Apple II
Technical Notes

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Developer Technical Support

Apple IIGS
#19:   Multichannel Output with the
Apple IIGS Note Synthesizer

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This Technical Note discusses multichannel sound with the IIGS Note Synthesizer.

It is possible to play multichannel sound using the IIGS Note Synthesizer Tool Set. The Ensoniq Digital Oscillator Chip (DOC) supports 16 independent output channels. Since only the low three bits of the output channel number are available through the IIGS sound expansion connector, multichannel circuitry may only decode eight output channels (zero through seven). Output channel eight maps onto channel zero, channel nine onto channel one, etc., and this mapping continues through all 16 channels.

The setting of the high nibble of the `DOCMode` byte in a `waveform` of the `waveList` portion of the instrument definition determines the routing of output from a Note Synthesizer instrument to a particular channel (the actual `DOCMode` information is in the low nibble of the `DOCMode` byte). You may assign each separate element in a `waveList` to a different output channel to create multisampled instruments in which some samples

play on the left speaker and others on the right.

Apple standards require stereo expansion cards to map all even output channels to the right and odd channels to the left. To be compatible with cards that decode more than two of the chip's output channels, software should use channel zero for right and channel one for left. This convention ensures that output is always positioned properly in the stereo space with channel zero information going to the right front and channel one information going to the left front.

Further Reference

- *Apple IIGS Toolbox Reference*, Volume 2
- *Apple IIGS Toolbox Reference Update*