

## KEYBOARD COMMANDS FOR SEQUENCER, TRACKER & SOUND EDITOR

←	Fast forward play
⌘ 1-4	Track on/off
F1	Play from mark (mark made with F2)
F2	Set play mark
F3	Stop/Continue play
F6	Tracker data on/off
F7/F8	Select octave (individual octaves for each track)
=	Play current line (press again to stop)
Z	Play song from current line
RUN/STOP	Sound Editor (press again to exit)
/	Toggle Sequencer/Tracker & Sound editor edit on same screen
SHIFT L	Load music
⌘ S	Dump music
⌘ +/-	Next/Previous song
?	Set speed calls
⌘ Q	Quantize (0/2) for recording notes
CRSR	Left/Right/Up/Down

## KEYBOARD COMMANDS FOR SEQUENCER AND TRACKER

F5	Toggle Tracker or Sequencer
⌘ *	Set speed channels (place cursor on track)
H	Hunt for next unused sequence and replace it.
S/L	Tab jump left/right
V	View player counters/Full screen sequencer
SHIFT CLR/HOME	To start of song
SHIFT S	Save Music
SHIFT A	Increase cursor jump
⌘ A	Decrease cursor jump
SHIFT C	Copy sequence (whole sequence)
SHIFT V	Paste into sequence (whole sequence)
SHIFT D	Double sequence length
⌘ C	Clone sequence and insert on next track line
⌘ F	Fill sequence with empty lines (From cursor position)
⌘ H	Hunt for next unused sequence - Insert it in the next track line
⌘ I	Insert a track line
⌘ K	Kill sequence/Unused/Make a sequence ready for use
M	Set start mark (grey background is marked area)
SHIFT M	Set end mark
⌘ M	Copy marked area to cursor position
:/[	Set track transpose
;/]	Set sequence number

## KEYBOARD COMMANDS IN SEQUENCER

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F4	Edit/Synth/Record mode (Grey/Blue/Red)
INST/DEL	Delete a line
SHIFT INST/DEL	Insert a line
CLR/HOME	Cycle Sequence Top/Middle/Bottom
SPACE	Delete down (depends on cursor jump)
SHIFT SPACE	Delete up (depends on cursor jump)
SHIFT X	Narrow sequence from cursor position (remove every 2nd line)
⌘ X	Expand sequence from cursor position (place cursor on a odd line)
⌘ RTYU	Set sequencer mark
⌘ 5678	Jump to sequencer mark
,/.	Jump up/down 16 lines
</>	Transpose notes up/down from cursor position.
⌘ RETURN	Start playing music from top of current sequence
SHIFT RETURN	Play and loop music from top of current sequence
RETURN	Play song from current line (same as Z)
N	Turn note to tie/normal
SHIFT N	All marked notes turned to normal
⌘ N	All marked notes turned to tie
G	Gate on (GAT in sequence)
SHIFT G	Gate off ( <del>GAT</del> in sequence)

## TRACKER KEYBOARD COMMANDS

</>	Increase/decrease sequence numbers from cursor position
INST/DEL	Delete a track line
SHIFT INST/DEL	Insert a track line
RETURN	Set loop mark for current channel
SHIFT RETURN	Set stop mark for current channel
SHIFT 1-3	Swap tracks (including all sub songs - music must be off)

N	Name sound/instrument (return to exit)
+/-	Select sound
SHIFT +/-	Select sound with focus on displaying their programs
</>	Select arpeggio number with focus on the arpeggio data.
SHIFT A	Arpeggio program table
SHIFT F	Filter program table
SHIFT I	Initial volume and Filter channels/Filter speed table
SHIFT P	Pulse program table
SHIFT S	Sound setup table
SHIFT T	Tempo program table
SHIFT V	Vibrato program table
SHIFT W	Waveform program table
M	Mark sound
SHIFT M	Copy sound
RETURN	Put current program line into sound setup (Wave/Pulse/Filter/Vibrato)
SHIFT RETURN	Delete program from sound setup (Wave/Pulse/Filter/Vibrato)
,/.	Jump 4 lines up/down
CLR/HOME	Go to current sound's program line (if there is one)
SHIFT CLR/HOME	Go to top of program line table
INST/DEL	Delete a program line (not for sound setup table)
SHIFT INST/DEL	Insert a program line (not for sound setup table)

SOUND EDITOR

05 WAVEFORM	PRG: Waveform program
08 ATTACK/DECAY	: Attack/decay
7D SUSTA/RELEASE	: Sustain/release
20 GATE TIMEOUT	: Gate timeout/hard restart. Let you specify for how long the player shall wait before setting release. No timeout: Values 00,20,40,60,80,A0,C0,E0 01-1F: Normal hard restart / 21-3F: Hard restart 2 41-5F: Hard restart 3 / 61-7F: Hard restart 4
08 VIBRATO	PRG: Vibrato program
02 PULSE	PRG: 01-40: Pulse program / 41-80: Pulse program with infinite sweep
01 FILTER	PRG: 01-40: Filter program / 41-80: Sweep mode 1 81-C0: Sweep infinite mode 2 / C1-FF: Sweep mode 3
1F BAND/RESONANS	: Band/Resonance settings
00 DETUNE HI	: 01-7F: Finetune up / 80-FF: Finetune down
00 DETUNE LO	: 01-FF: Finetuning. Direction depends on Detune HI

Waveform example	
C1 C2 C3	
00:09 00	C2: Hard restart - use this for drums or other crisp sounds
01:21 00	C2: Set sawtooth with gate on
02:FE XX	C2: Delay the next waveform for XX frames
02:20 0C	C2: Set sawtooth with gate off / C3: Add 12 semitones
03:FF XX	C2: Jump to position XX
Possible note values for 3rd column (C3):	
00-5E	Soft notes, added to note + track transpose.
60-7F	Soft notes, subtracted from note + track transpose.
80-DE	Fixed notes, overrides note + track tranpose.
Standard Waveforms	
\$10	: Triangle waveform
\$20	: Sawtooth waveform
\$40	: Pulse waveform (pulse value must be set)
\$80	: Noise waveform
You also have the possibilty to add ring modulation and sync, i.e. adding Gate on Ring modulation to Triangle waveform gives \$15:	
\$02	: Gate off Sync Bit
\$03	: Gate on Sync Bit
\$04	: Gate off Ring Modulation
\$05	: Gate on Ring Modulation
LOAD MENU COMMANDS	
SPACE	Refresh directory (list all files)
SHIFT SPACE	DOS Command
*	Display files A-Z
SHIFT *	Display files Z-A
A-Z	Set display path
CTRL 1-0	Select disk drive 11,12,13,14,15,16,17,8,9 and 10.
CRSR	Select music
RETURN	Load music
SHIFT RETURN	Load track & sequencer data only, while keeping sound data intact
,/.	Jump 8 files up/down
CLR/HOME	Top of directory
SHIFT CLR/HOME	Bottom of directory
RUN/STOP	Exit

## SEQUENCER FX + NOTE COMBINATIONS

### CHANNELS 1-3:

**06 --- [00-1F]** Set sound number 06 and no note  
**10 C-4 [00-1F]** Set sound number 10 and note C-4  
**06 G-4 [00-1F]** Add sound number to waveform and tie note G-4  
**2E C-4 [21-3F]** Set glide value 2E and note C-4  
**2E G-4 [21-3F]** Set glide value 2E and tie note G-4  
**22 --- [21-3F]** Set vibrato program 02  
**40 --- [40-6F]** Set arpeggio 00 and no note  
**44 C-4 [40-6F]** Set arpeggio 04 and note C-4  
**6F G-4 [40-6F]** Set arpeggio 2F and tie note G-4  
**74 --- [70-7F]** Set release 04 (cannot have a note combination here)  
**74 C-4 [70-7F]** Set sustain 40 and note C-4  
**7A G-4 [70-7F]** Set attack A0 and tie note G-4  
**-- C-4 [C#0-A#7]** Notes (played with current sustain value - if set)  
**-- G-4 [C#0-A#7]** Tie notes  
**-- GAT [C-0]** Set gate on for current sound  
**-- GAT [G-0]** Set gate off using current sound release value  
**70 C-4 [70]** Restore current sound original ADSR values with note C-4

### CHANNEL 4:

**06 --- [01-1F]** Set tempo to 06 and no transpose  
**04 C#0 [01-1F][C-0~A#7]** Set tempo to 04 and transpose 1  
**-- D-0** Set transpose 2  
**41 --- [40-60]** Look up tempo program 01  
**44 GAT [40-60]** Look up tempo program 04 and transpose 0.  
**70 --- [70]** Filter control back to main filter channel  
**71 --- [71-7F]** Force filter output  
**21 --- [21-3F]** Force filter program 01  
**63 --- [61-67]** Forced filter band 03

## TEMPO PROGRAM

### C1 C2 C3

**00:84 00** Use speed 4

**00:08 00** This will make a swing tempo

**01:84 00** between speed 8 and speed 4

C1: Program line position & tempo program number

C2: Tempo values (01-7F and 81-FF). Using values greater than 80 indicates a loop.

C3: Program line lookup pointer

*You can also call these tempo programs with \$40-\$6F from track 4 in the sequencer.*

## PULSE AND FILTER PROGRAM

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### Pulse sweep example (continuous sweep):

**C1 C2 C3 C4 C5** C2: Start pulse \$08 / C3: Sweep between \$20 and \$D0  
**01:08 2D 15 41** C4: Sweep speed \$15 / C5: Continuous sweep to line 01

### Filter example (fixed) / Init filter program:

**C1 C2 C3 C4 C5** C2: Cutoff start \$60 / C3: 00 means treat as filter frame  
**01:60 00 18 81** C4: Band \$10/Res \$08 / C5: 1 frame delay, then loop to 01

### Filter example (sweep and stay):

**C1 C2 C3 C4 C5** C2: Cutoff start \$90 / C3: Sweep from \$70 to \$30  
**01:90 73 03 80** C4: Sweep speed \$03 / C5: Stop

### Filter example (continuous sweep):

**C1 C2 C3 C4 C5** C2: Cutoff start \$60 / C3: Sweep between \$20 and \$40  
**01:60 24 01 41** C4: Sweep speed \$01 / C5: Continuous sweep to line 01

### C5 commands:

**00,40,80,C0** Sweep until reaching end value, then the sweep will stop.

No jumping to other pulse program line will occur.

The result of the pulse sweep all depends on the values used in C1 and C2.

**0X-3F** Sweep till end value then cut to the C2 value.

X indicates which program line to cut to when reaching end.

**4X-7F** If X points to the same program line then the sweep will be continuous between the two values in C3.

If X points to a different program line the sweep will first go all the way between the two values in C3, then it will sweep to the new program line value in C3.

**8X-BF** Sweep till end value then cut to the C2 value.

Behaves the same way as 0X-3F but the sweep is reverse.

**CX-FF** Continuous sweep between the 2 values in column 3.

Behaves the same way as 4X-7F but the sweep is reverse.

## VIBRATO PROGRAM

### Vibrato example (Crazy Comet):

C1 C2 C3 C4

00:08 00 00 C2: Wait 8 frames

01:FF 10 BE C2: Infinite loop / C3: Delay 10 / C4: Vibrato width BE

### Vibrato example (Detuning):

C1 C2 C3 C4

01:FE DL DH C2: Detune/hold / C3: Detune L0 / C4: Detune HI

### Vibrato example (Detuning followed by vibrato):

C1 C2 C3 C4

01:00 DL DH C2: Detune/cont / C3: Detune L0 / C4: Detune HI

02:FF 03 32 C2: Infinite loop / C3: Vibrato Width 03 / C4: Vibrato Speed 32

DL: Low value of frequency detuning (Depends on DH)

DH: High value of frequency detuning (00-7F : finetune upwards)

(FF-80 : finetune downwards)

*Most likely you will only feel for changing the DL value and leave DH to zero.*

*You can call a vibrato program in the sequencer with \$21-\$3F.*

## ARPEGGIO

*NOTE! ADD \$80 TO INSTRUMENT WAVEFORM IN THE WAVETABLE, IE. SAW (\$21) BECOMES \$A1.*

*ALWAYS START WITH NO TRANPOSE IN TABLE, OR ELSE IT WILL PLAY 2-3-1-2-3-1-2-3...*

### Minor chord example:

C1 C2 C3 C4

00:00 05 43 C3: Jump to position 05 / C4: Speed 4 and Instrument 03

..

05:00 00 00 CHORD: No transpose

06:07 00 00 CHORD: Transpose 7 semitones up from root

07:83 00 00 CHORD: Transpose 3 semitones up from root and loop back (+\$80)

Valid speed values (C4) are \$00, \$40, \$80, \$C0

### Usage in sequencer:

00 40 C-5 Use chord at jumptable position 00 (jumps to 05) using C-5 as root note

01 -- ---

02 41 F-3 Use chord at jumptable position 01 (jumps to XX) using F-3 as root note

## DUMPING AND ASSEMBLING A TUNE (using Action Replay)

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1. Press **C+S** in SDI to dump the tune.
2. Load "**SDI TASS /9000**" and start with **SYS4096\*9**.
3. Press **← and then L** to load either
  - "**S.SDI21-N50**" (the singlespeed player routine) or
  - "**S.SDI21-SPD50**" (the multispeed player routine).
4. Once loaded, press **F8** to go the bottom of the player code (just below the **rts** opcode).
5. Press **← and then E** to load and append the dumped tune to the player routine. Remember to add a SPACE at the beginning!
6. Adjust flags as necessary at the beginning of the file.
7. If the tune needs a different start address than \$1000, which is the default, go to the section "**;-----START OF DRIVER/DATA-**" (around line 408) and change "**\*= \$1000**" to the new start address.
9. Press **← and then 3** to assemble, and **S** to preview the tune.
10. If all is OK, press **← and then 3** once again, but do not preview this time. Take note of the end address (ex. \$1e15).
11. Press SPACE, and go to BASIC by pressing **← and then 1**.
12. Enter the monitor by typing **MON**
13. Save the entire thing as a PRG file by typing:  
  
**s"final music",8,1000,1e16**  
  
- where 1000 is the start address, and 1e16 is the end address PLUS ONE BYTE!
14. You can rip the SID in SIDedit or something... Happy tracking! :)

FIXED NOTE TABLE

OCTAVE 0	OCTAVE 1	OCTAVE 2	OCTAVE 3	OCTAVE 4	OCTAVE 5	OCTAVE 6	OCTAVE 7
## : RES	## : RES	## : RES	## : RES	## : RES	## : RES	## : RES	## : RES
80 : C-0	8C : C-1	98 : C-2	A4 : C-3	B0 : C-4	BC : C-5	C8 : C-6	D4 : C-7
81 : C#0	8D : C#1	99 : C#2	A5 : C#3	B1 : C#4	BD : C#5	C9 : C#6	D5 : C#7
82 : D-0	8E : D-1	9A : D-2	A6 : D-3	B2 : D-4	BE : D-5	CA : D-6	D6 : D-7
83 : D#0	8F : D#1	9B : D#2	A7 : D#3	B3 : D#4	BF : D#5	CB : D#6	D7 : D#7
84 : E-0	90 : E-1	9C : E-2	A8 : E-3	B4 : E-4	C0 : E-5	CC : E-6	D8 : E-7
85 : F-0	91 : F-1	9D : F-2	A9 : F-3	B5 : F-4	C1 : F-5	CD : F-6	D9 : F-7
86 : F#0	92 : F#1	9E : F#2	AA : F#3	B6 : F#4	C2 : F#5	CE : F#6	DA : F#7
87 : G-0	93 : G-1	9F : G-2	AB : G-3	B7 : G-4	C3 : G-5	CF : G-6	DB : G-7
88 : G#0	94 : G#1	A0 : G#2	AC : G#3	B8 : G#4	C4 : G#5	D0 : G#6	DC : G#7
89 : A-0	95 : A-1	A1 : A-2	AD : A-3	B9 : A-4	C5 : A-5	D1 : A-6	DD : A-7
8A : A#0	96 : A#1	A2 : A#2	AE : A#3	BA : A#4	C6 : A#5	D2 : A#6	DE : A#7
8B : B-0	97 : B-1	A3 : B-2	AF : B-3	BB : B-4	C7 : B-5	D3 : B-6	DF : B-7

NOTE TABLE UP with C-0 as base note

OCTAVE 0	OCTAVE 1	OCTAVE 2	OCTAVE 3	OCTAVE 4	OCTAVE 5	OCTAVE 6	OCTAVE 7
## : RES	## : RES	## : RES	## : RES	## : RES	## : RES	## : RES	## : RES
00 : C-0	0C : C-1	18 : C-2	24 : C-3	30 : C-4	3C : C-5	48 : C-6	54 : C-7
01 : C#0	0D : C#1	19 : C#2	25 : C#3	31 : C#4	3D : C#5	49 : C#6	55 : C#7
02 : D-0	0E : D-1	1A : D-2	26 : D-3	32 : D-4	3E : D-5	4A : D-6	56 : D-7
03 : D#0	0F : D#1	1B : D#2	27 : D#3	33 : D#4	3F : D#5	4B : D#6	57 : D#7
04 : E-0	10 : E-1	1C : E-2	28 : E-3	34 : E-4	40 : E-5	4C : E-6	58 : E-7
05 : F-0	11 : F-1	1D : F-2	29 : F-3	35 : F-4	41 : F-5	4D : F-6	59 : F-7
06 : F#0	12 : F#1	1E : F#2	2A : F#3	36 : F#4	42 : F#5	4E : F#6	5A : F#7
07 : G-0	13 : G-1	1F : G-2	2B : G-3	37 : G-4	43 : G-5	4F : G-6	5B : G-7
08 : G#0	14 : G#1	20 : G#2	2C : G#3	38 : G#4	44 : G#5	50 : G#6	5C : G#7
09 : A-0	15 : A-1	21 : A-2	2D : A-3	39 : A-4	45 : A-5	51 : A-6	5D : A-7
0A : A#0	16 : A#1	22 : A#2	2E : A#3	3A : A#4	46 : A#5	52 : A#6	5E : A#7
0B : B-0	17 : B-1	23 : B-2	2F : B-3	3B : B-4	47 : B-5	53 : B-6	5F : B-7

NOTE TABLE DOWN with C-3 as base note

OCTAVE 0	OCTAVE 1	OCTAVE 2
## : RES	## : RES	## : RES
	68 : C-1	74 : C-2
	69 : C#1	75 : C#2
	6A : D-1	76 : D-2
	6B : D#1	77 : D#2
60 : E-0	6C : E-1	78 : E-2
61 : F-0	6D : F-1	79 : F-2
62 : F#0	6E : F#1	7A : F#2
63 : G-0	6F : G-1	7B : G-2
64 : G#0	70 : G#1	7C : G#2
65 : A-0	71 : A-1	7D : A-2
66 : A#0	72 : A#1	7E : A#2
67 : B-0	73 : B-1	7F : B-2