The Akai S950 Sampler

First the bad news: The cherished Akai *S900* sampler is no longer being made. Now the good news: Akai has replaced it with the *S950*. If you are worried that the substantial disk library available for the *S900* is now obsolete, it's not. The *S950* is both upward and downward compatible. This means that it can use disks that were created for both the *S900* and the newest top-of-the-line Akai sampler, the *S1000*.

Why would Akai replace a sampler that has been so successful in the marketplace? Because the *S900* was a "closed-box" system. In other words, you had the internal memory and all the bells and whistles that were included with the sampler, but there was no way to expand. The *S950* now offers that expandability.

Visually and functionally, the *S900* and the *S950* are very similar. The *S950* sports improved analog-to-digital converters and a higher sampling rate than the *S900*. This increased sample rate expands the audio bandwidth to over 19,000 Hz. Another advance: the 2.0 software for the *S900*, previously available only on disk, has been built into the *S950*'s operating system. This means that all the advanced features of the *S900* are included, but without the tedious and time-consuming disk loading.

Let's back up a bit and cover some of the basic features of the *S950*. This eight-voice, 12-bit sampler has a range of six octaves (MIDI note numbers 24-96). Along with a set of stereo outputs, there is a mono output and eight individual audio outs. The rear panel contains MIDI In, MIDI Out, and MIDI Thru, as well as a 13-pin voice output and an *RS-232* computer port.

The front panel has a large, 40-character by two-line LCD with its own contrast dimmer control. There is also a MIDI Receive light that blinks whenever the *S950* is receiving information over the MIDI cable. All the controls for user sampling are grouped together: two inputs (one for line level signals and another for mic' levels), a record or playback footswitch jack, record level controls, and a monitor volume knob. (This lets you hear your source sound at a different volume than the record level.) Having these controls and inputs on the front panel is very handy, especially for a rack-mounted unit.

There are eight function buttons on the front panel that navigate the user through all of the various features of the *S950*. The main modules are Play, Record, Edit Sample, Edit Program, MIDI, Utility, Disk, and Master Tune. Once you enter a module, the page up/down buttons move you through the various features. The left/right cursor buttons let you select different para-

meters that may be contained on the same page. Data values are entered into the *S950* by using the 12-button keypad (the numbers 0-9 along with the yes/+ and no/- buttons) or a large control wheel.

Overall, the structure and commands for creating sounds on the *S950* are just like those on the *S900*. Samples can be created using any sample rate between 7.5 kHz and 48 kHz (an audio bandwidth of 3,000 to 19,200 Hz). Once you've selected a sample to edit, you can copy it, delete it, rename it, change its loudness, change its nominal pitch (which note the original sample is located under), and fine-tune it up or down a half-step in one-cent increments (one hundredth of a half-step). Then you can determine if this sample is going to play one time only, loop in a forward direction, or loop in a forward/backward style. You can also force a sample to play backwards with one easy push of a button.

While in the sample edit mode, you can program a sample's start and end points. An automatic feature lets the computer inside the *S950* determine the sample's start point. Since this feature works perfectly, it should be included on every sampler on the market. Once you have programmed the start and end points, a single command will return the unused samples to memory. Another memory-saving feature allows you to resample a sound at half its original bandwidth. Keep in mind that you don't actually have to *do* any of the resampling. It is resampled *for* you inside the *S950*.

As far as loops are concerned, the *S950* only supports a single sustain loop. The loop's length is determined as a specific number of samples back from the sample's end point. There are controls for coarse and fine adjustment, along with an auto loop command. The auto loop worked well, producing reasonable-sounding loops with minimum hassle. There are controls for crossfade loopings, and even splicing two different samples together.

Perhaps the most intriguing feature on the *S950* is called "time stretch." This function takes a sample and extends or shortens its length (anywhere from 1% to 999%) without altering the sample's pitch. Let's see how this might be a handy feature. Suppose you've got a great crash cymbal sample, but it's too short to get the type of decay you need. Just throw that sample into the time stretch machine, and presto— a longer sample. While this may sound like a great idea, it isn't quite that simple. You will have to experiment with the various time stretch parameters ("D time," mono or poly, and the percent of stretch) before you get the desired result. While it might take

several tries to get this feature under control, it is great for inventing new sounds! Believe it or not, I turned a snare drum sample into the hippest-sounding clavinet I've ever heard. I'm not sure how I did it, and I'm not sure that I could do it again, but it's a stunning sound so I saved it to disk. Experimentation would seem to be the essence of this feature.

Each sample can be assigned to a nominal key, and have a low-key limit and a high-key limit. In fact, you can lay two different samples (called soft and hard samples in the manual) under each MIDI note. Both the hard and soft samples can have their own loudness control, their own filter settings (a low pass filter that removes high frequencies), and their own course- and fine-tuning transposition. Of special note is the transposition range of up or down 50 half-steps (just over four octaves).

On this instrument, samples are assigned to one of 99 different keygroups. A keygroup can have one or several samples assigned to it, and can range from a single note to the entire six-octave range. Keygroups can be assigned their own four-stage ADSR amplitude envelope and another four-stage ADSR filter envelope. Each keygroup can have velocity assigned to four different parameters: the loudness of a sound, the cutoff frequency of the filter, the attack time of the amplitude envelope, and the release time of the amplitude envelope (used only when driving the sampler with an instrument that sends note-off velocity readings, i.e., no drum controllers). Velocity can also be used to control a feature called "warp." No, this won't send you reeling off into hyperspace, but it will act as a type of pitch-shift by starting a sample's attack slightly sharp or flat and then sliding up or down to the final pitch. If all that isn't enough, keygroups can be crossfaded by position, and hard and soft samples assigned to a keygroup can be crossfaded or switched by velocity.

In the MIDI department, the *S950* comes fully equipped. There is a MIDI analyzer that reads incoming MIDI note data and displays the information on the LED. If you plan to use the *S950* for sequencing, each keygroup can be assigned to a separate MIDI channel and still play in a polyphonic mode.

The disk button commands are fairly extensive, laying just about any type of sample and program disk management under your fingers. In addition to loading the entire contents of a disk into the *S950*'s memory, there are options that let you load a single sample from a disk, load a single program (handy if you want to use a favorite pro-

by Norman Weinberg

gram and assign new samples to it), or load a program along with all its samples. You can save the entire memory contents to disk, save a single sample, a single program, or a single program with all its samples. You also have the option of erasing a single sample or program from a disk.

There is one aspect about the *S950* disk operation procedures that should be mentioned. Even though the advertisements say that the sampler can load new programs into memory while playing, you will need to have an expanded internal memory in order to make use of this feature.

Well, since the big news about the *S950* is its expandability over the *S900*, let's see what options are available. The internal memory can be boosted with the addition of the *EXM006* memory card. Each card holds 750 K (the same as the internal memory), and the *S950* can access two expansion cards. With both cards mounted in place, there will be 2.25 megabytes inside the sampler.

The hard drive interface (*IB105*) serves two functions. Along with the ability to interface the hard disk to the *S950*, it doubles as a direct-from-digital sampling input. The *S950* can use Atari or Supra hard disks. The Atari comes in a 20-megabyte size, and the Supra is available in 20-, 30-, and 60-megabyte flavors. I've heard that the Astra hard drives are also compatible, which may be a plus since the Astra drives are rack-mountable.

When using the hard disk, loading time for the full internal memory is reduced from around 40 seconds down to 8 seconds. If loading time is a critical factor for your sampler's applications (i.e., live performance), a hard disk is a real advantage. In addition, up to eight drives can be cascaded together.

The direct digital input is nothing short of fantastic. While I wasn't able to try this, the concept is very hip. If you own a CD

player or a DAT with a digital output, you can connect a cable directly from this output to the input of the *IB105*. The *S950* supports both phono and fiberoptic cables for this purpose. Why is this a good idea? I'm glad you asked.

Several companies are producing compact discs for sampling. These discs contain high-quality recordings of just about any sound you may be looking for. When you use a CD sampling disc without this feature, the digital signal has to pass through one digital-to-analog converter to get out of the CD player, one analog-to-digital converter to get into the sampler, and one last D/A converter going from the sampler to your audio system. Each time the digital information makes its trip through a converter, there is a slight loss of quality. By using the digital output of a CD or DAT, you transfer the sound to the sampler entirely in the digital domain. Instead of three conversions, the sample is only converted to analog when passing through the audio jacks of the sampler.

In reality, when sampling from a CD or DAT into the *S950*, you are still going to lose a little quality. Remember that the *S950* is a 12-bit sampler, while CD's and DAT machines are 16-bit devices. Internally, the *S950* simply ignores the additional bits that are the least significant to the quality of the sample. But while there may be a slight loss when compared to the original source, the quality is still much higher than it would be if the CD or DAT audio outputs were simply plugged into the *S950*'s sampling input jack. When you sample a CD using the special interface, a sample rate of 44.1 kHz is automatically selected for you. With DAT machines, the *S950* can use either a 32 kHz or a 48 kHz sample rate.

The *ME35T* audio-to-MIDI trigger interface is a single-space rack-mounted converter with eight programmable inputs that use 1/4" phone jacks. Each of the inputs can

be programmed to send any MIDI note number over any of the 16 MIDI channels. Each input has its own controls for sensitivity, capture time (delaying the note-on message from 0-20 milliseconds), on time (from 10 ms. to one second in increments of 10 ms.), trigger threshold, recovery time ranging from 0-20 milliseconds (masking to prevent false or double triggers), and any one of eight velocity curves.

Since the *S950* and the *ME35T* were "made for each other," you can edit the parameters of the interface through system-exclusive messages generated by the *S950*. In addition, configurations created for the interface can be saved on *S950* disks! Very cool!

With all these wonderful options, a full-featured *S950* won't come cheap. The *ME35T* trigger-to-MIDI interface lists for $499.95. The *EXM006* expansion memory cards list for $449.95 (remember that the *S950* can hold two of these), and the *IB105* hard disk interface has a list price of $169.95. Let's see now: Add the price of the sampler—$2,499.95—and that comes to over $4,000.00 without actually buying the hard disk. This is a substantial sum of money, but let's look at what you'll have: First, you'll have 2.25 megabytes of internal memory, which is enough for almost 190 seconds of samples at the lowest bandwidth and almost 30 seconds at full bandwidth. You'll also have an eight-channel trigger interface, and up to 26 full memory dumps on-line inside the hard disk (if you've got a 60-meg drive). If you've really got bucks burning a hole in your pocket, remember that you can cascade up to eight 60-meg hard drives to this baby. A little math will tell you that's 480 megabytes of storage! Enough for over 500 floppy disks on-line at once!

Could the *S950*'s expandability be its biggest drawback as well as its biggest feature? Is anyone actually going to load this

gizmo up with all the memory and hard disks that can be supported? After all, it is "only" a 12-bit machine. For the kind of dough mentioned above, a musician might consider spending a couple thousand more and getting a 16-bit, 16-voice, stereo sampler that can support up to eight megabytes of internal memory, an optical disk drive (they are just being released), and a third-party trigger-to-MIDI interface.

Praises

The *S950* sounds very good. In fact, at the highest sampling bandwidth, it sounds super! Since the *S950* is expandable, it can be configured to fit your needs. You can buy the basic machine now and upgrade it with more memory or a hard disk when you get the funds. With the optional trig-ger-to-MIDI interface, it's a drummer's dream. Just tell each sample to fire in its "one shot" style and you're home free. Since the *S950* will read disks that were created on the *S900*, there are literally hundreds of usable disks available from Akai, third-party companies, user groups, and on-line services.

Gripes

The manual for the *S950* isn't going to win any awards. If a manufacturer only gives you 25 pages of help for an instrument with this many features, those pages ought to be good. The manual should clearly explain all the functions and, at some point or another, it should be proof-read by someone who speaks English. Have you ever heard of the "Draum setting load/save assignment"? The manual is full of such typos, as well as totally erroneous information. For instance, other parts of the manual state that "The Disk Activity light in the lower right side of the drive will turn on" (the light is on the left side of the drive), and that you can begin sampling when you "press a footswitch plugged into the rear panel footswitch jack" (the jack is on the front panel). Other features of the *S950* (such as the 13-pin voice output and the MIDI loudness control) aren't even *mentioned* in the manual.

I'm not sure that anyone—even musicians with a lot of electronic instrument experience—could go through this man-ual, and come out feeling as though they know the instrument. If you're a novice with samplers, plan to get some help from your dealer, a user group, or a friend. Keep in mind that the sampler isn't difficult to operate, it's just that the manual is a dog. To be fair, there is a source you can tap for this missing information. If you have trouble, one phone call to the technical assistance line at Akai should help. My questions were answered quickly, correctly, and coherently.

It would be nice if the *S950* supported a release loop, or if you could set loop points independently from the sample stop point. This won't pose a problem for anyone using the sampler as a sound source from drums, but when sequencing, release loops can give a dull and static sample more life.

All in all, the *S950* is a worthy successor to the *S900*. It contains more features and flexibility than the *S900* and sounds better. It also carries a list price that is $500 less than the original *S900*. For those of you who are interested in getting a sampler that has a lot of disks, sounds clean, and is easy to use, the *S950* may be just what the doctor ordered. The *S950*, along with a single hard drive, a single *EXM006* memory expansion, and the *ME35T* interface would make a very hip, cost-effective rig. For more information, contact Akai Professional (International Music Corporation), 1316 East Lancaster, Fort Worth, Texas 76102, (317) 336-5114.