SFM DOCUMENTATION UPDATE

July 1984

This document describes the new features in the July, 1984, release of the Signal File Manager for the Sample-to-Disk (tm) system.

New Terminal Support

The SFM now supports the DQ640 terminal as well as the VT640 terminal. All displays should appear the same on both terminals, although the DQ640 has a somewhat higher resolution.

The PRINT command will generate different hardcopy depending upon which terminal is used. On the VT640, the printout will be oriented horizontally as always, and on the DQ640, the printout will be rotated 90 degrees.

New Ways to Activate the Monitor and Patch/Recorder Programs

You may enter the SFM from the Monitor by typing SFM. Once in the SFM, most of the time you will see the new prompts that tell you to type PF2 to activate the Patch/Recorder program and to type BREAK to return to the Monitor. Note that BREAK now has two uses in the SFM. As before, you can press BREAK to interrupt computations of filter or running spectra or the replotting of either signal or spectral files. However, if the system is not computing or plotting, but is waiting for another SFM command, pressing BREAK will return to the Monitor. Be careful not to confuse the two uses.

In addition, there are enhancements to four of the old commands as well as four new ones.

Enhanced PLAY Command

The format of the PLAY command has been modified to allow specificaton of the sampling rate at which a sound file should be played back.

You can still enter PLAY commands as described in A Musician's Guide to the Sample-to-Disk (tm) System. But you can also use the following format if you wish to specify a different sampling rate from that used during recording of the sound.

The new format of the command is now:

```
        ┌──optional──┐
PLAY ,<sampling rate>, <start time> to <stop time>
```

As you know, changing the sampling rate will change the pitch of the sound.

Longer Attacks and Decays for Extracted Files

When you perform an EXTRACT operation on a sound file, you can use SET ATTACK and SET DECAY commands to establish the length of the attacks and decays to be applied to the beginnings and ends of the extracted sound.

In earlier (pre-May 1984) releases of SFM, the ATTACK and DECAY times could be no longer than 0.655 340 seconds (at a 50 kHz sampling rate). In releases after May 1984, ATTACK and DECAY times up to 335.544 300 seconds may be used. That is, they can be as long as desired provided the resultant file will still fit on your Winchester disk.

Longer Keyboard Decays

The SET KEY command has been enhanced so that you can specify keyboard decays up to 30 seconds. The keyboard decay function has also been improved to produce smoother decays.

The DIRECTORY Command

The new command, DIRECTORY, gives you a list of all the sound files in the current catalog, their lengths in seconds, and the captions stored with the sound files. This last feature will help you to discriminate between files with inscrutably similar eight-character file names.

The REVERSE Command

The new command, REVERSE, can be used to take a sound file and create its time-reversed image. Simply type REV(erse) and the file will be automatically reversed and stored in a new .DATA file.

Sound File Mixing

The EDIT command has been enhanced to allow both splicing and mixing of sound files. Upon invoking the EDIT command, you will be asked to select the operation to perform by typing 0 for splicing or 1 for mixing.

If you type 1, the Mixing File menu will appear on the screen. As with the splicing function, you use this menu to build up a list of files to be mixed together. Up to 12 sound files may be mixed at one time.

For each sound to be mixed, you can also specify a volume level adjust value, to precisely balance the sound files in the final mix. The default value is 1000, which will appear when you simply press RETURN, instead of entering a number. This value will add the samples from the sound file at their recorded volumes. To magnify the sound of the file, enter a number larger than 1000. For example,

entering the number 2000 would add the samples from the sound file at twice their recorded volume. To diminish the sound of a file, enter a number smaller than 1000. For example, entering the number 500 would add the samples from the sound file at half their recorded volume. While you set the levels, be aware that you don't want the level of the final mix to exceed 5 volts or you will hear overflow, or noise.

You can also enter negative numbers. In this case, the waveform of the sound file will be phase inverted and the samples will actually be subtracted from the mix. This is primarily used to subtract out or diminish a sound file from a mix that you've already created.

The mixing function can also be used to adjust the volumes of individual sound files by selecting only one file to be mixed and applying the desired level adjust factor.

After you have entered all your file names and specified the volumes, press RETURN instead of entering a file name. Then enter a name for the new mixed file. The files on the list will then be mixed. The output will be saved on the Winchester disk under the specified name and will become the current file.

Sometimes you may wish to mix two files and delay the starting time of one of them. This can be done by first creating a "dead time" file by typing CRE(ate) followed by the number of seconds you want for the delay. Then use the ZERO command to set all the data in the new file at zero. Finally, SAVE the empty file.

Now use the EDIT (splice) command to splice the file you wish to delay onto the end of the empty file. Once this is done, you can use the EDIT (mix) command to mix the file without the delay and the file with the delay together.

MODULATE and OVERLAY

The MODULATE command is used to perform a ring modulation on a sound file by a sine wave.

After you type the command MOD, you enter a modulation frequency value and press RETURN.

This will result in a sound file containing all possible sums and differences between the frequencies in the original file and the modulating frequency. The amplitude of the modulating frequency is a constant full scale factor.

The OVERLAY command is used to run one program from within another program. This is primarily useful for source code users who wish to overlay to their own programs while using the SFM. The format of the command is

OVERLAY <file name>

There are several technical details regarding this command. For further information, please contact New England Digital Corporation.