

Roland SP-700 Sample Player

By Allan Metts

Serious sample playback for sound seekers and synthesists.

Like the automobile industry, the music-equipment industry has its Ferraris, Cadillacs, and Chevrolets. The Cadillacs usually have more sonic power, a slicker user interface, or a hotter new technology than their less-expensive counterparts, but don't provide the performance of the Ferrari. At \$2,895, the Roland SP-700 Sample Player is priced like a Cadillac, so I was eager to compare its features with those of other sample players on the market.

KICKING THE TIRES

The SP-700 is a sample player with 24-voice polyphony, 16-part multitimbral operation, and synth-like real-time digital filters and amplifiers (called Time-Variant Filters and Amplifiers, or TVFs and TVAs, in Rolandspeak). The unit has eight analog outputs, each with its own programmable equalizer. It has no digital inputs or outputs except the SCSI port and offers no sample-editing features. All sounds are processed internally at 48 kHz; the unit automatically converts sound data recorded at other rates.

The unit ships with 8 MB of RAM, expandable to 32 MB with standard 4 MB SIMMs. (There are eight SIMM slots, configured in 2-slot banks.) Surprisingly, you cannot install other SIMM sizes. Because it has no internal sample ROM or storage—there is no floppy drive, nor can you install an internal hard drive—the SP-700 isn't much more than a large paperweight without an attached CD-ROM or external hard drive.

The SP-700 loads sounds and programs directly from the Roland S-770/S-750 library and loads Roland S-550, S-330, and W-30 sounds and programs with a Convert Load function. Convert Load also imports Akai S1000 samples, although the manual never

mentions this useful capability. I was able to load S1000 samples from a Prosonus CD-ROM, but the process was slow: A 6 MB file took almost fifteen minutes. Still, the ability to access the large libraries of S1000 sounds greatly increases the SP-700's sonic palette.

The front panel has a large, backlit LCD display; data-entry wheel; volume knob; headphone jack; five "soft" function keys; and enough page, parameter, and cursor buttons to easily perform all editing operations. MIDI and SCSI activity indicators and a power switch round out the front.

Two DB-25 SCSI ports; MIDI In, Out, and Thru; and eight unbalanced, 1/4-inch outputs (configurable as stereo pairs) occupy the back panel. A convenient, removable panel provides access to the memory modules, SCSI terminators, and SCSI-bus power switch.

ENGINE ARCHITECTURE

The basic sonic building blocks are raw samples that you load from SCSI disk or via MIDI Sample Dump Standard. You can combine up to four samples in a Partial (see Fig. 1), which includes the parameters for sample layering, switching, and crossfading. A 4-sample partial reduces polyphony to six notes. Each Partial includes one TVF with resonance, one TVA, and all the basic parameters for creating complex sounds (more in a moment). The filter and amplifier each have a 5-stage envelope generator, and the filter envelope can also be applied to pitch. The SP-700 depicts both envelopes in the display at once, which makes editing easy.

Once you've created the Partials, you combine and map up to 128 of them to independent note ranges in a Patch. Each Patch is assigned to one or more of the 32 Parts in a Performance. Each Part includes one Patch, along with settings for level, pan, and cutoff-frequency offset as well as MIDI-channel and audio-output assignments. Because

you can assign the same Patch to two or more Parts, you can use a Patch in several different ways at the same time without redundantly gobbling memory.

At the top of the hierarchy, a Volume is the entire collection of Samples, Partials, Patches, and Performances. You can allocate two areas in the SP-700's memory in 1 MB increments to hold Volumes A and B. Although this provides two simultaneous sets of data (each containing up to 64 Performances, 128 Patches, 255 Partials, and 512 Samples), only one Volume can be edited and played at a time. This architecture lets you play Performances from one Volume while loading the other if your attached SCSI device supports this feature. To my knowledge, only Ensoniq's EPS/ASR samplers offer a similar function.

UNDER THE HOOD

To try out some of the synth-like functions, I took basic sawtooth-wave samples, created two Parts in a Performance that were slightly detuned, and processed them with the SP-700's filters and amplifiers. The result was a wonderful analog-synth sound that took me back a few years. The filters are quite smooth and can operate in low, high, or bandpass modes. The filter sweeps had none of the "stepping" that seems to characterize other digitally controlled filters. Roland also threw in an Analog Feel parameter that can randomly detune the pitch, slightly or severely, each time a note sounds.

The LFO features are pretty complete, with Delay, Key Follow, and Key Synchronization parameters. (In the latter mode, the LFO always starts at 0° of phase for each note played; this is similar to oscillator hard-sync on some synths.) There are eight LFO waveforms, including the usual sine, triangle, up and down sawtooth, square, and random waves. In addition, Bend Up ramps up sharply to a predetermined sustain level, and Bend Down ramps down to a sustain level. When applied to pitch, the last two waveforms create a pseudo-portamento effect. (The SP-700 has no true portamento.) A Rate Detune parameter subtly alters the LFO rate each time you play a note,



PETER DIGGS

Roland's SP-700 sample player lets you process samples with resonant filters and construct elaborate layering schemes, but it has no sample-editing features.

which is great for string ensembles comprised of several solo voices; each voice has its own slightly different vibrato rate, just like a real string section. Unfortunately, each Partial only has one LFO to share between pitch, filter cutoff, amplitude, and pan modulation.

When the SP-700 runs out of polyphonic voices, it uses dynamic voice-allocation with last-note priority; new notes cut off old ones. Using the Patch Priority feature, however, you can specify one Patch in a Performance that

takes priority; its sustaining notes are not cut off by new notes. Patch Priority is either on or off; Patches can use one voice (monophonic), or all available voices (polyphonic), but you can't allocate three or four voices to a Patch.

You can also assign Patches to one of sixteen groups and use the Cutoff Grouping parameter to ensure that voices in the same group *always* cut each other off. For example, this is useful when you want a closed hi-hat to cut off an open hi-hat.

Unfortunately, the unit offers no provision for sample editing. If you want to tweak a sample's loop point or start time, you must do it in a computer or sampler and reload it into the SP-700.

CRUISE CONTROL

I was sorely disappointed with the real-time control capabilities of the SP-700. You can only use one continuous controller per Patch. For example, you can't have one slider for the sample mix and another for the cutoff frequency, with a footpedal controlling LFO rate. Not only that, you can't map *any* MIDI controller to resonance. With today's proliferation of inexpensive MIDI fader boxes, such an arrangement is hard to accept.

Otherwise, the SP-700's MIDI implementation is quite good. Velocity and keyboard position can affect filter, amplifier, envelope generator, LFO, pitch, pan, and sample-mix parameters. Pitch keyboard-tracking is variable from zero to two semitones, which is useful for building complex sounds, or experimenting with microtuning. Velocity messages can follow several different response curves.

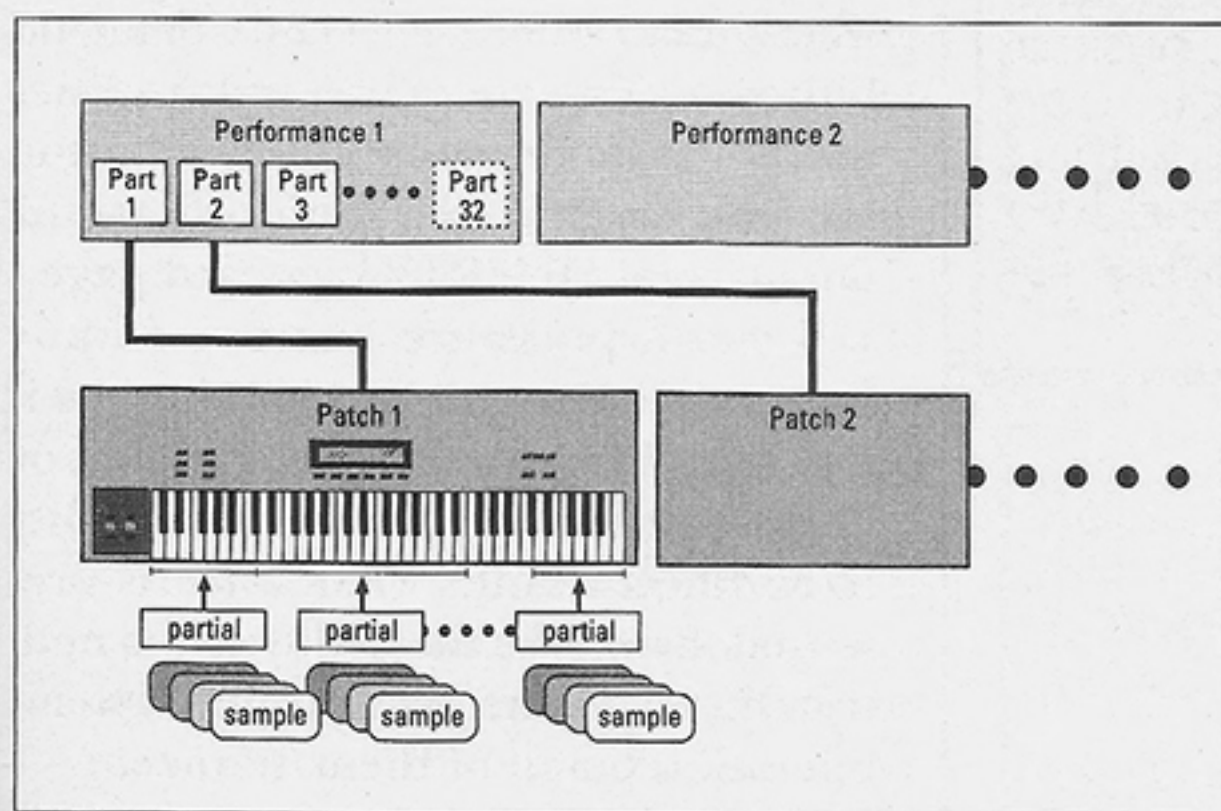


FIG. 1: You can combine up to four Samples in a Partial, which contains the parameters for Sample layering, switching, processing, and crossfading. Partial is combined and mapped to MIDI notes in a Patch. Each Patch is assigned to one or more of the 32 Parts in a Performance. A Volume comprises the entire collection of Samples, Partial, Patches, and Performances. (Courtesy of Roland Corporation.)

The SP-700 responds to Release Velocity and Polyphonic Aftertouch. Program Changes can load a Volume from disk (but not from CD-ROM), switch between Volumes, or change individual Patches within a Performance. This implementation is great, although I wish it could load a Volume from CD-ROM in response to a Program Change. (Given the loading time of many CD-ROM drives, however, that could be a long, slow process.)

TAKING IT FOR A SPIN

The SP-700 has a wonderful user interface. Simply select one of five editing modes and use the soft buttons, movement keys, and data wheel to alter parameters. You can use a MIDI keyboard to audition your sounds during all stages of editing.

Three special keys—Command, Name, and List—light up any time you are in a menu or field within a menu where they can be used. The Command button accesses a set of handy utilities and editing aids, and the Name button lets you easily name sound elements on a virtual QWERTY-keyboard page.

You can press the List button any time you have to pick something, be it disk files, Samples, Partial, Patches, or Performances. I appreciate the ability to audition sounds when a list is presented. I also like the ability to tag multiple items in the list and perform an operation on all of them at once.

There always seems to be more than one way to do something in the SP-700. You can change many parameters in either the Performance, Patch, or Partial modes, and there is often more than one way to reach a particular dis-

play page. Up to ten pages in the SP-700's menu structure can be marked, and a Jump button puts you there quickly and easily.

You can choose to edit Partial or Patches by themselves, or within the context of their parent structure. For example, you can hear the Patch you are editing with the other Patches in a performance. I really like the single/Global toggle in the Partial editing screen; in Global mode, parameter changes affect all Partial in the current Patch. Anyone who has ever tried to tweak a velocity-sensitivity parameter for 128 samples in a drum kit will appreciate this feature.

One real time-saver is the presence of twenty Partial templates only a few keystrokes away. These templates have envelope, filter, and amplifier parameter preprogrammed for several classes of instruments (piano, organ, brass, etc.). Ten of the templates are user-definable.

Mapping samples to MIDI notes in samplers and sample players is often tedious. The SP-700 takes some of the pain out of this process by letting you map samples from either the front panel or a MIDI keyboard.

OPTIONAL STORAGE COMPARTMENTS

The SP-700 supports various SCSI hard drives, tape-backup units, and CD-ROM drives. The manual provides a short list of SCSI devices known to be compatible, but Roland can supply a more complete list. Be careful to check compatibility before you buy a SCSI peripheral.

You can save any sound component to the disk drive. Everything saved to disk includes a Volume ID, which lets you filter directories to find a desired sound quickly. This feature was particularly useful on the included CD-ROM, which contains almost 3,000 samples. The Volume IDs can also save disk space, letting you store sound components in only one disk file.

The selection of disk operations is excellent. In addition to saving and loading, you can rescan for SCSI devices, restart them, park the drive heads, sort and delete data, and back up to a SCSI tape drive. A Quick Load feature lets you specify a list of commonly used sounds and their source drives for easy loading. A Volume can load automatically from any SCSI device on power-up. Disk operations take about eight times longer when

this mode is active, however.

The SP-700 has a convenient Volume backup function that copies all sound parameters in a Volume, excluding sample data, to separate battery-backed RAM that acts like a RAM disk. When you load the data from this RAM disk, the SP-700 automatically searches a CD-ROM or other SCSI device for the appropriate sample data. The sample player can also save its default drive, startup volume, and other global parameters in RAM.

You can store system and Volume parameters on a remote device using MIDI System Exclusive data dumps. If your computer can't handle all the data at once, the SP-700 can split its data into several messages of a smaller size. Unfortunately, the SP-700 does not support the SMDI SCSI sample-transfer protocol (discussed in the June 1993 "Computer Musician" column); as a result, you must transfer samples using the painfully slow MIDI Sample Dump Standard.

LEATHER SEATS

Roland put a host of other goodies into the SP-700. As mentioned earlier, each audio output includes its own narrow-band, quasi-parametric equalizer. Each Patch or Partial is routed through one (or two, if it's a stereo sound) of these EQs before reaching the assigned audio output. The EQ's center-frequency and gain parameters let you boost or cut (± 12 dB) a low frequency (16 to 600 Hz) and a high frequency (750 Hz to 18 kHz) from the front panel or under MIDI control. You can specify different EQ settings for each Performance.

Each Performance includes its own MIDI data filter, so different types of data can be accepted or ignored by the SP-700 on each of the sixteen MIDI channels. Roland also threw in a nifty MIDI data monitor; the monitor is located ahead of the data filters, so it doesn't reflect the filter settings, but you can switch off System Real Time message display to avoid swamping the monitor with MIDI Clock and Active Sensing messages. An equally cool voice display shows the number of polyphonic voices being used on each of the 16 MIDI channels. A Phase Lock feature ensures that all Parts on the same MIDI channel play the same notes simultaneously. This is handy for layered sounds, which can sound a bit

flanged without this feature.

The Listen Delete feature is unique. As you play your sequence on the SP-700, the unit ascertains which Partials currently loaded in memory are not required. It then deletes any unused Partials to conserve memory. You can instruct this feature to ignore any Part or MIDI channel.

The manual is hefty, roughly equivalent in size to a small phone book. It

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has step-by-step examples of most editing processes, many illustrations, and explanations of topics such as SCSI and head parking. It contains all the necessary information in sufficient detail, but its small type, many abbreviations, obvious cutting and pasting, and highly technical style make it difficult to read. In addition, explanations are sometimes vague, and the organization is a bit strange. For example, the separate sections near the end of the manual on Performance Mode, Patch Edit Mode, Partial Edit Mode, Disk Mode, and System Mode should be chapters in the main body. On the positive side,

Product Summary

PRODUCT:

SP-700 Sample Player

PRICE:

\$2,895

MANUFACTURER:

Roland Corporation US
7200 Dominion Circle
Los Angeles, CA 90040-3647
tel. (213) 685-5141
fax (213) 722-0911

EM METERS	RATING PRODUCTS FROM 1 TO 5				
FEATURES	●	●	●	●	●
EASE OF USE	●	●	●	●	●
AUDIO QUALITY	●	●	●	●	●
VALUE	●	●	●	●	●

page cross-references, an index, and a table of contents make information relatively easy to find. There is also a "How-to" table of contents for 71 common operations and topics.

CD SOUND SYSTEM

Given that all the top units offer good sound quality and lots of features, a sample player's success depends on the quality of its sound library. Roland offers three CD-ROMs of ready-to-go samples and programs, with four more on the way. In addition, Roland distributes several third-party libraries for the S-770/SP-700, including Prosonus' "Orchestral Strings," Club 50's "Foundations," Producer Sound Effects Library's "Composer's Collection," and Northstar's "Drumscapes." Q-Up Arts offers its "Sonic Images" set for the SP-700/S-770, and East-West Sound Warehouse is selling its "Bob Clearmountain Drums" and "Dance Industrial Sets." East-West also distributes the Denny Jaeger "Master Violins," AMG "Rhythm of Life Percussion Library," and "Funky Drums from Hell" sets.

Roland includes a "Preview" CD-ROM with the SP-700 that contains 600 MB of sounds from their sample collection, including some of the Northstar, Prosonus, and East-West sounds. There are plenty of drums kits and special effects, along with a good variety of popular, orchestral, and ethnic instruments. Some of my favorite "fun" sounds are the film-ambience pads, such as VS Fantasy and Underworld, but the bread-and-butter sounds are as good or better than anything I have in my fairly extensive sample collection. The SP-700's sounds are of high quality, although I did find a few with rather obvious loop points (especially Huge Stereo 2 and Vector Pad).

Most of the Volumes on CD are too big to load into a standard SP-700 with 8 MB of memory. I got around this by loading sounds as individual Patch files, but I was never able to load certain sounds due to memory constraints. I was bothered that I found no useful acoustic piano or sax Performances that would load into 8 MB, although I could load individual Patches.

0 TO 60

So is the SP-700 deserving of its Cadillac-like price tag? After all, you can spend about the same amount of money on an Ensoniq ASR-10R and get full

sampling capability, effects, and a sequencer; but Ensoniq's instrument holds less RAM than Roland's. A Kurzweil K2000R costs a bit more, but it has an effects processor, more synth power, and can be upgraded to a full sampler. You can buy a 16-voice Peavey DPM SP sample player for under a grand, but it lacks filters, battery-backed parameter RAM, and many other SP-700 features.

Compared to some competing products, the SP-700's resonant filters, graphic display, and Listen Delete features may be worth a higher price. To top it off, the SP-700 provides a user-friendly program-editing interface. And there's no question that Roland's sound quality is excellent; I never noticed background hiss or unpleasant artifacts. Still, the SP-700's price seems steep.

Of course, if you already have a Roland S-770 or S-750 sampler, the SP-700 expands your available voices without having to purchase another sampler, so you don't have to pay for redundant sampling features.

If you want to add a killer resonant filter sweep to a variety of samples and like the Roland library, this could be the sound module you've been waiting for. Just don't forget to bring the SCSI drives.

(Special thanks to Prosonus for loaning the S1000 samples.)

Allan Metts is an Atlanta-based MIDI consultant, musician, and electrical engineer. Allan and his wife can't afford a Ferrari or a Cadillac; they both drive Jeeps.

