INSTANT

SYNTHESIZER

M A N U A L

INSTANT
SYNTHESIZER

CONTENTS

You've always wanted to sample and edit the sounds in
your own compositions, right? What musician hasn't? But
until now it took half the national debt and an advanced
degree in electronics to assemble a hot combination of
tools to do the job. Even if you hooked multichannel stereo
cards to digitized sampling boards attatched to who knows
what, you might not get the MIDI capabilities or other func-
tionality you really wanted. In short, this was frustration by
the truckload.

Fortunately, major headaches and empty pockets are on
their way out. Instant Synthesizer is the stuff good dreams
are made of. It's for the music producer and sound effects
arranger in each of us, and best of all it's flexible, powerful,
and fun. In short, it works. Instant Synthesizer can turn your
Apple IIGS into a sampling synthesizer with sound editing
capabilities, and you don't have to refinance the house to
take advantage of every program feature.

Use Instant Synthesizer to play with any of the sounds that
come with the program (ISDATA), or to play any song you
have created with *Instant Music* (see **Loading Songs from
Instant Music** in Chapter 3). You can manipulate your
composition in hundreds of innovative and exciting ways;
create new instruments or background rhythm tracks; then
alter their tone, change their voicing, and process a limitless
variety of sound effects.

Advanced users (which you'll all become in no time) can
multi-sample a sound, change the shape of a sound's enve-
lope, loop a particularly good phrase, and produce amazing
stereo effects. Instant Synthesizer gives you the chance to
please and surprise yourself, over and over again.

THE MANUAL

This manual is designed to help you enjoy working with Instant Synthesizer. You can use just as much of it as you want. If you like to experiment (and we know you do), you might want to find out how to start the program, load a song and be left, happily, alone. Great! You can play with the controls and discover the fun and versatility of Instant Synthsizer on your own.

But, if you're the kind of user who has to know how this works or why that happens, if you want specific information, and maybe lots of it, fine. The manual can give you that, too. Our goal, after all, is to help you have fun learning about and playing in the exciting world of synthesized sound.

The first chapter, **A Tour of Instant Synthesizer**, is an overview of the program that gets you started fast; we're talking *instant*, right? The second chapter, **Experimenting with Instant Synthesizer**, is a series of exercises that illustrate in detail how the program works. The third chapter, **Reference**, is a complete listing of the program's menus and commands.

Note **As you work through the manual, pay close attention to numbered steps and solid bullets. Both indicate a request for action. Be sure to follow the instructions carefully.**

If you're ready to make some joyful noises, let's begin.

1

A TOUR OF
INSTANT SYNTHESIZER
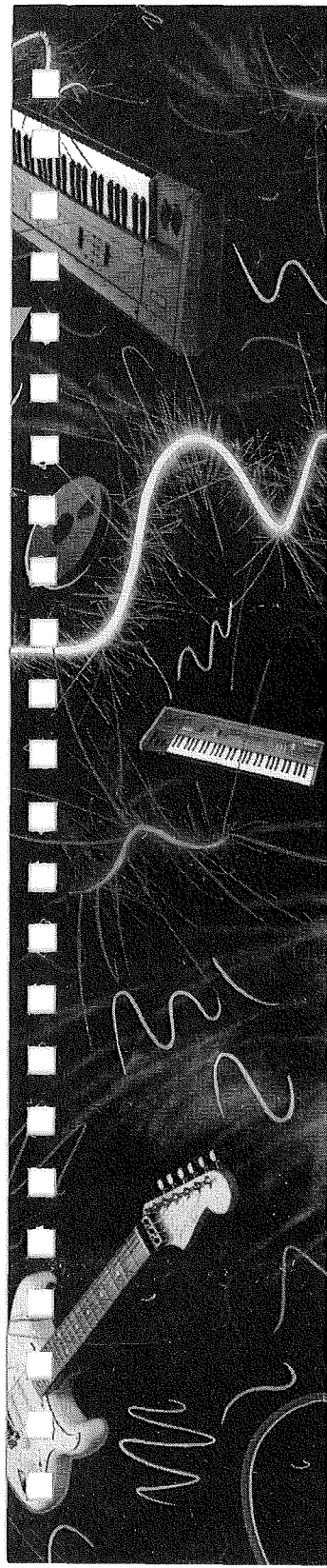
A tour is a kind of introduction. We're going to boot the program, look briefly at its essential features, and build a base of information that we can use when we start working with Instant Synthesizer in Chapter Two. Here you'll learn what you need to use the program, how to start it, what it is, and how it works. If you're ready, let's hit it.

HARDWARE

To use the program you need an Apple IIGS running 4.0 system software with at least 768K of RAM, a monitor, a mouse, and one or two disk drives (or a hard disk drive). With this simple setup, your IIGS becomes a fully functional 4-voice synthesizer, a rhythm machine and a high-powered sound editor. Not bad! And there's more.

What's really remarkable about Instant Synthesizer is how easily certain options can expand the program's functionality. For example, the Ensoniq sound chip built into your IIGS is terrific. To appreciate its power, hook your computer to an external amplifier and speakers. The bass and treble of your creations can sound like they're studio mixed. That's no brag. It sounds fantastic.

Instant Synthesizer also supports stereo output boards and sampler boards. These can reproduce great special effects and let you take any recorded or audio source, sample it, and play it back. Finally, you can use the IIGS as a polyphonic MIDI-controlled digital synthesizer, if you tap into the machine's MIDI adapter. We're talking unlimited sounds at your fingertips.

These options can really stretch the functionality of the program. They might add to your enjoyment, but they're not required equipment. Like any true enhancement, they can improve your performance, without getting in your way.

They're available if and when you need them. Until then, you can have a lot of fun with the basic setup.

SOFTWARE

Your Instant Synthesizer package contains two 3.5" disks: the program disk, ISYNTH, and the data disk, ISDATA, which holds an eclectic collection of songs and instruments (sounds) that you can use to create great effects. You should keep a couple of initialized data disks handy, so you can save your best sound creations on data disks (see **Creating Data Disks**, in Chapter Three).

Note **ISynth cannot be downloaded to run from a 5.25" 256K drive, because there's not enough room for the program.**

COPYING DISKS

Whatever your equipment configuration, the first thing you should do, if you're using floppy disk drives, is make working copies of your Instant Synthesizer disks. This reduces the chance of anything happening to the originals. Use these copies whenever you work with the program. Follow these instructions to copy Instant Synthesizer.

1. If the tab on the program disk (ISYNTH) is open, put it into your startup drive. An open tab means that your disk is write-protected.

2. Turn on your computer and monitor. After a minute or so, the ISYNTH disk icon appears on the screen. Double-click on the ISYNTH icon and a window appears that shows what's on the disk.

3. If you have two disk drives, put a new, blank disk (with the disk tab closed) in the second disk drive. If you have one drive, press the button on the right side of the drive to eject the ISYNTH program disk, and insert the blank disk.

4. A screen message asks "GS/OS can't read this volume. Do you want to initialize it?" You do. Move the pointer to **Initialize** and click the mouse button.

5. A screen message now requests that you "Please name this volume:". We'll give this UNTITLED disk a name in a moment. For now click **OK**. The Initialize device box appears. ProDOS is highlighted in one mini-window and 800K 2:1 is highlighted in the other.

6. Click **Initialize** to initialize your new disk. After a few moments a disk icon called UNTITLED appears.

7. Drag the outline of the ISYNTH icon until it's right over the UNTITLED icon and release the mouse button. A screen message asks "Completely replace the contents of 'UNTITLED' with the contents of 'ISYNTH' "? Click **OK**.

   If you have two disk drives the computer begins to copy the contents of ISYNTH to UNTITLED. This takes about five minutes. When the copy is made the Copying Blocks box disappears from the screen.

   If you have one drive, follow the instructions on the screen. You'll have to put ISYNTH in the drive and then put UNTITLED back in. The computer tells you when you have to swap disks. When the copy is made the Copying Blocks box disappears from the screen.

8. When the computer finishes copying, remove the ISYNTH disk from the drive (if it's in there) and put it in a safe place. Then drag the ISYNTH icon to the Trash Can.

9. The disk icon UNTITLED remains on the screen. You need to **rename** your backup copy so that the computer recognizes it as the ISYNTH startup disk. Click on UNTITLED.

10. Choose **Rename** from the File menu. A rectangle appears around the disk name UNTITLED. Press the *delete* key. The name disappears but the rectangle remains. Now, type in ISYNTH and press *return.* Your copy now has the same name as the Instant Synthesizer program disk and you can use it just as you would use the original disk.

After you've made your copy of the program disk, make a copy of the Instant Synthesizer data disk (IS-DATA). Put ISDATA in the drive and follow steps 1, and 3-10, above. Remember to substitute ISDATA for ISYNTH in those instructions and be sure to rename your copy ISDATA. Any copies you make of Instant Synthesizer must have **exactly** the same name as the originals have, that is, **ISYNTH** and **ISDATA**.

USING ISYNTH ON A HARD DISK DRIVE

If you're using a hard disk, copy the Instant Synthesizer disks to it and put the originals in a safe place. Here's how to copy your disks to the hard drive:

1. Boot your computer from the hard disk, and if necessary, double-click on the hard disk icon to open the window.

2. Choose **New Folder** from the File menu and **Rename** the UNTITLED folder that appears, ISYNTH.HD.

3. Put the Instant Synthesizer program disk (ISYNTH) into the floppy drive and double-click on the disk icon. When its disk window appears, drag the program icon, ISYNTH, the INSTRUMENTS, MUSIC, and PACK folders, and ISSPLASH, into the folder ISYNTH.HD. The contents of those files and folders will be copied to the hard disk.

4. When the copy is completed, close the ISYNTH disk window and drag the ISYNTH program disk-icon to the Trash Can to eject the disk from the floppy drive.

5. Choose **New Folder** from the File menu and **Rename** the UNTITLED folder that appears, ISDATA.HD.

6. Put the Instant Synthesizer data disk (ISDATA) into the floppy drive and double-click on its disk icon. When its disk window appears, drag the INSTRU-MENTS, MUSIC, and PACK folder icons into the folder ISDATA.HD. The contents of those 3 folders will be copied to the hard disk.

7. When the copy is completed, drag the ISDATA disk-icon to the Trash Can to eject the disk from the floppy drive.

You can now launch Instant Synthesizer from your hard disk, by double-clicking the ISYNTH program icon in the ISYNTH.HD folder.

For the moment, do not use any of the data files in ISDATA.HD. To complete the exercises in Chapters 1 and 2, use a floppy copy of ISDATA. (See the note to **Hard Disk Users** in the discussion of **Save** in Chapter Three, **for an explanation of how to use all the Instant Synthesizer data files on your hard disk**.)

Put ISDATA in the floppy drive and follow the numbered step-by-step instructions above to copy a disk. Remember to substitute ISDATA for ISYNTH in those instructions and be sure to rename your copy IS-DATA.

Note **For your convenience, Instant Synthesizer isn't copy protected. But please remember that copies of the program may only be used by the owner of the original disks. You cannot legally supply copies to others.**

STARTING UP

■ Reboot your computer with the working copy of the Instant Synthesizer program disk. Double-click on the ISYNTH disk icon and when the Program Launcher window appears, double-click on the icon **ISYNTH**.

As the program loads, the title screen appears first, followed in a few moments by the main Instant Synthesizer screen. The program's theme song, **ISound**, is playing.

■ Press the Space bar once to stop the music.

Note **If you're working with a single disk drive, swap your copy of the Instant Synthesizer data disk (ISDATA) for the program disk now. If you have two disk drives, simply put your copy of ISDATA in the second drive.**

THE SCREEN

The Instant Synthesizer screen has three main parts. The white strip at the top of the screen is the **Menu Bar**; the area from the bar down to the keyboard is called the **Song Machine**; and the rest of the screen is the **Synthesizer**. Let's check out the screen. A few minutes spent here will pay off in hours of enjoyment later on.

MENU BAR

The Menu Bar gives you information about the program and helps you keep track of what you're doing while you create your sounds. At different times the bar displays:

□ the current package name

□ program information messages

□ Instant Synthesizer menu titles

Song Panel   Fill Panel   Sequencer Panel

Song Machine ——

Synthesizer ——

—— Menu Bar

—— Instrument Panel

—— Keyboard Panel

—— Panel Work Area

Selector Buttons
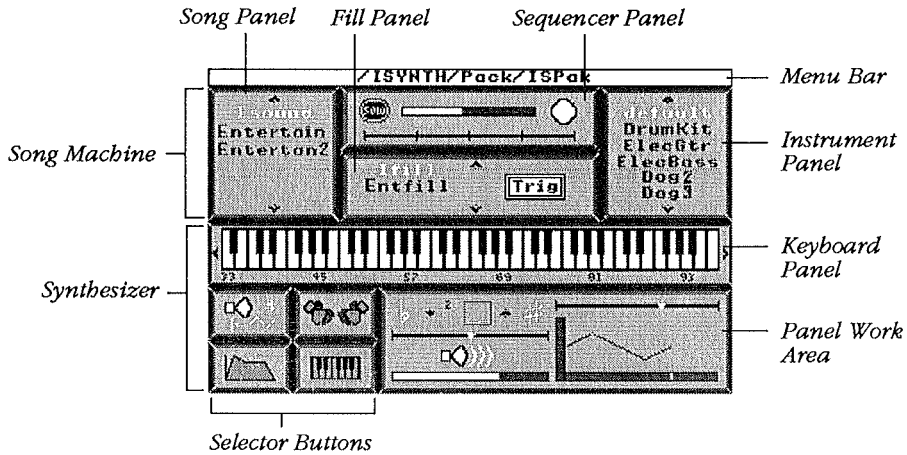
Figure 1.1 ISynth Main Screen

When you boot Instant Synthesizer, it loads a default package file called **ISPak**. A *package* file contains the information the program needs to load the instruments that play the package's songs and fills at the proper settings. The current package name automatically appears in the Menu Bar, and the package elements appear in the Song Machine.

Our package, **ISPak**, loads the songs **ISound**, **Entertain**, and **Entertan2**, the fills **IFill** and **Entfill**, and the instruments **default**, **DrumKit**, **ElecGtr**, **ElecBass**, **Dog2**, **Dog3**, and **Piano** (to see **Piano**, click the down-arrow in the Instrument Panel to scroll down). The active song, fill, and solo instrument are brightly highlighted in the Song Machine. Whenever you select a song, fill, or instrument from the Song Machine, the Menu Bar temporarily displays its name, disk, and file ID, and then the package name reappears.

When you select most buttons and sliders, an information message appears in the Menu Bar while you hold down the mouse button. For example, if you press and hold down the mouse while the pointer is over one of the control buttons in the Sequencer Panel, the name of the feature activated by that button appears in the bar.

■ Move the pointer to the red **Play** button in the Sequencer Panel; then press and hold down the mouse button.

The button turns green and the message "Start Sequencer" appears in the Menu Bar.

■ Release the mouse button and the song, **ISound**, begins to play.

The song plays continuously until you click the Play button again (or press the Space bar).

■ Click the **Play** button.

The song stops, the message "Stop Sequencer" appears in the Menu Bar, and the button, you'll notice, turns red.

Similarly, when you select a button that toggles an effect on or off, like Stereo (in the Effects Panel Work Area, see below), the Menu Bar indicates the status (on or off) that results if you release the mouse. If you move the pointer away from the button before you release the mouse, there's no change in status and the message alters to reflect this.

Finally, if you move the pointer up to the bar, the Instant Synthesizer menu titles appear.

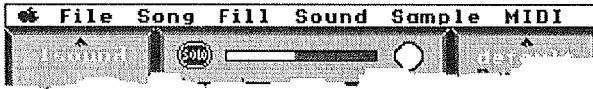■ Move the pointer to the top of the screen.

```
 File  Song  Fill  Sound  Sample  MIDI
```

Figure 1.2 Menu Bar

The bar now displays the Instant Synthesizer menu titles—**Apple, File, Song, Fill, Sound, Sample,** and **MIDI** menus are used for file management, setup, and sampling. We'll discuss the function of these options as we go along, and you'll find complete descriptions of all menus in Chapter Three.

■ Move the pointer out of the bar and the package name reappears.

SONG MACHINE

The Song Machine consists of four panels, which you'll use to select and play background music, the raw material of your Instant Synthesizer creations. The four elements are: the Song Panel; the Fill Panel; the Instrument Panel; and the Sequencer Panel.

SONG PANEL

A song is any sequence of four-track music created in Simple Music (SMUS) file format. You can use any of the songs collected on ISDATA, or songs you create yourself with, *Instant Music* (see **Loading Songs with Instant Music** in Chapter 3).

Song Panel   *Sequencer Panel*   *Instrument Panel*

```
Entertain    Drumkit
Entertan2    ElecGtr
             ElecBass
   Entfill   Trig    Dog2
                     Dog3
```
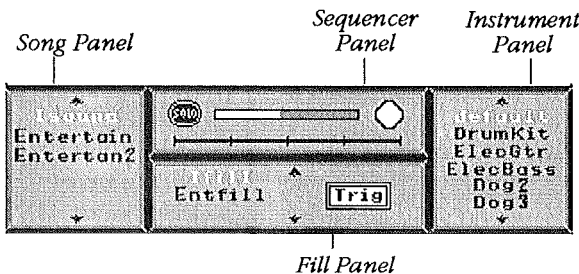
Fill Panel

Figure 1.3 Song Machine

You can put several songs in the Song Panel, but you need to load them one at a time. Use the up- and down-arrows to scroll through the list of songs in the Panel. See **Hints on Memory Management** in Chapter Three for more information about the number of songs you can have in the Song Panel at any one time.

- Choose **Load Song** from the **Song** menu, and click Disk in the Load Song dialog box to get to the directory of ISDATA. (If you're using a single disk drive, swap ISDATA for the Program disk and click Disk in the Load Song dialog box.) Double-click the Music folder on ISDATA to open it and highlight the song **Bossaa**. Now, click **Open**.

The message "Loading Song" appears in the Menu Bar followed by "Loading Sounds...". The program is trying to load the instruments (sounds) it needs to play the song that you've selected. When it can't find a required instrument, it displays an information box, like the one on your screen. The box tells you that Instant Synthesizer found three of **Bossaa**'s four instruments, but it couldn't find the Vibes.

There are Vibes in the Instruments folder on ISDATA. The program just couldn't find them. It needs your help, once each work session, to set the proper path to the Instruments folder. Once you've loaded an instrument from there and assigned it to its proper track, the program remembers the path to the folder and automatically loads instruments needed by other songs.

- So now click **Proceed**. When **Bossaa** appears in the Song Panel, click on it to make it the active song.

- Choose **Load Sound** from the Sound menu and open the Instruments folder on ISDATA. Scroll down and highlight Vibes (or hit **v** on your keyboard to go to Vibes faster than you can say it), then click **Open**. Now, scroll down to see Vibes in the Instrument Panel.

Note **If you click Proceed, and *don't* load the Vibes, the program loads the song and plays it, if you ask. But, bossa nova has rarely sounded so bad. That's because Instant Synthesizer assigns its default instrument to play the part of the missing Vibes.**
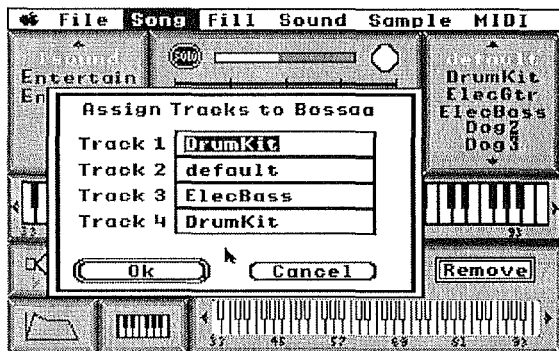
Figure 1.4 Assign Tracks

- Choose **Assign Tracks** from the Song menu. When the dialog box appears, double-click **default** in Track 2, type in Vibes, and click Ok.

- Click the Play button to hear the song. Let it play for 30-40 seconds.

A lilting bossa nova melody begins to play. But what's this? A few strange bars intrude on our Brazilian mood, and just as suddenly the bossa nova returns. No question, we need a better fill for our song. The radical rhythm of the current one won't work for us.

- Turn off the Sequencer by clicking on the **Play** button.

FILL PANEL A fill is a song (usually a tag line) that you can append to the last few measures of a song or a group of measures as a bridge or transition between songs. As with songs, you can load a bunch of fills, select which one will be played, and decide when and how to play it. The fill can be played (triggered) manually by the Trig button in the Fill Panel, or automatically set to run at a specific place in the song. You can use the up- and down-arrows to scroll through the list of fills in the Panel.
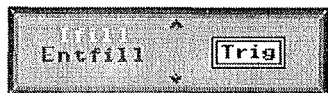

Figure 1.5 Fill Panel

- Choose **Load Fill** from the Fill menu. Highlight **Bostag1** in the Music folder on ISDATA.

- When **Bostag1** is selected, click **Open**. Once **Bostag1** appears in the Fill Panel, click on it to make it active.

- Click the Play button to hear the song, **Bossaa** and the fill, **Bostag1**.

After a few measures of the song, the fill breaks in and then the song returns. The Menu Bar shows you what is playing when. The position and timing of the fill is currently set by the program's default parameters. But you can adjust these parameters from the Fill menu. We'll do that in Chapter Two. If you want more information now, see **Auto Fill** in Chapter Three.

INSTRUMENT
PANEL

Once you've set a path to the **Instruments** folder, the program automatically loads the instruments it needs to play the packs, songs, and fills you've selected, and displays them in the Instrument Panel (see **Song Panel**, above). You probably noticed that when you started Instant Synthesizer the program loaded the default instrument plus several other sounds in the Instrument Panel. The default instrument is loaded automatically every time you boot the program and the other instruments are those needed to play ISound, Entertain, Entertan2, Entfill, and IFill.

*Figure 1.6
Instrument Panel*

Since Instant Synthesizer is a sound editor, it's not surprising that it refers to sounds as instruments. A duck call, a drum beat, a sax's C#, and a shout are all potential instruments to the program. You'll find a huge variety of instruments that you can use in the **Instruments** folder on ISDATA.

When there are more instruments loaded than may be displayed in the panel, click the up- and down-arrows in the Instrument Panel to scroll through the list of instruments.

■ To add an instrument to the Instrument Panel for your own use, choose **Load Sound** from the **Sound** menu. Open the folder **Instruments** on ISDATA, and load the instrument you want.

Selecting an instrument in the Instrument Panel makes it the Solo Instrument. The Solo Instrument's parameters (volume, pitch, vibrato attack rate) appear in the Work Area of the Synthesizer Panel (see below).

Note **Instant Synthesizer can use instruments in ASIF (Apple IIGS Sampled Instrument Format) or EAIF (Electronic Arts Instrument Format). EAIF instruments contain information that helps the program remember and manipulate more sound parameters than ASIF instruments do.**

SEQUENCER PANEL

The Sequencer Panel is the manager of the Song Machine. It has three controls, the Solo Button, Tempo Control, and the Play Button. The Metronome Bar displays the current tempo when the Song Machine is running.

Solo Button   *Tempo Control*   *Play Button*

Metronome

Figure 1.7 Sequencer Panel
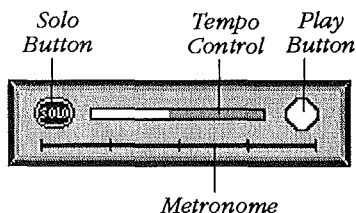
The Sequencer is responsible for playing the songs and fills, and any external input. It's also responsible for updating the timbre changes you make to instruments (vibrato attack rate, pitch bend rate, etc.) and executing the program's stereo effects. We'll discuss and play with these controls in the next chapter.

SYNTHESIZER

The Sythesizer occupies the lower portion of the screen and consists of three elements: the Piano Keyboard, the Selector Panel, and the Work Area.

KEYBOARD PANEL

The pitch range represented in the Keyboard Panel is variable. You can adjust it, one octave at a time, by clicking on the transposition arrows at either end of the Keyboard. The default range is set so that when you click once on the left-arrow, the range moves down one octave, and the lowest A is the same as the lowest A on a real piano keyboard. Click the right-arrow once to move the default range up one octave. The Keyboard displays the highest C on a real piano.

Octave Down   *Octave Up*

Figure 1.8 Keyboard Panel

The Keyboard is also used by the Mapper to help assign samples to various ranges of the keyboard (see **Mapper On/Off**, MIDI menu in Chapter Three).

SELECTOR PANEL

The Selector Panel is a set of four buttons — Synthesizer, Effects, Envelope, and Map — which are used to choose among various groups of parameters and options in the work area. Each Selector button has its own work panel, which appears when you click the button.

Synthesizer   *Effects*

Envelope   *Map*
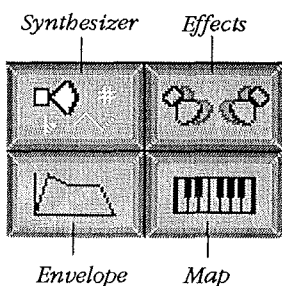
We'll briefly identify and describe each button. Feel free to play with any panel function. Turn on the Sequencer then click the buttons, move the sliders, adjust the graphs, or click a key on the Keyboard to hear how your changes can affect the sound. We'll give more detailed information about panel features in Chapter Two.

Figure 1.9 Selector Buttons, with Synthesizer highlighted

SYNTHESIZER PANEL

The Synthesizer Panel is the program's default selection and appears active when you start Instant Synthesizer. If it's not highlighted now:

■ Click on the upper left Selector button. The Synthesizer button and its work area appear highlighted.
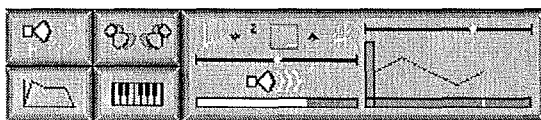

Figure 1.10 Synthesizer Work Area

The Synthesizer Panel has controls for managing basic sound parameters, Volume, Pitch Bend/Detuning, Vibrato Depth and Speed, and Vibrato Attack Rate. The Panel displays the parameters of the Solo Instrument and you can sound that instrument's voice with the Piano Keyboard, MIDI, or QWERTY keyboard input.

■ Choose the default instrument if it's not highlighted. Click on key # 69 in the Piano Keyboard Panel; now press **z** on the computer keyboard. The pitches are the same: a perfect A.

■ Click on the upper right Selector button. The Effects button is highlighted and its Work Area appears.

EFFECTS PANEL   The Effects Panel manages multi-channel effects. It has controls for Stereo Panning (Balance), Delay, and Doubling. You can create a delayed sound for an instrument, and set the time and volume of the delay. You can also generate a double of the instrument.
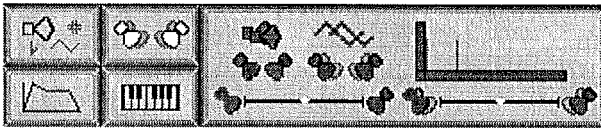

Figure 1.11 Effects Work Area with selector button highlighted

If you have a Future Sound or MDIdeas Stereo board, you can generate stereo effects with Instant Synthesizer for primary and delayed voices. You can pan (balance) the initial sound, and have a separate pan for a delayed version.

■ Click on the lower left Selector button. The Envelope button is highlighted and its Work Area appears.

ENVELOPE PANEL   The Envelope Panel allows you to edit the Instrument's volume (sometimes called amplitude) envelope. The shape of an envelope, as it's drawn in the graph, describes the way an instrument's sound changes over time.

Figure 1.12 Envelope Work Area with the selector button highlighted

The graph can display up to 7 segments (attack[s], sustain, release) of the envelope with a control point at the intersection of each line segment and at both ends. Change

the shape of the envelope by picking up the control points (point at one and press the mouse) and moving them to the desired location. The attached segments stretch like a rubber band, and the graph is then redrawn to scale.

You can edit an instrument's default envelope or replace it with any of the six preset envelopes whose outlines appear in the Work Area. These preset envelopes may also be edited. An edited envelope becomes that instrument's default envelope when you save the instrument to disk.

The small R on the graph marks the beginning of the release segment of the sound. Release begins when you let up on the mouse to signal the end of the note.

MAP PANEL   Click the selector button on the lower right to display the Map Panel in the Work Area. The Map Panel allows you to create and edit/modify a multi-sampled instrument. From here you can turn MIDI on/off or assign a channel to the instrument. This Panel displays the Sample Map of the Instrument, which assigns the keys that play selected samples. Additionally, this panel contains the Add and Remove buttons which are used for adding and removing samples from multi-sampled instruments.

Figure 1.13 Map Work Area with selector button highlighted

The Map Panel works in conjunction with the program's **Mapper**, which you'll find in the MIDI menu. We'll discuss how these features work together in Chapter Three.

C O N C L U S I O N

You're now equipped with the basic vocabulary of Instant Synthesizer. If you're ready to strike off on your own, go ahead. You can use the reference section in Chapter Three to answer any questions that might come up.

If you want to take a break and quit the program now, choose **Quit** from the File menu. Choose **Exit** to leave Instant Synthesizer and return to the Desktop, or choose **Cancel** to return to the program.

If you're using ISDATA in a single disk drive when you choose **Exit**, a prompt appears requesting that you insert your Instant Synthesizer program disk. After you've inserted it, click OK or press Return.
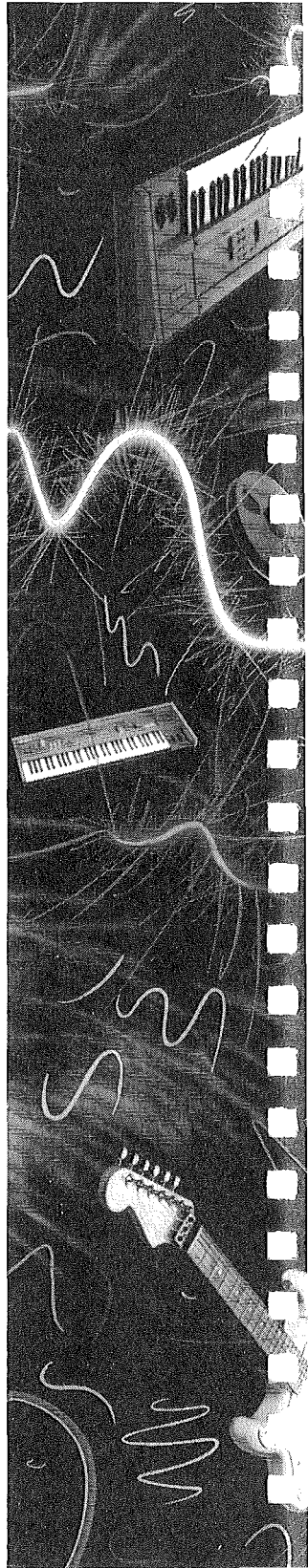
If you would like more guidance and more information about how to get the most out of the program, move along with us to the next chapter. We'll go through the primary Instant Synthesizer features and offer some hints about how to use them.

2

EXPERIMENTING
WITH ISYNTH

2

There's no doubt that the best way to learn Instant Synthesizer is to use the program. Manuals that teach how to drive a car can only go so far—at some point, you have to get behind the wheel and operate the controls. So far we've just been sitting in the garage, examining all the instruments, and we've started the engine. It's time to take the machine out for a spin. In this "hands-on" part of Instant Synthesizer, you'll start creating and editing your own sounds.

PLAYING WITH THE SONG MACHINE

INSTANT SYNTHESIZER FILES

Instant Synthesizer manages three different types of files to play music and edit sounds: Song and Fill files; Instrument files; and Package files.

□ Song and Fill files are SMUS files created with *Instant Music*. The Music folder on your Instant Synthesizer data disk, ISDATA, contains an entertaining variety of song files and you can also use files you've created in SMUS format.

□ Instrument (Sound) files are EAIF or ASIF files created with ISynth and saved using the **Save Sound** and **Save Sound As...** options. The Instrument folder on ISDATA contains the Instant Synthesizer instruments. Since ASIF doesn't support some of the parameters that Instant Synthesizer lets you play with, any ASIF file the program can read is given default values for undefined parameters.

□ Package files (IPAK format files) are created with Instant Synthesizer using the **Save** and **Save As** options from the File menu. These files contain the settings of the Sequencer including the current Song and Fill names, the path directives for loading the instruments that play the selected songs, the Tempo and Auto Fill Parameters, and system MIDI parameters.

If instrument files are the building blocks of Instant Synthe-
sizer, then package files are the building. Let's see how packs
are put together and then construct one ourselves.

■ Start Instant Synthesizer with your copy of the pro-
gram disk. If you'd like a reminder of how to do this,
see **Starting Up** in Chapter One. When the program
theme begins to play, hit the Space bar once to stop
the tune.

CREATING A PACK FILE

When you boot Instant Synthsizer, it loads a default pack-
age, called **ISPak**, which appears in the Song Machine. This
package file contains the information the program needs to
load the instruments that play the songs **ISound**, **Entertain**,
and **Entertan2**, and the fills **IFill** and **EntFill**.

■ Click the red **Play** button in the Sequencer Panel.

The Play button turns green, the message "Start Sequencer"
appears in the Menu Bar and the Sequencer begins to play
the song **ISound**, which is highlighted in the Song Panel.
The song has a nice beat but you can't dance to it. Let's
slow down the tempo.

■ Move the pointer to anywhere in the Tempo bar.
Hold down the mouse button and slowly drag to the
left.

The message "Adjust Tempo" appears in the Menu Bar, the
white slider gets smaller, and the tempo slows. When you
can dance the funky chicken to **ISound**, release the mouse
to set the new tempo.

The **ISound** tune isn't bad, but we want to work with some-
thing a little more unusual. So, we'll load a new package,
delete it, and then rebuild it one piece at a time so you can
see how the program puts package files together. First we
have to clear the program screen. If you haven't done so al-
ready, turn off the Sequencer.

■ Click the green Play button in the Sequencer Panel. It turns red and the music stops.

■ Choose **Remove All** from the File menu. A dialog box asks you to confirm your request. Click Ok and everything except the default instrument disappears from the screen. The elements that disappeared aren't gone forever. You haven't erased them from the disk. You've simply deleted them from active memory.

We created a package file on ISDATA for you to play with. It's called **Groovular** and the beat will probably be familiar to you.

■ Make sure your copy of ISDATA is in the drive. [**Hard drive users**: For this exercise use your original floppy of ISDATA. See **Save**, Chapter Three, for the reasons why.]

■ Choose **Load** from the File menu. If the Load Package dialog box that appears does not display the folders on ISDATA, click Disk. From the folders on ISDATA, highlight Pack and click Open. Then highlight **Groovular** and click Open (or double-click **Groovular**).

Notice how the songs and instruments of **Groovular** automatically appear in their respective panels. The **Groovular** package is ready to play. Click the Play button if you want to hear what the highlighted song (**Groove1**) sounds like, and then turn it off.

We want to see how a package is put together, so we're going to recreate the package from the songs, fills, and instruments that make up **Groovular**.

■ Choose **Remove All** from the File menu and click OK
   in the dialog box that appears to delete everything
   (except the default instrument, which cannot be re-
   moved).

Now, let's load the songs of **Groovular**.

■ Choose **Load Song** from the Song menu and load
   Groove1 from the Load Song dialog box. When the
   message "Song Loaded" appears in the Menu Bar and
   Groove1 appears in the Song Panel, use **Load Song**
   again to load **Groove3** (we're not going to use
   Groove2 for our pack here). You'll notice that the
   program automatically loaded all the instruments nec-
   essary to play these two songs into the Instrument
   Panel.

The package doesn't currently have a fill so let's add one.
We'll use **Groovef1** as our fill.

■ Choose **Load Fill** from the Fill menu and load
   Groovef1 from the Music folder.

All the elements of our package are now loaded, but the
program won't remember that these songs, fill, and instru-
ments go together unless you **save** them as a package. Let's
do that now:

■ Choose **Save As** from the File menu. Type **MyDemo**
   in the Save Package As... box and click Save. The
   message "Packaging the Current Setup..." appears in
   the Menu Bar and when the new Pack is saved
   MyDemo appears in the Bar, showing that it's the ac-
   tive package.

Note **You can see that the Songs/Fills and Instruments
         are stored separately, rather than *in* the package
         file. This way they may be edited without having
         to change package files, and they may be shared
         among many packages.**

It's important to save your new pack to the same disk on which the instruments and songs that make up that pack are saved, because when you load a package or song, the program looks up the required instruments in the current song and instrument directories.

Hint **As you work with Instant Synthesizer ISDATA may become full. See Creating Data Disks in Chapter Three for the steps you should take to create your own data disks.**

PLAYING A PACK FILE

Let's listen to **MyDemo**, piece by piece:

■ Choose **Auto Fill** from the Fill menu. When the Auto Fill dialog box appears, click the Manual Trigger button to make it active, and change the Trigger Count to 1. This means that our fill will play after one phrase (one run through the complete song) when we manually click the **Trig** button. When you've changed the settings, click OK. (See **Auto/Manual** Trigger in the Fill menu, Chapter Three for more information.)

■ Click the Play button and the song, **Groove1**, begins to play. Click on **Groove3**. It begins to play as soon as **Groove1** ends. Click on **Groove1** so it plays when **Groove3** is finished.

■ While **Groove1** is playing, click the **Trig** button in the Fill Panel. This tells the program to play the fill, **Groovef1** at the end of the next phrase.

■ Highlight ElecBass in the Instrument Panel and click the SOLO button in the Sequencer. You should be hearing a steady, syncopated bass line.

If you want to listen to the other instruments, go ahead. The important thing to remember is that every sound you hear can be edited, altered or totally changed with Instant Synthesizer.

■ When you've had enough, hit the Space bar. This is just another way of turning the Sequencer off (and on). Click the Solo button to turn it off. Let's spend a few minutes with the Keyboard Panel.

KEYBOARD PANEL

■ Move the pointer to the Keyboard Panel and click any key. The IIGS reproduces the voice of the instrument highlighted in the Instrument Panel. If you select the DrumKit and click a key in the middle of the keyboard, a snare drum sounds. Click a key on the far left of the keyboard and the bass drum sounds.

■ Select the song **Groove1** and start the Sequencer. While it's playing, click several different keys. Drag the mouse over the keyboard if you wish. Your drum sounds play with the selected song.

You're using **Groove1** as a background track. Though you can't capture the sounds you're making, the keyboard lets you jam in the voice of the Solo Instrument, and you can get some terrific effects.

■ When you're through experimenting, stop the Sequencer.

We need to look at some of the special effects you can use with your Instant Synthesizer creations. You'll learn to manipulate the controls in no time and probably discover other interesting uses for them. For now, follow the solid bullets. Any time you want to take a break, simply turn off the Sequencer, and then pick up where you left off later on.
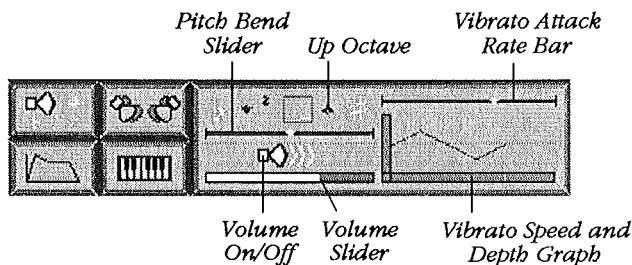
Figure 2.1 Synthesizer Selector buttons and Work Area

SYNTHESIZER PANEL

**SETTING THE
CONTROLS**

When you start Instant Synthesizer, the Synthesizer Panel is selected by default. The Synthesizer Selector button and the controls in the panel Work Area are highlighted to show that they're active. From here you can adjust the volume, transposition, pitch bend range, and the vibrato attack rate of your sound. Let's see how those features work.

■ Hit the Play button to start the Sequencer, select the **ElecGtr** from the Instrument Panel and click the SOLO button in the Sequencer to isolate its sound.

■ Move the pointer to the bright blue volume bar at the bottom of the Work Area and drag the slider a little to the left to lower the volume. Release the mouse button.

To transpose the guitar solo up an octave:

■ Click the Up Octave arrow. The arrow turns white and the guitar's pitch changes immediately. Click the Up arrow again to cancel transposition. The Down arrow works the same way, transposing the pitch down an octave.

Note **Selecting an arrow when the other is active re-
sults in a two octave switch.**

PITCH BEND

You can bend a note with the Pitch Bend control. This gen-
erally works best on sustained notes. To try out the control,
listen for a note you'd like to bend. Just before it sounds
again:

■ Move the pointer to the Pitch Bend slider (the small
red diamond). When the note sounds, drag the mouse
to the right and release it to bend the pitch up. You
would drag it to the left to bend the pitch down. The
Pitch Bend control has a snapback, just like a me-
chanical device.

The change in pitch depends on the setting in the Pitch
Bend Range Control. The control increases the pitch bend
range as the line in the box gets steeper, and decreases the

Figure 2.2 Synthesizer Panel

range as it flattens out. Point anywhere in
the box and click the mouse. Your com-
puter currently supports values 1, 2, and 4
(1=a semi-tone; 2=two semi tones, 4=four
semi-tones). When the value reaches the
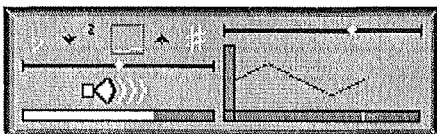maximum, it wraps around to the begin-
ning (1).

**VIBRATO
EFFECTS**

Now let's give our get-down blues some funky vibrato ef-
fects. While **Groove1** is playing and ElecGtr selected as the
Solo instrument with SOLO on:

■ Click the box at the intersection of the Vibrato Depth
and Speed axes to turn vibrato on. The Menu Bar
momentarily flashes the message "Vibrato On". A
highlighted graph with yellow sliders at the axes ap-
pears, and the Vibrato Attack Rate slider above the
Graph becomes active.

Before we begin adjusting vibrato speed and depth let's set a Vibrato Attack Rate. VAR is simply the rate at which the Vibrato Depth reaches its maximum after a note is sounded.

■ Set the vibrato attack rate by dragging the slider to the far left. At this setting, vibrato takes effect instantly. (Moving the slider to the right slows down the attack rate).

■ Now, move the pointer to the Speed (horizontal) slider on the Graph and drag it to the right. This lengthens the time vibrato is active. Shortening the slider has the opposite effect.

■ Drag either end of the Depth slider toward the middle of the axis. This flattens the graph line and results in shallow vibrato. Now drag the slider away from the center. Note the change in the graph line. If you have a radical zig-zag triangle pattern in the line, you've set deep (resonating) vibrato. Listen for the change.

■ You can set Depth and Speed at the same time by pointing anywhere in the graph and dragging the mouse. Vertical movement affects Depth and horizontal movement affects Speed. Release the mouse button when you're satisfied with your new setting.

You can see and hear that the options of the Synthesizer Panel give you great flexibility. Experiment in this panel for as long as you like, and when you're ready to move on to the Effects Panel:

■ Click the box at the intersection of the Vibrato Depth and Speed axes to turn vibrato off.

■ Turn off the SOLO button, by clicking it, and turn off the Sequencer.

EFFECTS PANEL

The Effects Panel lets you have great fun with some of the most versatile program functions, like voice doubling, chorus effects, echo, and detuning. You can really start to get inventive here. Click on the Effects Panel Selector button.
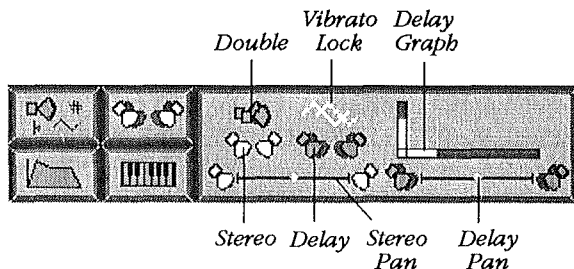
Vibrato   Delay
Double   Lock   Graph

Stereo   Delay   Stereo   Delay
Pan   Pan

Figure 2.3 Effects Panel

■ Let's begin by turning on the Sequencer and the SOLO button. Make sure that ElecGtr is still selected in the Instrument Panel.

DOUBLING

Doubling creates a duplicate version of your sound and lets you control both voices independently.

■ From the Effects Panel work area, click the Doubler icon. It turns blue to show it's active and the Voice/Vibrato control icon next to it turns pink.

The guitar solo now plays twice as loudly as it did a moment ago. That's what doubling a sound does. But you haven't simply boosted the volume of your sound. You've added another voice, which is sounding in unison with the original voice. To adjust the volume, pitch bend or vibrato effects of our doubled sound, we need to return to the Synthesizer Panel.

■ Click on the Synthesizer Selector button. It turns pink like the Voice/Vibrato control icon in the Effects Panel, and the message "Show Primary Voice" appears for a moment in the Menu Bar. This means that anything you do in this panel affects *only* the original (primary) voice.

Try decreasing the volume of the doubled sound by dragging the blue slider to the left. You'll notice that this move isn't really effective. That's because you've only decreased the volume of the primary voice. Similarly, anything you might do with Pitch Bend or Vibrato while the Synthesizer Selector button is pink affects *only* the primary voice.

When you're ready to return to the Effects Panel, make sure that you have turned off vibrato and that the Transposition arrows are black (inactive).

■ Click on the Effects Panel Selector button and click the Voice/Vibrato control icon. It turns green and the message "Show Doubled Voice" appears in the Menu Bar.

■ Go back to the Synthesizer Panel and make adjustments to the volume, transposition, and the vibrato. Did you notice that these moves affected only the doubled voice? Independently selectable vibrato for the doubled voice helps you create effects like phasing and chorus.

■ Now move the pointer to the Pitch Bend slider and press down on the mouse. Instead of saying "Set Pitch Bend" the message in the Menu Bar reads "Detune Doubled Voice".

When you're manipulating the doubled voice, the Pitch Bend control becomes the Adjust Detuning control and Pitch Bend Range becomes Adjust Detuning Range. Detuning allows you to set the doubled voice at a completely different pitch from the primary voice.

Drag the Detuning slider to the right to detune up, to the left to detune down. The slider does not snap back to the center once you've dragged it into position. So, if you want to reset it to zero, point at the middle of the detuning bar, just above the first of the three volume indicators, and click.

The Adjust Detuning Range control works like the Pitch Bend Range control. The range depends on the angle of the line in the box. The control increases the detuning range as the line gets steeper.

Point anywhere in the box and click to increase the detuning range. Your computer currently supports values 1 through 26, where each number represents a semi-tone (half-step). When the value reaches 26, it wraps back to 1.

Note **You actually have 52 possible semi-tone adjustments (± 26) from your current pitch. The effect of your adjustments are dependent on how far you've moved the Detuning slider. If you move it to the far right or far left each number changes the current pitch one semi-tone up or down. If you don't move the slider at all, setting the Adjust Tuning Range to 26 results in a pitch change of one semi-tone, total.**

Experiment with the doubling and detuning controls by playing some notes from the keyboard while the Sequencer is on. Great effects, no? When you're ready to move on:

■ Click the Effects Panel Selector button and when its work panel appears, click the Voice/Vibrato control again. It turns yellow and the Menu Bar reads "Vibrato Lock On".

When Vibrato Lock is on, the vibrato of the doubled voice is exactly the same as primary voice, though the pitches of the two sounds may be different.

■ Click the Effects Panel Selector button and when its work panel appears, click the Doubler icon to turn doubling off.

■ Turn off the Sequencer.

DELAY CONTROL

You can use the Delay Control to alter the time and volume level of a delayed sound.

■ Click on the small box at the intersection of the horizontal and vertical axes on the Delay graph.

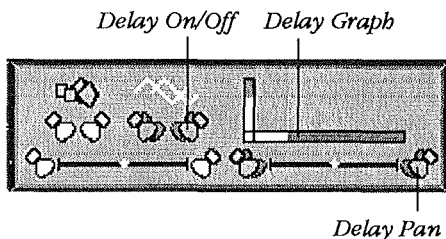*Delay On/Off   Delay Graph*

Delay Pan

Figure 2.4 Delay Controls

The message "Delay On" appears in the Menu Bar and the graph is highlighted in red. You can adjust Delay time and volume with sliders on the graph, which displays volume on the vertical plane and time on the horizontal plane.

The graph itself is two vertical lines, one represents the original signal and the other represents the delayed signal. The original signal always occurs at 0 delay, so that line always appears on the left side of the graph. The height of the original signal depends on the sound's volume setting in the Synthesizer Panel.

You can adjust the delay line with the sliders on the axes, or by selecting and moving the top of the delay line to the desired position.

■ Drag the time slider to the right. The horizontal red line gets longer and the vertical slider is unaffected. Now, point to any key in the middle of the keyboard and hold down the mouse button to hear the original and the delayed sound. Release the mouse when the delayed sound has played.

■ Drag the time slider back to the left and hit a key on the Keyboard panel. The delay sound played much more quickly didn't it?

A short delay time can give you a heavy, dense sound. On the other hand, if you extend the time of the delay you can produce some nice echo effects.

You set delay volume like you set delay time, but on the vertical axis, of course.

Note **If you want to save a few seconds, you can adjust time and volume at the same time by pressing the mouse button down anywhere within the Delay graph. Dragging the mouse horizontally results in horizontal motion on the time bar, and dragging it up or down results in vertical motion on the volume bar.**

▣ Turn off Delay by clicking the square at the intersection of the axes of the graph. When delay is off, the graph is dark.

STEREO

If you have a stereo card installed in your computer, Instant Synthesizer can help you produce interesting multi-channel effects.

▣ Turn on the Sequencer and click the Stereo icon.

The two-speaker icon and the stereo panning bar are highlighted in blue and the program begins sending proportional volume signals to each side. The volume sent to each channel is represented as a shade of blue, with dark (faded) indicating low volumes and light (bright) high volumes.

To pan (balance) the volume so that the right channel is louder:

▣ Drag the red diamond-shaped slider on the stereo panning bar to the right.

As you pan, the right icon brightens while the left one fades. You can pan all the way to the right or left by clicking at the appropriate end of the panning bar.

Delay Panning and the Delay Panning Bar work the same way as the Stereo Panning effects, but apply to a delayed signal.

PANNING

- Turn on the Delay graph and click the Delay Pan icon. Any changes you make in the graph or on the Delay Panning Bar affect the delayed sound *only*.

- Drag the time and volume sliders in the Delay graph around and then click a key on the Keyboard. Move the sliders again and play a sound. Do you hear the difference? Do you begin to see the possibilities? We thought you would! Exciting echoing effects are at your fingertips.

Note **For Delay Pan to work, Delay needs to be active.**

- Turn off Delay and Delay Pan.

- Click the SOLO button to turn off Solo Mode and turn off the Sequencer.

ENVELOPE PANEL

Figure 2.5 Envelope Panel, showing an edited version of default envelope 2

Each Instrument file contains a default envelope, which is a kind of graph that describes the way that instrument's volume changes over time. You can edit this envelope or replace it with any of six preset envelopes whose outlines appear in the Panel.

- To alter a sound's envelope, click the Envelope Selector button.

- Highlight **ElecGtr** on the Instrument Panel, if it's not already selected.

- Click a key in the middle of the Keyboard Panel.

The sound that key makes is determined by the shape of
envelope that appears in the work panel. That envelope,
which Instant Synthesizer calls Envelope 1, is the default
envelope for all sounds in the Instrument folder.

You can hear how this shape affects sound: The sound
reaches maximum volume instantly and sustains it until the
release point (R) where it fades instantly.

■ Select Envelope 4, which is next to Envelope 1 on the
left side of the work panel. It looks (something) like a
half-circle and the sound it causes reflects its shape.

■ Press down and hold a key in the middle of the Key-
board Panel until the note sounds. Now, release the
mouse button.

The sound gradually reaches maximum volume and then
gradually fades away.

■ Try all the preset envelopes and hit a note on the
keyboard. You'll notice that steep lines play quickly
and shallow lines take more time to sound. The seg-
ments after the point labelled "R" sound after the key
is released.

If none of the preset envelopes are suitable for the sound
you have in mind, you can edit any of them by moving their
control points around the graph. An envelope can display
up to 7 line segments with a control point at the intersection
of each segment and at both ends.

■ Change the shape of the envelope by dragging the
control points, one at a time, to make the desired
shape. The attached segments stretch like a rubber
band. The graph is then redrawn in scale.

Note **Before you alter the shape of an envelope, crank
up the volume so you can hear your changes.
And remember: short sounds or notes, like a
drum beat, need a fast attack segment so they can
sound their voices. On the other hand, you can
get some great effects with slower attack rates if
your sound is long or plays at a slow tempo.**

■ To add a new control point, point at the middle of a
segment and press the mouse button. This breaks the
segment in two, creating a new point, which can be
manipulated like any of the others. If there are al-
ready 7 segments, the display flashes and no new
point is created.

■ If you want to subtract a point, point at it while press-
ing down the Apple key and click the mouse. This
deletes the point, and reduces the two segments to
one.

The endpoints cannot be deleted. The minimum number of
segments possible is two, so the minimum number of con-
trol points is three.

The release segment begins when a note is turned off. The
beginning of the release segment is marked with a small R.
To move this:

■ Point at the R and drag it near any other control
point. The segment following that point becomes the
new release segment.

If your editing experiments turn out not to please your ear,
just click **Reset** to return to the last preset envelope you
were working on.

MAP PANEL

The Map Panel displays the selected instrument's Sample Map in the Work Area and shows how sound samples are laid out (mapped) on the Keyboard Panel. In combination with the **Mapper** from the MIDI menu, the Map Panel lets you assign samples to any part of the Keyboard Panel so you can create multi-sample instruments. You can use either the samples that come with the instruments on ISDATA or sample(s) you created with a digitizer.
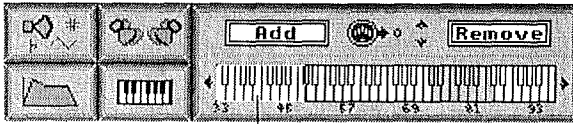
Default Sample

Figure 2.6 Map Panel with DrumKit's first (far-left) sample selected

The Add and Remove buttons in the Map Panel Work Area are essential for creating and/or modifying multi-sampled instruments. We'll show you how to use these features later in this section. For the moment, think of the Map Panel as a source of information about your sounds. The Sample Map lets you see the number of samples in your sound, select a sample, and look at your sample's wave form when you turn on **Sampler**.

- Select **ElecGtr** (electric guitar) from the Instrument Panel and click the Map Panel Selector button.

The keyboard that appears in the Work Area is an exact replica of the Keyboard Panel. It's all one color, which shows that the guitar sound consists of a single sample.

- Select **DrumKit** from the Instrument Panel. The DrumKit, as you might expect, is a multi-sample instrument.

The keyboard on the Map Panel displays five different colors, each one representing a different sample. Click a key

on the far left of the Keyboard Panel. That's the bass drum, right? Now click a key on the far right. It's a rimshot. The tom-tom, snare, and high-hat are the other samples in the DrumKit.

Notice that the sample on the far left of the Sample Map is surrounded by a white rectangle. This means that it's the selected sample. To select a different sound sample just point at it, and click. You can look at the wave form of the selected sample by choosing **Sampler** from the Sample menu. To alter that wave form, see **Sampler**, in Chapter Three.

The best way to understand the functionality of mapping is by creating our own multi-sample instrument. Let's do that:

■ Select **DrumKit** from the Instrument Panel.

The DrumKit, as we said above, is a flexible, multi-sample instrument. Since we don't want to change it, let's make a copy that we can play with.

■ Choose **Copy Sound** from the Sound menu and type the name NewDrum in the dialog box. Click Ok.

When you click Ok, the Copy Sound dialog box disappears and NewDrum appears in the Instrument Panel. Select New-Drum as the Solo Instrument.

■ Click the Map Panel Selector button.

You'll notice that the mapping keyboard that appears in the Work Area is divided into five colored sections. This indicates that NewDrum consists of five samples. A change in color marks the boundary of a sample.

■ Point at a key on the far left of the Keyboard Panel and slowly drag the mouse to a key on the far right. You can clearly hear the five distinct NewDrum sounds that the samples represent.

2

■ Choose **Mapper On** from the MIDI menu (or press the command key [⌘] and the letter M at the same time) to turn on the Instant Synthesizer keyboard mapper.
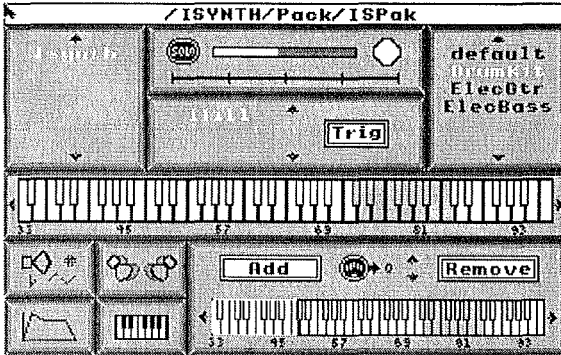

The message "Current Sound is now Map Destination" appears in the Menu Bar and the Keyboard Panel changes to show same colors (boundaries) as the Sample Map. Let's add a guitar sound to the middle of the percussion samples in NewDrum.

Figure 2.7 Mapper

■ Select **ElectGtr** (electric guitar) from the Instrument Panel.

The Sample Panel changes to show the single-sample map of the guitar and the Keyboard Panel continues to display the multi-sample map of NewDrum.

■ Click on the **Add** button in the Work Area.

The button turns tan to show it's active and the message "Point to Destination Key" appears for a moment in the Menu Bar. Instant Synthesizer wants to know where on the Keyboard Panel you want to place the guitar sample.

■ Click on key 57, which you'll notice is in the middle of the second sample of NewDrum in the Keyboard Panel.

The message "Sample Added" appears in the Menu Bar and all the keys from 57 down (left) to 49 (the end of the sample) have changed color. NewDrum now has six samples.

You've added a guitar sound between the bass drum and
the tom-tom of NewDrum. To hear what your creation
sounds like:

- Choose **Mapper Off** from the MIDI menu. When the
  message appears asking if you want to keep your
  new keyboard map, click **Keep**.

The message "Map Changed" appears in the Menu Bar and
the colors disappear from the Keyboard Panel.

- Select NewDrum from the Instrument Panel. The
  Sample Map displays your new 6-sample instrument.
  Now slowly drag the pointer from left to right across
  the Keyboard Panel to hear how your changes affect
  NewDrum.

If you like the idea of mixing samples, but you're not crazy
about the way the guitar has taken over most of the tom-
tom's range in NewDrum, you can easily adjust the bounda-
ries of your samples.

- Choose **Mapper On**. The Keyboard Panel again re-
  flects the Sample Map.
- Place the pointer over key 57. Now press and hold
  down the mouse button.

The message "Adjust Sample Boundary" appears in the
Menu Bar and the lower half of key 57 turns dark.

- Drag the pointer two keys to the left. When the G
  note (key 55) turns dark, release the mouse button.

Keys 56 and 57 on the Keyboard now match the color of
the sample to their right, and they're again part of the tom-
tom sample. You'll notice that the Sample Map does not re-
flect your changes, but it will when you:

■ Choose **Mapper Off** so you can listen to your new
sample.

A message asks you to confirm the changes you just made.
When you click **Keep**, the message "Map Changed" appears
in the Menu Bar, the colors disappear from the Keyboard
Panel, and the Sample Map displays the changes to New-
Drum. Now play your new instrument.

You've seen how easy it is to add a sample to your instru-
ment and adjust sample boundaries. It probably won't sur-
prise you to learn that removing a sample from your sound
is just as simple. Let's say our experiment with the guitar
sample in the middle of multiple percussion samples just
didn't work and we want to get rid of it.

■ Choose **Mapper On** and click the Remove button in
the Map Panel Work Area.

The Remove button turns tan and the message "Point to
Sample to Remove" appears in the Menu Bar.

■ Click on any key in the sample you want to remove
on the Keyboard Panel.

The message "Sample Deleted" appears in the Menu Bar
and the deleted sample is replaced by the sample on its left.
Therefore, in our example, the guitar sound is deleted and
replaced by a continuation of the bass drum sample.

■ Choose **Mapper Off** from the Midi menu (or press
M). When you're asked if you want to keep your new
keyboard map, click **Keep** if you want to save the
new map (or **Don't Keep** if you don't).

Now that you know how to map a keyboard, you can make
all kinds of interesting multi-sample instruments. By allow-
ing you to combine different sounds as one instrument, a

multi-sample instrument lets you assign several sounds to one of the four tracks that make up a song (see **Assign Tracks**, in Chapter Three). This might help you use the available tracks more efficiently, or maybe save a track for a sound idea that comes to you after your first edit.

Several multi-sample instruments in the same song can really get interesting, (though if you're not careful it can get pretty strange).

CONCLUSION

By now you probably have a hundred "sound" ideas that you'd like to try out. We encourage you to do that. Instant Synthesizer helps you exercise your creativity. Go ahead. Flex your musical muscles.

Note **If you want to digitize a sound or use your MIDI device with Instant Synthesizer, see the appropriate sections of the next chapter, Reference.**
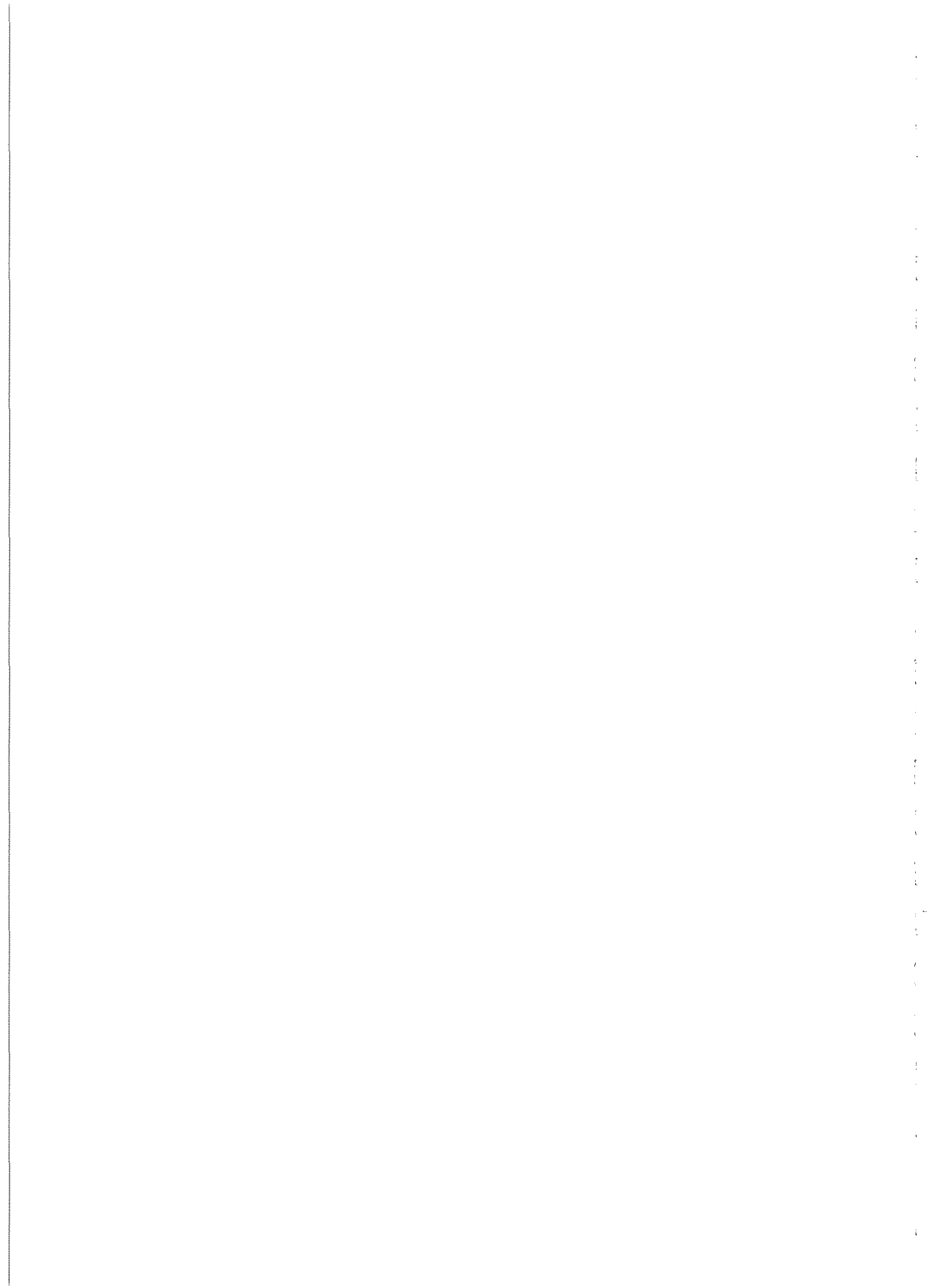
3

REFERENCE
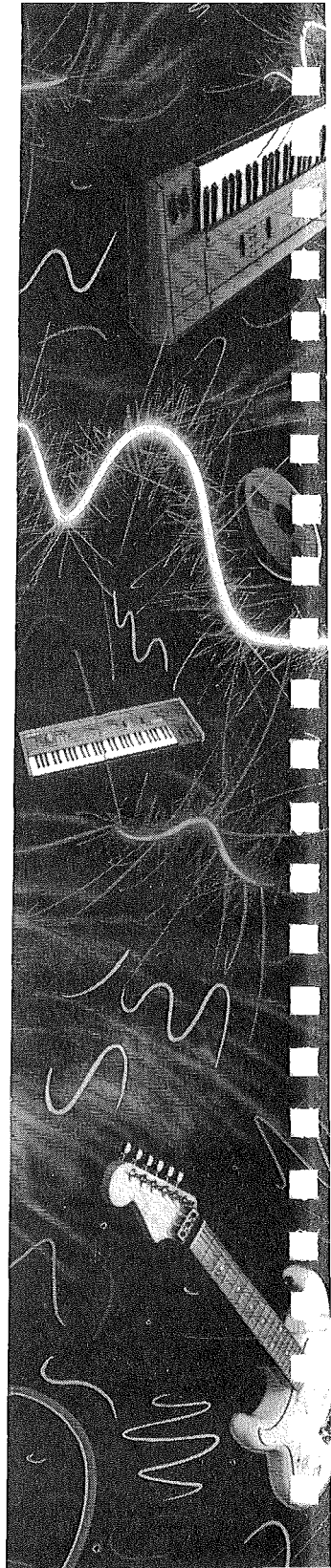
You can use the main Instant Synthesizer screen as a guide
to the program features described in this chapter. We've or-
ganized the information so that you can answer specific
questions without reading the whole section. Starting with
the Menu Bar at the top of the screen, we'll define all of the
program's work panels and menus. Read as much as you
want or as little as you need. But remember: the more you
know about Instant Synthesizer, the more you'll get out of
the creative energy you invest in this exciting program.
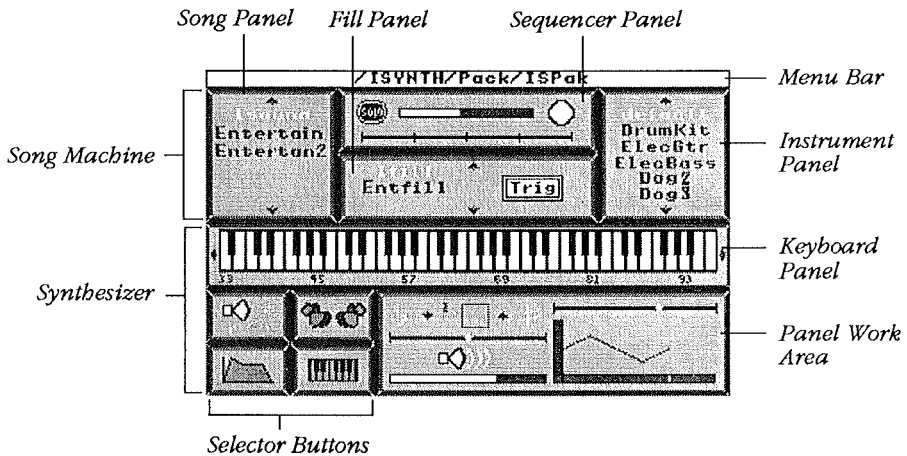
Figure 3.1 Main ISynth Screen

SCREEN PANELS

The Instant Synthesizer screen consists of three parts, which
are organized as sets of panels. The top part is the **Menu
Bar**; the middle part is the **Song Machine** and is made up
of the Song, Fill, Sequencer, and Instrument Panels; and the
bottom part is the **Synthesizer**, which consists of the Key-
board, Synthesizer, Effects, Envelope, and Map Panels.

MENU BAR

The Menu Bar does three jobs:

☐ Displays the name of the current package

☐ Displays program information messages

☐ Displays Instant Synthesizer menu titles

The current package name automatically appears in the
Menu Bar when you start the program. And whenever you
select a song, fill, or instrument from the Song Machine, the
Menu Bar temporarily displays its name, disk, and file ID
and then re-displays the package name.

When you select most buttons and sliders, an information
message appears in the Menu Bar while you hold down the
mouse button. For example, if you hold down the mouse
button over one of the Synthesizer Selector Buttons, the
name of the panel activated by that button appears in the
bar.

Similarly, when you select a button that toggles an effect on
or off, like Stereo or Doubler, the Menu Bar indicates the
status (on or off) that results if you release the mouse but-
ton. If you move the pointer away from the button before
you release the mouse, there's no change in status and the
message alters to reflect this.

For example, if you place the pointer over SOLO when it's
off, and press and hold down the mouse, the Solo button
lights up and the message "Play Solo Instrument Only" ap-
pears. If you move the pointer off the Solo button it darkens
again and the message "Solo Mode Off" appears in the
Menu Bar.

Finally, if you move the pointer up to the bar, the Instant
Synthesizer menu titles appear. Move the pointer out of the
bar and the package name reappears.

3

Note **Instant Synthesizer handles messages which re-
quire your confirmation or other interaction
with a dialog box.**

SONG MACHINE

Note **The Song Machine shares the same space on the
screen with the Sampler, which contains com-
mands for editing (and digitizing) sound sam-
ples. The Sampler and Song Machine are never
visible at the same time. You can select them al-
ternately from the Sample menu, or by pressing
the command key [⌘] and the letter X at the same
time.**

SONG PANEL

The Song Panel lists the songs that you've loaded, either
with package files or through the **Load Song** option of the
Song menu. If you've loaded more songs than the Panel can
display at one time (6), use the directional arrows above
and below the list to scroll through it. Just click on one of
arrows to scroll the list up or down. The current song is
highlighted.

You choose a new song by pointing at its title and pressing
the mouse button. While the mouse is down, the new song
is highlighted, but not selected. If you move the mouse out
of the panel area, the highlight returns to the current song.
The song that's highlighted when you release the mouse
button becomes the current song. If you release the mouse
outside the Song Panel, the current song doesn't change.

If the Sequencer is playing when you change the current
song, it plays the new song at the end of the current song
or current fill. The Metronome Bar represents the number of
beats per measure of the current song, or current fill if a fill
is playing.

FILL PANEL

The Fill Panel lists fills that you've loaded, either with package files or through the **Load Fill** option of the Fill menu. The directional arrows to the right of the list let you scroll through it. The Fill Trigger button [Trig] brightens when the current fill is playing and you can click it to start a fill whenever you want (see Fill menu, below). Select the current fill with the mouse just like the current song.

When you select a new fill, and the Song Machine is running (and **Auto Fill** is on, see Fill menu), the new fill is highlighted and plays at the next designated fill. If the previous fill is playing, it plays to completion and the new fill begins the next time around.

SEQUENCER PANEL

The Sequencer Panel contains controls for the Song Machine. These are:

PLAY BUTTON

Click the Play Button to start and stop the Sequencer. It's green when the Song Machine is playing, red when it's not.

Note **You can also use the Space bar to turn the Sequencer on and off.**

TEMPO SLIDER

This rectangular bar is filled with white to a length proportional to the Tempo. A shorter white bar means a slower Tempo; a longer bar means a faster one. To change the Tempo, move the pointer to the white bar and drag the mouse to the right or left. As you change the Tempo, the message "Adjust Tempo" appears in the Menu Bar. Release the mouse button when you've set a tempo you like.

The tempo of every song and fill can be controlled independently, so you can create a package with different tempos. For example, you can get some interesting effects by setting a fill to play at half-tempo with a song that plays at full tempo.

3

METRONOME BAR

The Metronome Bar is a line with ticks for each beat/measure in the current song or fill. The moving marker indicates the current beat in the current measure whenever the Sequencer is playing.

SOLO MODE BUTTON

Click on the Solo Mode Button to turn off the sound (or other MIDI output) of all Instruments except the Solo Instrument so that you can hear its sound parameters clearly. The button is bright when you're in Solo Mode, and dark when you're not.

INSTRUMENT PANEL

The Instrument Panel displays a list of sounds. The current list is that set of instruments available in the current package. The Solo Instrument is highlighted. The directional arrows above and below the list let you scroll through it.

To select a different Solo Instrument from the list, click on it. This updates the Synthesizer Panel to the parameters of the new instrument. If the Sampler Panel is visible (see **Sample Menu**, below), the leftmost sample of the Solo Instrument on the Map Panel appears in the Sample Graph.

If the SOLO button is on and the Sequencer is running when you choose a new instrument, the new instrument sounds its voice and the previous sound is silenced (if the sound you chose is assigned to the current song).

See **DOC RAM**, below for a discussion of how many instruments you can load in the Instrument Panel.

SYNTHESIZER

The **Synthesizer** consists of the Keyboard, Synthesizer, Effects, Envelope, and Map Panels. The Keyboard Panel is always visible. But the other four, Synthesizer, Effects, Envelope, and Map, share the same display space on the screen and their work panels are never visible at the same time.

You display a work panel by clicking on the appropriate Selector button. For example, to work on the Envelope Panel of the current sound, click the Envelope Selector button in the lower left corner of the screen and the Envelope work panel appears in the lower right.

KEYBOARD PANEL

The Keyboard Panel is a 5-octave keyboard. It serves two functions: an input device to play notes; and a display for your mapping operations. The Keyboard usually represents the Solo Instrument. However, when you use the keyboard to map samples to MIDI ranges, it represents the instrument being mapped.

INPUT

When you want to input notes, press the mouse over the key you want to play. A played key darkens and sounds in the "voice" of the Solo Instrument. If the solo sound has a loop (this includes most instruments), the note sounds until you release the mouse button.

You can move the Keyboard's range up or down, by octaves, by clicking the directional arrows at the ends of the Keyboard. The range display does *not* affect master Transposition, but does affect the pitch of notes you enter through the Keyboard with the mouse. The MIDI tone numbers below each octave indicate the current range. These tone numbers also include the master Transposition. **Only MIDI numbers 0 through 126 may be played.**

MAPPING

The Keyboard is divided into segments when you use it to map instruments. Each segment is assigned to one sample and the program assigns a color to each sound. The segment of the Keyboard mapped to that sound appears in that color.

The instrument being mapped is called the Destination instrument. When you turn the Mapper on, the Destination instrument is set to the current Solo Instrument. Until you turn

the Mapper off, the Keyboard continues to represent the same instrument, even if you change the selection in the Instrument Panel. When used to map samples to MIDI ranges, it serves as the destination for all mapping operations. The Source Instrument for the Mapping operation appears in the Map Panel. See **Mapper**, below, for more information.

SYNTHESIZER PANEL

The Synthesizer Panel consists of a set of controls for altering basic Synthesizer parameters, including Pitch Bend, Volume, and Vibrato.
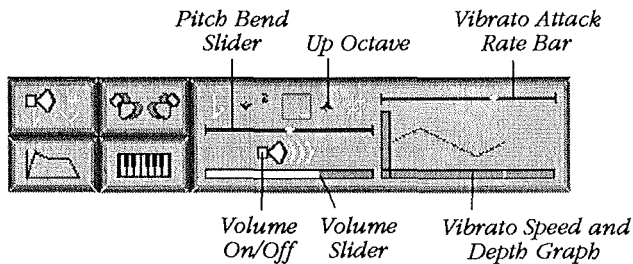
Figure 3.2 Synthesizer Panel Work Area

PITCH BEND CONTROLS

The Pitch Bend Controls let you alter an instrument's pitch in three ways:

❑ *The Bend Control* To bend the current pitch, drag the slider anywhere on the Bend Control bar. Bend the current pitch up by moving the control marker to the right, or down, by moving it to the left. The larger the movement, the greater the bend. When you release the mouse button, the marker snaps back to the center.

❑ *The Octave Arrows* Click on the down-arrow to transpose the pitch down one octave. The arrow turns white to show that *down* is active and the message "Down Octave" flashes in the Menu Bar. Click on the

3

down-arrow again to raise it back. The arrow turns black and the message "No Transposition" appears temporarily. The up-arrow works in the same way but it raises keyboard pitch by an octave. When both arrows are off (black) the middle octave is active and there's no transposition.

□ *The Pitch Range Control* This control appears as a line with one end anchored. The control increases the pitch bend range as the line gets steeper, and decreases the range as it flattens out. Point anywhere in the box and click the mouse. Your computer currently supports values 1, 2, and 4 (1=a half step; 2=a full step, and 4=two full steps). When the value reaches 4, it wraps back to 1. The control displays the current range as a MIDI number, representing the MIDI transposition when the pitch bend control is at maximum bend.

Note **The Pitch Bend Controls automatically affect the primary voice, and you can set them to affect a secondary voice. See "The Doubler Controls" in Effects Panel, below for more information.**

VOLUME CONTROLS

The Volume Controls consist of a speaker-shaped button and a blue slider whose length is proportional to the volume of the current instrument. To decrease the volume, shorten the slider. The bright color of the indicator dims as the volume decreases. Click on the speaker button to turn the volume off/on without changing the position of the slider.

VIBRATO CONTROLS

The Vibrato Controls alter Vibrato Depth, Speed, and Attack Rate. To use the controls, click on the small box at the intersection of the horizontal and vertical axes. The message "Vibrato On" appears in the Menu Bar and the controls are highlighted in yellow. You can adjust Vibrato Depth and Speed with sliders on a two dimensional graph, which displays Depth on the vertical plane and Speed on the horizontal plane.

Use the slider above the graph to set the Vibrato Attack Rate (the speed at which vibrato comes on).

Depth and Speed

The Depth/Speed graph is a triangle wave centered on the Depth axis. The height above and below the axis is proportional to the Vibrato Depth, and is controlled by a vertical bar on the left of the graph. When you select either the top or bottom of this bar and drag toward or away from the Speed axis, both the bar and the triangle wave adjust in height while the mouse button is down, and the new value is set when you release the mouse.

Vibrato Speed is controlled by adjusting the length of the triangle wave from left to right. The wave is anchored at the left, and when Vibrato is at the minimum, exactly one wave cycle fills the graph and the adjusting bar extends all the way to the right. If you move the horizontal bar to the left, the wave cycle gets shorter and shorter, and the Vibrato Speed gets larger. With the bar at minimum extension, Vibrato Speed is at the maximum.

You can adjust Depth and Speed at the same time by selecting the wave itself. Just press and hold the mouse anywhere within the graph. Horizontal motion (with the mouse) relative to the selected point results in horizontal motion on the Speed bar, and vertical motion results in vertical motion on the Depth bar.

Finally, you can turn off Vibrato altogether by selecting the square at the intersection of the control axes. The message "Vibrato Off" appears in the Menu Bar and the Vibrato Controls turn dark.

Note **When the instrument is Doubled (see below) and Vibrato Lock's value is "Show Doubled Voice", these vibrato controls describe the doubled voice only. In all other cases, they describe the primary voice**

3

Vibrato Attack Rate

The Vibrato Attack Rate (VAR) is the speed at which vibrato approaches maximum depth. When the red diamond-shaped slider is at the left, the VAR Bar sets the Vibrato to maximum as soon as note starts to sound. As you move the slider to the right, the time it takes vibrato to reach maximum depth increases.

Note **The VAR that you set describes the attack rate of both the primary and doubled voice (see Doubling Controls, below).**

EFFECTS PANEL

The Effects Panel is a set of controls for altering multi-channel effects, including Stereo Panning, Delay, and Doubling. You can get great results with any of these effects, and you can use as many of them as you like, simultaneously!
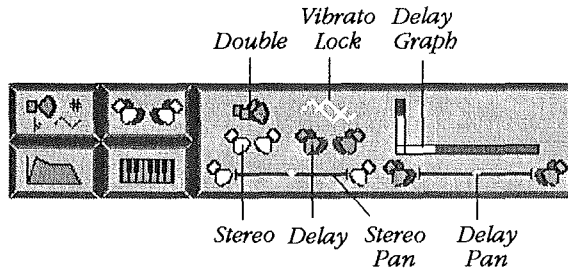
Figure 3.3 Effects Panel Work Area

Note **The stereo, stereo panning, and delay panning effects of this Panel are only available if you have a stereo card in your computer.**

STEREO PANNING CONTROLS

There are four Stereo Pan controls on the Effects Panel. Two are on/off buttons for Stereo Pan and Delay Pan and the other two are sliders that indicate the stereo placement for the original signal and for the delayed signal (if you've selected one). When the controls are off, the buttons and the icons next to the panning bars are dark.

To use Stereo Panning, click on the Stereo button. The two-speaker stereo icon and the stereo panning bar turn blue, the message "Stereo On" appears temporarily in the Menu Bar, and the program begins sending proportional volume signals to each side. The volume sent to each channel is displayed as a shade of blue, with dark (faded) indicating low volumes and light (bright) high volumes.

To pan (balance) the volume move the red diamond-shaped slider on the panning bar to the left or right. As you pan, one icon will brighten while the other fades. You can pan all the way to the right or left by clicking at the appropriate end of the panning bar.

Delay Panning works the same way as Stereo, but applies to a delayed signal. For Delay Pan to work, Delay needs to be on. Similarly, Delay Pan must be on for Delay Panning to work, so turning off Delay Pan turns off the Delay Pan bar. If Delay Pan is off and you're in delayed stereo mode, the Sequencer "decides" on its own where to sound the delayed channel.

DELAY CONTROL

The Delay Control can alter the time and volume level of the delay. To use the control, click on the small box at the intersection of the horizontal and vertical axes. The message "Delay On" appears in the Menu Bar and the control is highlighted in red. Delay time and volume can then be adjusted with sliders on the two dimensional graph, which displays volume on the vertical plane and time on the horizontal plane.

The graph itself consists of two vertical lines, one representing the original signal and the other representing the delayed signal. You can control these lines independently. The original signal always occurs at 0 delay on the left side of the graph. The height of the original signal depends on how you set the sound's volume control in the Synthesizer Panel.You can adjust the delay line with the sliders on the two

axes, or by selecting and dragging the top of the delay line to the desired position.

You can adjust time and volume at the same time by dragging the mouse anywhere within the graph. Moving the mouse horizontally results in horizontal motion on the time bar, and moving it up or down results in vertical motion on the volume bar.

Since the delay is linked to the sequencer update rate (60 Hz.), the minimum delay interval is equal to the sequencer update rate. Turn Delay off by selecting the small square at the intersection of the axes of the graph. When delay is off, the graph is dark.

If you're in Stereo Mode, Delay may be panned independently in the stereo space from the original signal. See **Stereo Panning**.

DOUBLING CONTROLS

The Doubling controls are two buttons, one for turning doubling on and off (the Doubler), and the other for selecting how to control the doubled voice (call it the Voice/Vibrato control). When you click the Doubler, the program creates a second voice that duplicates the original sound. The Voice/Vibrato control is pink, which means that the controls of the Effects Panel are displaying the parameters of the primary voice.

The Voice/Vibrato control button selects between the original or the doubled voice's controls. You can use these controls to adjust the doubled voice's vibrato if you want phasing and chorusing effects. There are three settings:

☐ *Lock On* The icon turns yellow and the primary and doubled voices have the same vibrato, only. Lock On does not affect other parameter adjustments that you have made to either voice.

☐ *Lock 1* The icon turns pink and primary voice parameters are editable. The message "Show Primary Voice" appears in the Menu Bar and the controls affect only the primary voice.

☐ *Lock 2* The icon turns pale green and doubled voice parameters are editable. The message "Show Doubled Voice" appears in the Menu Bar, and the controls affect only the secondary (doubled) voice.

You select among these "locked" states by repeatedly clicking the Voice/Vibrato icon. If Doubling is off, the Voice/Vibrato icon is inoperative. The icon is yellow when Lock is On, pink when in Lock 1, and green when in Lock 2.

You can adjust the doubled voice's octave and fine tuning by using the Synthesizer Panel. Normally, the Synthesizer Panel displays the settings of the original voice. If you click the Synthesizer selector button after you've turned the Doubler on (and the doubled voice, indicated by the light green color, is shown), this panel displays the settings of the doubled voice and you can use the Pitch Bend Control to detune that voice. Drag the slider to detune. See Chapter Two, for hints about **Detuning the Doubled Voice**. Detuning takes the place of Pitch Bend effects in this mode.

ENVELOPE PANEL

To alter a sound's amplitude envelope, click the Envelope selector button to activate the Envelope Panel. Each Instrument file contains a default envelope, which describes the way that instrument's sound changes over time. You can edit this envelope, or replace it with any of the six preset envelopes whose outlines appear in the Panel. These preset envelopes may also be edited. Any edited envelope becomes the default envelope when you save an instrument to disk.

The Envelope Panel consists of a set of icons and a graph representing the envelope. The Reset button restores the default shape of the currently selected envelope. The other buttons select the preset envelopes.

The graph displays up to 7 segments (attack[s], sustain, release) of the envelope with a control point at the intersection of each line segment and at both ends. Change the shape of the envelope by picking up the control points (point at one and press the mouse) and moving them to the desired shape. The attached segments stretch like a rubber band. The graph is then redrawn in scale.

To add a new control point, point at the middle of a segment and press the mouse. This breaks the segment in two, creating a new point, which can be manipulated like any of the others. If there are already 7 segments (8 points), the program will create a new point by deleting the closest point to the new one you request, but no new segment will be added.

If you want to subtract a point, point at it while pressing down the Apple key and click the mouse. The point is deleted, and the two segments reduced to one. The endpoints cannot be deleted. The minimum number of segments possible is two, so the minimum number of control points is three.

The release segment begins when a note is turned off. The beginning of the release segment is marked with a small R. To move this, point at the R and drag it near any other control point. The segment following that point will be the new release segment.

3

MAP PANEL The Map Panel displays the Solo Instrument's Sample Map, the Sample Add and Remove buttons, and contains two MIDI controls. Its primary function is to work in combination with the program's **Mapper** (see below), but it also plays a role with the Sampler and MIDI.

When you click the Map Panel Selector button, the Sample Map for the Solo Instrument appears in the work panel. The Sample Map is a small version of the main Keyboard. Each sample appears as a colored segment of the Sample Map, just like the main Keyboard when **Mapper** is on. The DrumKit, for example, is a multi-sampled instrument and its Sample Map consists of five colored segments representing, from the left, bass drum, tom-tom, snare drum, high-hat cymbal, and rim shot. The electric guitar, on the other hand, shows only one sample on its Sample Map.

A scale along the bottom shows the MIDI range of the Sample Map with ticks at every octave. Directional arrows on either end of the Sample Map let you adjust the range. Each arrow changes the range an octave in the indicated direction. The MIDI number of the octave tick is displayed below it. Thus the entire MIDI range of 0 to 126 can be displayed.

See **Mapper On/Off** below for more information.

KEYBOARD EQUIVALENTS

You can use the QWERTY keyboard to sound riffs (a short pattern of notes). The program comes with eight different preset riffs, which you access with keys 1-8 on the numeric keypad. Press a number, which selects the riff, then press one of the keys from the main keyboard to play the riff. Once you've selected a riff it becomes active and you don't need to select it to play it again. Simply press the key you want to sound. You can use as many riffs as you want in a song, but only one riff is active at one time.

QWERTY keys are mapped to keys on the piano keyboard
according to the following arrangement:

QWERTY	*Keyboard*	*Standard Notation*
Q	48	C5
2	49	C#5
W	50	D6
3	51	D#6
E	52	E5
R	53	F5
5	54	F#5
T	55	G5
6	56	G#5
Y	57	A5
7	58	A#5
U	59	B5
I	60	C6
9	61	C#6
O	62	D6
0	63	D#6
P	64	E6
[	65	F6
=	66	F#6
]	67	G6
A	68	G#6
Z	69	A6
S	70	A#3
X	71	B6
C	72	C7
F	73	C#7
V	74	D7
G	75	D#7
B	76	E7
N	77	F7
J	78	F#7
M	79	G7
K	80	G#7
'	81	A7
L	82	A#7
.	83	B7
/	84	C8

You can use certain QWERTY keys for other functions:

☐ *Left Arrow* Subtract one MIDI note from Master Transpostion.

☐ *Right Arrow* Add one MIDI note to Master Transposition.

☐ *Down Arrow* Subtract one octave from Master Transposition.

☐ *Up Arrow* Add one octave to Master Transposition.

HINTS ON MEMORY MANAGEMENT

Instant Synthesizer lets you load several packages, songs, fills, and sounds into the Song Machine, so you can work on them at the same time. You can, however, overload the Song Machine. The computer has memory limitations and you have to take them into account as you work with ISynth. Read through this section so you'll be able to use the program efficiently while you're having fun.

The three low-memory messages are:

IFF Error
No More Memory for Instruments

Warning!
Out of Memory
0201

IFF Error
Ran out of Memory

If, while you're working with Instant Synthesizer, you receive any of these warnings **or the action of the program slows noticeably**, it's likely that you're running out of memory. Since you've probably exhausted the computer's memory with your "sound" creations, you may want to save

3

at least some of them. Follow these steps, in order, to recover from a low-memory condition. Use only those steps that are appropriate for your work.

1. If you are creating a package that you want to keep, **Save** that package.

2. Remove unused instruments from the Instrument Panel. Sounds are the most memory intensive part of the program.

3. Remove unused Songs and/or Fills.

4. To recover all the memory being used by the program, and start over with a fresh Song Machine, **Save** your work if you want and then choose **Remove All** from the File menu.

The program issues two other low-memory messages that you need to know about if you want to sample a sound.

Warning!
Out of Memory
Delete an Instrument First!

Couldn't Swap a Sound to DOC

These warnings refer to DOC (Digital Oscillator Chip) Memory. See **DOC RAM** below for more information.

CREATING DATA DISKS

As you work with Instant Synthesizer, ISDATA may become full and you'll want to create data disks of your own. Remember that Pack files take up very little space on the disk and that instruments can take up a lot. Make sure that you have enough space on your new data disk to create and save Pack files.

- From the desktop, initialize a clean disk and use Rename from the File menu to name that disk whatever you want.

- Insert ISDATA if it's not in (one of) your drive(s), and double-click on the disk icon.

- When the ISDATA window opens, drag the two folders labeled **Music** and **Instruments** to your newly named disk icon and release the mouse button. Those folders and their contents (files) will be copied to your new data disk. (If you have a single disk drive, you'll have to swap your disks a few times to complete this copy routine.)

- When the **Music** and **Instruments** folders are copied to your new disk, double-click on the disk icon to open the disk window.

- Choose **New Folder** from the File Menu and when that folder appears in the window, rename it, **Pack**. Choose **Save As** from the File Menu, while you're using this disk, and then **Save** your pack in the Pack folder. Your Pack will be properly saved for later use.

You've now created a new data disk.

MENUS AND MENU OPTIONS
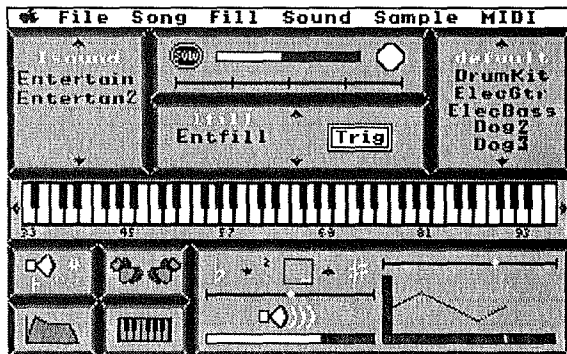
Figure 3.4 ISynth Screen with Menu Titles

We'll discuss each Instant Synthesizer menu as it appears on the Menu Bar, from left to right, and describe each menu's options from top to bottom. When you want to look at the menu titles, move the pointer to the top of the screen.

To see the options for any menu, move the pointer to the appropriate menu title and hold down the mouse. Drag the pointer down the list of options to highlight each one. To select an option, release the mouse when the option is highlighted.

Note You can choose many menu options from the keyboard by pressing the Apple (Command) key, just to the left of the spacebar, and the appropriate letter key at the same time. For your convenience, we've listed these keyboard shortcuts in brackets. If you execute a menu command with keystrokes, the menu titles appear while the command is executed, and the package name reappears when the command is completed.

APPLE MENU
ABOUT INSTANT SYNTHESIZER

Gives the program version number and copyright information. Click Proceed or press the *return* key to return to the main screen.

FILE MENU
LOAD [⌘ P]

Brings up the Load Package dialog box. Highlight and open the Pack folder to display the package files on the active disk. Use **Disk** to see the package files on a different drive. Just click **Disk** until the window displays the files you want.

70

If the Song Machine is running when you choose **Load**, the Sequencer slows while the program loads a new package file.

To load a new package, click on the appropriate filename (scroll the window if you need to) to highlight it and click **Open**. *Sure, you can double-click on the filename to open it.* If you want to save any of the changes you've made to the songs, fills or instruments in the current package, select **Save** fom the File menu (see below) before you **Load** a new package. Click **Cancel** to return to the current package file.

When you load the new package, the Song, Fill, and Instrument Panels are all updated with the new values, and the Synthesizer Work Area displays the parameters of the new Solo Instrument.

Note **If you receive the message "Missing Instrument" when you load a package, it may mean that you are low in memory. See Hints on Memory Management, above.**

SAVE [⌘ S] Saves any changes you may have made to the current package since the previous **Save**. When you Save a new version of a package, you overwrite the old version. The package file includes:

☐ the package name

☐ a list of the Songs, Fills, and Instruments that make up the package and are currently in memory and instructions about where to load them from

☐ Auto Fill parameters (when and how to insert the fill)

☐ Sequencer tempo parameters

☐ Solo Instrument name

71

The Songs, Fills, and Instruments themselves are not stored in the package file. This lets you edit them individually without having to rebuild a package.

Note **You must save your package on the disk where the songs, fills, and instruments that make up that package reside.**

Hard Disk Drive Users: To use the pack files you copied from ISDATA, you must have the original ISDATA disk in the floppy drive. To avoid doing this each time you want to load a pack from ISDATA, follow these steps:

▣ With the program up and running, select **Remove All** from the File menu to clear the Song Machine.

▣ Select **Load** from the File menu. Click **Disk** so that the Load dialog box displays the directory of package files on the floppy ISDATA.

▣ Highlight the package you want to put on your hard drive from the Load dialog box, and click Open. After a few moments the package loads to the Song Machine.

▣ Select **Load Song** from the Song menu, and when the Load Song dialog box appears, click **Disk**, so you can see the Load Song dialog box that displays the hard drive's name. Choose the Song Folder from the list of folders and files that appear.

▣ Click Cancel.

By following the above steps you tell the hard disk what path it needs to take the next time you want to load that pack. Now the program will look for the hard disk rather than the floppy ISDATA.

3

■ Select **Load Sound** from the Sound menu and when the Load Sound dialog box appears, click **Disk**, so you can see the Load Sound dialog box that displays the hard drive's name. Choose the Instrument Folder from the list of folders and files that appear.

■ Click Cancel.

Now the hard disk knows where to find the songs and sounds it needs to load the package you want to play and all you need to do now is select **Save As** from the File menu to save the package on the hard disk.

SAVE AS [⌃ A]

When you are saving a package for the first time (or saving a new version of an old package, without writing over the old one) choose **Save As** from the File Menu to bring up the **Save Package As...** dialog box (see Figure 3.5).

```
⌨ /Isynth/Pack/
Free: 227k out of 800k.    Cancel
 ☐ finder.Data    ⇧    New Folder
 ☐ Ispak
                          Close
                          Disk
Save Package As...        Open
 ISPak                    Save
```
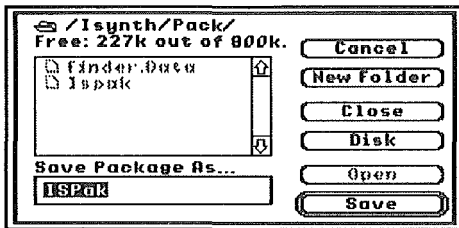
Figure 3.5 Save As... Dialog Box

This box shows the disk name, the names of all the other files stored on that disk, and the amount of memory available. A scroll bar on the right side of the window lets you scroll through the list if there are more file names than can fit in the window at one time.

The first time you **Save** a package, the title box under **Save Package As...** is highlighted and the name of the last package loaded is displayed. You need to give your package a name. But, before you do that, you should make some decisions. Where do you want to store your package? In which drive? In a folder (perhaps with other packages of the same kind) or by itself?

Disk: If you are using two disk drives or a hard disk, you can specify which drive to save your package to just by clicking on the **Disk** button. If you are using a single disk drive, ignore this button.

Note **Make sure the disk you're saving to is *not* write
protected.**

New Folder: If you want to create a folder for your pack-
age, maybe a synthesizer folder, type Synthesizer in the
Save Package As... box and click on **New Folder.** A folder
named Synthesizer will appear, highlighted, in the package
window. Click **Open** to open your new folder. You can use
Close to close the current folder without leaving the dialog
box.

Now, whether you created a new folder or not, simply type
in any easily remembered, unique name for your package
(up to 15 characters [alphabetic only] long) in the **Save
Package As...** box. The name you choose will replace either
"Untitled", or the name you gave to your new folder, in our
example "Synthesizer".

Save: Click Save to save your package exactly as you pre-
pared it. (Look at **Save**, above to see what you save when
you choose this option.)

Cancel: Finally, if you change your mind, make a mistake
in your naming routine, or simply want to return to the
screen and start again, click on **Cancel** to erase everything
you just entered in the dialog box.

Note **After you've named your package, use Save (ra-
ther than Save As) to save your package periodi-
cally during a work session. No dialog box will
appear. The disk drive will whirr, indicating that
your work is being saved to disk and the message
"Packaging the current setup" flashes in the
Menu Bar.**

Choosing **Save** (or ⌘ **S**) from time to time is the easiest way
to protect your work from accidents of all kinds. Make sav-
ing a habit. Remember, however, that edits you've made to

your sounds are not saved when you simply save a package. To save your edited sounds, use **Save Sound** (see below).

REMOVE ALL
[⌘ K]

To clear the parameters of the Song Machine and delete the contents of its panels, choose **Remove All**. This is a quick and easy way to clean up the Song Machine during a busy work session. A dialog box asks if you in fact want to delete everything. Click Ok to confirm.

Note **All instruments from the Instrument Panel are deleted when you Remove All, except the the default instrument.**

QUIT [⌘ Q]

Lets you quit Instant Synthesizer. If you are using two disk drives or a hard drive, choose **Exit** to leave Instant Synthesizer and return to the Desktop, or choose **Cancel** to return to the program.

If you're using ISDATA in a single disk drive when you choose **Exit**, a prompt appears requesting that you insert your Instant Synthesizer program disk. After you've inserted it, click OK or press Return. **Do not select Cancel.**

SONG MENU
LOAD SONG [⌘ H]

Displays the Load Song dialog box. Open the Music folder (double-click on it) and then click on a song to highlight it. Finally, click **Open** to load it into memory (or simply double-click on the song title). Click **Disk** to load a song from a disk on your second drive. The selected song appears in the Song Panel. The program attempts to load any instruments the song needs, which are not already in memory, and displays the message **Loading Sounds . . .** in the Menu Bar. All successfully loaded instruments are added to the Instrument Panel.

Note **If you receive the message "Missing Instrument" when you load a song, it may mean that you are low in memory. See Hints on Memory Management, above.**

If you're not low in memory and the program still can't find some of the instruments it needs to play the song you selected, a dialog box appears with a list of missing instruments (**Not Assigned**). Instant Synthesizer needs you to set a path to the Instrument folder on ISDATA. You can do this in one of two ways. In both cases you must first click Proceed. Then, you can either:

1. Choose **Load Sound** from the Sound Menu. Then open the Instrument folder on ISDATA. When the sounds appear in the window simply click Cancel. This sets the path to the Instrument folder. Now click the newly selected song to highlight it in the Song Panel. Then choose **Remove Song** from the Song Menu, and after the current song disappears from the Song Panel, choose **Load Song** to load that song again. This time Instant Synthesizer will automatically load all the instruments that your song needs and assign them to the proper tracks.

    Or you can load the missing sounds if you:

2. Choose **Load Sound** from the Sound Menu and load those missing sounds, one at a time, to the Instrument Panel from the Instrument folder on ISDATA. Then use **Assign Tracks**, below, to assign the instrument(s) to the proper track(s).

Note **You must have all the songs in a package on the same disk as you save the package itself.**

Loading Songs from Instant Music

When you want to load a song that you've created with *Instant Music* into Instant Synthesizer, follow these steps:

■   Use your original *Instant Music* disk as you would ISDATA. So, with your ISYNTH program disk in drive one, insert your *Instant Music* disk in drive two. (If you only have one drive, you'll have to swap disks.)

■ Select **Load Sound** from the Sound menu and when the Load Sound dialog box appears, click **Disk**, so you can see the Load Sound dialog box that displays the folders on Instant.Music. Double-click on the Instruments folder.

■ Click Cancel.

Now Instant Synthesizer knows where to find the sounds it needs to load with the song you want from the *Instant Music* disk.

■ Select **Load Song** from the Song menu, and when the Load Song dialog box appears, double-click on the Instant.Music Music folder.

■ When you've highlighted the song you want to load, click Open.

ASSIGN TRACKS
[Ú V]

Lists the four current track assignments of the selected song. You can assign an instrument (that you've loaded previously) to a given track by changing the current name of the corresponding instrument. Double-click in the appropriate track box to highlight the current instrument's name (if any) and type in the new name. When you click **Ok**, the new track assignment goes into effect (as long as the instrument you assigned was in the Instrument Panel). You can change as many of the four tracks as you wish. If you enter a name for an instrument, which doesn't exist, the program assigns a default instrument to that track.

Since Instant Synthesizer is not a song editor, the only way you can modify a song or fill is by reassigning tracks to your instruments with **Assign Tracks** and saving the results in a package file.

REMOVE SONG
[Ú I]

Lets you remove the currently selected (highlighted) song from the Song Panel. When you choose this command, Instant Synthesizer responds with a warning and the question

"Is it OK to remove [name of the song]". If you click **Proceed**, the Sequencer stops, if it was playing, and the song is deleted from the Song Panel. The song following the deleted song (on the Song Panel) becomes the current song, unless there isn't one. In that case, the previous song in the Panel becomes the current song. It's possible to remove all the songs in the Panel.

The program does not delete the instruments of the "removed" song.

FILL MENU

AUTO TRIGGER/ MANUAL TRIGGER

[⌘ T]

A fill is a short song, which can substitute for a piece of the currently playing song. You can enter (trigger) your fill manually or automatically with the Auto/Manual toggle command. If the program is set for Manual Trigger, the Fill menu option reads "Auto Trigger". Selecting it changes the fill mode to Automatic Trigger and the option changes to read "Manual Trigger". Selecting "Manual" changes the mode to Manual Trigger Mode and the option again reads "Auto Trigger".

To trigger a fill manually, click the Trig button or press the Return key. The fill plays in the next bar if you set the Trigger Count to 1 and select bar trigger mode (Count Bars) from the **Auto Fill** option. The fill plays after the current song is finished if you chose phrase trigger mode (Count Phrases).

An Automatic Fill can occur at the end of every *n* (**number of**) repetitions of the current song, or after a specific number of measures in the time signature of the song. These parameters are set using a dialog box (See **Auto Fill**, below). If you set no parameters, the Song Machine plays the automatic fill at the next appropriate place after you've selected Automatic. If you execute the command after the fill should start in the current song, it doesn't play until the next song.

Most often, a fill is used to substitute for the last few bars of a repeated phrase. To do this automatically, set the automatic trigger to count a number of bars equal to the total number of bars in the repeated portion, minus the number of bars in the fill. So, for a two bar phrase, and a one bar fill to be triggered every eighth phrase, you would enter 15 (bars) in the Trigger Count box.

You can use Phrase Trigger to construct complex songs from songs and fills, by playing one song a number of times, then inserting the fill.

AUTO FILL   Brings up a dialog box, which lets you set the parameters for the Sequencer fills.

```
┌──────────────────────────────┐
│         Auto Fill            │
│ ◉ Manual Trigger             │
│ ○ Automatic Trigger          │
│ ◉ Count Phrases              │
│ ○ Count Bars                 │
│ Trigger Count  [2]           │
│ ( Ok )          ( Cancel )   │
└──────────────────────────────┘
```
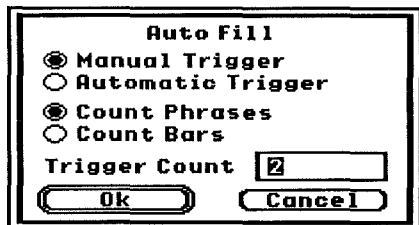
Figure 3.6 Auto Fill Dialog Box

The items on the dialog box and their effects are:

- *Trigger buttons:* Indicate the current setting of the **Manual/Automatic** menu option.

- *Count Phrases:* Fill occurs at end of every *n* passes through the song.

- *Count Bars:* Fill occurs at end of every *n* bars.

- *Trigger Count:* Displays Phrase count if you select Count Phrases, above. It displays Bar count if Count Bars is selected. You can edit this option so you can change the count for each fill. The count for each case is independent of the other, so that editing this parameter only changes the count for the currently enabled trigger mode.

LOAD FILL [⌥ F]   Brings up the Load Fill dialog box. Fills are in the same directory as songs, and you load a fill as you load a song (see **Load Song**, above). The loaded fill appears in the Fill Panel.

3

If you receive the message "Missing Instrument" when you load a fill, it may mean that you are low in memory. See **Hints on Memory Management**, above.

If you're not low in memory and the program still can't find some of the instruments it needs to play the fill (song) you selected, a dialog box appears with a list of missing instruments. Instant Synthesizer needs you to set a path to the Instrument folder on ISDATA. You can do this in one of two ways. In both cases you must first click Proceed. Then, you can either:

1. Choose **Load Sound** from the Sound Menu. Then open the Instrument folder on ISDATA. When the sounds appear in the window simply click Cancel. This sets the path to the Instrument folder. Now click the newly selected fill to highlight it in the Fill Panel. Then choose **Remove Fill** from the Fill Menu, and after the selected fill disappears from the Panel, choose **Load Fill** to load that fill again. This time Instant Synthesizer will automatically load all the instruments that your fill needs and assign them to the proper tracks.

   Or you can load the missing sounds if you:

2. Choose **Load Sound** from the Sound Menu and load those missing sounds, one at a time, to the Instrument Panel from the Instrument folder on ISDATA. Then use **Assign Tracks**, below, to assign the instrument(s) to the proper track(s).

Note **You must have all the songs in a package on the same disk as you save the package itself.**

REMOVE FILL
[⌥ G]

This option is used to delete a fill from memory. It works like the **Remove Song** option (see above), except it removes fills.

3

ASSIGN TRACKS
[⌘ W]

This option is identical to **Assign Tracks** in the Song menu (see above), except that if you remove an assigned instrument from its track, the program assigns the default instrument to that track.

SOUND MENU

NEW SOUND
[⌘ B]

Brings up the New Sound dialog box. The name you enter in the box, becomes the name of a new instrument and it appears in the Instrument Panel when you click **Ok**. If the name already exists, a warning message appears and you need to decide if you really want two different sounds with the same name in the Instruments folder. To exit from the dialog box without making a new sound, click **Cancel**.

When you create a new sound the program automatically initializes the new instrument with the default instrument's parameters and assigns a single sample to it, which is a copy of the default instrument.

Note **Give your new sounds unique and descriptive names, so you can remember and find them easily. Any new sound needs at least one alphabetic character in its name. And remember, the program won't properly Save sounds with names made up of numbers or special characters.**

COPY SOUND
[⌘ C]

Brings up the Copy Sound dialog box and lets you create a copy of the current Solo Instrument. Type in a new name for the sound and click OK. If the name already exists, a dialog box appears asking for confirmation. If you confirm, you end up having two instruments with the same name, which you probably don't want to have.

If you want to rename the Solo Instrument instead of copying it, click the Rename box after you have typed in a new name.

LOAD SOUND
[⌘ J]

Displays the **Load Sound** dialog box so you can load new sounds in the Instrument Panel. Highlight an instrument from the Instruments folder on ISDATA, or load a sound from your own data disk, and click Open. ASIF files from *Instant Music* are loaded with default values for the non-ASIF parameters.

Note **If the program can't find the sounds it needs to play a song or fill you selected, a dialog box appears with a list of missing instruments. This means that Instant Synthesizer wasn't able to load automatically the instruments that play your song. Once during each work session the program needs you to set a path to the Instrument folder on ISDATA, so that for the rest of your session it will automatically load the instruments required by the songs you choose.**

When the missing sounds dialog box appears, note what sounds are missing and from what track they're missing from before you click Proceed. Then, choose **Load Sound** in the Sound Menu to load those missing sounds to the Instrument Panel. Then use **Assign Tracks**, below, to assign your instrument to the proper track.

Note **You must save all the sounds in a package on the same disk as you save the package itself.**

SAVE SOUND
[⌘ O]

This option saves the parameters of the current instrument as EAIF files. The saved parameters include:

* Volume
  Vibrato Depth
  Vibrato Speed
* Vibrato Attack Speed
* Delay Volume
* Delay Time

* Stereo Mode
* Stereo Pan Position
  Delay Pan Position
  Pitch Bend Range
  Envelope
  Keyboard Mappings

ASIF files do not record the parameters marked with an asterisk (*) .

If you receive a "Disk full" message when you try to Save a sound, eject the filled disk and insert a IIGS formatted disk and use the Save Sound As command. After your sound is saved you can copy it to your Instruments folder on your own data disk. See **Creating Data Disks**, above.

SAVE SOUND AS
[⌘ Y]

This command is the same as Save, except it uses a standard file dialog box to set the destination file name (see **Save As** under File Menu, above).

REMOVE SOUND
[⌘ D]

Removes the current Solo Instrument from the Instrument Panel. If the instrument is in use as a Song Machine or Synthesizer channel, that channel receives the default instrument. The sound following it in the Instrument Panel becomes the Solo Instrument, if possible. Otherwise the last sound in the list is selected. If visible, the Sample Graph is updated. The visible Synthesizer Panel is also updated.

PURGE SOUNDS

Removes all instruments not required by the song(s) or fill(s) in memory. The program asks you to confirm your choice before executing this command.

SAMPLE MENU

You can use the Sampler Panel and the options from the Sample menu to sample the instruments that come with Instant Synthesizer. If you have a Future Sound or an MDIdeas sampler board connected to your IIGS, you can also sample sounds you create to produce a limitless variety of exciting sound effects. The Sample menu contains commands for digitizing and editing samples, and the Sampler Panel has a graph to display them.

SAMPLER/
SONG MACHINE
[⌘ X]

The Sampler and Song Machine Panels share the same space on the screen, and are never visible at the same time. This option reads Sampler when the Sampler is off. When

you select Sampler, the Sampler Panel replaces the Song
Machine, the Sampler is enabled, and the Map Panel ap-
pears active in the work area of the Synthesizer if it's not al-
ready visible. The menu option changes to Song Machine.
When Song Machine is selected, the Song Machine Panels
replace the Sampler Panel, and the menu option changes
back to Sampler.

When you select Sampler, the leftmost sample of the Solo
Instrument from the Sample Map appears in the Sampler
Panel by default. If you want to edit a different sample, just
click on it in the Sample Map Work Area and the new
sample will appear in the **Sample Graph**.

Note **All MIDI input is directed to the Solo Instrument.**

The Sampler Panel replaces
all of the Song Machine Pan-
els except the Instrument
Panel, and contains controls
for inputing and editing
samples, and a window for
viewing them.
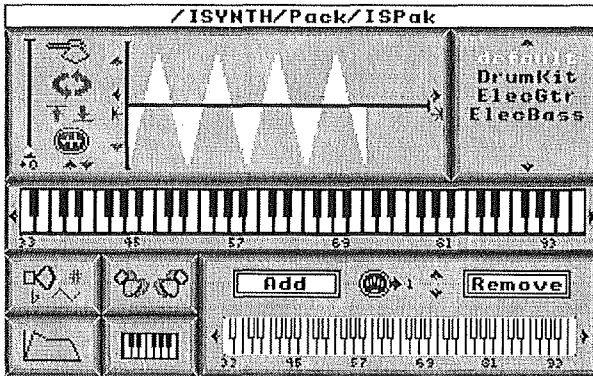
Figure 3.7 Sampler Panel

The controls on the left side of the Sampler Panel are:

◻ Fine Tuning Slider. Use this vertical slider to adjust the
fine tuning of the current sample. Moving the slider
from the bottom to the top of the bar (the maximum
range) changes the current sound 1 MIDI note (one
half-step). For example, if your current sample sounds
a C when the slider is at the bottom of the bar, it will

sound a C# when you move the slider to the top of the bar.

- [ ] Coarse Tuning Arrows. Adjusts the tuning up (#) or down (b). Each click on one of the arrows changes the current sound 1 MIDI note. The counter keeps track of how many clicks you've made, up [+ *n*] or down [- *n*].

- [ ] Chop Button. Selects and cuts a portion of the sample.

- [ ] AutoLoop Button. Erases any existing loop and generates a new loop automatically.

- [ ] Boost Volume Button. Multiplies the sample data by a small factor to increase the volume slightly.

- [ ] Reduce Volume Button. Divides the sample data by a small factor to decrease the volume slightly.

- [ ] Sampler Button. If you have a Future Sound or MDIdeas sampler board you can use this button to prepare the digitizer to record a new sample into the solo instrument.

The sample graph consists of a two-dimensional picture of the sample data together with controls for viewing it. The graph depicts the sample data with sample time in the horizontal axis and sample volume in the vertical axis. There are 6 controls, 4 along the volume axis at the left end of the sample and 2 on the right end of the time axis.

Zoom Arrows

The top and bottom arrows on the volume axis are the zoom arrows, which control the time scale of the sample view. Clicking the up arrow decreases the magnification so you can see more sample data, and clicking the down arrow increases the magnification so you see less sample data.

Scroll Arrows

The left and right arrows above and at either end of the time axis are scroll arrows that you can use to adjust the view portion of the sample graph to the left and right. Simply click on the appropriate arrow to scroll the sample graph horizontally one unit at a time to see the data you want.

Begin/End Arrows

The barred left and right arrows at either end of the time axis let you move the graph to the beginning (left) or end (right) of the sample. If you press the mouse down over one of these arrows, the location of the currently displayed data is shown within a yellow rectangle above the time axis, and a vertical line appears in place of the pointer. Drag that line where you want it, and release the mouse. The graph scrolls to that location.

If you release the mouse outside the graph to the left or right, the graph scrolls to the beginning or end of the sample data. So, simply clicking on either arrow is equivalent to scrolling to the beginning or end of the data. If you release the mouse outside the graph to the top or bottom, the graph does not scroll.

Chop Button

Chopping removes data from a sample so you can, for example, start the sample at the beginning of the waveform. To chop a sample, scroll or drag it to the left until the data you want to cut is to the left of the vertical axis and therefore not visible. Usually, this is easier if you do it at some magnification. When the sample is in position, click the Chop button and the data to the left of what you can see on the Panel is discarded.

AutoLoop Button

The purpose of looping is to find a subsegment of a sample which can be played over and over with as little noticeable glitching from the repeat process as possible. Choose **AutoLoop** if you want the program to try to find a good loop fit.

AutoLoop uses a predefined algorithm when it attempts to create a loop (a sustained repetition of a sound) in the current sample. To create a loop automatically, simply click the Autoloop button. This takes some time and the algorithm, because it's random, does not always provide the best loop.

Manual Looping is available for cases when **AutoLoop** doesn't work well. See **Looper On/Off**, below. **Unloop** removes a loop.

If the sample is looped, the start and end of the loop are marked on the graph (when the loop is visible), in purple.

Volume Buttons

The Boost Volume and Reduce Volume Buttons multiply or divide the sample data by a small factor. Click them to increase or decrease the apparent volume of the sample.

Sampler Button

This button is used when you digitize new samples. Click on it and the **Sample a Sound** box appears (see **Sampler Setup**, below).

SAMPLER SETUP   Instant Synthesizer supports Future Sound and MDIdeas digitizers so you can create new samples from scratch. You can edit the parameters of the new sample and add samples from previously created instruments using the **Mapper** from the MIDI menu.

```
        Sampler Setup
Sample Size:    128
Driver:    ⦿ None
           ○ MDIdeas
           ○ Future Sound

    ▸

Slot:  ○  ○  ⦿  ○  ○  ○  ○
   [    Ok    ]   [ Cancel ]
```
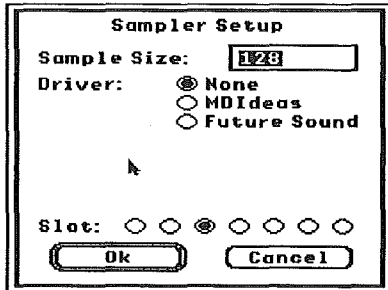
Figure 3.8 Sampler Setup

In **Sampler Setup** you set the card slot of the sampler, adjust its input volume, and set the sample length and sampling rate. Then you enable the sampler, and input the sound. The result is a new sample, which replaces the current one. The new instrument can then be saved or edited like any other sound.

You can either create a new sample for the new instrument, or overwrite an old sound (with confirmation). If you want to digitize a new sample, that sample replaces the currently selected sample of the Solo Instrument. The program asks you to confirm your choice before executing this command.

Digitize Your Sound Ideas
If you want to use your sampler board, follow the instructions that come after the solid bullets. A detailed explanation follows each instruction and we recommend that you read these notes.

To digitize a sample:

- Choose **Sampler Setup**. This brings up a dialog box in which you need to set some sampling parameters.

- **Sample Size**: Enter the number that approximates the size of your sample.

  Acceptable number choices are 1, 2, 4, 8, 16, 32, 64, and 128 [pages] which represent sample sizes of .25 to 32 Kilobytes (1=.25K, 2=.5K, 4=1K, etc). If you accidentally enter an unacceptable number, the program corrects you by issuing a message "Rounding Sample Size up to the next power of 2". Simply click Proceed to continue.

  Smaller sample sizes are easier to manipulate, but they are necessarily short. 64 (16K) is a good choice for any vocal sample. Remember: though you can

create a sample that is 128 pages (32K), you can only access 64K in DOC RAM at any one time. Use 32K samples rarely to avoid exhausting DOC memory.

Note **To see the size of the current sample, select Adjust Size from the Sample menu. The sample size appears in the Menu Bar. Select Set Size from the Sample menu to return to the Sampler.**

DOC RAM

Instant Synthesizer uses a Digital Oscillator Chip (DOC) stored in RAM to play its digitized instuments. Only 64K of digitized sound can fit in DOC RAM at once. If you assign more than 64K of instruments to a song, one (or more) of the instruments will not play. You'll also be warned by the program that you have assigned more instruments than DOC can hold.

Of course you can load more than 64K of sounds into the Instrument Panel. The instruments that don't fit in DOC are stored in main memory and will be loaded into DOC when they're needed for a selected song. An example of this is when you load two songs in the Song Panel which both have about 64K of assigned instruments. However, if you change songs while the sequencer is running, there'll be a moment of silence while the new program loads the instruments into DOC from main memory.

We recommend that you use the same instruments for all songs and fills that you want to play together, and that those instruments have a combined size of less than 64K. If you need more than 64K for your sounds, at least have other instruments playing while a new instrument is loaded into DOC. Don't have a song load in 64K of sounds when it's trying to start playing.

If the size of the sound is too large to swap into DOC RAM, the message "Couldn't Swap a Sound to DOC" appears in the Menu Bar.

Note **Although you can create a sound that is 32K (128 pages), we don't recommend that you use all this space. The recommended maximum size for a sample is 16K (64 pages) in Sampler Setup. See Sampler Setup, above.**

Playing an instrument from the Keyboard Panel loads it into DOC if it's are not already there. This will also cause a moment of silence while it's loaded.

If you want to know the size (in kilobytes) of an instrument, say the ElecBass that came with Instant Synthesizer, click on the instrument and click on the Map Panel selector button. Turn the Sampler on and choose **Adjust/Set Size** from the Sample menu. The Menu Bar displays the size of the currently selected sample in hexidecimal numbers (2000 or 8K).

Note **Here's a brief hexidecimal/binary/page size conversion table.**

Hex	Binary	Page
0100	.25K	1
0200	.50K	2
0400	1K	4
0800	2K	8
1000	4K	16
2000	8K	32
4000	16K	64
8000	32K	128

You'll notice, however, that the ElecBass consists of two samples, and we need to know the size of both samples to know the size of the sound. So click on the second sample to select it and choose **Adjust/Set Size** again. The 0400 that appears in the Menu Bar means that the second sample is equal to 1K. So the the ElecBass is 9K in total.

■ **Driver**: Click the button next to the name of your sampler. Normally, this only needs to be done once a session.

None is the default. If you don't have a sampler board, you can't input a sound.

The **MDIdeas** digitizer fits onto the MDIdeas stereo board and is controlled from the IIGS system files. If you have an MDIdeas card, and you've typed in the size of your sample, see **Slot**, below.

If you have a **Future Sound** board the program needs more information. Click on the button that describes where your sound is going to come from, **Mic**(rophone), or Line In (**Left** or **Right** channel). Set the rate of your sample, between 2000 and 32000 Hz. Higher speeds give better fidelity than lower speeds, but only work well with short bursts of sound. Lower speeds are better for sounds with longer duration. The default is 15,000 Hz., which provides good fidelity over a large range of sounds.

Volume here refers to input volume. 100 is a default setting and total volume range is 1 to 127. This is in any case a soft volume control, so if you want maximum volume, use **Normalize** in the Sample menu (see below).

■ **Slot**: Select the button corresponding to the slot that contains your sampler board. This is usually slot 7. The leftmost radio button refers to the leftmost slot (slot 1).

Before you use your digitizer, check the IIGS Control Panel, **Slots** option, to confirm the location of your digitizer board. Make sure the Sequencer is **not** running.

All settings take effect when you click OK.

3

▣ Choose **Sampler** from the Sample menu if the Sampler Panel isn't on the screen.

▣ Select **New Sound** from the Sound menu, if the sample is to be a new instrument (the normal case), give your new sound a name, and click OK. When the sound appears on the Instrument Panel, select it so that it's the solo instrument. You can also select an instrument already in the Instrument Panel, which provides a sample you can replace. But you can't sample the program's default instrument.

▣ Click the Sampler button. This brings up the **Sample a Sound** box.

▣ Get the new sound source ready—your voice, a pre-recorded sound—whatever you want to sample.

▣ When you're ready to input your sound, click OK and "play" your sound. Sampling starts when the watch icon appears. Select Cancel to abort.

▣ When the sample buffer is full, sampling ends and the box disappears.

▣ The new sample is displayed in the sample graph.

This sample is now part of the Solo Instrument, so any keyboard input will play it back with appropriate transposition.

Note **You may need to input a sample several times to obtain a "good" sound.**

You can now use the rest of the options in the Sample menu and the commands from the Sampler Panel to manipulate your new sound sample.

NORMALIZE [⌘ N]   If the input data of your sample is too high, the sampler will be overdriven, which results in 0 (zero) volume samples. These will be displayed in red. Choose **Normalize** to make these 0 volume samples playable.

Normalize is like the Boost Volume Button, but multiplies by exactly enough to make the maximum value data point equal to the maximum possible sample volume. Use this option *after* you input a sample. The data is redisplayed after being normalized with the same view parameters as before. All data in the sample is normalized, even if it's not all viewed. Successive **Normalize** commands have no effect.

LOOPER ON/OFF [⌃ L] Choose this option when you want to create a manual loop in your sound. When you choose **Looper On**, the current sample's loop appears in the Sample Graph and you're in Loop Mode. The menu option now reads **Looper Off**. When **Looper Off** is selected, the Sample Graph display returns to normal and the menu option changes back to **Looper On**. While you're in Loop Mode, the manual looping commands are in effect.
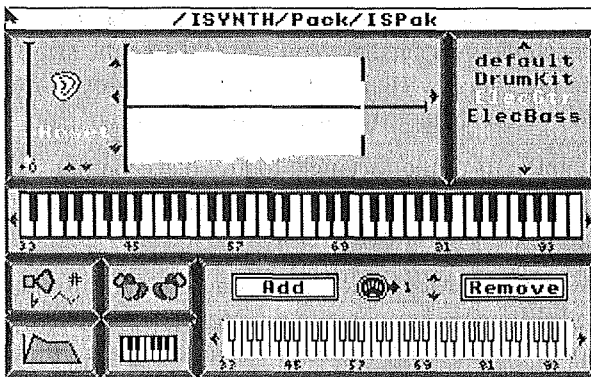
Figure 3.9 Looper

Note **If you try to Loop a 128 page (32K) sample, the program will ignore your loop settings and create a loop of the whole sample rather than the part you may have selected for looping. To loop the part of the sample you selected, you need to reduce the size of the sample to 64 pages, which equals 16K, or 4000 in hex. See Adjust/Set Size, below. After looping, you can increase the size of the sample back to 128 if you want.**

3

The steps to make a manual loop are:

■ Choose **Looper On**. The message "Editing Loop of Current Sound" appears in the Menu Bar, and if the selected instrument's sample doesn't have a loop, the whole sample gets surrounded with a rectangle. This means that the program is ready to make the whole sample into a loop. If you want that to happen, choose **Looper Off**. A dialog box asks if you want to keep your new loop parameters; click **Keep** if you do.

■ If you want to make the loop smaller than the whole sample, click on the left scroll arrow. The message "Decrease Loop Size" appears in the Menu Bar and the rectangle gets smaller. You can increase the size of the rectangle by clicking the right scroll arrow, or make it even smaller by clicking the left arrow again.

■ Drag any part of the rectangle to any place on the sample that you want to include in the loop and release the mouse button.

■ Click on the **Ear** icon and the message "Hear Current Loop Parameters " appears in the Menu Bar followed by some hexidecimal figures. The figures refer to the loop's starting and ending location (relative to the size of the sample) and size of the loop.

■ You can readjust the view and loop size by using both sets of scroll arrows and the barred arrows, which appear when you click the down-arrow to "Adjust Loop Starting Sample". All six arrows let you make different kinds of adjustments. If you have clicked the Ear icon, you can use the Keyboard Panel to hear how your new loop sounds, while you adjust the loop. Just click on any key in the sample range. If you don't like the result, click **Reset** to reset the former loop parameters (if any) and start again.

When you're done, choose **Looper Off**. If you have-n't clicked the Ear icon after adjusting your new loop, a dialog box asks "Do you wish to proceed without hearing your Loop?" Click Proceed if you do, or click Cancel to return to your loop and "listen" to it (click on the Ear icon). This sets the new loop in memory. Now, to keep your new loop parameters, click **Keep** to install the new loop. The sample graph displays the full sample, and the new loop is marked in violet.

UNLOOP [⌥ U]   Unloops the current sample. A dialog box asks you to con-firm your choice. If you do, the loop is removed from the sample in the Sample Graph. You can then reloop with the AutoLoop button or the use **LooperOn/Off** option to create a new loop manually.

REVERSE [⌥ R]   Choose **Reverse** if you want the samples in the current sound to appear in reverse order. All sample data is af-fected, regardless of the viewing parameters. **Reverse** up-dates the sample graph.

An existing loop is *not* removed when you reverse a sam-ple. This may cause unexpected results.

ADJUST SIZE /   When you choose **Adjust Size**, the size of the current sam-
SET SIZE [⌥ Z]   ple appears for a moment in the Menu Bar in hexidecimal figures. 0100 (= .25K) is the smallest possible sample, and 8000 (= 32K) is the largest sample size the program sup-ports. You can use the up- and down-arrows to increase or decrease the size of your sample. When you've completed your adjustment, choose **Set Size** and confirm your choice in the dialog box that appears.

MIDI MENU   If you have a IIGS MIDI interface, you can use a MIDI de-vice with Instant Synthesizer. The program supplies drivers for the Apple serial MIDI interface and the Passport MIDI card.

We assume that you know how to use your MIDI device. If you just got your MIDI, read carefully through the instructions that came with it. MIDI terminology is unique, but it will quickly become familiar to you as you use and enjoy your MIDI.

HINTS FOR USING MIDI WITH INSTANT SYNTHESIZER

The step by step procedure below will help you setup MIDI Enable and MIDI Enable Input with Instant Synthesizer. But this isn't a course in MIDI. Please consult your MIDI keyboard documentation and MIDI books to answer any MIDI-specific questions.

Apple MIDI Interface

Boot Instant Synthesizer. After the program is loaded, follow these steps. Please consult the Apple MIDI Interface documentation if you have any difficulties:

1. Connect your MIDI Interface to either the Printer Port or the Modem Port on the IIGS.

2. Connect the MIDI output cable from the MIDI Interface to the MIDI input port of your MIDI keyboard.

3. Connect the MIDI input cable from the MIDI Interface to the MIDI output port of your MIDI keyboard.

4. Make sure the Printer Port/Modem Port (whichever you connected to the MIDI Interface) is available and properly selected from the Slots window of the Apple IIGS Control Panel. If you need help with this, please consult your Apple IIGS User's Guide about **Slots**.

Note **For a one drive system, you must have your ISynth program disk in your drive before doing the next step. If you don't have this disk in the drive the program will display the error message "Unable to load MIDI dirver." If this happens, insert your ISynth program disk in the drive and repeat step 5 again.**

5. Select **MIDI Setup** from the MIDI menu. If you use the Printer Port for MIDI, then all you need to do is click both the Enable and the Enable Input buttons, and click OK from the MIDI Setup dialog box. (Notice that the default Slot is 1 and the default Driver is Apple MIDI.)

If you use the Modem Port for MIDI, you should click Slot 2 (the second button from the right) in addition to the above selections before clicking **OK** in the MIDI Setup dialog box.

By following the above steps, you enable Instant Synthesizer MIDI for MIDI input and output. Let's do some experiments to verify our procedure.

- From the Instrument Panel, select ElecGtr as the solo instrument.

- Click the Solo button to turn it on.

- Click the Map Panel selector button in the Synthesizer.

- Click the MIDI On/Off button from the Map Panel Work Area to turn it on. Note that the current active channel of ElecGtr is 0 (the number of the MIDI On/Off button). Make sure the receive channel on your MIDI keyboard is 1 so it can communicate with Instant Synthesizer.

- Now, use your mouse to click on the Instant Synthesizer Keyboard Panel to hear your MIDI keyboard sound. You can also play the Sequencer using your MIDI keyboard voice. Try it! Press the Space bar to start the Sequencer. ISynth plays your MIDI keyboard using MIDI output. Press the Space bar now to stop the Sequencer.

■ Let's try some MIDI input. Turn off the volume on your MIDI keyboard. Now, hit a few keys on your MIDI keyboard, and you'll hear the ElecGtr from Instant Synthesizer sound.

The above instructions show you how to setup MIDI input and output for Instant Synthesizer. For an explanation of other features such as Omni, Poly and Transposition, see those sections of this Reference section.

Note **Your keyboard might have MIDI features that Instant Synthesizer does not support such as Program Change, After Touch, Velocity Sensitivity, etc. Read through this Reference section on MIDI for the features that Instant Synthesizer supports.**

Passport MIDI Interface
Boot Instant Synthesizer. After the program is loaded, follow these steps. Please consult the Passport MIDI Interface documentation if you have any difficulties:

1. Install your Passport MIDI Interface card in Slot 6 or 7 of the Apple IIGS. **Passport MIDI Interface works only in Slot 6 and 7.**

Repeat all steps from the instructions for Apple MIDI Interface except step 5. In step 5 you should click the Passport Driver button, and also note that MIDI Enable Input is not available for Passport MIDI Interface. **Make sure that you click on slot 6 or 7 (only) in the MIDI Setup dialog box.**

ENABLE/DISABLE
[⌂ E]

When MIDI is off, the option reads Enable. Selecting Enable allows MIDI input/output, and changes the menu option to Disable. Selecting Disable disables MIDI input/output and changes the menu command to Enable. The current MIDI driver is loaded when MIDI is enabled, and unloaded when MIDI is disabled, so a small amount of extra memory is available when MIDI is disabled.

Note **If you've connected no MIDI interface to your computer, the Enable/Disable command has no effect. You need to set the proper slot number (see Slot, below), for your MIDI interface before Enable can have any effect.**

MIDI SETUP — Brings up a dialog box for setting up the basic MIDI parameters.
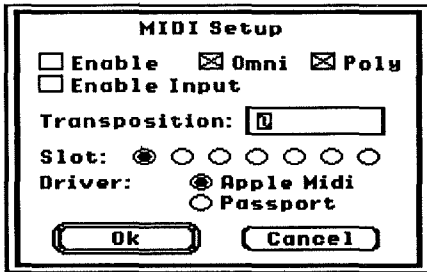
Figure 3.10 MIDI Setup

☐ *Enable* Turns MIDI input/output on or off. This is the same option as **Enable/ Disable** above. Click in the Enable box (an **X** appears when Enable is active) to allow MIDI input.

☐ *Omni On/Off* You can use MIDI as input or output. When Omni is off, the box is empty. Click in the box and an **X** appears to show that Omni is on. If you turn on Omni, Instant Synthesizer listens to all channels.

When Omni is on, the Solo Instrument plays input from all MIDI channels. If you've clicked the Poly box on, this input plays polyphonically; otherwise it plays monophonically.

If Omni is off, Instant Synthesizer receives input on the active input channel from a MIDI device only. This means that the output channel from the MIDI device and the input channel of Instant Synthesizer must be the same.

☐ *Poly On/Off* The setting in this box determines how MIDI assigns Note On messages to voices.

When there is no **X** in the box, you're in monophonic mode. Every Note On message turns off the previous note before sounding the new note, and only one voice is used (this does not affect secondary-effect voices for stereo, delay, and doubling).

When you click in the Poly box an **X** appears and you're in polyphonic mode. Now MIDI assigns a new voice for each Note On, while the previous voice continues to sound until it receives a Note Off call (take your fingers off the MIDI keys).

Note **Do not run the Sequencer when you've selected Poly On.**

☐ *Enable Input* Enables MIDI input. (This option appears only if you've selected Apple Midi in MIDI Setup.) You should sound a note from the MIDI device only when the Sequencer is not playing.

☐ *Transposition* Default is zero. If 0 equals A#, 1 would equal B and -1 would equal A. So, choose a number between 12 and -12. Any transposition settings you make in the other parts of Instant Synthesizer are added to the setting you make here, so this setting is referred to as Master Transposition.

☐ *Slot* This is like the Sampler Slot item. You need to set a MIDI device slot. Here you tell Instant Synthesizer where your MIDI is. Make sure you tell your computer, too. See the Control Panel of your IIGS. MIDI usually goes in slot 1 or 2.

Note **If you're using Passport, make sure the slot assignment in the IIGS is either 6 or 7. An incorrect slot number may disable the program.**

You can enable or disable MIDI output for each of the instruments in the Song Machine. When MIDI is disabled for an instrument, the IIGS plays its instrument. If MIDI is enabled for an instrument, the Song Machine sends MIDI messages out on the channel assigned to the instrument and the IIGS does not sound the instrument.

MAPPER
ON/OFF [⌘ M]

When the mapper is off, the menu option reads **Mapper On**. Choosing **Mapper On** turns on the mapper and changes the menu option to read **Mapper Off**. Selecting **Mapper Off** turns off the mapper and changes the menu option back to **Mapper On**.

When you choose **Mapper On**, the Map Panel appears in the Work Area. The Keyboard Panel represents the sound you're editing. It's divided into as many colored segments as there are samples in the Solo Instrument, so that the Keyboard Panel corresponds to the Sample Map for the Solo Instrument (with the current Keyboard transposition).

The Sample Map always represents the Solo Instrument, and you can use it as a source for adding samples to the Destination Instrument. However, the Map Panel is not restricted to describing the Destination Instrument while the Mapper is on, so you can use it to select samples from other instruments.

There are basically three mapping operations:

☐ Changing the boundary between two samples.

☐ Removing a sample.

☐ Adding a sample.

Adjust a boundary by pointing to the Keyboard at the boundary in question and moving it with the mouse held down. Selecting a boundary makes the sample to its *left* the selected sample. The boundary may be adjusted anywhere within the two samples adjoining the selected boundary.

Moving outside the boundaries of the adjacent samples, or outside the keyboard itself, returns the boundary to its original location. To adjust boundaries beyond these points, first adjust the outer boundaries of the two samples as appropri-

ate. To reorder the samples in an instrument, use a combination of Add and Remove commands on a copy of the instrument.

When the button is released, the current key at which the boundary is displayed becomes the new boundary. Thus, releasing the button outside either of the two samples leaves the boundary where it was. You can't make boundary adjustments that remove a sample. To eliminate a sample, use the Remove button.

To remove a sample, select the Remove button, then click on any key in the sample you want to delete. Any attempt to remove a sample must be confirmed through a dialog box. A sample cannot be removed if it is the only sample in the instrument, and the program warns you if you try to do this.

To add a Sample, select an instrument from the Instrument Panel to bring up its Sample Map. Any instrument, including one you're editing, may be selected. Then select a source sample in the Sample Map (click on it), and click the Add button in the Work Area. Point at the key in the Keyboard Panel which is to be the first note (Top Key) of the new sample. The sample is inserted between the next lower sample (the sample to the left) and the Top Key.

When you choose **Mapper Off**, a dialog box appears and asks if you want to keep your new keyboard map. Click **Keep** if you want to integrate your changes. When you click Keep, the Map Panel remains selected, the Keyboard Panel is cleared of the mapping colors, and the dialog box disappears.

The MIDI controls in the Sample Map let you enable MIDI input/output and to select a MIDI channel that will input to the Solo Instrument. This channel is also used by the Song Machine if this Instrument is used for MIDI output by one of the Song Machine Tracks.

The button in the center is the MIDI On/Off button. It's highlighted when it's on, dark when it's off. The button has an arrow which points to a number. This is the MIDI channel number for the instrument. Use the up-down control to the right of the channel number to step the number up or down. Channel numbers range from 0 to 15. (Some MIDI instruments count these as 1 to 16.)

An ASIF/EAIF file must have at least one sample in it. However, if you want an instrument that is only used for MIDI output, the samples will never be needed. Such a file can be created using the single default instrument.

MAPPING AND MIDI

MIDI note numbers range from 0 to 126. The Keyboard Panel maps five octaves, with three extra keys at the lower end and one extra key at the higher end. The octave transposition arrows at either end of the keyboard allow you to see the full MIDI note range. If you click on the right-arrow, the message "Keyboard Transposition Up Octave" appears and you can see (and map) the keys of the next octave.

Instant Synthesizer lets you specify the transposition of MIDI note numbers. You specify a number as the master Transposition, (which may be negative), in the Transposition box of **MIDI Setup**, and that number is added to all MIDI note numbers before sending Note On/Off commands. The MIDI note numbers appear on both the Keyboard Panel and the Sample Map. Acceptable numbers are from -127 to 127.

For any individual instrument, the Octave Transposition (-12, 0, 12) set on the Synthesizer Panel is added to the MIDI transposition.

Note **Instant Synthesizer ignores octave transposition information from imported SMUS files.**

The Keyboard Panel plays the Solo Instrument. Point at a key and click, and the corresponding note sounds. If MIDI is enabled for that instrument, then the note is played over the instrument's MIDI channel. Pressing the mouse button down generates a Note On, and releasing the mouse generates a Note Off.

Each sample for a given instrument is tuned relative to the initial MIDI note number. And for a single sampled instrument, only one sample is used for all MIDI numbers. Thus, a keyboard will play the same sample at different pitches. Drumkits and percussion sets are not efficiently used this way because most drum sounds aren't interesting over many octaves, and because many tracks would be needed to get all the sounds of a single kit. For other musical instruments, it's usually not possible for one sample to sound good in all octaves. So Instant Synthesizer lets you map different samples to different MIDI ranges, represented as ranges on the Keyboard Panel.

You can add samples to a selected instrument by copying them from other instruments, and then let these samples occupy any contiguous set of MIDI numbers. You can also rearrange the boundaries between samples. See the **Mapper** option above for a description of how to do this.

The pitch that a given sample sounds is determined by the relationship between the sampling rate it was input at and the one it is played at. What this relationship is normally changes with MIDI number. So, if you move a sample to a lower place on the keyboard, you should expect it to sound lower.

When you move a sample, you might also want to change its tuning using the Sampler Panel so that the pitch of the sample remains unaltered. This lets you move a high trumpet sound, for example, to a low place on the keyboard.

In Omni On mode, the Solo Instrument plays input from all MIDI channels. This input is played polyphonically if you click the Poly button, or one note at a time (monophonically), if you don't. If Omni is off, Instant Synthesizer listens to the Mapper MIDI channel and setting.

The setting of the Polyphonic/Monophonic mode determines how MIDI Note On messages are assigned to voices. In Monophonic mode, every Note On message turns the previous note off before sounding the new note, and only one voice is ever used (this does not affect subsidiary effect voices for stereo, delay, and doubling). In Polyphonic mode, a new voice is assigned for each Note On, while the previous voice continues to sound until receiving a Note Off call.

MIDI output may be enabled or disabled for each instrument in the Song Machine. When MIDI is disabled for an instrument, its sample is played by the IIGS. If MIDI is enabled for an instrument, the Song Machine sends MIDI messages out on the channel assigned to the instrument and the IIGS does not sound the instrument. The Solo Instrument always plays MIDI input.

If the Song Machine is using the Solo Instrument, and its track is enabled for MIDI output, Pitch Bend changes are sent when you manipulate pitch bend control.

Doubled and delayed signals are not sent over the MIDI interface. These effects are only used on locally generated sounds.

CONCLUSION

We hope you'll enjoy using Instant Synthesizer. If you have questions about the program, and you can't find the answers in this manual, our Technical Support department can help. If your question is not urgent, please write to us at the following address:

Electronic Arts Technical Support
P.O. Box 7578
San Mateo, CA 94403-7578

Please be sure to include the following information with any correspondence:

☐ The version of Instant Synthesizer you're using

☐ How much random access memory you have installed in your IIGS

☐ Additional system configuration notes (for example, type and make of monitor, video card, printer, etc.)

If you would like to speak to someone directly, call us at (415) 572-2787, Monday through Friday, between 8:30 am and 4:30 pm PST. Again, please be sure to have information about your version of Instant Synthesizer and your computer handy when you call. This information will help us help you more quickly.

INDEX

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