

DMS Drummer II Apple II Percussion Synth User's Manual

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Introduction

Congratulations on purchasing DMS Drummer II! It is a wavetable percussion synthesizer for the Apple //e, IIc, and IIc+ computers that is suitable for both sequencing and performance use. (DMS Drummer can also be run on an Apple IIgs, but the advanced sound capabilities of the IIgs permit much more "modern" music synthesis techniques.)

It supports up to 8 voices which can be selected and played (monophonically) from the Apple keyboard or from a serial port, and it can be used to create percussion sequences for playback.

DMS Drummer II, like the A2 DMS synthesizer, doesn't require a monitor for performance use. Just turn on your Apple II and, when the disk drive stops the second time, type Shift-K twice. With the key guide in this manual, you're ready to play live!

Requirements

DMS Drummer II requires an Apple //e, IIc, IIc+, or IIgs computer with 80-column capability, at least one 5.25" floppy disk drive, and a color or monochrome monitor. A patch cable suitable for connecting either the Apple //e cassette output port or the Apple IIc or IIgs headphone jack to an amplifier or mixer is also desirable, but not necessary.

DMS Drummer II supports control by an external sequencer through the slot 2 serial port. An external synthesizer must be able to send **single character commands** corresponding to MIDI "key down" and "key up" commands.

Getting Started

Before using DMS Drummer, you should make a copy of the diskette. Put away the original diskette, and use the copy as a safeguard against damage. You can use any Apple II disk copy utility to make a copy onto a 5.25" DSDD diskette. Don't try to use an HD diskette, because the Apple drive cannot record to it. (It's also worth pointing out that Apple II diskettes cannot be copied by conventional means on any non-Apple II, so don't even try!)

Now that you have a fresh copy of the diskette, put it into a bootable disk drive connected to your Apple and turn on the power. The program will boot to a startup screen, then in about five seconds, it will load the voices into memory and run the synthesizer. After about thirty seconds, when the disk stops, typing Shift-K twice will put DMS Drummer II into "performance mode", ready to play.

You can try it out now by playing some sounds using unshifted keys on the Apple keyboard!

Sequencer Mode

If you have a monitor attached (and you probably should while learning DMS Drummer II), you will see the following help screen when loading is complete:

```

DMS Drummer II Help

Navigate between fields using the arrow keys.

Data input keys (enter all letters in lower case.):

Tempo field: '40.550'
Sequence field: Pattern '0.F', Loop '<', or End '.'
Pattern field: Voice ID (2 letters), Voice# '1.8', Rest (space), or End ']'
Tone field: Key 'A.G' + Octave '0.6', or native sample rate (space)

Command keys (always UPPER case):

L - Load song file           S - Save song file
H - Home (start of sequence) P - Play from sequence cursor
C - Copy current pattern     U - Paste to current pattern
? - Display this help screen F - Flip speaker/cassette output
R - Remove song file        N - Start New song
Q - Quit DMS Drummer       K - Keyboard performance mode

While playing, <SPACE BAR> pauses, any other key returns to edit mode.

<Press any key for edit screen>
```

This **help screen** describes all the fields on the screen and all the commands available in sequencer mode. Pressing any key while the help screen is displayed will switch to the sequencer's **edit screen**:

```

DMS Drummer II

Song: NEW.SONG                               Tempo: 144

Seq: █.....

Pattern 0: |---+---+---|---+---+---|---+---+---|---+---+---|
Tone:      |---+---+---|---+---+---|---+---+---|---+---+---|

VoicePak Voices
1 = Kb   2 = Rs   3 = Cl   4 = Sn   5 = To   6 = Hc   7 = Ho   8 = Lz
Kick Bass Rim Shot hand Clap SNare Tom Hat Closd Hat Open Lazer

Press '?' for help screen.
While playing, <SPACE BAR> pauses, any other key returns to edit mode.
```

The arrow keys are used to move the inverse selection cursor around the screen. Any selected field may be edited by typing one or more acceptable characters followed by RETURN to enter the new value.

The **sequence** field is 256 dots. The first dot encountered while playing marks the end of the sequence. Each character in the sequence can be a hex digit (0..F) specifying one of 16 **patterns**. In addition to pattern specifiers or a dot, the character "<" can be entered in the sequence, which causes the sequence to loop from the beginning.

When the cursor is on a hex digit in the sequence, the corresponding pattern is displayed in the middle of the screen. A pattern is one measure long, divided into 16 sixteenth note "beats".

A down arrow moves from the sequence field to the pattern field, allowing each of the 16 beats of the pattern to be edited. Initially, all beats are rests (blank), but a percussion voice can be entered in any beat. Voices are specified either by their two-letter abbreviation or by their single-digit voice number (1..8). Note that some voices last longer than a sixteenth note, and will sound either to the normal end of the sound or until the next beat containing a voice specification.

It is also possible to specify a pattern shorter than 16 beats by entering a "]" after the last desired beat in the pattern.

The lower line of the pattern display can be used to specify the tone or pitch of the sound specified for that beat. Even though most percussion sounds are atonal, some, like tomtoms, have tonal properties. If the tone field is blank, the voice is played at its native sampling rate. A non-native tone is specified by entering a "key" letter (A..G) followed by an octave number (0..6). Sharps and flats are not currently supported.

Near the bottom of the page, the **available voices** are listed, together with the numbers that correspond to them.

Load some of the demo songs on the disk and explore them to see how this all works together.

Any time the edit screen is displayed, the help screen can be recalled by pressing "?".

Sequencer Command Keys

The lower part of the help screen shows the **sequencer command keys**. Here is a fuller description of their actions:

L = Load song file	Shift-L loads a specified sequence and performance mode tunings from disk. The user-specified name will have ".DM" appended and the file of type \$F5 will be loaded if it exists.
S = Save song file	Shift-S saves a specified sequence and performance mode tunings to disk. The user-specified name will have ".DM" appended and a file of type \$F5 will be saved.
H = Home (start of sequence)	Shift-H positions the cursor at the first measure of the sequence. Frequently used just prior to Play.
P = Play	Shift-P plays the current sequence from the cursor position. To play from the beginning, use Shift-H, Shift-P. While playing, the space bar can be used to pause and resume playing. Pressing any other key returns to the sequencer edit mode.
C – Copy current pattern	Shift-C copies the current pattern into an internal buffer.
V – Paste to current pattern	Shift-V pastes the last copied pattern into the current pattern to allow new patterns to be easily derived from the copied pattern.
? – Display the help screen	? provides easy access to the help screen from the edit screen at any time.
F = Flip speaker/cassette output	Shift-F switches sound output from the Apple speaker to the cassette output or back to the speaker. The Apple IIc and IIc+ have only the speaker port. The IIc has a "headphone" jack that can be used to feed the speaker output into an amplifier or mixer. The Apple IIe has both a speaker and a cassette port, but no headphone jack. The cassette output port is at microphone level for an amplifier or mixer.
R – Remove song file	Shift-R prompts for a music file name to remove from disk.

N – Start New song	Shift-N clears the current sequence and patterns to prepare for creating a new song.
Q = Quit DMS Drummer	Shift-Q exits the synthesizer and offers the option to save an unsaved song file to disk. If you don't want to save it, you can press "X" to quit without saving.
K – Keyboard performance mode	Shift-K switches from Sequencer Mode to Performance Mode.

Performance Mode

Performance mode is a new capability of DMS Drummer II. It allows the percussion synthesizer to be played in real-time from the Apple keyboard or from an external sequencer.

When Performance Mode is entered from Sequencer Mode by pressing Shift-K, the following help screen is displayed:



This Performance Mode help screen shows all the playable keys as well as the few commands available in this mode.

The available percussion voices are displayed along the top row of keys. The "home" row (asdf...) plays the sounds at their native sample rate. This row is not tunable.

The row above the home row (qwerty...), marked "+", plays the sounds raised a musical third in pitch. The number row, marked "++", plays the sounds raised two thirds in pitch. The row below the home row (zxcv...), marked "-", plays the sounds one third lower in pitch. The "++", "+", and "-" rows are all tunable.

Sounds in the three tunable rows can be individually altered in pitch. To alter the pitch of a key in these rows, first play the key, then repeatedly use the up or down arrows to tune the pitch up or down one step. These performance tunings may be altered at any time, and will be remembered throughout the session. If the "song" is saved after returning to Sequencer Mode, the performance tunings will be saved as part of the song. A subsequent load of this song will restore the performance mode tunings.

Serial Port Control

While you are in Keyboard Performance Mode, Shift-X will switch control of DMS Drummer II to the slot 2 serial port. This allows an external sequencer or terminal to control the synthesizer. Characters received on the slot 2 port (in 8-N-1 format at 9600 baud) will be interpreted **just as if they had been typed on the Apple II keyboard**.

DMS Drummer II will remain in serial control mode until a Shift-X character is received on the serial port. **If you switch to serial control mode with nothing connected to the serial port, the only way to regain keyboard control of DMS Drummer II is to reboot the program, so be careful!**

Audio Output

DMS Drummer II audio output defaults to the built-in speaker. The output can be toggled between the speaker and the cassette output by pressing Shift-F while in sequencer mode. The cassette output, which is only available on the Apple //e, is at a "microphone" level, and so must be connected through an appropriate amplifier or mixer.

Needless to say, the quality of the sound is much better if it is reproduced by an external speaker or amplifier, or through headphones. Users of Apple //c and IIgs machines have the advantage of a built-in speaker/headphone jack, but Apple //e and Apple IIc+ owners would do well to add a jack to their machines for external output.

Although the raw output is a pulse-width modulated 22kHz pulse train, the highest usable audio frequency present is about 5kHz. Therefore, if the output is fed into an amplifier, it is appropriate to adjust the tone control or equalizer to reduce high frequency response accordingly. This will make it easier on your amplifier and speakers (and your young listeners) even if you cannot hear the 22kHz "carrier" tone. ;-)

If you have any problems please email 8bwinfo@gmail.com
or visit our website www.8bitweapon.com

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