Statuses [Seq->Trk [i].Stat],
               Seq->Trk [i].Dot ? "YES" : "NO");

}
```

Bio: Joe owns a well-hacked ESQ1 (and other related unmentionables). He has been a professional Software Engineer for 10 years and a Composer/ Musician for 19 years. But the Composer/Musician side (and long hair) is definitely taking over.

Synthia Professional

Reviewed by Neil Nappe

For: EPS, EPS-M, & (untested) EPS-16 PLUS, & Amiga.
Product: Synthia Professional, visual editor.
Price: $395.
From: The Other Guys, 1-800-942-9402, 1-801-753-7620.

I suspect that there may be two categories of EPS users who would have a need for Synthia Pro. First, there are those who need digital signal processing capabilities beyond those available in the EPS. These users may be primarily interested in modification of pre-existing samples, or possibly seeking a graphic editor to aid with looping chores, etc. The second type of user would be one who is interested in exploring digital synthesis, seeking new and hitherto unheard sounds. Synthia Pro will find a place in the bag of tricks of either type of user. It has powerful signal processing capability, as well as enough advanced waveform creation features to keep the hardened sonic adventurer awake for years. To my knowledge, it is the only EPS-compatible sample editor available for the Amiga. It has some bugs and quirks, but if you've been living with the EPS, you probably won't find anything you can't deal with in Synthia Pro. Probably the worst of these is the sample transfer time. Rock Piano 1, which takes up 627 blocks, takes three and a half minutes to transfer - about 1500 bytes per second.

Synthia Pro is actually a collection of interdependent modules or "windows." The state of these windows, i.e. which ones are active, control settings, etc., are saved and loaded as "Window Environment" files. The first thing one notices is that the program does not open a custom screen, but uses a standard 4-color lo-res Workbench screen. I really would like to see more programs using hi-res interlace. It allows much more detail to be displayed, and the flicker can be almost completely eliminated by the proper color choices.

It is necessary to specify certain parameters such as sample rate, root key, etc., in order to avoid any disagreements between the Amiga and the EPS. This is done from a window called "New Instrument Parameters." On the bottom of this window, Synthia Pro has thoughtfully provided "presets" to set its parameters for the various samplers it supports. Strangely, the EPS presets contain some sample rates which do not correspond exactly to the EPS's fixed sampling frequencies. This is odd, although it is somewhat compensated for by the fact that the "EPS MIDI Interface" window has an option which automatically resamples all dumps to the EPS. This ensures that they exactly match one of the EPS's sampling frequencies. I should note here that there is also an Auto Loop feature which, when enabled, will create a loop at the end of all samples created by Synthia Pro. While these "AutoLoops" tend to be adequate for use with Amiga samples, they also tend to be noisy when transferred unretouched to the EPS.

Synthia Pro is a multi-sample based program in every sense of the word, with the number of samples being limited only by memory. On a 1 meg Amiga, I had over 700k left for samples. As with any other program, some of this is required for undo functions, complicated editing procedures, etc., but that still leaves plenty of room for most chores. There's also an option to create any number of duplicates of each sample for stereo, layering, etc. A useful feature.

Synthia Pro offers eight methods of creating instruments from "scratch," namely, Subtractive, Additive, Pseudo-Additive, Plucked String, FM/PM, Interpolation, Drum, and Noise Drum.

Subtractive allows you to design one cycle of a repeating waveform. You can then process the timbre with filters and apply envelopes to the amplitude and pitch over the duration of the sample.

Additive allows sounds to be constructed by adding up to 32 harmonics of a waveform (which need not be a sine wave) and applying an individual envelope to each.

Psuedo-Additive is similar, except that instead of harmonics, you can use ANY waveform you desire, up to 32 of them!

Plucked String Synthesis simplifies the creation of certain instruments whose harmonic content constantly changes in complex ways. The theory behind this is outside the scope of this review, but it works well. Some of the waveforms it creates make wonderful starting points for acoustic guitars, etc.

FM/PM Synthesis is basically a two-operator version of the frequency modulation synthesis technique made popular with the Yamaha DX series of instruments. The twist here is that you can use ANY waveform as a carrier or modulator.

Interpolation Synthesis involves changing the actual waveshape over time between an initial waveform and up to thirty two subsequent waveforms. This is intense, the possibilities of it are mind boggling, although I'd like to see finer control over the transition times.

Drum Synthesis, to quote from the manual, "uses filtered noise as a modulator for a phase modulated carrier." I'm certainly not going to get into the math behind that, but this module appears to be pretty intelligent, in that with very little effort, it will provide you with a good starting point for drum sounds. It is also useful for fattening up wimpy snares, etc.

Noise Drum Synthesis is included to simulate drum-type instruments which contain secondary characteristics, such as those created by a vibrating snare.

I need to apologize at this point, because it was originally my intention to "walk through" the creation of an instrument using

each of these methods, but before I had even gotten through the first, I was already way over the size limit for this review. This is an extremely deep program. It comes with three manuals, one of them over a half-inch thick, and while the documentation is pretty good, it is definitely not exhaustive.

As an initial test of the data integrity and sample fidelity of the program, I created a single sample of a sine wave using the Subtractive Synthesis module at a sample rate of 24000 and a Sample Length of 24000, which yielded a 1 second sample. I also set Normalizations to Peak to Peak. This minimizes any DC offset that could sneak in during various processes.

Selecting the Subtractive Synthesis module opens a small window with a number of gadgets which are common to most Synthia Pro windows, although they function in the context of the current synthesis technique. For example, most windows contain gadgets labeled "Waveform" which consist of a small sine wave in a box. In the case of Subtractive Synthesis, this opens up a full-screen window titled "Subtractive Synthesis Carrier Waveform," which, not surprisingly, allows you to construct one cycle of the waveform you want to "whittle away at." At this point, it would be prudent to discuss this screen in a little more detail, as it is in many ways the heart of the program. It is here that you may create and modify many of the secondary waveforms used by Synthia Pro to control Pitch Envelopes, Amplitude Envelopes, Frequency Envelopes, Mix Envelopes, etc. For this reason, it is formally known as the "Waveform/Envelope/Table Editor." Quite a mouthful. It contains myriad small gadgets, in addition to a scaled-down graphic waveform editor. Associated with this are a collection of sliders which simplify adjusting horizontal and vertical position, size, and taper. In addition, a slider is added to allow "stretching" or "shrinking" your waveform along either axis. A nice touch. There are a series of gadgets which will automatically create a sine, square, sawtooth, or random waveform. Also included are gadgets to reverse and mirror the displayed wave in various ways. A little more esoteric are square and square root functions. A smoothing function is also included, along with the usual clear, undo, and set/reset functions. A scale function is included to ensure the wave "fills" the display, which ensures optimum S/N ratio.

The next major element of this screen is called the "Mixing Panel." These sliders may be moved individually or by dragging the mouse pointer across them, with an option called "Snap." This worked erratically for me. If I clicked on one of the sliders, only that slider was affected. If however, I clicked above or below a slider, then they all seemed to follow. Go figure. Below the sliders are four gadgets. The first, Waveform Mix, essentially allows you to create a waveform additively, using the displayed waveform as the fundamental, to which you add harmonics 1-16 in levels matching the levels of the sliders. Keep in mind that it could also be used as an envelope, etc. The second gadget, Sine Mix, works similarly, except that it only uses pure sine waves. The third gadget, Polynomial Mix, creates a mix of what are referred to as Chebyshev polynomials. The author of the documentation apparently considered them too advanced a subject to include in the index, so I'll gloss over them here as well, except to say

they are rather useful in creating non-harmonic waveforms, which help to add realism to certain types of instruments. The next two gadgets, Linear EG and Spline EG, allow you to create waveforms using the slider positions as "vertices." Linear EG, for example, would display a waveform which essentially consists of the positions of the sliders, connected by straight lines. Spline EG uses a more complex algorithm to approximate curves. It works nicely. There is a feature called Mix, which allows you to "modulate" the displayed waveform in a number of ways. It consists of a level slider, and four options, Add, Multiply, AM, and FM. They make Synthia Pro a potent laboratory for experimentation with waveshapes.

Possibly one of the most useful features of this editor is a clipboard of sorts, with 8 storage spaces. Each space can hold a snapshot of the displayed wave, the slider positions, and the mix controls. You can freely transfer data between them. Very nice for temporary "backups" and such.

One of the other uses of this editor is to edit tables, which is part of a feature called "Waveshaping." This essentially allows you to input a waveform, define a function or equation such that for every point on that sample, a new point will be created according to the rules of your function.

Back in the Subtractive Synthesis window, a click on the Make gadget creates 24000 samples (1 second) of the sine wave that was created with the Waveform/Envelope/Table Editor. Seven seconds later, the "busy" pointer returns to normal.

I need to point out at this time that Synthia Pro is an *extremely* math intensive piece of software. While a stock Amiga can certainly cut it, a 68020/30 accelerator is recommended for serious work.

Well, time to give a listen. While the top two rows of alpha-numeric keys serve as a quick and dirty keyboard, Synthia Pro has a "graphic" keyboard in a window titled, appropriately, Keyboard. It is accessible from most other windows by clicking on a small keyboard gadget. It contains a 7 octave graphic keyboard, and gadgets to allow displaying the keyboard range of any of the wavesamples in memory. A tap on the Amiga's "T" key (middle C, you understand...) confirms that it does indeed sound like a sine wave.

Now, to send it over to the EPS. This is done from the EPS MIDI Interface window. Here you have the option of transferring entire instruments (multi-samples), or individual wavesamples, as well as setting MIDI channel and even querying the EPS memory for instruments and wavesamples. I had problems transferring entire instruments created in Synthia Pro to the EPS. Their individual range seemed to be shifted by an octave. I suspect this may have something to do with a discrepancy about which octave Middle C is in, but I avoided it by transferring individual wavesamples rather than entire instruments. There did not seem to be a problem with instruments created in the EPS. The transfer took 46 seconds, and a quick check on the EPS revealed it had indeed ingested a new wavesample totaling 97 blocks. It sounded O.K., probably quieter than anything that I'd heard come in through the EPS audio input in a while. A look at the Edit Wave page on the EPS confirmed the length at 24000 samples. Command Wave also confirmed a 24k sample rate. So far so good. It made the journey unscathed, if a bit leisurely. The journey back to the Amiga took 37 seconds.

The Editing/Looping window fills the entire screen. It has the usual waveform display, with gadgets for zooming the display and positioning it along the length of the sample. This is where you set the coarse loop points, cut and paste, etc. Also included are provisions to Reverse, Truncate, Zero, Replicate and Normalize. Strangely lacking is any way to actually play a highlighted range. There are provisions for reversing a loop, as well as Crossfade, two variations of Reverse Crossfade, and Bowtie. There is a secondary waveform display where you may draw into the sample with the mouse. It shows a small section of the main display in greater detail. At the bottom of the Editing/Looping window are statistics on displayed range and loop points. These stats confirmed that the sine wave made the trip home intact. Creating a loop is done in the usual way by first highlighting a range of the sample and selecting Set Loop.

The Fine Loop window is rather simple, but functionally sufficient. It is similar to the secondary display in the Editing/Looping window, but has two sliders for moving the loop start and the loop end. Although it doesn't say anything about it in the documentation, clicking in the actual display has some strange effect as well. I'd avoid it though. The loop looked pretty good even under close scrutiny. Transferring the sample again to the EPS confirmed a very clean loop with no audible clicks or artifacts.

No synthesizer is complete without some kind of filtering, and Synthia Pro is no exception. The Filter/Filtered Noise window provides something of an envelope controlled parametric EQ. There are one and two-pole Low, High, and Bandpass filters along with a notch filter. There are sliders for Center Frequency and Bandwidth, although there are no numbers to indicate actual values in Hz. There are, however provisions for modulating these parameters with the previously described "super envelopes." The filter, in fact, works quite well, and is extremely useful for doing things that might otherwise require the EPS's filters.

There is a module included called Pitch Shifter, but the sliders have no numerical markings of any kind, and other than a special effect, it appears pretty useless. A string gadget for typing in numbers or letters would be useful here.

There are another two modules, Ring Modulation and Angle Modulation which can be used sparingly to fatten up certain types of thin sounds. If not used carefully, though they can get extreme pretty fast, and because of this they also make good sound effects.

There is a Graphic EQ module but it is something of a source of controversy. On certain types of samples it actually works, but on others it's useless. Again, there are no numerical markings. In addition to this, certain sounds, even with all EQ sliders centered are drastically changed. It's there to play with, but you wouldn't want to rely on it.

HackerTrivia

The Rubber Chicken Staff

We had nothing to do one day when we all realized (magically, at once) that every Hacker occurrence (every lunar cycle) was a monumentous step in the unfolding of ...of...TRIVIA! We all whipped out our Bic Beak pens and started jammin' down all that was morbid and mysterious in the history of Transonic Hacker. We then flocked to lunch (all-you-can-eat fried chicken), came back, compared notes, and molded the final producked [sic].

How well do you know your HackerFacts?

Do you read *every* issue, word for word? Do you read between the lines (all the saucy, juicy personal stories)? We'll see. Dust off all your Hackers and plunge in to these stumpers. Every question has its answer printed somewhere –you don't have to have all the Hacker issues, only the right ones! There are tricky questions, but not trick questions. All answers are final.

1. What issue was the first Hacker?
2. What was Ensoniq's name before they became Ensoniq?
3. What did the Hacker become in #29?
4. Radioactivity affected one issue. How, and what should we keep away from it?
5. What color are Clark Salisbury's eyes, and what do they do?
6. How many musical instrument products have Ensoniq produced?
7. What value is the Hacker supposed to have with the Post Office?
8. Who has written the most letters to the Interface?
9. Who has contributed the most patches to HackerPatch?
10. What is the seventeenth envelope?
11. Who finally made their independence official in Issue #24?
12. Jane Talisman is the second editor of the Hacker. Who was the first?
13. Reptiles figure with two third-party Ensoniq developers. Name both.
14. What should Interface writers keep to a minimum?
15. How many times did Ensoniq provide a negative to a Hacker letter concerning an EPS rack-mount, and what words did they use?
16. What does 32 mean to you?
17. What could be your own "dumb fault?"
18. Who is the "Voice of Ensoniq?"
19. Who "believes" and "understands?"
20. Clark's favorite color is chrome. According to whom?
21. What gets skimpy and skinny from time to time?
22. What schedule is the Hacker on?
23. Who gets a First Class option, and what is it?
24. "Repeats on a waveform." What is this?
25. What should you take when you read an Interface letter?
26. Where is the Hacker printed?
27. What kind of press prints the Hacker?
28. What Issue(s) was/were the largest Hacker(s) – page countwise?
29. What Cesium Sound patch was mistakenly attributed to Q-Spectrum in *Keyboard* magazine?
30. What is Barth's Law of Buying Patches?
31. What is the road to MIDI hell payed with?
32. What did Steven Fox sell, besides software/wear?
33. What was pending in #32 and #34?
34. What is an SPM-1?
35. What is Ensoniq's non-musical instrument product called?
36. This Interface writer spells his name three ways and lives in the Midwest. Spell the names and name the state where he lives.

1. Issue 1
2. Peripheral Visions, Inc. (#10)
3. A News Magazine (they were a newsletter) (#29)
4. A blinding neon orange cover. Keep your disks away from it (#37)
5. Blue, and they twinkle (#60)
6. 16 (various issues)
7. Time value (all)
8. Charles Fischer – with 16
9. Tim Edwards – with 11
10. Your postal envelope to send findings and ideas into the Hacker (#46)
11. *The Hacker* – The [Independent Ensoniq User's] Newsletter became the [Independent Newsletter] for Ensoniq Users
12. Eric Geislinger (#1-#14)
13. Leaping Lizards and Turtle Beach Softworks
14. Vitriol (all)
15. Twice, "no plans" and "NO intent"
16. Hacker page count (#32-)
17. Not giving the Hacker your new address when you move (all)
18. Claire (#37) – FYI, currently Terri Carter is the answer-machine voice and the human follow-up is Jean Heffner.
19. Maestro Sounds (#56, #63)
20. *Electronic Musician* magazine (#32)
21. The HackerPatch file (various)
22. 4-week, 4-week, 5-week (#48)
23. Canadian subscribers – $34, instead of the usual $30 from England (#39)
24. The Hacker logo (since the beginning)
25. A grain of salt (#30-)
26. The United States (#39-)
27. A web press (#29)
28. Issue #'s 29, 30, and 31 — 36 pages
29. "Chile" (#32)
30. Price x 1/Keepers = $2.00 or less, or, I'd pay $2 for a patch I'd keep (#52)
31. Half done MIDI workstations (#40)
32. Trendy jewelry (#29)
33. EPS coverage
34. The Ensoniq (Mirage-type) Digital Piano in a rack mount (#21)
35 The Sound Selector (their hearing aid) (#54)
36. Tewn, Toon, and Tune Smith—he lives in Kansas (#43, 44, and 51)

Lastly are the Distortion, Chorus, Flange/Phaseshift, and Echo/Reverb modules. These alone are probably worth the price of admission. With 24 different "programs" the Echo/Reverb module alone could have been the topic of this review.

Well, should you run out and buy Synthia Professional? It's not cheap by Amiga standards. But then again, the only other programs I know of with anywhere near this kind of horsepower are on the Mac, and you know what that software goes for. Synthia Pro has some bugs. It doesn't appear that there any upgrades in the works for the near future. But in my opinion, there are so many tools here, and the majority of them work well, that I feel I can live with the problems for now. I'll leave you with this: It's the kind of instrument that will put you in the position to stumble across sounds you would never have conceived of any other way and it has the potential to do it again and again. ■

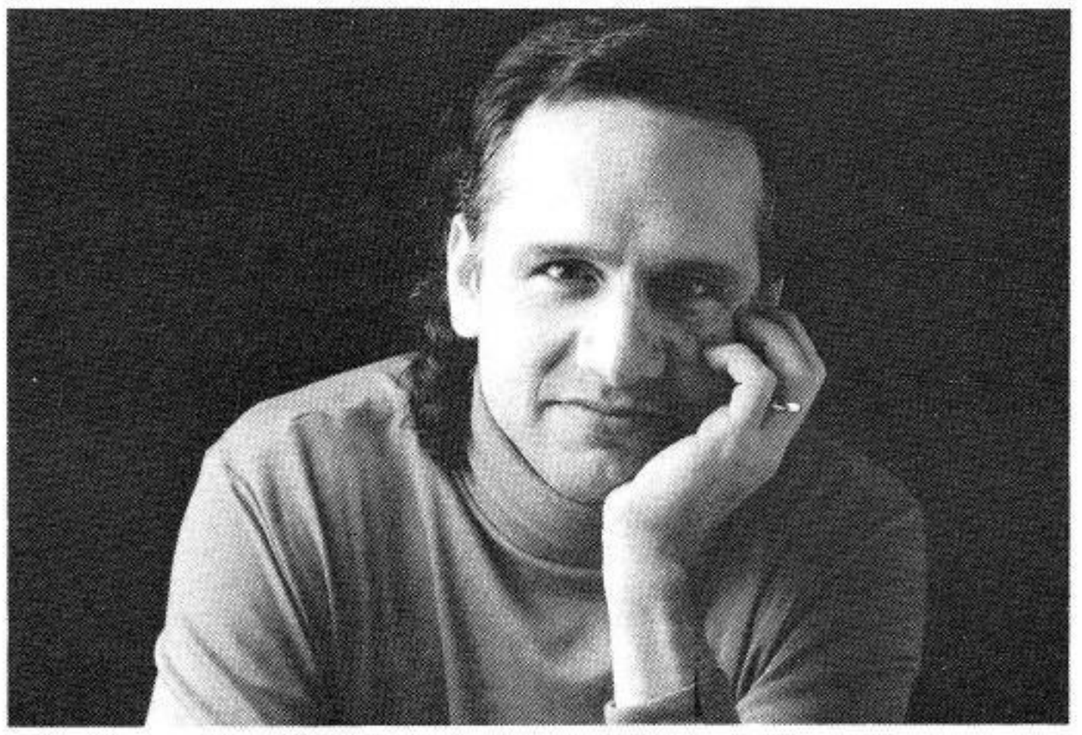
Bio: Neil Nappe is a 31 year old MIDI guitarist and programmer. He lives alone in the woods with a cockatiel named Woodstock and a zillion small computers. He wants to be an astronaut when he grows up.

Interview: John Greenland

The Creative Force Behind *"Soft Robot"* – Part II

John R. Bolles

Imagine this: A relatively unknown musician decides to record an album. He decides to write his own music—not just any music, but compositions, thought-out and precisely controlled, and with a rhythmic and dynamic diversity typical of the best of the classics. He has never recorded an album before. Nevertheless, he decides to produce, perform, engineer, and master the entire project in his home MIDI studio. After completing his project, he sends a cassette to Electronic Musician's *Robert Carlberg. Within a month, he has received a telephone call from a record label interested in his music. The* EM *review is published and the project is described as "...sophisticated, fully-developed electronic music capable of being mentioned in the same breath as Wendy Carlos."*



This almost fairy tale-like scenario is, in fact, the true story of John Greenland. Of special interest to Transoniq Hacker *readers is that John formerly worked for Ensoniq and used Ensoniq equipment extensively in the recording of* **Soft Robot**. The first part of this interview delt mainly with John's background and was just starting to get into the nuts and bolts of his production...

***JB**—People put down the Mirage because it's 8-bit, but those sounds in particular caught my ear and I thought they sounded very good.*

JG—Yeah, well, my motto is, "Don't ask, 'How many bits is it?', ask, 'How many bits does it sound like?'" When I develop sounds for sale, I use every trick in the book to avoid aliasing and inconsistencies across the keyboard. But for my own stuff, I may have a sound that aliases and has all kinds of things going on in it at the top of the keyboard, but has an octave-and-a-half range that sounds great. Then I'll use that octave-and-a-half range. So, in that respect, I don't think there's any such thing as a bad sound. Then, of course, there's reverb; reverb really covers a multitude of sins.

***JB** —Speaking of reverb, let's talk about your equipment. I see two EPS's and a VFX-SD here and I noticed the Octapad when I came in. There were acoustic and electric guitars on* Great White Hunter. *Did you use any other instruments?*

JG—No, that was it.

***JB**—Your studio set-up seems pretty straightforward. How did the process go, from recording to mixdown?*

JG—I recorded into *Performer* and then *Performer* told everybody what to do and I really went pretty straight through the mixer and straight to DAT. I'll set effects and I edit the effects.

***JB**—There's so much building of volume and dynamics throughout this album.*

JG—Those were all...thank heaven for *Performer*. You can set, very easily and pretty intuitively, curves for continuous controller data. So for MIDI volume, #7, I can set any kind of curve I want—linear, exponential, convex, concave, anything at all—over any given number of bars or notes or in the middle of bars. So if I decide I want something to crescendo over 50 bars, I can bring it from 15 all the way up to 127, so for the last four bars or so it will be full out. I can control the curve. If I set a linear curve but want the very end of it to be convex, I can go back in and say, "This is bar 64 and that's bar 80 where it tops out." I can almost infinitely change the curve so it's exactly the way I want it. That's really how a lot of the dynamics were done.

At first, before I learned how to do that, I was editing every sound painstakingly so the velocity would go the whole width from 0 to 127. Then I would go in there and do tables of how hard each note was going to be played. That was a drag.

***JB**—There's a lot of rhythmic feel in the music too. Not at all the stiff metronomic kind of feel we've come to expect from digital computer music. How did you get that? Was there any quantizing?*

JG—Most of that is just me triggering the percussion sounds with the Octapad; actually hitting the thing and getting into the music. I don't like to sit there and get drum sounds like this (imitates one-finger keyboard strikes.) Occasionally I might quantize the kick drum so I'd have a metronome to play with. Or I might take the whole drum

part and move it up four or five pulses to get that feeling of really being on top of the beat, rather than behind it.

I would exclusively recommend pads for drum sounds. If you're not a drummer, you just don't do it that way. But if you have the slightest ability to drum, use pads, even if you have to borrow them. To me there's an infinite difference in terms of feeling and the kinds of things you think of when you're drumming on the fly. You have too much time to premeditate when you're using your fingers. You'll end up doing things that a drummer could never do, which sometimes is great and sometimes sounds stupid. If you're playing rock-and-roll, it sounds silly if you have a ride cymbal and a high-hat going full-time and the guy's doing rolls all over the tom toms.

JB—Performer *sounds like an excellent sequencing program, but a lot of people use the on-board Ensoniq sequencers. Do you think the average home MIDI musician can get a good product using the on-board sequencer?*

JG—It depends on what you want to do. I had a friend over here a few weeks ago who recorded on the VFX-SD and used a D-110, an OB-X Expander—a bunch of equipment. He brought it in and everything was cued from the SD. It was very elaborate and satisfying and I was very impressed with it. Obviously, he *really knew* the sequencer in the SD; he was button-punching like a typist. And I knew, just from being familiar with Ensoniq sequencers, that it's a deep sequencer and very subtle—very flexible. I have the utmost faith in Ensoniq's ability to design probably the best...not even probably...the best sequencers in any keyboard around, at any price. You can get quite deep with them, but you can only go so far because there's only so much you can do with any integrated sequencer. It's not for lack of innovation. You just can't set curves and type in data. There are just certain intrinsic limitations.

JB—*Maybe that'll be the next step—some kind of interface.*

JG—Maybe. For dance tunes or whatever, I think you'd never reach the bottom of these sequencers. But for something that's really fully orchestrated with a tremendous amount of dynamics and with a lot of panning tricks, you're gonna have to grow into a software-based sequencer. And a lot of times you need to have 30 or 40 tracks. The SD will give you 24 which is amazing. But a lot of times I go past that because I might do four or five different takes of different things on one sound. I want to have the flexibility to do a lead line on a separate track, so if I blow it, I can get rid of it. So maybe I'll have ten tracks of one sound, then when I finally get it all right, I can merge it. On a small scale you can do all of that on an SD. But would you really want to if you only have 24 tracks available?

JB—*I have an SQ-80 and 24 tracks sounds like a lot.*

JG—It is a lot. I can't imagine needing more than that for most rock-and-roll, for most pop and that is not to denigrate either the sequencer or that part of music.

JB—*And there are a lot of things between pop-rock and orchestral.*

JG—A lot of orchestral stuff could be done with an on-board sequencer. I don't doubt it. But one of the things a software-based sequencer will allow you to do is make up for deficiencies in your keyboard technique much easier. The classic use of the sequencer to fix your problem is to slow it down, play your lead line and speed it up again. The problem is, most of the time it's going to sound just like that—sped-up, mechanical, because the inflection you put in at half-speed is totally different from the inflection you put in at full-speed. With a software-based sequencer I can go back in and *visually*—that's the difference—find the group of notes that I want to change and just change those values and put in the inflection that I know, as a composer, it ought to have. That's versus going in there one note at a time and doing step edit. It's a great feature but I just can't deal with it—I'm too impatient.

There are things you can do very easily with *Performer* which, I suppose, you could approximate using an on-board sequencer. For instance, suppose you want a sound to pan from left to right and fade in volume as it moves from left to center and then increase in volume as it moves from center to right. With *Performer* that would be very easy to do. With the EPS you could map the keyboard doing the center-to-right sweep, then just cross-fade them. That's a great feature of the EPS--the ability to map the keyboard so easily. You can conserve tracks, yet set each instrument range to do exactly what you want it to.

JB—*You could achieve the same effect in a mixer.*

JG—That's true but given the amount of those kinds of effects that I have going on in my music, if I had to do it all in the mixer I'd go nuts. And speaking of the mixer, that was another element in the recording process that played an important role. The EPS and VFX-SD are great instruments, but they tend to be pretty noisy. I used the Tascam MM-1 mixer which lets me mute instruments when they are not in use. I set up scenes in the MM-1 for each piece and they were sent over MIDI to the mixer as program changes. That was one of the things I used when mastering to DAT. The tape would start rolling and each instrument would be silent until it actually started playing. That way, I avoided that hissing sound at the lead-in to the piece.

JB—*So were the dynamics achieved through a combination of Performer and mapping and envelopes on the EPS?*

JG—Yeah, by mapping the keyboard you can have the low end of the keyboard playing one sound with a fast at-

tack and maybe have the middle part of the keyboard playing a sound with a gradual swell. You can get multiple, completely independent sounds all on one MIDI channel and right at your fingertips. If you want, you can merge them, or whatever. That was done with *Performer* on some of the longer swells but a lot of the dynamic control was achieved by the instruments themselves.

***JB**—The sound quality of **Soft Robot** is superb. And listening to* Evidence, *there seems to be a lot of depth and perspective, a sense that the strings are farther back. How did you accomplish that?*

JG—(Laughs and shrugs shoulders) Really, it's all in relative amplitudes. That's all I ever played with, except for some reverbs.

***JB**—So you just took the whole thing, ran it out of* Performer *and threw on the reverb at the end?*

JG—I used three different reverbs, all "live"—not added on later; the Yamaha SPX90-II, the on-board reverb on the VFX and an old ART DR2a. I used that for a lot of the percussive things. The DR2a has kind of a tinny plate reverb sound which is just right for certain things. Very few things are dry. I used the three reverbs and varying degrees of each one, when I could. I don't have any reverb that will let me do real-time manipulation of parameters via MIDI. They can change patches but the circuit mutes between patches so it's almost useless to me. I would love to be able to to have the signal dead center and pan the reverb. This is really a pretty basic job. There were a lot of judgment calls but nothing really esoteric or difficult technically, other than figuring how to work around the limitations of available MIDI channels and voices.

***JB**—What were some of the things you did to deal with those problems?*

JG—At one point I was using the two EPS's and I had MIDI channels 1 through 8 on EPS#1 and channels 9 through 16 on EPS#2. I had filled up every single MIDI channel that I could use in every possible way and I had each MIDI channel doing 10 different things. I finally ran completely out of space. I had a solo violin on EPS#1 and an oboe on EPS#2 and I doubled them up on the same MIDI channel. I went into the Edit Amplitude of the whole instrument—the solo violin—and assigned the mod wheel to the amplitude so that when I pushed the mod wheel all the way up, it would go away. I assigned the mod wheel on the same MIDI channel to EPS#2 so that when the mod wheel was all the way up, the volume came on. So I was fading out the violin line and fading in the oboe line on the same channel. I recorded, in real time, my own little curve and how I wanted things to go away, just by using the mod wheel. I was getting two different sounds across the whole keyboard. Of course, you can always use layers that way. If you have all eight instrument bins in the EPS filled up and you're out of space for other sounds but you still have some internal memory left, you can make a custom disk. Say you take your percussion disk and load in your oboe on another layer and make it on a patch select. So in a part where you're not using any drums, you just send patch select data and select the oboe.

There's a real easy way to get around voice-stealing problems that I've used several times. I may find that I'm running out of voices in the VFX and something is getting truncated. What I'll do is find a VFX sound that's easily sampled and sample it into an EPS. I almost always have more memory on the EPS. The sound should not have a lot of modulation going on—it should not be a TransWave sound, for example—should probably be a fairly static sound. Or it may be an elaborate sound but I play it staccato, so the envelopes are irrelevant. I only have to sample one second of it and envelope it accordingly. I'll just sample it into the EPS, then transfer the data to the EPS, erase it from the VFX and I'll have my voices back. It may be a three-oscillator sound on the VFX and I'll put it on one oscillator on the EPS.

***JB**—Did you use any memory expanders for the EPS's and/or the OEX-8 output expander?*

JG—For the entire project I used a 2X expander with one of the EPS's and a 4X with the other. I used the OEX-8 for one sound on one piece.

***JB**—How about for drums?*

JG—I'm not one of those people who believes that every drum has to have its own output and you have to be able to process each little thing independently. I mean, it's not like that in the real world and I just don't think it's necessary in order to get a good result.

***JB**—Not even a kick or snare? What if you wanted to gate the snare or something?*

JG—Well, if I really had to have a gated snare or something like that I would just create the sample so that it had the sound I wanted and that would be it. I guess I'm a reactionary or retrograde in some ways. I know a lot of people are into chaining effects and individual outs for drums and it's interesting and all, but I think it can sound just as good when you keep it simple.

***JB**—When writing about his experience recording* Forward Motion, *Craig Anderton talked about some of the pitfalls of doing a project like this by yourself. Did you have to work through things like endless tweaking, studio hermit syndrome...?*

JG—Oh, yeah. All of this music was planned out in advance—there was no jamming to a progression until I got a keeper. Every inch of this music was gone over again and again. And I would run a piece to DAT over and over and each time find something I should have done dif-

ferently. It was good because I learned something every time, but I did get totally sick of my music.

***JB**—What were some of the things you did to keep your sanity?*

JG—See these little pieces of white tape? If I edited a sound during a session, I'd stick a piece of white tape on the display to remind me to save it. There's nothing worse than slaving away all day to get something just right and then forgetting to save it. You load up the next day and it's gone. I think that's the cardinal rule of doing this kind of thing—save, save, save. Another thing I did was write down all the mixer settings. It only took me about five minutes each time and was really essential because you *won't* remember the next day even though you think you will at the time. That kind of documentation is always going to help you and it's really worth the small amount of extra time it takes.

And, this is important—if you're working and feel like taking a break, take it. It just does not pay off to push.

***JB**—So far the reception to **Soft Robot** has been very positive. There has been some label interest. What happened with that?*

JG—I sent my tape to Robert Carlberg at *Electronic Musician*. Some three weeks later I got a call from Ruby Rahn, president of Scarlet Records. She co-founded Celestial Harmonies some years back and had left to create her own label in 1988. She called and said that Carlberg—to whom I am very grateful for his consistent support—had urged her to get a tape of my music. To make a very long and convoluted story short, we agreed upon a deal in August and the CD and tapes will be in stores this November.

***JB**—What if there's some real noise after all this*—EM, Keyboard, *label deal, public radio...*TRANSONIQ HACKER*! What do you see as the next step?*

JG—I'd love to do soundtrack work.

***JB**—A lot of **Soft Robot** sounded to me like it would make great soundtrack music.*

JG—I'd give anything to be doing soundtracks. Most of **Soft Robot** would be perfect for videos, at least, if not computer-generated graphic stuff or films. That would be a real challenge, to try to break into that.

I've played my tape for creative directors and I've explained that this was a creative statement that has nothing to do with toothpaste ads, but it follows that if I can do something like this, I can do some pretty knock-down, drag-out ads. A lot of these guys have someone with a DX7, an MR1 and a drum box doing their work for them. For no more money, I could put my rig into action and give them some pretty world-class ads. Unfortunately, a lot of people can't seem to extrapolate from point A to point B. And I find that the reaction is that they'll listen to the tape and be polite and everything, then they'll say, "Well, I don't really hear anything in this tape that I could pull off and use." It's frustrating.

***JB**—What are you working on right now?*

JG—Well, running Greenland Sounds, doing some design for some other instrument companies, and sound development CD's. And I'm going to be doing some CD libraries. One will be an hour's worth of sound effects and the other will be an hour's worth of short music cues, thirty seconds, one minute, two minutes and so on.

***JB**—I think it will be a real source of encouragement to all of us hackers that you achieved such a professional result without a lot of complicated equipment.*

JG—Oh, definitely, it can be done. These Ensoniq instruments are unsurpassed when it comes to packing a multitude of features into a single package. Early on, someone at Ensoniq made a statement to the effect that the company's priorities were price, features and sound quality. A lot of people gave Ensoniq a bad rap over that statement because they were left with the impression that sound quality was the lowest priority. And that just is not true. It's really important, when sampling, to have a high-quality storage medium—that's why I use DAT. But in the actual recording of **Soft Robot** it was very basic. I ran the sequences through the mixer and onto DAT, plus the reverb. I didn't use compression or limiting or anything.

I think a lot of people feel they have to have the latest, hottest new keyboard when they haven't even begun to tap the potential of the instrument they have. I really pushed the EPS on this project and I still feel like its potential is limitless. I'm sure that it *still* has some undiscovered tricks and abilities lurking around in there. ▬

***Soft Robot** is available on cassette for $8.75 US (postage paid). To order or to obtain information on the services of Greenland Sounds, contact Greenland Sounds, 603 Anderson Avenue, Phoenixville, PA 19460 or call (215) 935-2184. **Soft Robot** is also available in stores on the Scarlet Records label. And sometime in early spring Peter Bryant (National Public Radio) will be doing a 90-minute Greenland interview and focus on his music.*

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MANUFACTURER	MODEL
Rodime	45plus, 60plus, 100plus, 140plus
CMS	43SD, 20SD, 30SC, SDU30
Microtek	Nova40
Eltekon	OVD-20, 30, 40, 50, 60, 80, 90, 120
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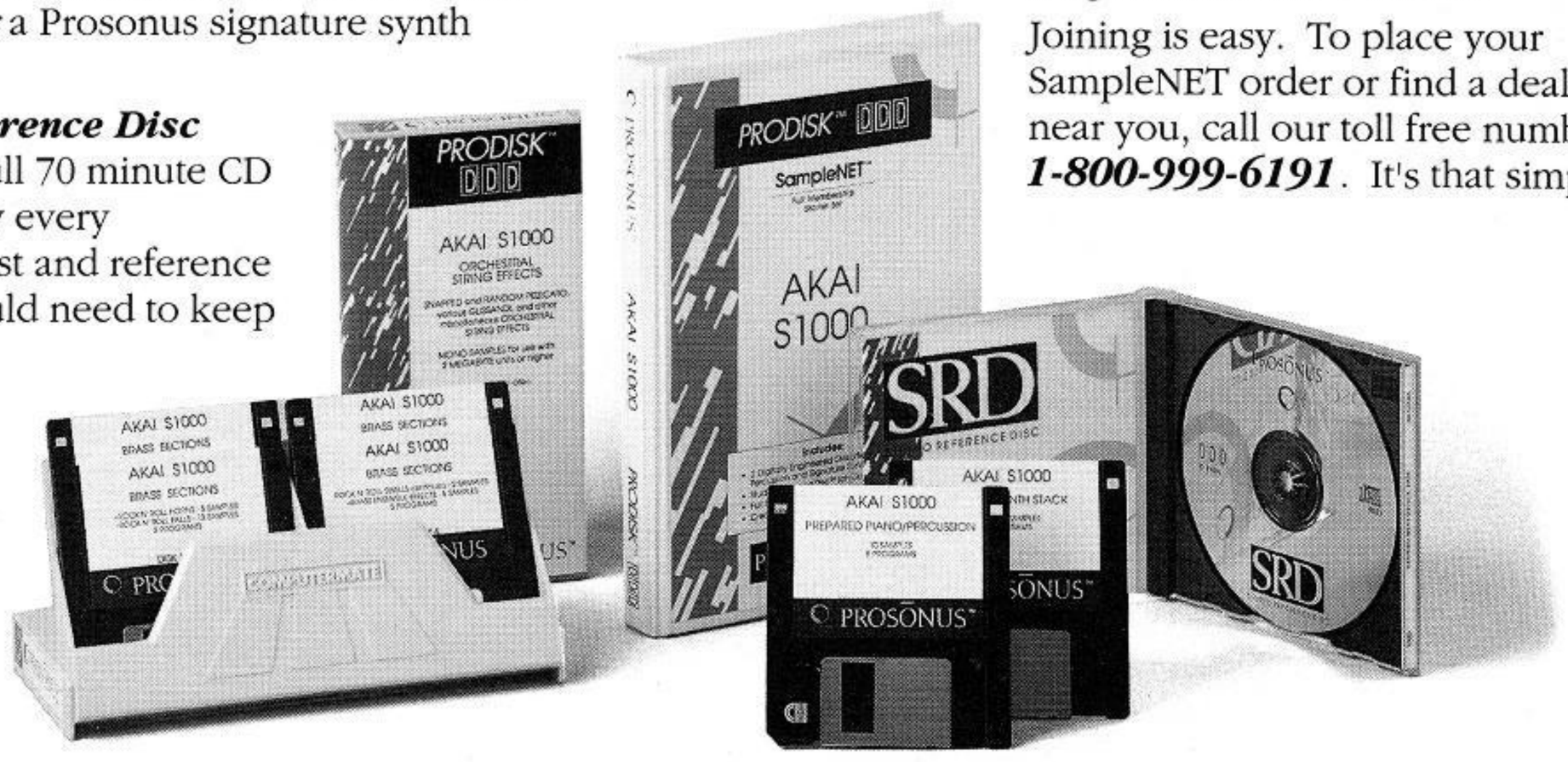

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Digital Dreams Volumes 1 and 2

Reviewed by Bob Spencer

For: Mirage with Soundprocess
Product: Digital Dreams, Volumes 1 and 2.
Price: $16.95 each plus $2 s/h, or both for $29.95.
From: Bruce Wallbillich, 162 Beech St, Covington, LA 70433.

There's something new in the air in synthdom nowadays—new life is being given to old samplers and synths. Just listen to the Top 40 stations: The same analog synth sounds you used to hear in the late '60s and early '70s are being processed with new drum sounds and breathy M1-type voices. And just where am I leading to, you may ask? If you have been reading TH for any length of time, you know that I have been a leading proponent of Mark Cecys' alternate operating system for the Mirage. It's called Soundprocess. And although it looks like Mark and his company, Triton, are now out of business, I still believe it is probably the best thing that has happened to my old antique (I don't have Midicaster—yet). It turns my head still with some of the sounds I've been able to wrench out of it.

Now one of my former customers, Bruce Wallbillich, has produced a couple of disks which would make any Mirage owner proud. He calls his series "Digital Dreams." I can honestly say he has done a few tricks I have had to woodshed on to figure out how he done 'em. On to the breakdown.

Disk 1: First the down stuff—Bruce's pianos are not real sampled pianos, which is not to say they're bad, just not realistic. Also, the Brass patch #27 is weak. That said, the rest is good. The pianos are definitely useful for background filler and rhythmic pads.

Among my personal favorites are: *#4 (Mr. Moog's Strings)*—nice and thick sounding with lots of buzz, *#12 (B3)*, *#14 (Bad Breath)*—D50/M1 clone, *#18 (Breathy El. Piano)*, *#24 (Dramatic Piano)*—best of the pianos, and *#29 (Mallet Breath).* And the others:

#2: Dream Strings—Nice ethereal string pad.
#3: El. String Bass + French Horn—Both very good and rich.
#5: Paradise—Very nice new-age type voice, dark.
#7: Wurlitzer—Hmmm... this one sounds pretty familiar... cool the way the strings fade in an octave lower.
#8: Bell Chorus—More like a tine pluck with dark vocals that fade.
#9: Synth Upright Bass—Good all the way across the keyboard as a dark square wave.
#10: Thick Strings—Reminds me of Oberheim synth strings—very nice!
#11: DX Electric Piano—If you don't already have this, here's your chance. Some tweaking of the Velocity Sensitivity Attack Filter will give this a little more versatility—turn down Filter Peak parameter #90 first.
#17: Synth Bass and Horns—Similar to #3 but brighter, better attack on the bass.
#19: Plucked synth—Nice analog synth sound, dies away like a piano.
#20: OB-Jump—Bruce, you nailed this one!
#21: Soft Brass—Reverb—Dark and deep and delicious.
#23: Atmosphere—Dark square wave with reverb—sweet!
#26: Roland Hybrid E.P.—Different sounding, lots of chorusing.

Disk 2: Bad Stuff first: *Patch #24*, the drum set is mediocre, especially the Kick drum. The snare could be useful with a bit of reverb and the toms aren't bad. As I learned the hard way, Percussion is HARD to get right on SP. On the other hand, *Patch #25* is a standout. Thunder Bass is FAT, and he had me looking up the cymbal mapping. They're the best cymbals I've ever heard on a Mirage. Other standouts:

#1: Beyond FM—Great E.P.
#2: She Sheila—Another personal favorite.
#3: E.P. / Ah Vocal—Sounds like strings instead of vocals, but I still love it.
#8: Breathy Flute—Nice, but why die away?
#9: Fat Boy Bass + Yamaha Hybrid—My favorite bass!
#17: Ethereal Choir—Very good stuff.
#29: Strings with Movement—Another trick that I have to learn "how he DO that!?"
#31 & #32: Both are great analog synth brass patches.

As you can tell, I shortened up the review on disk #2, which is not to say it's not as good—it's even better than disk #1. If you can't afford both, get #2. If you can, get both—at $16.95 each, they're definitely worth it. The second disk has more analog synth sounds while the first disk has a really good variety of electric pianos going for it as well as the new age sounds. ▬

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EPS Renaissance Instruments From Minotaur

Reviewed by Sam S. Mims

For: EPS, EPS-16 PLUS.
Product: Minotaur Disks 1 and 2.
Price: $20 per disk, 8 disks for $110.
From: Barry Carson, Minotaur Studios, 52 State Street, Canton, NY 13617.

Barry Carson is using a sampler to capture history. Sure, the EPS is great for playing big snare sounds, stuttering vocals and car crashes. But somehow, these disks seem more important than that. With them, Barry has reached back in time and pulled out sounds that were only heard (except for by a rare few) centuries ago. Even if the quality of these disks were poor, I would still want them. But thankfully, they are top- notch. I reviewed the first two in a series of 8, with more promised in the near future.

Disk 1. Consort of Viols (1014 blocks)

This disk contains multisamples of bass, tenor, and treble viols. The "Viol de Gamba" was a six-stringed, fretted cousin to the violin, and "was undoubtedly the most important bowed stringed instrument during the Renaissance," according to Minotaur's literature. A consort of five similar Instruments can be loaded from the disk, with each EPS Instrument consisting of the bass, tenor, and treble viol multisamples. (In other words, all three are available on the keyboard at once. They are not stored separately on disk.) Each Instrument in the consort is panned differently, so a pleasing ensemble effect can be achieved when a song is sequenced.

Most of the loops are unnoticeable; some loop points are audible, but only barely so, and when played through a hall reverb—as such sounds should be —these all but disappear. The performance by the players is excellent, and the overall sound is excellent as well, capturing the sonic qualities as well as the charm of the viols. The mod wheel and key pressure both add a vibrato which is right on the money. The patch selects don't do anything overwhelming—changing or doubling octaves, for instance—but there's really not much you would want to do to these sounds. After all, who wants to hear a flanged viol with tremolo?

The demo sequence, "*The Silver Swan,*" by Orlando Gibbons, illustrates the consort very nicely. Overall, an excellent disk.

Disk 2. Medieval Harp (888 blocks)

This disk is composed of seven multisamples of a small gut-stringed harp. Though the sounds are very good, they suffer a bit from noise and from split-point transitions that are not particularly smooth. But these are certainly not faults that are very apparent; under normal playing conditions, you probably won't notice them.

The patch selects add a chorus effect, a smooth fade-in string-like sound, and a plucked note on key-up as well. This latter effect is especially nice for playing mandolin-like strumming—just play each note with a very nervous finger. I would have liked to see a patch select that muted the ringing of the notes; as it is, all notes sustain through their normal cycle regardless of how they are played.

Again, the demo sequence—"*Bonjour, Mon Coeur,*" by Orlando di Lasso—is an excellent illustration of the Renaissance musical style of the instrument.

The Verdict

Let's face it—if you only play Top 40 dance covers, you're not going to have much need for viols, harps, or the other Renaissance and Medieval instruments that Minotaur offers (such as lute, pipe organ, portative organ, krumhorns, hand bells, rebec, wooden drums, finger cymbals, and Appalachian dulcimer). But if you're doing classical pieces, period music, or even writing contemporary songs where unusual sounds are in favor, these disks are a find. I love the fact that I can now hear and "play" instruments that I might otherwise never have encountered, and Barry Carson gets extra points for guarding these sounds from extinction.

At $20 a disk, you'll pay a bit more than for some other sounds. But the cost is not out of line, the quality is generally excellent, and the product is certainly unique. ▬

VFX Sawtooth Tips

Jim Grote

The VFX/VFX-SD is praised for its wide variety of sampled waveforms and revolutionary Transwaves. Nevertheless, buried in this sea of strange sounds are actual sawtooth waveforms. Allow me to introduce you to the sawtooth waveforms of the VFX/VFX-SD. Sawtooth waveforms have always been (and still are) the the most important fundamental waveform in most synthesizers and my past experience has always revolved around them. Basically, I was raised on sawtooth waveforms.

My first synthesizer was a Minimoog, bought for the family when I was 11 years old. This thing is world-renowned for its sawtooth waveforms. I played around with the thing for years, squeezing every possible sound out of it and becoming very familiar with its thick analog sound.

My next synth was an ESQ-1. Its sawtooth waveforms are more conservative but with some rasp to them, partially due to digital noise. They have a digital quality making them thinner sounding than analog sawtooth waves. Still, the ESQ-1 has some respectable sawtooth sounds such as SINPAD and MINIM3.

To get to the point, I finally went out and bought a VFX-SD, a sound-programmer's dream. After pounding on all of the factory patches for a while, I dove into the "virtual sea of waveforms" to see what I could create. I couldn't wait to apply the VFX-SD's programming power to its sawteeth and make some big analog sounds.

As a starting point, I selected the factory patch, FAT-BRASS which is a thick sound full of sawtooth waveforms. Even after messing around with this type of sound for a long, long time, I couldn't seem to get that rich, analog sawtooth sound. They just didn't sound quite right. FAT-BRASS is a nice beefy sawtooth sound, but it's not quite organic enough or something. It's difficult to put it into words.

While playing sounds like FAT-BRASS, I noticed that when they are bent up an octave with the pitch wheel, the sawtooth waveforms seem to sound brighter. With this discovery in mind, I made the sawtooth waves stay bent up in pitch by applying a constant modulator to them. To do this, I applied ENV 1 to the pitch page. ENV 1 is set to REPEAT mode so it stays at its highest value and is a source of constant positive modulation. This pitch modulation makes the oscillators drastically out of tune with the rest of the patches in the world. To compensate for this, I retune the sawtooth oscillators with the OCT, SEMI and FINE controls. This is essentially the same technique I discussed in my "Formant Shifting" article (Jan '90) on the ESQ-1.

This technique brightens the saw waves and makes them sound more organic. So now, program my patch, SABRE SAW and play it a bit. Isn't it, ahem, an unprecedentedly rich and full sound, reminiscent of Oberheim analog synths? Compare it to some of the factory sawtooth patches such as ITS-A-SYNTH or FAT-BRASS. I'm not quite sure what's happening here to the saw waves, but I suspect it's something like this. The sawtooth waveform is actually multi-sampled across the keyboard. By applying a constant positive modulator to a saw wave oscillator, the playback rate of each sample in the multi-sample is sped up. This seems to cause some distortion to occur, possibly due to aliasing.

Aliasing occurs because the sampled signal has frequency components greater than one-half the frequency of the D/A converter—the digital to analog converter which converts the digital sample information into analog signals which appear at the output. If the VFX's D/A converters operate at 40 kHz, then the VFX has a bandwidth of 20 kHz, one half of 40 kHz. When the sawtooth sample is modulated up in pitch the highest harmonics are being bent up above half the D/A converter frequency and are lost. They are transformed into frequencies lower than half the D/A converter frequency and create noise. This bit of noise and distortion brightens the sound and gives it some edge. It really sweetens the sound.

Hold down the left patch select button. This solos one of the sawtooth waves. Now play the keyboard a bit. By itself, a modified saw wave is somewhat thin and noisy. In the highest octave, you can distinctively hear some of the extraneous frequencies (noise) added by aliasing. Nevertheless, three or four saw waves played together and slightly out of tune, sound quite full—sound great, actually. To add ambience but preserve the raw sound of SABRE SAW, I send it through Concert Reverb, a "clean" reverb without any coloring such as chorus or flanging. It doesn't need chorus to fatten it up and enrich it.

SABRE SAW does have performance controllers. Key pressure adds some vibrato. The Timbre slider muffles the sound (lowers the filter cut-off frequencies). The MOD wheel bends the pitch way up (for weird effects). The left patch select solos a saw wave while the right patch button adds a fifth.

Use the individual modified sawtooth waveforms and experiment with different sounds. Since things are so easy to copy and paste on the VFX/VFX-SD, you can copy a modified saw wave and simply recall it into any other sound requiring some saw waves.

By the way, for Van Halen fans, SABRE SAW is an excellent sound to use for their hit song, "*Jump.*" ▬

VFX Sawtooth Patch

NOTES:

* Left patch select solos a modified saw wave.
* Right patch select adds a fifth.
* Timbre closes filters (lowers their cutoff frequency).
* Mod wheel cranks pitch way up.
* Key Pressure adds vibrato.

VFX Prog: SABRE SAW

By: Jim Grote

SELECT VOICE

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

WAVES

	1	2	3	4	5	6
Wave	Sawtooth	Sawtooth	Sawtooth	Sawtooth		Sawtooth
Wave Class	Waveform	Waveform	Waveform	Waveform		Waveform
Delay	0	0	0	0		0
Start	-	-	-	-		-

MOD MIXER

	1	2	3	4	5	6
SRC-1	Off	Off	Off	Off		Off
SRC-2	Wheel	Wheel	Wheel	Wheel		Wheel
SRC-2 Scale	8	8	8	8		8
Shape	Quikrise	Quikrise	Quikrise	Quikrise		Quikrise

PITCH

	1	2	3	4	5	6
Octave	-2	-2	-2	-2		-1
Semitone	-7	-4	-4	-4		-9
Fine	+9	+30	+18	+25		+25
Pitch Table	System	System	System	System		System

PITCH MODS

	1	2	3	4	5	6
MODSRC	ENV2	Wheel	Wheel	Wheel		Wheel
MODAMT	+69	+99	+99	+99		+99
Glide	None	None	None	None		None
ENV1	+51	+99	+99	+99		+99
LFO1	-14	-13	+13	+11		+13

FILTER 1

	1	2	3	4	5	6
Mode	LP/2	LP/2	LP/2	LP/2		LP/2
Cutoff	127	108	100	108		124
KBD	+7	+4	0	0		0
MODSCR	Timbre	Timbre	Timbre	Timbre		Timbre
MODAMT	-95	-95	-95	-95		-99
ENV2	0	0	0	0		0

FILTER 2

	1	2	3	4	5	6
Mode	LP/2	LP/2	LP/2	LP/2		LP/2
Cutoff	127	127	127	127		127
KBD	0	0	0	0		0
MODSCR	Timbre	Timbre	Timbre	Timbre		Timbre
MODAMT	-85	-85	-85	-85		-99
ENV2	0	0	0	0		0

OUTPUT

	1	2	3	4	5	6
VOL	79	79	79	79		84
MODSRC	Mixer	Off	Off	Off		Off
MODAMT	-99	0	0	0		0
KBD Scale	+16	+16	+16	0		0
LO/HI Key	A0-C8	A0-C8	A0-C8	-		-
Dest Bus	FX1	FX1	FX1	FX1		FX1
Pan	39	50	86	50		50
MODSRC	Off	Off	Off	Off		Off
MODAMT	0	0	0	0		0
Pre-Gain	Off	Off	Off	Off		Off
Voice Prior	Med	Med	Med	Med		Med
Vel Thresh	0	0	0	0		0

LFO

	1	2	3	4	5	6
Rate	33	35	34	37		35
MODSRC	Press	Press	Press	Press		Press
MODAMT	+6	+6	+6	+6		+4
Level	1	2	3	1		2
MODSRC	Press	Press	Press	Press		Press
Delay	0	0	0	0		0
Waveshape	Sine	Sine	Sine	Sine		Sine
Restart	On	On	On	On		On
Noise SRC RT	0	0	0	0		0

ENV1

	1	2	3	4	5	6
Initial	15	99	99	99		99
Peak	0	99	99	99		99
Break 1	0	99	99	99		99
Break 2	0	99	99	99		99
Sustain	0	0	0	0		0
Attack	10	99	99	99		99
Decay 1	0	99	99	99		99
Decay 2	0	99	99	99		99
Decay 3	0	99	99	99		99
Release	0	99	99	99		99
KBD Track	0	0	0	0		0
Vel Curve	Cnvx2	Cnvx2	Cnvx2	Cnvx2		Cnvx2
Mode	Norml	Repeat	Repeat	Repeat		Repeat
Vel-Level	0	0	0	0		0
Vel-Attack	10	0	0	0		0

ENV2

	1	2	3	4	5	6
Initial	99	99	99	99		99
Peak	99	99	99	99		99
Break 1	99	99	99	99		99
Break 2	99	99	99	99		99
Sustain	0	0	0	0		0
Attack	99	99	99	99		99
Decay 1	99	99	99	99		99
Decay 2	99	99	99	99		99
Decay 3	99	99	99	99		99
Release	99	99	99	99		99
KBD Track	0	0	0	0		0
Vel Curve	Cnvx2	Cnvx2	Cnvx2	Cnvx2		Cnvx2
Mode	Repeat	Repeat	Repeat	Repeat		Repeat
Vel-Level	0	0	0	0		0
Vel-Attack	0	0	0	0		0

ENV3

	1	2	3	4	5	6
Initial	99	50	50	50		50
Peak	99	99	99	99		99
Break 1	99	99	99	99		99
Break 2	99	99	99	99		99
Sustain	99	99	99	99		99
Attack	0	5	2	2		2
Decay 1	0	0	0	0		0
Decay 2	0	0	0	0		0
Decay 3	0	0	0	0		0
Release	10	15	15	15		15
KBD Track	0	0	0	0		0
Vel Curve	Linear	Linear	Linear	Linear		Linear
Mode	Normal	Normal	Normal	Normal		Normal
Vel-Level	0	0	0	0		0
Vel-Attack	0	0	0	0		0

PGM CONTROL

Pitch Table	Off
Bend Range	12
Delay	X4
Restrike	20
Glide Time	0

EFFECTS (1)

Effect	Concert Reverb
Decay time	45
FX1	50
FX2	25

EFFECTS (2)

Diffusion	58
Pre-Delay	82
Early Refl level	37
Time	42

EFFECTS (3)

FX2 Mode	Nrml Stereo Send
LF Decay	0
Reverb HF	
Damping	10

PERFORMANCE

Timbre	0
Release	0

Hackerpatch

Guest Hacker: Charles R. Fischer

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

We're starting something a little different this issue. We're going to give Sam a little breathing room by occasionally having a guest patch hacker. This month's guest should be familiar to Hacker readers: Charles R. Fischer. Charles is starting out by hacking a couple of his own patches...

SQ-80 Patch: FLCLAV

by Charles R. Fischer

FLCLAV is one of my attempts at recreating the sound of the Hohner Clavinet. The modulation wheel adds a flange effect which lets you kick it in and out as desired.

The flanging effect is created by using the same waveform on DCOs 1 & 2, and detuning DCO 2 with an LFO. On the MODES page, you'll find the parameter OSC; when you set it to ON, both DCOs are phase-locked to the beginning of each note. Turning this on really enhances the effect. Finally, DCO 3 adds a little grunge to simulate key click.

The flanging rate is set by LFO 1. You can alter it by changing the rate parameter. The dynamic range of the patch can be increased by raising the LV settings on ENVs 2 & 3—as I remember it, the clav never had much of a dynamic range to begin with, so I purposely limited these parameters.

Unfortunately, ESQ-1 owners are out of luck here, as the ESQ lacks the CLAV waveform that is so crucial to emulating the clavinet sound.

ESQ-1 Patch: FRTLES

by Charles R. Fischer

FRTLES is my effort at duplicating the sound of a fretless bass on the ESQ-1. All of the parameters marked PED will probably work better on the SQ-80 if set to PRESS. Try it both ways and see what you prefer. DCO 1 and 2 are used to create the bottom end, while DCO 3 adds the distinctive format that is the backbone of the fretless sound.

To create your own variations, one place to begin is by substituting other waveforms on the DCOs. PULSE, REED, and all of the formats are good choices. Or turn SYNC to ON and experiment with the OCTAVE and TUNING of DCO 2. This will add unusual variations to the basic format. You can also add chorusing by detuning DCO 3 slightly. Set the fine tuning to somewhere between 01 and 03.

Bio: Charles R. Fischer is a pretty busy guy these days. He has worked as a studio musician, arranger, and synth programmer, is the MIDI editor for Keyboards Today *magazine, and designs custom electronic gear for a small clientele. He doesn't have a favorite color—he just tries to find the right one for the job.*

SQ-80 PROG: FLCLAV — **BY: Charles R. Fischer**

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	00	00	CLAV	OFF	-	OFF	-
OSC 2	-1	00	00	CLAV	LFO1	+01	OFF	-
OSC 3	-2	00	00	NOISE1	ENV1	+63	OFF	-

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	57	ON	OFF	-	OFF	-
DCA 2	57	ON	OFF	-	OFF	-
DCA 3	00	ON	ENV1	+63	OFF	-

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	024	00	21	ENV3	+30	VEL	+17

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	58	00	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	08	ON	OFF	TRI	00	00	-	WHEEL
LFO 2	-	OFF	OFF	-	-	-	-	-
LFO 3	-	OFF	OFF	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	+63	+00	+00	15L	00	00	02	00	10	32
ENV 2	-	-	-	-	-	-	-	-	-	-
ENV 3	+63	+63	+22	18L	00	00	00	47	20	36
ENV 4	+63	+57	+00	13L	00	00	02	52	10	22

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

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

ESQ-1 PROG: FRTLES — **BY: Charles R. Fischer**

	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH
OSC 1	-1	00	00	BASS2	LFO1	+02	LFO2	+03
OSC 2	-1	00	01	SINE	LFO1	+02	ENV1	-01
OSC 3	-2	11	31	FORMT1	LFO1	+02	LFO2	+14

	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH
DCA 1	52	ON	KBD	-03	*PED	+04
DCA 2	57	ON	VEL	-04	*PED	-02
DCA 3	00	ON	ENV2	+52	*PED	+13

	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH
FILTER	029	00	+09	ENV2	+29	*PED	+07

	FINAL VOL	PAN	PAN MOD	DEPTH
DCA 4	63	08	OFF	-

	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD
LFO 1	18	OFF	ON	TRI	00	00	-	WHEEL
LFO 2	63	ON	ON	NOI	00	00	-	ENV1
LFO 3	-	OFF	OFF	-	-	-	-	-

	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK
ENV 1	+63	00	00	00L	00	00	12	63	00	55
ENV 2	+63	+50	00	26	11	06	26	63	26	12
ENV 3	+63	+57	00	41L	24	12	02	48	26	17
ENV 4	+63	+52	+28	00	00	00	04	46	29	26

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

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

Classifieds

SAMPLES

Looking for all EPS users to swap sounds via mail. Send your sound lists to LOWER VALLEY EPS, P.O. Box 577, Prosser, WA 99350-0577.

Looking for EPS users to swap sounds, socks, girlfriends... Send your listing (and socks) to: Riku Nuottajärvi, Taskilantie 28, 90580 Oulu, Finland.

Proteus and U220 sounds digitally mastered on Compact Disk (CD). 600 samples total, covering 98 individual sounds. $14.95 + $2 s/h. CA res add 6.25% sales tax. Digitelesis, 8667 Via Mallorca #76, La Jolla, CA 92037.

Medieval and Renaissance Instrument Samples! New 12-bit EPS versions and 8-bit Mirage versions available: Lute, Medieval Harp, Viols, Dulcimers, Handbells, Pipe Organs, Krumhorns, Rebec, many more. Please specify sampler. Barry Carson, Minotaur Studios, 52 State Street, Canton, NY 13617.

My Soundprocess library for all you Mirage owners - now only $15.00 a diskl "Lush," "X," "DeMiTy," "Addy," and my latest, "Turbo." Includes Run-time only version of SP operating system - Just stick in one of my disks and GOll Send for a catalog of my EPS/Mirage samples and EPS sequences for sale or trade, also. Please enclose $1.00 postage for each disk. Bob Spencer, 703 Weatherby Ln., Greensboro, NC 27406.

Quality EPS orchestral samples. MUMS (McGill University Master Samples CD). Also M1, D50, Kurzweil, crazy original samples. For demo disk, cassette and catalog $12 (US). Free shipping. In Canada, $14 (Can.). K. B. Thomas, PO Box 174, Stratford, ONT, N5A 6T1 Canada.

NEW EPS VIDEO—SAMPLING MADE EASY. Learn to sample, loop, crossfade, sculpture sounds, layer, multisample, and more. Package includes video, 3 disks, and a 60-minute cassette loaded with great digital samples: $39. **SAVE** on **EPS-4X EXPANDER** and **10 FREE SOUND DISKS. LOW PRICE.** CALL Visa/MC. **EPS BEST OF SOUND DISKS**, 10 disks: $20. **HR16 Disk** with 100 drum patterns: $12. Wildwood Sounds, 4726 Pebble Creek, Pensacola, FL 32526. (904) 944-6012, Tony, after 6 pm.

DIGITAL DREAMS VOLUMES 1 and **2** for your Mirage running **SOUNDPROCESS**. Each uses waves/wavesamples from Korg, Yamaha, Roland, E-mu, Oberheim and Moog synthesizers. $16.95 each + $2.00 s/h to Bruce Wallbillich, 162 Beech St., Covington, LA 70433. Both volumes for $29.95 + $2.00 s/h.

Mirage samples: Plus moving wavesamples all over. 7 sounds in one bank, much more. Listings: $1.00. Demo tape: $6.00 (includes listings). Mr. Wavesample, 162 Maple Place, Keyport, NJ 07735. 201-264-3512. Make checks payable to Jack C. Loesch.

EQUIPMENT

Tascam 388 8-tk tape recorder/mixer, w/dbx $2,250; **Mac Plus** with ext 45 Meg hard drive, ext floppy drive, Imagewriter II printer, many extras. (212) 350-1773. 9-5 EST weekdays only.

SAVE on **MAARTIST EPS-16 & EPS-4X EXPANDERS** and enjoy **2000 FREE SAMPLES. GREAT PRICES.** (904) 944-6012, Tony, after 6 pm.

EPS w/2x and OEX-8. MINT condition. Used in home. $1700 or trade for PC laptop with hard drive. (407) 678-6642 or PO Box 825, Goldenrod, FL 32733 with offer or details.

SQ-80. Absolutely beautiful condition. Over 2000 patches, CV pedal, 5 ROMS, 2 manuals. $875. (517) 539-5841. Bryan.

EPS-M: $1800. EPS w/2x exp: $1350. SQ-80 w/ram cart: $1000. Kawai R100 drum mach: $400. Fostex 450 8-ch mixer: $450. BX-600 6-ch mixer: $80. All have current SW versions and HW modifications. Home studio use only. Sounds software support is included. Call Ron at work: (313) 852-9403, or home: (313) 656-1071.

EPS with 4x, SCSI, extras, only 10 hours of use: $1675. 616-943-9936.

CZ-101, loaded: $150. 616-943-9936.

Convert drums or pads to MIDI data, with triggers. $190. 616-943-9936.

Ensoniq EPS with 4x expander: $1100. Firm. Roland R-5 rhythm composer, art multiverb ext signal processor, Boss 8-channel mixer. Other equip also. All studio use only. Kerwin, 703-751-1046. Package deal available.

For sale: EPS w/4x & SCSI, hard case, 65 meg EX-2HD, OEX-8, CVP-1, asst disks, docs, $2595 obo. Roland W-30 w/ KW-30 SCSI kit, 50+ disks, manuals, docs: $1895 obo. Pat Finnigan, 4817 E 17th St., Indianapolis, IN 46218. (317) 357-3225.

5-YEAR WARRANTY!! FREE SHIPPING!! 20,000-NOTE EXPANDER for ESQ-1, $59.95. **44MB Removable SCSI drive**, $749. **EXPANDERS:** EPS-16 PLUS, $199; 4X EPS, $294.00. SQ-1/VFXSD, $199. AKAI; ROLAND, KORG & YAMAHA. **RAM CARTRIDGES:** VFX, $89.95; ESQ/SQ80, $39.95 (80-voice) & $64.95 (160-voice) ; K1, $49.95; ROLAND, KORG; YAMAHA. **SOUND LOGIC**, 1125 Eleventh Street, Ramona, CA 92065. (619) 789-6558 (Info); (800) 753-6558 (Orders).

WANTED

SOUNDPROCESS for the Mirage. I'd prefer new, but Triton appears to be out of business. Dave Casini, 25743 Cascade St., Hayward, CA 94544.

Desperately need ESQ-M. Also in the market for an Akai MG1214 or MG14D MTR. Write to Cowgill, PO Box 2639, APO, NY 09179, or call (UK) 011-44-366-383402 or send FAX to 011-44-683-533-135 (Attn: Cowgill, ex 2495 on receipt.)

SOFTWARE

Omni Librarian for the VFX & SDI Saves programs, presets, multi setups, and sequences. Directory makes it easy to find your programs. You can rename programs from the Mac keyboard. Create your own libraries. Runs on any Mac w/HyperCard. Only $50! Gary Drenan, 923 Westwood Blvd., Box 16, Los Angeles, CA 90024.

Midicaster is still available. The way-cool operating system that turns your Mirage into a very capable System Exclusive data librarian, a 20,000-note sequence player, a disk copier/formatter, and wave-draw synthesizer is still available for a limited time. For more information, or to order, contact the Midi Connection, 9343 SW 3rd, Portland, OR, 97219, phone: (503) 245-3752. And thank you for your support.

ESQ/SQ-80 Editor/Librarian for Atari ST. Original, not a copy. $50. (517) 539-5841. Bryan.

EPS-Sense: IBM-PC Sound Editing System for the EPS/EPS-M reviewed in Issue #50 of TH. $50.00 + $5.00 s/h. Jeffrey Richter/Donna Murray, 3502 Village Bridge Apts., Lindenwold, NJ 08021. Phone: 609-346-0943.

PATCHES/SOUNDS

NEW! SQ-80 sounds! Sounds from DePeche Mode, Erasure, Cure! Fresh alternative synth sounds: Oberheim-like analogs, DX-like digitals, a HUGE string symphony, sounds from DePeche Mode, Erasure, Kraftwerk, and more! Also the best acoustic simulations you'll ever hear from this beast: steel drums, bongo, accordian, more. Includes pages and pages of helpful programming and tweaking tips to shape this into the most useful set of sounds you've ever boughtl Send a check for $32.00 to: Tom Shear, Box 388, Day Hall, Mt. Olympus Drive, Syracuse, NY 13210.

XMAS SPECIAL – 120 VFX-SD SOUNDS GUARANTEED BEST PRICE and **SOUND QUALITY**. No risk. **SATISFACTION GUARANTEED.** Order today and get 100 **FREE DRUM PATTERNS**: $35. **2000 DIGITAL SAMPLES** on 2 MAXELL XLII-100 cassettes, Proteus, T1/M1, VFX-SD, DMP3, K1/K5, D50, Moog, more: $25. 100 **DRUM PATTERNS**, VFX, EPS, or HR-16: $12. Wildwood Sounds, 4726 Pebble Creek Terr, Pensacola, FL 32526. (904) 944-6012, Tony, after 6 pm.

NEW WAVEFORMS for the ESQ-1! Soundset 3, programmed by Sam Mims, brings a host of new waves - and 40 amazing new sounds - to the ESQ-1 using operating system 3.5 (not compatible with ESQ-Ms, SQ-80s, or earlier operating systems). Many D-50-type ambient sounds, all outlined in accompanying 22-page booklet. Available on data cassette or Mirage-format disk for $17.95, or on 80-voice EEPROM (40 voices blank) for $59.95. Syntaur Productions, 11116 Aqua Vista #2, North Hollywood, CA 91602. Phone: 818-769-4395.

SEQUENCES/MUSIC

EPS ONLY. Anyone out there interested in setting up a sequence trading network? I have hundreds of good sequences in all styles of music. Latin, rock, disco, 50s, 60s, big band. Call Bo, (301) 661-6003. I will accept toll charges.

CHRISTMAS MUSIC FROM THE EPS & HOME STUDIO: Striking seasonal music on cassette in varied styles, from traditional to ..well...originall Great stocking stuffers for musicians or anyone else who's been good this year. Send $5 per cassette to cover costs. Dan Walker, 3650 Shirley's Hill Rd., Partlow, VA 22534.

INSTRUCTION

Video Guide to MIDI. Setting up your personal MIDI studio. Keyboards, Drum Machines, Sound Modules, Effects, Computer, Mixer and Monitors. $39.95. MC/Visa/COD 616-374-0061. Two Legs Productions, 1003 Fifth Ave., Lake Odessa, MI 48849.

EPS SAMPLING MADE EASY VIDEO: $39. **80 LUSH ESQ/SQ80 SOUNDS**: $15. (904) 944-6012, Tony, after 6 pm.

SOFTWARE ENGINEER

ENSONIQ is seeking a motivated software designer for digital music products. Experience in real-time OS and Assembly language necessary. Knowledge of 68000, 6803, MIDI, and DSP music synthesis or keyboard playing helpful. Excellent benefits. Non-Smoking Co. Please send resume and salary requirements to: ENSONIQ CORP., Dept. 12, 155 Great Valley Parkway, Malvern, PA 19355.

OUT-OF-PRINT BACK ISSUES

M.U.G. will provide Out-of-Print issues for cost of materials and postage. M.U.G. Hotline: 212-465-3430 or write: G-4 Productions, 622 Odell Ave., Yonkers, NY 10710.

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

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

FREE CLASSIFIEDS!

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

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The Interface

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

An open letter to Ensoniq:

It is with great respect and much thanks that I write to you. I'm sure I speak the minds of the majority of Hacker readers when I offer you heart-felt congratulations and much selling success with the new EPS 16+. I'm sure the Hacker readership intends to rush right out and buy two! The reasons for this are many. First and foremost, the products you build are of excellent design and right on target. I have had dealings with many music manufacturing companies through my extensive composing with CineTunes and have found that the majority of them will NOT listen to the end user. They listen to the select group of endorsed musicians who provide them with the bulk of their design information. That will make a good product and sometimes, but not often a great product. Ensoniq, you listen to us and that by itself is something to be proud of. You learn from mistakes and have a keen ability to interface electronics with humans, something Roland has yet to learn. You provide relatively clear and concise manuals which is more then I can say about the "Jinglish" from the Japanese competition. And most of all, you do support your product.

I personally have had more then my share of EPS disasters but NEVER was I left out in the cold! You were there when I needed you most and kept CineTunes up and running. You provided both a solution and a shoulder to cry on. Sure, hard work was lost in "Digiville" somewhere, but the songs usually came out better the second time around. We have all lost precious material along the way, but rest assured that the Synclavier I work on (but would rather not), has bigger and more expensive problems!! I have found that more expensive and complicated gear does not always lend itself to better compositions. In fact, the new album CineTunes is doing is, for the most part, Ensoniq and Multi-tracks with some other toys and a lot of magic.

With all of this in mind, I thank you for a great product, fantastic support, and engineers, programmers, and designers who are second to none. ...now if you'll just build me the EnClavier... 32 tracks, 84 voices, 8 x 10 SuperTwist screen, SCSI, 24 instruments, 16 meg ram... you know the rest!!!???

Sincerely,
Robert Feiner, President
CineTunes
New York, N.Y.

[CS – EnClavier – yeah. Sounds better than 'SynSoniq' anyway.]

Dear Hackers:

I'd like to play Miss Manners for just a second and point out some unwritten rules of etiquette concerning the **Transoniq Net**. The Net is a unique service coordinated by the Hacker where individuals list their telephone numbers and agree to help out callers having problems with specific pieces of gear. It's sort of an extension of Ensoniq Customer Service manned by volunteers. I'm listed to help out with VFX (and VFX-SD) questions, but I think I speak for the entire Net when I ask that callers follow these guidelines.

First of all, being volunteers, we get no compensation for the time we spend doing this, other than the satisfaction of helping out fellow musicians and the fact that we learn more about our instruments in the process. So please, don't expect us to return long distance calls and foot the bill for it. I've gotten scores of messages on my answering machine saying, "I've got a VFX problem, here's my number." My phone bill is already several hundred dollars each month; I can't afford to add another big chunk to that. If you have to have your call returned, please state that you'll accept a collect call.

Secondly, don't expect people on the Net to be repair techs – we're here to answer questions on programming, applications, interfacing, and that sort of thing. We can sometimes help out a bit if you're having hardware troubles, but in general, you should call Ensoniq first if you have repair questions.

Thirdly, while you will frequently get hold of us immediately, sometimes you may have to wait a bit before your call can be returned. Many of us are out gigging or doing studio sessions, and won't be able to call you back until the next day or so. I spend a major portion of my time on tour and try to call in for messages daily, but sometimes there's not much time for making phone calls.

Finally (this is the one that really burns me), most Transoniq Net listings give hours during which calls can be accepted. There's a good reason for this. I usually work late and sleep late, so I don't want the phone ringing before 10 a.m. (and even that's kind of early for me...). What prompted this letter is that today I had four calls before that hour and they started at 6:30 a.m.! I had gotten to bed at 5:00. (Keep in mind that there may be significant others that don't want to be disturbed as well.) Please call within the listed times, and please don't forget that you may be in a different time zone.

The Transoniq Net is a great service. If you're in a jam and Ensoniq is closed for the day, there are usually people that can help. If you're not sure how to make the mod wheel control a filter sweep, we'll be glad to walk you through the correct steps. For the most part, callers are very courteous, they ask interesting questions, and they are fun to talk to. It's just a small percentage that take it a bit too far. So please don't think that I don't want you to call if you have a question, because I do. It's just that I get grumpy when I haven't had enough sleep.

Sam S. Mims
Syntaur Productions

[CS – And there's nothing worse than a grumpy tech.]

[Ensoniq – We'd like to take this opportunity to thank all of the people who maintain the Transoniq Net service. Your willingness to go that "extra mile" to support our products is a great honor to all of us here at Ensoniq. We should also emphasize that the Transoniq Net and the Hacker in general are not the places to get service information from or repair issues solved. That's our job; don't burden these user-support volunteers with our job. The Hacker and Transoniq Net are invaluable resources for sharing programming and music-making ideas and questions, and stimulating discussion about new features, products etc.]

[TH – And, of course, the occasional bitching...]

Dear Hacker,

It doesn't hurt to say it again, you are a great magazine. I now know what time the postman comes every day because every first week of the month I camp out close to my mailbox until the Hacker comes. (It's true.) And since you are so receptive to your reader's suggestions, here are mine:

I am a new owner of a monster called **VFX-SD**. It has been my introduction to the wonderful world of synthesizers. The last time I played something that had a keyboard and a switch was when I was about 7; I had a poor excuse of an organ using an electrical motor and air pipes to make sounds. It sounded like a train whistle with a severe case of hayfever.

I am really drawn to creating new sounds or simulating existing ones. Although now I think that a sampler would be better for this type of application, the VFX-SD with its wavetable synthesis I believe is capable of making some great ones. That's why the first thing I turn to in the Hacker is the VFX Hackerpatch. I find it a great way for me to learn how to tame this animal of a synth. What would make me really happy though is to see a column from an experienced programmer describing how to create a sound from scratch. For example how to go about doing a cello sound, or an acoustic guitar (by the way, I think both cello and guitars sounds

that come with the VFX-SD need some work). Clark Salisbury gave us some ideas in his "*Notes From the Northwest*" column in the September, '90 issue. More of the same would be really appreciated.

I would also like to know how I can translate the SQ and ESQ patches that you publish into VFX-SD patches. I know the translation won't be exact but I suspect it can come really close. This way every issue will have potentially five patches for a VFX instead of one.

And the last one. If any readers have access ARPANET or BITNET they can send me mail addressed to U15708@UICVM.UIC.EDU (arpanet address) or U15708@UICVM (bitnet address). I'll try to start a discussion list for Ensoniq users.

Sincerely,
Mario Kefalopoulos
Chicago, IL

[CS – It is possible to roughly translate SQ-80 and ESQ patches for the VFX – if you are already pretty well acquainted with the programming intricacies of both machines. Unfortunately, there is no straightforward "plug in the numbers" type of formula for doing so. Attempting to list a corresponding VFX setting for each ESQ/SQ-80 parameter would require a fairly intense amount of research and testing, and even then the waves and other parameters differ enough for each machine that any "by rote" approximation of patches would most likely produce pretty unpredictable results.]

[TH – We're certainly going to have more tutorial-type articles in the future.]

Dear Hacker:

I'll try and make my letter to the point. I perform and record for a living here in Detroit, and my **ESQ** and **Mirage** have really been champs.

Technology has changed by leaps and bounds but my income hasn't increased as much, so I am still using my trusty 8-track ESQ as my sequencer. I have sequenced 100 or more Top 40, Jazz, Pop tunes and as many originals, and now I am trying to find a vendor of ESQ sequences other than Monster Dan. Can you help?

I am willing to trade sequences, or maybe you can refer me to someone who would like to convert to or from the ESQ. Also, I am still looking for a few specific sounds:

- Flute sounds (like my Poly 800) or a Japanese D-50ish.
- A 12 string guitar.
- A better electric guitar (muted for chugging maybe 5ths).
- Orchestra hits (please).
- Vowel sounds A E I O U.

CAN YOU HELP?

Thanks for your time.
Michael Talley
313-354-1413
26419 Stanford Drive E.
Southfield, MI 48034

[CS – Readers?]

Hacker:

In their response to a recent Hacker letter, Ensoniq re-requested our ideas for new products; here's my two cents worth, Malvern...

What I'm looking for is a drum SYNTH. Not a sample-playback box with an anemic sequencer and wimpy keypads but something with a few good drum and percussion waveforms and a VFX-style synth – a REAL machine! Just waveforms – no sounds. Now you say, "No 'dynamite' sounds?", and I say, "Don't need any." So you say, "WHAAAT?!?" and I say again, "Don't need any, but here's WHY."

My drums would be tunable because the oscillators are. Junky, gated snares? Not to worry! Envelopes let me shape any decay I want, including the gate. Tacky, machine-like flams? Gone as well! Zoning the patch to two (or more) adjacent keys lets me flam or roll away with BOTH hands (fingers?), like a real drummer. Zoning and keyboard scaling would give me as many roto toms and agogo bells as I need, with the tunings I want, spread the way I like across my stereo stage. Realism? How about a tympani rising in pitch as it decays, like when you partly damp it with your hand as you move from rim to center? Easy – just modulate the oscillator and filter with the mod wheel.

Still not convinced? Okay, let's build my bongos (subject to later hacking, that is!). Split the keyboard – left side low, right high. For the attack, use velocity sensitivity on the amplitude envelope, filter and pitch just a bit, too. Keyboard scaling (left side positive, right negative) to slightly sharpen the pitch, shorten the decay, and sweep the filter up a little. Thus, playing closer to keyboard center stimulates playing toward the bongo's rim with velocity implemented the way it should be (rather than just playing the sample back louder). Now that's realism; isn't that what we're really after?

But wait – there's more! I could do the weird stuff, too! Nasal-sounding bandpass-filtered crash cymbals, reverse-playback cowbells with inverse-velocity-sensitive decay: my synth would be limited only by my imagination! Compare the ESQ-1's 32 ho-hum vanilla waveforms with the incredible variety of sounds it can make simply because it's a SYNTH. Now imagine what it would sound like if it had drum sounds!

A decent selection of cleanly-looped drum waveforms, a VFX-cloned synth, MIDI in from my keyboard, a few slots to save my drum kits in (oh, yeah – and a couple for the factory kits, too), that's ALL I need! Onboard effects would be nice but I can't expect TOO much for (hope, hope...) 700 bucks, can I?

Pretty simple, my machine, but it'll blow the MIDI chords off ANYTHING you've got! And if it had Ensoniq's name on it, you'd think I'd died and gone to Heaven! How about it, Malvern?

Dave Camp
New London, CT

[CS – And if you add uploadable samples via card or disk, and the freedom to assign any drum to any MIDI note number (with at least 36 sounds available at once), note layering and pressure sensitivity (to control drum-roll dynamics, and for 'soup stirring' jazz-brush type effects), I might consider buying one too!]

[Ensoniq – Thanks for the input. Have you seen the new Kawai XD-5? We'd love to hear your reaction to that implementation of your idea.]

Here's a letter to the Interface:

(1) In the October Interface, Ensoniq asked for feedback on the idea of a high-end ($5k-plus) Ensoniq workstation. Who would buy such a thing, they wondered. The answer: probably those who are buying them now from Korg, et al, but who would much rather stick with Ensoniq. Personally, I need something with 88 keys and piano action from piano repertoire and controller functions. I know there's the Ensoniq-Bose piano, but it's not much of a MIDI controller. Let me tell you what's in my dreams: an 88-key VFX-SD. What do the two octaves add? Another grand? It still beats the T-1. Even a "soundless" controller board like the KX-88 but with Ensoniq engineering would be attractive. I'll get SOMETHING soon, but I'd like to stick with Ensoniq.

(2) Speaking of drums, here's a really naive one: I wake up one Christmas morning and discover Ensoniq has gone into the software – or better yet, the computer – business and has brought out something that allows my Apple IIgs, which I bought in part for its "Ensoniq sound chip" but for which there is very little professional music software, to do me some good. There under the Christmas tree is an interface device/software package that allows my computer to control and program my EPS, hard disk, and (hypothetical) VFX, AND use the IIgs's own sound capabilities. Or maybe Ensoniq has come out with its own affordable PC to blow away Yamaha's C-1.

(3) Will sequences created on the EPS run on the new EPS-16 Plus?

(4) Will samples created on the EPS-16 be loadable into the EPS?

(5) Congratulations on the Hacker's and Ensoniq's dedication to helping users. No wonder both of you generate fanatical loyalty. We are all, truly, on the same ship.

Thanks.
Dan Walker
Partlow, WA

[CS – Question #3 – yes. A transparent (to the user) conversion process takes place as

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the sequence is loaded into the 16 Plus. Interestingly, once the sequences are converted, they may occupy a bit less memory space than required on the original EPS.

#4 – Yes.

#5 – Thanks!]

[Ensoniq – 2) We have no plans to enter the Apple IIgs software business. With the newer computer power available, there seems to be little new development for the IIgs (Passport's support being the exception). Why don't you contact Apple Computer on this issue, maybe there are some things available that we haven't heard of.

4) We should add that these programs will take up a bit more memory because of the effects program which is loaded in with the EPS-16 PLUS sound. If you want to conserve that memory just use the Delete Instrument Effect command before saving your EPS-16 PLUS sound to disk.]

Dear Hacker,

I just this instant figured something out. I was loading individual sequences from my Alesis Datadisk to my **ESQ-1** (3.5) and all of a sudden the sequence memory gets totally scrambled. I re-initialize and try again, and surprise, it happens again, only a different set of information affected. After about 2 hours of switching cables, loading into different locations, and pulling my hairs out, the light dawns. What finally tipped me was that available memory seemed to INCREASE when I loaded into the sequence that broke the camel's back. If you try to load a sequence when there's not enough memory, you'll overwrite what's in there, and screw up the reset. (Duh.) Isn't the human brain amazing? (TWO HOURS... Jeez.)

I dig your magazine the most.

Keep up the good work.
Vicki Dorschner
Greenleaf, ID

[CS – It's copacetic to be dug.]

[TH – Think of all the hair and time your letter will save readers.]

Hacker,

I would love to see an article on how to simulate "transwaves" on the **EPS**. What about Brian Willoughby who promised an article on Pulse Width Modulation?

Since I don't have any computer aid visual sample editing stuff, it would sure be useful to see a graphic of the square-wave that the EPS generates when you "CREATE NEW WAVESAMPLE."

Is there any way to alter that square into a sawtooth or triangle using "scale data?"

Could be nice for getting some low noise waves.

Thanks.
Jon Stubbs
"One of them tree huggers"
Boulder, CO

[CS – It may be possible to alter the square wave in the way you describe, but I think it could prove to be fairly tedious. And, unfortunately, the EPS does not create the world's most perfect square wave – you would notice a fair amount of distortion if you were to see the visual graph. I think you're best off sampling good sawtooth and triangle waves from sources outside the EPS – much easier, and certainly excellent results can be obtained.

As to the pulse-width modulation idea, you might want to hunt up a copy of Gary Dinsmore's article in Issue #46 (April '89) of TH. It deals specifically with tricks you can do with the built-in square wave.]

[Ensoniq – The Loop Mod function of the EPS can be used to create transwaves, but the task of building the wavetable sequence is not for the "squeamish." The new EPS-16 PLUS has a special form of Loop Mod called Transwave which is a dedicated mode of Loop Modulation for that purpose. We intend to develop some new Transwaves tables for the EPS products in the upcoming months. Stay tuned!

The square wave in the EPS was never intended to be used as material for a sound, just a reference for pitch and amplitude.]

Dear Editor:

I would like to make a suggestion as to a topic for a future issue of the Hacker.

I have an **EPS** and a number of other MIDI keyboards, racks and drum machine. As I am sure you are aware, the EPS is capable of sending all sorts of MIDI controller information to the outside world.

Could an author do an article explaining what these controllers are and what they do? A practical illustration of how some of these controllers can be implemented would be very informative. This article could be extended further and tie in other Ensoniq Keyboards as well.

I subscribe to *Keyboard* and *Electronic Musician*, and I don't recall an article addressing this topic.

I do enjoy your magazine and look forward to each new issue.

Sincerely yours,
James Rosand
Port Angeles, WA

[CS – Excellent idea, James. We'll see what we can do to accommodate.]

Dear Hacker,

One more thing – any updates on why, when set to Mono A, my **EPS** will not respond to MIDI volume or patch select?

Thanks.
Fred Fata
Lyndhurst, NJ

[CS – When in Mono A mode, the EPS responds to continuous controllers in one of two ways – either independently on each MIDI channel, or globally on the MIDI base channel minus 1. The way it works is this:

Say you're using a multi-channel guitar synth for a controller, set to transmit on MIDI channels 1 through 6 (one channel per string). You will need to set the guitar synth to send continuous controllers on each of those six channels (assuming that you want the sound controlled by each guitar string to be affected by the controller), or else you will need to set the guitar synth to send controller data on MIDI channel 16 – the base channel minus 1 (since there is no channel 0, and the MIDI channels wrap around, base channel 1 minus 1 equals channel 16).

Not all MIDI controllers allow for this type of routing scheme. Check your owner's manual if you are unsure of your particular controller's capabilities.]

Dear Transoniq Hacker:

As the proud owner of both a **VFX-SD** and an **EPS**, I would like to render both praise and criticism upon the powers-that-be at Ensoniq Corp.

First, I feel that both instruments are without peer in their respective price ranges in the areas of sound quality, value per dollar, and flexibility. I am particularly impressed with the features found within the VFX-SD, and spend as many waking hours as possible working with both units in my home studio.

However, I also perform regularly as a guitarist, using a Casio 510 MIDI-Guitar as a controller with the VFX-SD. Since I obviously don't need the actual keyboard for this type of use, a module would seem to be in order. After calling Ensoniq Customer Service many times over the past year regarding both the functions of my present gear and the future availability of a VFX-SD module, I began to look for a rack-mount synth by another manufacturer, having been told that Ensoniq had no plans along this line.

As we all know by now, Ensoniq had recently released the **SQ-1**, followed by the **SQ-R** module. It seems to me that the company had made the same marketing blunder with these two products as it did with the SQ-80: namely that of pretending that the "new" model featured different functions and abilities, rather than presenting it as a variant on the existing technology. It seems, in retrospect, that the SQ-80 was nothing more (or less) than an updated version of the ESQ-1, and might have found more of a niche if called the "ESQ-1 Version Two," as is presently being done with the VFX. Likewise, after fooling around with both an SQ-1 and an SQ-R, I feel that they are essentially scaled-down versions of VFX technology, in other words, "old wine in new bottles." Both are certainly great pieces of

equipment in their own right, but I sure wish that the SQ-R module had a disk drive that would accept my VFX disks! I am certain that cost kept one from being included, and am still considering an SQ-R to be used as a MIDI-Guitar module.

At any rate, kudos to both Ensoniq and T.H. for their excellent product line and user's magazine, respectively.

Sincerely,
Anthony Ferrara
Phila., PA

[CS – The SQ-1 and VFX, while very similar, are also very different. Even if a disk drive were added to the SQ-1, it would not be able to interpret VFX patches – and in fact, the SQ-1 cannot read VFX SysEx data, either. I own both products and have found it necessary to manually duplicate many of my favorite VFX patches on the SQ-1. Oh well.]

[Ensoniq – We believe that when you call products by the same name they should be basically compatible with one another. Since the SQ-1 has a different (ie, scaled-down) voice architecture, different effects algorithms and different hardware (ie. case, display, and keyboard) it would not be fair to our customers to name it a VFX product. While they all use the same voice generating system (Dynamic Component Synthesis) there are enough differences to make them separate product categories.

The SQ-1 is designed for the entry-level customer, the VFX products for the more advanced user. And we consider the SQ-R to be the best price-performance "VFX-type" module we could provide you. It would work great with your MIDI guitar system. Thanks for your comments.]

Dear Sir,

I have just bought a secondhand **SQ-80** at rev 1.7 and enclose my subscription for your magazine *Transoniq Hacker*. However, I do need a little help and advice to start with, and I hope you can help me or put me in touch with someone who can. My young lad (16) and I have had a Yamaha PSS680 (please don't laugh) for two years and have mastered the mysteries of MIDI on an Apple IIGS with AE's Audio Animator. He outgrew the PSS and is now really looking forward to coming to grips with the SQ-80 and all its onboard features and full size keyboard. It is truly an incredible instrument.

However, the SQ-80 is no longer current, and my local dealer is not very knowledgeable about it nor does he carry any software or sounds, etc. for it. So if you could give me some input on the following, I'd really appreciate it.

1. Will voices, sequences, etc. from an ESQ-1 work on an SQ-80?

2. What is a programmable cartridge? Does that mean you can modify the voice on the cartridge, and why would you do that rather than save it to disk?

3. I see advertisements for ROMS with 80, 160, 320 voices. Does the ROM go inside the SQ-80 or is it another name for a cartridge? And how would you access all those voices with only 4 X 8 button selections?

4. Is there a selection of voices, sequences available on disk that are public domain and could you recommend a contact?

5. Is there a quality or other difference between voices from a disk and voices from a cartridge?

6. Is it worth upgrading to rev 1.8 and what are its features?

7. I desperately need a set of good percussion and rhythm sequences. Can you recommend something for me please?

8. Could you recommend a good set of standard instrument voices and also a good set of percussion voices?

9. Is there any software that would allow an SQ-80 disk to be read and written on an Apple II with Master Tracks Jr or Pro? I also have a Commodore 64.

10. What are patches? Are they simply hard copy parameter setting instructions?

11. Can you recommend some back issues of your magazine that apply specifically to the SQ-80 that you think might be helpful?

Any other helpful hints you may care to offer would be really appreciated.

Many thanks.
Dick Benton
Westboro, MA 01581

[CS – 1) – Yes, voices and sequences from the ESQ-1 will work on the SQ-80.

2) – Good guess. A programmable cartridge is one on which you can store voices (edited or otherwise) of your own choosing, as opposed to a ROM cartridge, which cannot be altered. The reason most people would want to store voices onto a programmable cartridge rather than disk is to have instant access to lots of voices of their own choosing. With a programmable cartridge you could put your 80 favorite voices on the cartridge (40 in bank A and 40 in bank B), and another 40 in the internal memory, for a total of 120 voices. In this way you could select any of those sounds for sequencing or performance without having to load a new bank from disk.

Another application for the programmable cartridge is in the area of voice management. Let's say you have 4 voices in internal memory that you want to use in a sequence, and 4 more on a disk. When you load the disk, however, the voices go into internal memory, replacing those sounds – including the 4 you want to use in your sequence. One solution to this problem is to save each of the four internal programs you wish to use to disk individually, then load the new bank from disk into internal memory, and then load the individually saved programs back into internal memory one at a time, finally saving the whole she-bang as a new file. But a programmable cartridge makes the whole process much simpler, since you can easily copy programs you need into the cartridge, finally copying the cartridge into internal memory for storage to disk.

3) In this case, the word "ROM" (an acronym for "Read Only Memory") is used interchangeably with the word "cartridge." The ROM cartridges that supply large numbers of programs have a switch mounted somewhere on their casing, which switches between the memory banks contained within.

4) I know of no source for public domain voices or sequences for the SQ-80. Perhaps one of our readers might?

5) No.

6) Rev 1.8 fixes a couple of bugs that were discovered in version 1.7, but it adds no new features. If your SQ-80 is working satisfactorily, I wouldn't recommend bothering with the upgrade.

7 & 8) In terms of the sounds and sequences you are looking for, nothing comes to mind immediately. Sounds like another question for our readers...

9) There is no software that can read or write SQ-80 sounds or sequences directly to/from an SQ-80 disk. But don't feel bad – I know of no software (with the exception of an odd Mirage/Amiga pairing) that does this for any synthesizer/sequencer.

10) "Patch" is the generic name for a synthesizer sound. It comes from the golden age of synthesis when synthesizer sounds were created by plugging patch cords into jacks on the synthesizer.

11) You are likely to find helpful information in almost every issue of the Hacker, beginning with Issue 13, which had the first ESQ-1 coverage (most ESQ-1 stuff applies directly to the SQ-80). SQ-80 coverage began with Issue 29. We're also sending you a "back issue index" (the tables of content) going back to Issue 43 – perhaps it will help steer you to particular topics you are interested in.]

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EPS-M	2.4
EPS-16 PLUS	1.1
MASOS	2.0
MIRAGE	3.2
ESQ	3.5
ESQ-M	1.2
SQ-80	1.8
VFX	2.1
VFX-SD	2.1
SQ-1	1.0

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