

Charts and Tables for  
***SID-WIZARD***

**VERSION 1.6**

**Traducción al español por**

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# TABLA DE FORMA DE ONDAS-ARPEGGIO Y DESAFINAR

## COLUMNA WF

- \$00..\$0F** Repetir el parámetro anterior por 1..16 cuadros.
- \$10..\$FD** Valor simple de registro de forma de onda.
- \$FE** Saltar a la posición de la tabla especificada en la 2da columna. >=\$40 salta a sí mismo.
- \$FF** Final de tabla, termina el programa. No se escribe, aparece como END al final de la tabla.

## TABLA DE ONDAS / PRIMER DÍGITO

El primer dígito de este número establece la forma de onda. Los valores de ondas son:

- \$1 TRIÁNGULO**
- \$2 DIENTE DE SIERRA**
- \$4 PULSO (ONDA CUADRADA)**  
(Para que la onda de pulso se pueda escuchar hay que introducir un valor en la tabla de PULSO.)
- \$8 RUIDO**

~~BDUDERPETOQDUIRUPDVGHRQGDVHVXKPDQORV  
YDORUHVGHKQDDRWUDBRUHMHPFORSDUDI  
ERPELODUGLHQWVGHVLAUUDSKOMRHOYDORU  
VHUEDIYDROQDI GHUKLGRQRVHI  
SXHGHERPELOQDUERQWUDM~~

~~00\$6/ 6(\*81'2 'E72~~

~~(OVHXQR GtLWRIVWDEOHFHGLVRSR/RE  
GHODIRUPDGHRQD~~

- \$1 ABRE COMPUERTA (GATE ON)**  
Tiene que estar abierta para que se escuche la onda ~~roderelease~~
- \$2 SYNC - efecto sonoro de onda de un canal con el precedente**
- \$4 RING MODULATION**  
Modulación de un canal con el precedente que se explica en la guía general.

**\$8** Reinicia y traba el oscilador en zero hasta que este valor se borre.

**Estos valores pueden ser combinados para obtener la acción deseada. Por ejemplo si desea escribir el arpeggio y usar ring modulation (al o que se utiliza a intervalos) usaros**

## COLUMNA ARP

- \$00** Mantiene la nota original.
- \$01..\$5F** Cantidad de semitonos a subir la nota original.
- \$7F** Salta al acorde fijado por el efecto en la secuencia. Dependiendo del acorde, la ejecución del resto de la tabla de ondas puede continuar después del mismo. Con este comando podés sobre escribir la velocidad del acorde por defecto (Los valores pueden ser \$00..\$0F). Para hacer esto debes dejar la velocidad por defecto de acorde en \$00.

**\$80** No procesar (útil cuando no querés modificar altura de tono o acorde, sólo la forma de onda)

**\$81..\$DF** Definir tono absoluto (ver tabla al final del manual)

**\$FF..\$EO** Cantidad de semitonos a disminuir la nota original.

~~2/801\$DT ('(6\$),1\$5~~

~~\$00..\$FE (VWDEOHEFHUYDORUGHGHVDMQDELYQ  
MMD~~

~~\$FF TRSURFHVDMVHKWCOLDFHOYDORU  
DQWHDTRU~~

# TABLAS DE ANCHO DE PULSO Y FILTRO

## TABLA DE ANCHO DE PULSO

**\$8x..\$Fx xx** Establece el primer y segundo dígito de la tabla de ancho de pulso. El valor \$000 o \$FFF produce una salida constante (silencio), el valor \$800 produce una onda cuadrada. El valor del primer dígito no afecta el ancho del pulso pero tiene que ser \$8..\$F.

**\$00..\$7F xx** Suma o resta el valor xx (0...\$7F / \$80...\$ff) al ancho de pulso 0-127 (\$00-7F) veces, esto "anima" el ancho de pulso. Usa la tecla '=' para convertir un valor positivo en negativo, o mira la tabla al final de esta guía.

**\$FE** Salta a la posición de la tabla establecida en la segunda columna.

**\$FF** Fin de tabla y ejecución. Este valor no se puede ingresar, aparece como END.

## TABLA DE FILTRO

**\$8r..\$Fr xx** El primer dígito establece el tipo de filtro, los valores posibles son: \$8 => filtro desactivado \$9 => pasa-bajos \$B => pasa-bajos + pasa-banda, \$C => pasa-altos, \$D => pasa-bajos + pasa-altos, \$E => pasa-banda + pasa-altos, \$F => todos juntos.

El segundo dígito establece la resonancia, puede ser cualquier valor de \$0 a \$F, \$F es la mayor resonancia. Si para el tipo de filtro se usa \$F (todos juntos) entonces la resonancia no puede ser \$F (ya que el valor \$FF se reserva para fin de tabla).

Los dígitos 3 y 4 (xx) establecen la frecuencia de corte. Los valores válidos van de \$00 a \$FF. Los rangos aproximados van de 30Hz a 10KHz.

**\$00..\$7F xx** Suma / resta el valor xx (0...\$7F / \$80...\$ff) a la frecuencia de corte durante 0-127 (\$00-7F) veces, esto genera un barrido de filtro. Usa la tecla '=' para invertir un valor positivo o mira la tabla al final de esta guía.

**\$FE** Salta a la posición de la tabla establecida en la segunda columna.

**\$FF** Fin de tabla y ejecución. Este valor no se puede ingresar, aparece como END.

# PATTERN EDITOR

## NOTE-COLUMN EFFECTS

<b>Note</b>	<b>2 3 5 6 7 9 0</b> Q W E R T Y U I O P (Upper octave)
	<b>S D G H J L</b> Z X C V B N M , . (Lower octave)
<b>Note OFF</b>	RETURN
<b>Ring Modulation ON</b>	SHIFT + R
<b>Ring Modulation OFF</b>	C= + R (CTRL + R)
<b>Auto-portamento</b>	SHIFT + P
<b>Sync ON</b>	SHIFT + S
<b>Sync OFF</b>	C= + S (CTRL + S)

## INSTRUMENT-COLUMN EFFECTS

<b>\$01..\$3E</b>	Select an <b>instrument</b> for the current note, which stays selected until another instrument is selected with this command. This also resets the tables which restart was switched off with C=+P (CTRL+P) or C=+F (CTRL+F).
<b>\$3F</b>	<b>Tied note</b> (true legato, the instrument doesn't restart just note-pitch changes)
<b>\$40..\$4F</b>	<b>Waveform</b> (reg.4) nibble adjusting - any subsequent WF-table waveform change overrides it.
<b>\$50..\$5F</b>	<b>Sustain</b> nibble adjusting of ADSR (Small-FX)
<b>\$60..\$6F</b>	<b>Release</b> (reg.6) nibble adjusting of ADSR (Small-FX)
<b>\$70..\$7F</b>	Select <b>Chord</b> (overriding the default) for the instrument. (No need to create an instrument for every chord. Instead, create an instrument, call chord-table with \$7F from ARP-table, then select the chord with this pattern-FX.)

## EFFECT-COLUMN SMALL EFFECTS

The Small effects' 1st nibble is their type of operation, the 2nd nibble is the corresponding effect-value / amount. Unless you are using the 'extra' player version, only one Small-FX ADSR setting is allowed per note.

<b>\$20..\$2F</b>	<b>Attack</b> nibble adjusting of ADSR (Small-FX)
<b>\$30..\$3F</b>	<b>Decay</b> nibble adjusting of ADSR (Small-FX)
<b>\$40..\$4F</b>	<b>Waveform</b> (reg.4) nibble adjusting - any subsequent WF-table waveform change overrides it.
<b>\$50..\$5F</b>	<b>Sustain</b> nibble adjusting of ADSR (Small-FX)
<b>\$60..\$6F</b>	<b>Release</b> (SID reg.6) nibble adjusting of ADSR (Small-FX)
<b>\$70..\$7F</b>	Select <b>Chord</b> (overriding the default) for the instrument. (No need to create an instrument for every chord. Instead, create an instrument, call a chord with \$7f from ARP-table, then select chord.)
<b>\$80..\$8F</b>	<b>Vibrato Amplitude</b> adjustment - The frequency stays intact.
<b>\$90..\$9F</b>	<b>Vibrato Frequency</b> adjustment - Amplitude stays intact.
<b>\$A0..\$AF</b>	Adjust <b>Main volume</b> (low nibble of \$d418)
<b>\$B0..\$BF</b>	<b>Filter Band</b> (LOW/MID/HI/3OFF) (Filter band can be overwritten with filter-table execution)
<b>\$C0..\$CF</b>	<b>Chord-speed</b> adjustment (arpeggio-speed in case of explicit arpeggio)
<b>\$D0..\$DF</b>	<b>Detune</b> current note with given amount
<b>\$E0..\$EF</b>	Enable/disable <b>Test-bit/Ring-bit/Sync-bit/Gate-bit</b> (Waveform-table can override)
<b>\$F0..\$FF</b>	<b>Filter Resonance</b> (strength) nibble setting (Subsequent filter-table command can override it.)

## PATTERN EDITOR (CONTINUED)

### EFFECT-COLUMN BIG EFFECTS

The Big effects has their effect-type in effect-column and their 1 byte (\$0..\$FF or -\$7f..+\$80) value is in the last column of a pattern. (\$4...\$7 effects are identical to Small effect-types of the same range to aid human memorization.)

\$01	<b>Pitch Slide UP</b> (same FX-number as Goattracker's)
\$02	<b>Pitch Slide DOWN</b> (same FX-number as Goattracker's)
\$03	<b>Tone-portamento</b> (with given speed) (same FX-number as Goattracker's)
\$04	<b>Waveform-Control</b> (\$d404, etc.) register setting (or above \$f0: goes to WF-ARP table-position)
\$05	<b>ATTACK/DECAY</b> (SID-register 5) byte adjustment
\$06	<b>SUSTAIN/RELEASE</b> (SID-register 6) byte adjustment
\$07	Select <b>Chord</b> (overriding the default) for the instrument.
\$08	<b>Vibrato amplitude and frequency</b> adjustment (overrides instrument's default vibrato)
\$09	Select <b>vibrato-type</b> (possible values: \$00, \$10, \$20, \$30)
\$0A	Adjust <b>Pulse width program table-index</b> for current instrument (go to table-position)
\$0B	Branch to <b>Filter-program table-index</b> for the current instrument
\$0C	<b>Chord-speed</b> adjustment (arpeggio-speed in case of explicit arpeggio)
\$0D	<b>Detune</b> current note with given amount
\$0E	<b>Simple pulse width</b> setting for pulse-waveform (instr.PW-table changes can override it)
\$0F	<b>Filter-cutoff frequency</b> hi-byte shift (added to filter frequency). Now notes don't reset it!

\$10	Set <b>Main</b> (sub tune's basic) <b>single-tempo</b>
\$11	Set <b>Main</b> (sub tune's) <b>funktempo</b> . 1st (even rows) and 2nd (odd rows) tempo, in left/right nibbles.
\$12	Set <b>Main tempo-program</b> for whole sub tune (any speeds can be given for each rows)
\$13	Set <b>track's</b> individual <b>single-tempo</b>
\$14	Set the <b>track's funktempo</b> (even and odd rows' in left/right nibbles)
\$15	Set the <b>track's</b> individual <b>tempo-program</b>
\$16	Select <b>vibrato-type</b> (possible values: \$00, \$10, \$20, \$30)
\$1C	Shift <b>cutoff hi-byte</b> (permanent)
\$1D	<b>Delay track</b> by \$00..\$ff (20ms) frames
\$1E	<b>Delay</b> only the current <b>note</b> by \$00..\$ff frames.
\$1F	Set value of filterswitch / resonance register of SID (including bit for external source's filter)

### TEMPO -> BPM FORMULA

#### PAL MACHINE

$BPM = (17734475 * 60) / (312 * 63 * 18 * \text{song tempo} * \text{lines per beat})$

$BPM \approx 3007.4744 / (\text{song tempo} * \text{lines per beat})$

#### NTSC MACHINE

$BPM = (14318180 * 60) / (263 * 65 * 14 * \text{song tempo} * \text{lines per beat})$

$BPM \approx 3589.5659 / (\text{song tempo} * \text{lines per beat})$

(See also the tempo tables at the end)

## GENERAL PURPOSE AND GLOBALLY USABLE KEYS

Keys on C64	US int. Keys in VICE emulator	Category	Functions of the pressed keys
F5	F5	Navigation	Go to <b>Pattern-editor</b> window.
Shift+F5	F6	Navigation	Go to <b>Orderlist</b> .
F7	F7	Navigation	Go to <b>Instrument-editor</b> panel.
C= + F5	CTRL+F5 or F6	Navigation	Go to <b>Chord-table</b> .
C= + F7	CTRL+F7 or F8	Navigation	Go to <b>Tempoprogram-table</b> .
Shift+F7	F8	Navigation	Go to <b>Main Menu</b> .
CURSOR-down/right and Shift	Cursor up/down/left/right	Navigation	<b>Move cursor</b> step-by-step up/down/left/right where possible.
CONTROL or Shift+CONTROL	TAB or Shift+TAB	Navigation	<b>Cycle through</b> tracks or instrument-tables.
/ or Shift+/, UP-arrow* or RESTORE	/ or Shift+ / , Page-Down*/Page-Up	Navigation	<b>Move cursor</b> in 4 or 8 steps up/down /left/right depending on window (pattern/orderlist/etc.)
HOME	Home	Navigation	<b>Move cursor</b> to start-position on screen, then absolute start-position in table/pattern.
RETURN	Enter	Navigation	<b>Car return</b> to beginning of row, or <b>go to</b> pattern(s), instrument or chord under cursor.
F1 or C= + F1	F1 or CTRL+F1	Playback	<b>Play the tune</b> from start / follow-play tune from start.
Shift+F1 or C=+Shift+F1	F2 or CTRL+F2	Playback	<b>Play the tune</b> from marker position(s) / follow-play tune from marker position(s).
F3 or C= + F3	F3 or CTRL+F3	Playback	<b>Play</b> the selected <b>patterns</b> / follow-play the selected patterns.
Shift + F3 or STOP	F4 or ESC	Playback	<b>Toggle pause/continue</b> the playback of tune/patterns.
Shift + SPACE	Shift + SPACE	Playback	<b>Play</b> the selected <b>patterns</b> from cursor-position.
Left-Arrow	` (above TAB)	Playback	<b>Fast-forward play</b> (4x the speed of normal)
Shift + Left-Arrow C= + Left-Arrow	Shift + ` (above TAB) Control + `	Playback, Setting	<b>Toggle follow-play mode / normal playback</b> . Set follow-play mode as default on/off.
Shift + 1...6	Shift + 1...6	Play./Setting	<b>Toggle Mute / Unmute</b> on channels 1..3 (1...6 with two SID chips)
Shift + 0	Shift + 0	Play./Setting	<b>Solo / Unsolo</b> active track
Shift + A/Z	Shift + A/Z	Setting	<b>Increase/Decrease auto-advance</b> (stepping) amount after typing notes.
Shift + I	Shift + I	Setting	<b>Toggle instrument auto-typing</b> with notes.
Shift + D	Shift + D	Setting	<b>Toggle dovetailing</b> .
C= + D	CTRL + D	Setting	<b>Toggle MIDI monophonic+legato or polyphonic jamming mode</b> .
Shift + F/G	Shift + F/G	Setting	<b>Decrease/increase framespeed</b> (1x singlespeed...8x multispeed).
Shift + H/J	Shift+H/J	Setting	<b>Decrease/increase step-highlighting aid frequency</b> in pattern-editor window.
C= + B	CTRL + B	Setting	<b>Toggle pattern/ track-binding</b> on/off . Patterns can be scrolled together/independently.
C= + T	CTRL + T	Setting	<b>Toggle global normal tempo / funktempo mode</b> for subtune.
< or >, Shift + , / . Shift + : or ;	Shift + comma / dot Shift + ; or '	Setting	<b>Increase/decrease global normal tempo / 2nd funktempo</b> for sub tune.
PLUS / MINUS	PLUS / MINUS	Selection	<b>Select instrument or select chord / tempo</b> in chord/tempo tables.
C= + , / .	CTRL + comma / dot	Selection	<b>Select sub tune</b> (Orderlist). Patterns are shared between sub tunes.
C= + 1...8	CTRL + 1...8	Selection	<b>Select octave 1..8</b> to edit or jam musical notes. (In 'DMC' mode no need for C=)
C= + PLUS/MINUS	CTRL + +/-	Selection	<b>Octave up / down</b>
Shift+PLUS or Shift+MINUS	Shift+PLUS or Shift+MINUS	Selection	<b>Select instrument</b> for jamming / editing or select pattern for editing in pattern window.
Shift + T/Y	Shift + T/Y	Selection	<b>Select</b> (decrease/increase number of) <b>tempo-program</b> .
Shift + K/L	Shift + K/L	Selection	<b>Select</b> (decrease/increase number of) <b>Chord</b> to edit.
SPACE	SPACE	Editing	<b>Toggle Keyboard note-jamming or note-editing</b> in pattern-editor window.
Shift + N	Shift + N	Editing	<b>Rename selected instrument</b> . Max. 8 characters, Esc/Stop aborts the renaming.
DEL/Pound or Shift+DEL	Delete/Backspace or Insert	Editing	<b>Delete/insert in cursor position</b> or <b>increase/decrease pattern/table size</b> in end-positions.

\*In Linux the VICE build seems to have up-arrow key associated to Page-Down, while the default would be 'Del'-key (which is good, because therefore in Linux the Page-Down (up-arrow) is in correct place, below Page-Up, which is associated to Restore C64 key.) In Linux the 'Del'-key works as Backspace which is better selection IMO.

\*Note that in follow-play modes the pattern-editor keys are inactive to prevent accidental editing while playing the tune.

## PATTERN EDITOR RELATED KEYS

Keys on C64	US int. Keys in VICE emulator	Category	Functions of pressed keys
CONTROL or Shift+CONTROL	TAB or Shift+TAB	Navigation	<b>Cycle through tracks</b> forward/backward.
C= + CONTROL	CTRL + TAB		<b>Fast switch SID1 / SID2</b>
RETURN or Shift+RETURN	Enter or Shift+Enter	Navigation	<b>Go to next row, place Note-on/off , or select instrument/chord</b> under cursor.
Shift + Space	Shift + Space	Edit/jam	<b>Play pattern from cursor.</b>
Z X C V B N M , . (A...L in DMC mode)	Z X C V B N M , . (A...L in DMC mode)	Edit/Jam	<b>Lower octave white piano-keys</b> (C major diatonic whole-tones). Legato jamming possible.
Q,W,E,R,T,Y,U,I,O,P (not in DMC mode)	Q,W,E,R,T,Y,U,I,O,P (not in DMC mode)	Edit/Jam	<b>Upper octave white piano-keys</b> (C major diatonic scale whole-tones).
S,D, G,H,J, L , 2,3, 5,6,7, 9,0 (non-DMC)	S,D, G,H,J, L , 2,3, 5,6,7, 9,0 (non-DMC)	Edit/Jam	<b>Lower and upper octave black piano keys</b> (halftones). In DMC-mode it's in QWERTY row!
C= + 1...8 (1...8 in DMC-mode)	CTRL + 1...8 (1...8 in DMC-mode)	Edit/Jam	<b>Select octave 1...8</b> where editing or jamming musical notes happens.
C= + RETURN	CTRL + Enter	Editing	<b>Select played patterns.</b>
Shift + +/-	Shift + +/-	Editing	<b>Select pattern on track</b>
A, 1, C=+Del (Q in 'DMC' mode)	A, 1, Cotrol+Del (Q in 'DMC' mode)	Editing	<b>Empty-note</b> (Delete note in note-column pattern-position without moving the rest.)
1...9, A...F hexa keys	1...9, A...F hexa keys	Editing	In instrument/effect columns <b>type value</b> , in note-column set <b>note or vibrato-amplitude</b> .
DEL/Pound or Shift+DEL	Delete/Backspace or Insert	Editing	<b>Delete/insert in cursor position or increase/decrease pattern-size</b> in pattern-end position.
C= + DEL	CTRL + Delete/Backspace	Editing	<b>Delete note or instrument+effect columns</b> in current pattern-row, depending on cursor-position.
C= + Shift + DEL	CTRL + Shift + Del./Backspace	Editing	<b>Delete the entire pattern-row</b> (note and instrument and effect) in the current track.
Shift + Q/W	Shift + Q/W	Editing	<b>Transpose notes</b> up/down by <b>half-notes</b> in current pattern after cursor-position.
C= + Q/W	CTRL + Q/W	Editing	<b>Transpose notes</b> up/down by <b>octaves</b> in current pattern after cursor-position.
Shift + R or C= + R	Shift + R or CTRL + R	Editing	<b>Place ring-modulation</b> effect on/off into note column at current cursor position.
Shift + P	Shift + P	Editing	<b>Place auto-portamento</b> effect into note column at current cursor position.
Shift + S or C= + S	Shift + S or CTRL + S	Editing	<b>Place sync-bit on/off</b> effect into note column at current cursor position.
Shift + V	Shift + V	Editing	<b>Place vibrato</b> -effect into note column at current cursor position. Amplitude editable.
C= + Z	CTRL + Z	Editing	<b>Undo</b>
C= + X	CTRL + X	Editing	<b>Cut/delete pattern content</b> from cursor position to end of pattern <b>and copy</b> to pattern-buffer/clipboard.
C= + C	CTRL + C	Editing	<b>Copy pattern content</b> from cursor position to end of pattern to pattern-buffer/clipboard.
Shift + C	Shift + C	Editing	<b>Limit the range of data copied (or cut)</b> into buffer to cursor position. Define end of buffer.
C= + V	CTRL + V	Editing	<b>Paste pattern-buffer content</b> from cursor position till end of pattern.



## ORDERLIST RELATED KEYS

Keys on C64	US int. Keys in VICE emulator	Category	Functions of pressed keys
RETURN or Shift+RETURN	Enter or Shift+Enter	Navigation	<b>Selects the pattern(s)</b> under the <b>cursor position</b> in Orderlist and jumps to current track in Pattern-editor.
C= + RETURN	CTRL + Enter	Navigation	<b>Selects the patterns</b> that are currently played and jumps to current track in the Pattern-editor.
Shift+SPACE	Shift + Space	Playback	<b>Sets Orderlist playstart-marker</b> (for F2-playing) to <b>cursor-position</b> for all tracks. Position number gets inverted.
C= + SPACE	CTRL + SPACE	Playback	<b>Sets Orderlist playstart-markers</b> to <b>individual played position</b> for all tracks. Position number of 1st track gets inverted.
1...9, A...F hexa keys	1...9, A...F hexa keys	Editing	To <b>type hexa pattern-numbers</b> and <b>effect/jump numbers</b> into Orderlist sequences of tracks.
DEL/Pound or Shift+DEL	Delete/Backspace or Insert	Editing	<b>Delete/insert in cursor position</b> or <b>increase/decrease Orderlist sequence-size</b> if cursor is in sequence-end/loop position.
C= + Z	CTRL + Z	Editing	<b>Undo</b>
C= + C	CTRL + C	Editing	<b>Copy orderlist-sequence</b> from cursor to buffer.
Shift + C	Shift + C	Editing	<b>Set the end of copied data</b> in buffer. (limit buffer)
C= + V	CTRL + V	Editing	<b>Paste buffer</b> to cursor-pos ., appends existing data
C= + E	CTRL + E	Editing	<b>Type and the first Empty</b> (unused) <b>pattern number</b> . Increased if pressed more times, works on end signal.



## INSTRUMENT EDITOR RELATED KEYS

Keys on C64	US int. Keys in VICE emulator	Category	Functions of pressed keys
CONTROL or Shift+CONTROL	TAB or Shift+TAB	Navigation	<b>Cycle through main instrument-setting panel</b> and instrument-tables.
RETURN or Shift+RETURN	Enter or Shift+Enter	Navigation	<b>Car return' to beginning of next row</b> in tables (or <b>toggle/cycle</b> some main <b>instrument-parameters.</b> )
Shift + S	Shift + S	Navigation	<b>Go to main instrument settings</b>
Shift + W	Shift + W	Navigation	<b>Go to WF-ARP table</b>
Shift + P	Shift + P	Navigation	<b>Go to PUIseWidth table</b>
+ / -	+ / -	Selection	<b>Select instrument.</b> The same in pattern/orderlist/instrument windows, while Shift is needed in Chord/Tempo tables.
RETURN	Enter	Selection	<b>Toggle/cycle</b> some of the <b>instrument's main parameters</b> like HR-type, Vibrato-type, octave-shift sign.. Or goes to default-chord if it's number is under the cursor.
1...9, A...F hexa keys and F..Z	1...9, A...F hexa keys	Editing	To <b>type hexa values</b> into instrument-data fields, or type the name of the instrument (some signals allowed too.)
=	=	Editing	<b>Negate value</b> (e.g. \$40 will be \$C0 = -\$40)
Shift + N	Shift + N	Editing	<b>Rename</b> selected <b>instrument</b> . Max. 8 characters, Esc/Stop aborts the renaming.
DEL/Pound or Shift+DEL	Delete/Backspace or Insert	Editing	<b>Delete/insert in cursor position.</b> Increases/decreases table-size.
Shift + Space	Shift+Space	Editing	<b>Set/clear gate-off index</b> to current table-row under the cursor (WFARP/PULSE/FILT)
C= + Z	CTRL + Z	Editing	<b>Undo</b>
C= + C	CTRL + C	Editing	<b>Copy the entire selected instrument</b> to instrument-buffer.
C= + X	CTRL + X	Editing	<b>Cut the entire selected instrument</b> to instrument-buffer
C= + V	CTRL + V	Editing	<b>Paste instrument</b> -clipboard content to the selected instrument. The entire instrument will be overwritten.
C= + P or C= + F	CTRL + P / F	Editing	<b>Toggle pulsewidth-/filter-table reset</b> on note-start. (Selecting instrument resets it.)

## CHORD TABLE / TEMPO TABLE RELATED KEYS

Keys on C64	US int. Keys in VICE emulator	Category	Functions of pressed keys
CONTROL or Shift+CONTROL	TAB or Shift+TAB	Navigation	<b>Go to pattern editor or go to instrument-editor.</b>
RETURN or Shift+RETURN	Enter or Shift+Enter	Navigation	<b>Car return' to beginning of next row</b> in tables (or <b>toggle/cycle</b> some main <b>instrument-parameters.</b> )
+ / -	+ / -	Selection	<b>Select chord / tempo-program.</b> Shift+K/L or Shift+T/Y is needed in other windows.
Shift+PLUS or Shift+MINUS	Shift+PLUS or Shift+MINUS	Selection	<b>Select instrument</b> for jamming / editing.
C= + N	CTRL + N	Editing	<b>Note-mode / number-mode</b>
1...9, A...F hexa keys	1...9, A...F hexa keys	Editing	To <b>type hexa values and chord loop/return numbers</b> into chordtable/tempoprogram-table.
=	=	Editing	<b>Negate value</b> (e.g. \$04 will be \$fb -4 2s' compl.)
DEL/Pound or Shift+DEL	Delete/Backspace or Insert	Editing	<b>Delete/insert in cursor position.</b> Increases/decreases table-size.

## FILE SELECTOR KEYS

Keys on C64	US int. Keys in VICE emulator	Functions of pressed keys
F1	F1	Re-read disk-directory
F3 / Up-arrow	F3 / Up-arrow	Page-down in directory
Control	TAB	Filename/info/selector
Return	Enter	Approve / Perform task
F7 / STOP	Escape	Quit file-dialog

## SDI KEYBOARD LAYOUT DIFFERENCES AND ADD-ONS

Keys on C64	US int. Keys in VICE emulator	Functions of pressed keys
Shift + L	Shift + L	Load music (bring up MENU too)
Shift + S	Shift + S	Save Music (bring up MENU too)
F1	F1	Play from orderlist mark(s)
F2	F2	Set play-mark in orderlist
F3	F3	Stop/Continue playback
Z	Z	Play pattern from current line
Return	Enter	Play pattern from top
F4	F4	Edit/Synth mode (toggle)
F7 /F8	F7 /F8	Select octave (incr./decr.)
STOP, /	Escape, /	Toggle instrum./pattern-editor
Shift + F	Shift + F	Filter program table
Shift + T	Shift + T	Tempo program table
C= + +/-	CTRL + +/-	Next/Previous song (subtune)
C= + 1...3	CTRL + 1...3	Track on/off (mute/unmute)
S / K, L	S / K, L	Tab jump left/right (tracks)
, / .	, / .	Jump up/down 8/4 lines
Space	Space	Delete down (in pattern)
G, Shift + G	G, Shift + G	Gate on/off (--/++ in pattern)
> / <	> / <	Transpose in pattern / Chord+-
M, C= + M	M, CTRL + M	Copy, Paste (at cursor-position)
Shift + M	Shift + M	Set end of copy-mark/selection
C= + F	CTRL + F	Clear pattern (From cursorpos)
Shift + Home	Shift + Home	To start of song (orderlist)
H	H	Hunt next unused in Orderlist
N	N	Name sound/instrument
?	?	Set speed calls (framesp.1..8)

## DECIMAL TO HEXADECIMAL CONVERSION TABLE

(Next Page) ...

DECIMAL TO HEXADECIMAL CONVERSION TABLE

Mikael Norrgård 2012  
 (http://www.witchmastercreations.com)

UNSIG.	SIG.	HEX
0	0	00
1	1	01
2	2	02
3	3	03
4	4	04
5	5	05
6	6	06
7	7	07
8	8	08
9	9	09
10	10	0A
11	11	0B
12	12	0C
13	13	0D
14	14	0E
15	15	0F
16	16	10
17	17	11
18	18	12
19	19	13
20	20	14
21	21	15
22	22	16
23	23	17
24	24	18
25	25	19
26	26	1A
27	27	1B
28	28	1C
29	29	1D
30	30	1E
31	31	1F
32	32	20
33	33	21
34	34	22
35	35	23
36	36	24
37	37	25
38	38	26
39	39	27
40	40	28
41	41	29
42	42	2A
43	43	2B
44	44	2C
45	45	2D
46	46	2E
47	47	2F
48	48	30
49	49	31
50	50	32
51	51	33
52	52	34
53	53	35
54	54	36
55	55	37
56	56	38
57	57	39
58	58	3A
59	59	3B
60	60	3C
61	61	3D
62	62	3E
63	63	3F

UNSIG.	SIG.	HEX
64	64	40
65	65	41
66	66	42
67	67	43
68	68	44
69	69	45
70	70	46
71	71	47
72	72	48
73	73	49
74	74	4A
75	75	4B
76	76	4C
77	77	4D
78	78	4E
79	79	4F
80	80	50
81	81	51
82	82	52
83	83	53
84	84	54
85	85	55
86	86	56
87	87	57
88	88	58
89	89	59
90	90	5A
91	91	5B
92	92	5C
93	93	5D
94	94	5E
95	95	5F
96	96	60
97	97	61
98	98	62
99	99	63
100	100	64
101	101	65
102	102	66
103	103	67
104	104	68
105	105	69
106	106	6A
107	107	6B
108	108	6C
109	109	6D
110	110	6E
111	111	6F
112	112	70
113	113	71
114	114	72
115	115	73
116	116	74
117	117	75
118	118	76
119	119	77
120	120	78
121	121	79
122	122	7A
123	123	7B
124	124	7C
125	125	7D
126	126	7E
127	127	7F

UNSIG.	SIG.	HEX
128	-128	80
129	-127	81
130	-126	82
131	-125	83
132	-124	84
133	-123	85
134	-122	86
135	-121	87
136	-120	88
137	-119	89
138	-118	8A
139	-117	8B
140	-116	8C
141	-115	8D
142	-114	8E
143	-113	8F
144	-112	90
145	-111	91
146	-110	92
147	-109	93
148	-108	94
149	-107	95
150	-106	96
151	-105	97
152	-104	98
153	-103	99
154	-102	9A
155	-101	9B
156	-100	9C
157	-99	9D
158	-98	9E
159	-97	9F
160	-96	A0
161	-95	A1
162	-94	A2
163	-93	A3
164	-92	A4
165	-91	A5
166	-90	A6
167	-89	A7
168	-88	A8
169	-87	A9
170	-86	AA
171	-85	AB
172	-84	AC
173	-83	AD
174	-82	AE
175	-81	AF
176	-80	B0
177	-79	B1
178	-78	B2
179	-77	B3
180	-76	B4
181	-75	B5
182	-74	B6
183	-73	B7
184	-72	B8
185	-71	B9
186	-70	BA
187	-69	BB
188	-68	BC
189	-67	BD
190	-66	BE
191	-65	BF

UNSIG.	SIG.	HEX
192	-64	C0
193	-63	C1
194	-62	C2
195	-61	C3
196	-60	C4
197	-59	C5
198	-58	C6
199	-57	C7
200	-56	C8
201	-55	C9
202	-54	CA
203	-53	CB
204	-52	CC
205	-51	CD
206	-50	CE
207	-49	CF
208	-48	D0
209	-47	D1
210	-46	D2
211	-45	D3
212	-44	D4
213	-43	D5
214	-42	D6
215	-41	D7
216	-40	D8
217	-39	D9
218	-38	DA
219	-37	DB
220	-36	DC
221	-35	DD
222	-34	DE
223	-33	DF
224	-32	E0
225	-31	E1
226	-30	E2
227	-29	E3
228	-28	E4
229	-27	E5
230	-26	E6
231	-25	E7
232	-24	E8
233	-23	E9
234	-22	EA
235	-21	EB
236	-20	EC
237	-19	ED
238	-18	EE
239	-17	EF
240	-16	F0
241	-15	F1
242	-14	F2
243	-13	F3
244	-12	F4
245	-11	F5
246	-10	F6
247	-9	F7
248	-8	F8
249	-7	F9
250	-6	FA
251	-5	FB
252	-4	FC
253	-3	FD
254	-2	FE
255	-1	FF

## EXACT NOTES FOR ARP-COLUMN

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

## ATTACK / DECAY / RELEASE TIMINGS

HEX	Attack Rate	Decay / Release Rate
0	2 ms	6 ms
1	8 ms	24 ms
2	16 ms	48 ms
3	24 ms	72 ms
4	38 ms	114 ms
5	56 ms	168 ms
6	68 ms	204 ms
7	80 ms	240 ms
8	100 ms	300 ms
9	250 ms	750 ms
A	500 ms	1.5 s
B	800 ms	2.4 s
C	1 s	3 s
D	3 s	9 s
E	5 s	15 s
F	8 s	24 s

## TEMPO > BPM TABLE FOR PAL C64

Yellow marks the tempo closest to 120BPM for every column.

### TEMPO SETTING IN SID-WIZARD

	01	02	03	04	05	06	07	08	09	0A
1	3007,47	1503,74	1002,49	751,87	601,49	501,25	429,64	375,93	334,16	300,75
2	1503,74	751,87	501,25	375,93	300,75	250,62	214,82	187,97	167,08	150,37
3	1002,49	501,25	334,16	250,62	200,50	167,08	143,21	125,31	111,39	100,25
4	751,87	375,93	250,62	187,97	150,37	125,31	107,41	93,98	83,54	75,19
5	601,49	300,75	200,50	150,37	120,30	100,25	85,93	75,19	66,83	60,15
6	501,25	250,62	167,08	125,31	100,25	83,54	71,61	62,66	55,69	50,12
7	429,64	214,82	143,21	107,41	85,93	71,61	61,38	53,70	47,74	42,96
8	375,93	187,97	125,31	93,98	75,19	62,66	53,70	46,99	41,77	37,59
9	334,16	167,08	111,39	83,54	66,83	55,69	47,74	41,77	37,13	33,42
10	300,75	150,37	100,25	75,19	60,15	50,12	42,96	37,59	33,42	30,07
11	273,41	136,70	91,14	68,35	54,68	45,57	39,06	34,18	30,38	27,34
12	250,62	125,31	83,54	62,66	50,12	41,77	35,80	31,33	27,85	25,06
13	231,34	115,67	77,11	57,84	46,27	38,56	33,05	28,92	25,70	23,13
14	214,82	107,41	71,61	53,70	42,96	35,80	30,69	26,85	23,87	21,48
15	200,50	100,25	66,83	50,12	40,10	33,42	28,64	25,06	22,28	20,05
16	187,97	93,98	62,66	46,99	37,59	31,33	26,85	23,50	20,89	18,80
17	176,91	88,46	58,97	44,23	35,38	29,49	25,27	22,11	19,66	17,69
18	167,08	83,54	55,69	41,77	33,42	27,85	23,87	20,89	18,56	16,71
19	158,29	79,14	52,76	39,57	31,66	26,38	22,61	19,79	17,59	15,83
20	150,37	75,19	50,12	37,59	30,07	25,06	21,48	18,80	16,71	15,04
21	143,21	71,61	47,74	35,80	28,64	23,87	20,46	17,90	15,91	14,32
22	136,70	68,35	45,57	34,18	27,34	22,78	19,53	17,09	15,19	13,67
23	130,76	65,38	43,59	32,69	26,15	21,79	18,68	16,34	14,53	13,08
24	125,31	62,66	41,77	31,33	25,06	20,89	17,90	15,66	13,92	12,53
25	120,30	60,15	40,10	30,07	24,06	20,05	17,19	15,04	13,37	12,03
26	115,67	57,84	38,56	28,92	23,13	19,28	16,52	14,46	12,85	11,57
27	111,39	55,69	37,13	27,85	22,28	18,56	15,91	13,92	12,38	11,14
28	107,41	53,70	35,80	26,85	21,48	17,90	15,34	13,43	11,93	10,74
29	103,71	51,85	34,57	25,93	20,74	17,28	14,82	12,96	11,52	10,37
30	100,25	50,12	33,42	25,06	20,05	16,71	14,32	12,53	11,14	10,02
31	97,02	48,51	32,34	24,25	19,40	16,17	13,86	12,13	10,78	9,70
32	93,98	46,99	31,33	23,50	18,80	15,66	13,43	11,75	10,44	9,40

### TEMPO SETTING IN SID-WIZARD (CONTINUED)

	0B	0C	0D	0E	0F	10	11	12	13	14
1	273,41	250,62	231,34	214,82	200,50	187,97	176,91	167,08	158,29	150,37
2	136,70	125,31	115,67	107,41	100,25	93,98	88,46	83,54	79,14	75,19
3	91,14	83,54	77,11	71,61	66,83	62,66	58,97	55,69	52,76	50,12
4	68,35	62,66	57,84	53,70	50,12	46,99	44,23	41,77	39,57	37,59
5	54,68	50,12	46,27	42,96	40,10	37,59	35,38	33,42	31,66	30,07
6	45,57	41,77	38,56	35,80	33,42	31,33	29,49	27,85	26,38	25,06
7	39,06	35,80	33,05	30,69	28,64	26,85	25,27	23,87	22,61	21,48
8	34,18	31,33	28,92	26,85	25,06	23,50	22,11	20,89	19,79	18,80
9	30,38	27,85	25,70	23,87	22,28	20,89	19,66	18,56	17,59	16,71
10	27,34	25,06	23,13	21,48	20,05	18,80	17,69	16,71	15,83	15,04

## TEMPO > BPM TABLE FOR NTSC C64

Yellow marks the tempo closest to 120BPM for every column.

### TEMPO SETTING IN SID-WIZARD

	01	02	03	04	05	06	07	08	09	0A
1	3589,57	1794,78	1196,52	897,39	717,91	598,26	512,80	448,70	398,84	358,96
2	1794,78	897,39	598,26	448,70	358,96	299,13	256,40	224,35	199,42	179,48
3	1196,52	598,26	398,84	299,13	239,30	199,42	170,93	149,57	132,95	119,65
4	897,39	448,70	299,13	224,35	179,48	149,57	128,20	112,17	99,71	89,74
5	717,91	358,96	239,30	179,48	143,58	119,65	102,56	89,74	79,77	71,79
6	598,26	299,13	199,42	149,57	119,65	99,71	85,47	74,78	66,47	59,83
7	512,80	256,40	170,93	128,20	102,56	85,47	73,26	64,10	56,98	51,28
8	448,70	224,35	149,57	112,17	89,74	74,78	64,10	56,09	49,86	44,87
9	398,84	199,42	132,95	99,71	79,77	66,47	56,98	49,86	44,32	39,88
10	358,96	179,48	119,65	89,74	71,79	59,83	51,28	44,87	39,88	35,90
11	326,32	163,16	108,77	81,58	65,26	54,39	46,62	40,79	36,26	32,63
12	299,13	149,57	99,71	74,78	59,83	49,86	42,73	37,39	33,24	29,91
13	276,12	138,06	92,04	69,03	55,22	46,02	39,45	34,52	30,68	27,61
14	256,40	128,20	85,47	64,10	51,28	42,73	36,63	32,05	28,49	25,64
15	239,30	119,65	79,77	59,83	47,86	39,88	34,19	29,91	26,59	23,93
16	224,35	112,17	74,78	56,09	44,87	37,39	32,05	28,04	24,93	22,43
17	211,15	105,58	70,38	52,79	42,23	35,19	30,16	26,39	23,46	21,12
18	199,42	99,71	66,47	49,86	39,88	33,24	28,49	24,93	22,16	19,94
19	188,92	94,46	62,97	47,23	37,78	31,49	26,99	23,62	20,99	18,89
20	179,48	89,74	59,83	44,87	35,90	29,91	25,64	22,43	19,94	17,95
21	170,93	85,47	56,98	42,73	34,19	28,49	24,42	21,37	18,99	17,09
22	163,16	81,58	54,39	40,79	32,63	27,19	23,31	20,40	18,13	16,32
23	156,07	78,03	52,02	39,02	31,21	26,01	22,30	19,51	17,34	15,61
24	149,57	74,78	49,86	37,39	29,91	24,93	21,37	18,70	16,62	14,96
25	143,58	71,79	47,86	35,90	28,72	23,93	20,51	17,95	15,95	14,36
26	138,06	69,03	46,02	34,52	27,61	23,01	19,72	17,26	15,34	13,81
27	132,95	66,47	44,32	33,24	26,59	22,16	18,99	16,62	14,77	13,29
28	128,20	64,10	42,73	32,05	25,64	21,37	18,31	16,02	14,24	12,82
29	123,78	61,89	41,26	30,94	24,76	20,63	17,68	15,47	13,75	12,38
30	119,65	59,83	39,88	29,91	23,93	19,94	17,09	14,96	13,29	11,97
31	115,79	57,90	38,60	28,95	23,16	19,30	16,54	14,47	12,87	11,58
32	112,17	56,09	37,39	28,04	22,43	18,70	16,02	14,02	12,46	11,22

### TEMPO SETTING IN SID-WIZARD (CONTINUED)

	0B	0C	0D	0E	0F	10	11	12	13	14
1	326,32	299,13	276,12	256,40	239,30	224,35	211,15	199,42	188,92	179,48
2	163,16	149,57	138,06	128,20	119,65	112,17	105,58	99,71	94,46	89,74
3	108,77	99,71	92,04	85,47	79,77	74,78	70,38	66,47	62,97	59,83
4	81,58	74,78	69,03	64,10	59,83	56,09	52,79	49,86	47,23	44,87
5	65,26	59,83	55,22	51,28	47,86	44,87	42,23	39,88	37,78	35,90
6	54,39	49,86	46,02	42,73	39,88	37,39	35,19	33,24	31,49	29,91
7	46,62	42,73	39,45	36,63	34,19	32,05	30,16	28,49	26,99	25,64
8	40,79	37,39	34,52	32,05	29,91	28,04	26,39	24,93	23,62	22,43
9	36,26	33,24	30,68	28,49	26,59	24,93	23,46	22,16	20,99	19,94
10	32,63	29,91	27,61	25,64	23,93	22,43	21,12	19,94	18,89	17,95