

PICO-8 Cheat Sheet

PICO-8
v0.2.5g

SPECIFICATIONS

DISPLAY: 128X128,16-COL PAL
INPUT: 6-BUTTON CONTROLLERS
CARTS: 32K DATA ENC.PNG FILES
SOUND: 4-CHANNEL,64 CHIP BLRPS
CODE: P8 LUA
(MAX 8192 CODE TOKENS)
CPU: 4M VM INSTS/SEC
SPRITE:1 BANK OF 128 8X8 SPR'S
(+ 128 SHARED)
MAP: 128 X 32 TILEMAP
(+ 128 X 32 SHARED)

COMMAND LINE

HELP
SAVE <FILE_NAME>.P8 /.PNG
LOAD <FILE_NAME>.P8
RUN IMPORT X.PNG
S/SPLORE EXPORT X.BIN/X.HTML
FOLDER MKDIR <DIR_NAME>
LS()/DIR CD CLS INFO
SHUTDOWN REBOOT
SAVE/LOAD("@CLIP")
SAVE("@URL") -- P8 EDU URL
EXTCMD(CMD_STR,[P1,P2])

VARS AND TYPES

A=NIL
X=23
LOCAL S="TEXT"
T={NAME="JOE",AGE="32"}

OPERATORS

+ - * / ^ % =
+= -= *= /= ^= %=
< > <= >= == ~= !=
#LIST "A".."B"
AND OR NOT

FUNCTIONS

FUNCTION ADD(A,B)
RETURN A+B
END

TABLES

T={A="X",B=1} T={1,2,3,4}
ADD(T,V) DEL(T,V)
#T/COUNT(T)
PRINT(T[1]) -- 1-BASED
ALL(T)
FOREACH(T,F)
PAIRS(T)

PROGRAM STRUCTURE

```
_INIT() -- 1X ON STARTUP
_UPDATE()-- 1X/UPDATE @ 30FPS
_UPDATE60() -- UPDATE @ 60FPS
_DRAW() -- 1X/VISIBLE FRAME
```

```
#INCLUDE <FILE_NAME>.LUA
#include ONETAB.P8:1
#include ALLTABS.P8
```

FLOW CONTROL

```
::LABEL:: -- LABEL
GOTO LABEL -- JUMP
```

IF (TRUE) CLS() -- INLINE IF

```
IF <CONDITION> THEN
  -- IF BLOCK
ELSEIF <CONDITION> THEN
  -- ELSEIF BLOCK
ELSE
  -- ELSE BLOCK
END
```

```
WHILE <CONDITION> DO
  -- WHILE BLOCK
END
```

```
REPEAT
  --REPEAT BLOCK
UNTIL <CONDITION>
```

```
FOR I=1,10 DO
  -- COUNT UP
END
```

```
FOR I=10,0,-1 DO
  -- COUNT DOWN
END
```

```
REPEAT
  --REPEAT BLOCK
UNTIL <CONDITION>
```

```
FOR I IN ALL(T) DO
  -- TABLE/ARRAY
END
```

```
FOR K,V IN PAIRS(T) DO
  -- TABLE: T[K]=V
END
```

SHORTCUTS

```
-- COMMON
ALT+ENTER Fullscreen
CTRL+R Reload/Run
CTRL+S Quick-Save
CTRL-M Mute/Unmute
ENTER|P Pause Menu
ESC Console/Editor
CTRL+6 Save Screenshot
CTRL+7 Save Label Image
CTRL+8 Start GIF/video
CTRL+9 Save GIF/video
CTRL+P Toggle CPU Graph
```

```
-- CODE EDITOR
CTRL+X,C,V Cut,Copy,Paste
CTRL+Z,Y Undo,Redo
CTRL+F Search (curr Tab)
CTRL+H Search (all Tabs)
CTRL+G Search Next
CTRL+L Jump to Line No.
CTRL+▲,▼ Jump Start,End
ALT+▲,▼ Prev,Next Func()
CTRL+◀,▶ Jump Word
CTRL+W,E Start,End Line
CTRL+D Duplicate line
TAB Indent Selection
SHIFT+TAB Un-indent Sel.
CTRL+B Un/Comment Block
CTRL+U HELP for keyword
SHIFT+L,R,U,D,O,X:
```

👉👈👉👈👉👈👉👈

```
CTRL+J Hiragana
CTRL+K Katakana
CTRL+P Puny Font
```

```
-- SPRITE/MAP EDITOR
SPACE Pan view
TAB Fullscreen
Mousewheel Zoom
SHIFT+,. Zoom In/Out
F Flip Y
V Flip X
R Rotate
▲,▼,◀,▶ Move
-- DRAW TOOL
CTRL+LMB Replace Col
RMB Grab Col
```

```
-- SFX/MUSIC EDITOR
SPACE Play/Pause
SHIFT+LMB Set all notes
◀,▶ Modify speed
+,- Prev/Next Pattern
a Release Loop
```

CARTRIDGE DATA

```
-- GAME SAVES
CARTDATA("ID")
DGET(I) -- 0..63
DSET(I,VAL)
```

RAM MEMORY LAYOUT

```
0X0 GFX
0X1000 GFX/MAP2 (SHARED)
0X2000 MAP
0X3000 GFX FLAGS
0X3100 SONG
0X3200 SFX
0X4300 USER DATA
0X5600 CUSTOM FONT (IF DEF.)
0X5E00 PERSISTENT CART DATA
0X5F00 DRAW STATE
0X5F40 HARDWARE STATE
0X5F80 GPIO PINS (128 BYTES)
0X6000 SCREEN (8K)
0x8000 USER DATA
```

MEMORY FUNCTIONS

```
CSTORE(DEST_ADDR,SRC_ADDR,LEN,[FILENAME])
MEMCPY(DEST_ADDR,SRC_ADDR,LEN)
MEMSET(DEST_ADDR,VAL,LEN)
RELOAD(DEST_ADDR,SRC_ADDR,LEN,[FILENAME])
PEEK(ADDR) PEEK4(ADDR)
POKE(ADDR,VAL) POKE4(ADDR,VAL)
```

COROUTINES

```
C = COCREATE(FUNC)
CORESUME(C)
COSTATUS(C)
YIELD()
```

SPRITES

```
-- DRAW SPRITE
SPR(N,X,Y,[W,H],[FLIP_X],[FLIP_Y])
-- DRAW TEXT FROM SPRITESHEET
SSPR(SX,SY,SW,SH,DX,DY,[DW,DH],[FLIP_X],[FLIP_Y])
-- GET SPRITESHEET PIXEL COL
SGET(X,Y)
-- SET SPRITESHEET PIXEL COL
SSET(X,Y,[COL])
-- SPRITE FLAGS
FGET(N,[F])
FSET(N,[F],V)
```

COL PALETTES



```
PAL(C0,C1,[P])
-- SET P=1 TO USE ALT.PAL
PALT(COL,T)
-- SET TRANS FOR COL (BOOL)
```

TEXT

```
PRINT(STR,[X,Y,[COL]])
?STR,[X,Y,[COL]] -- SHORTHAND
```

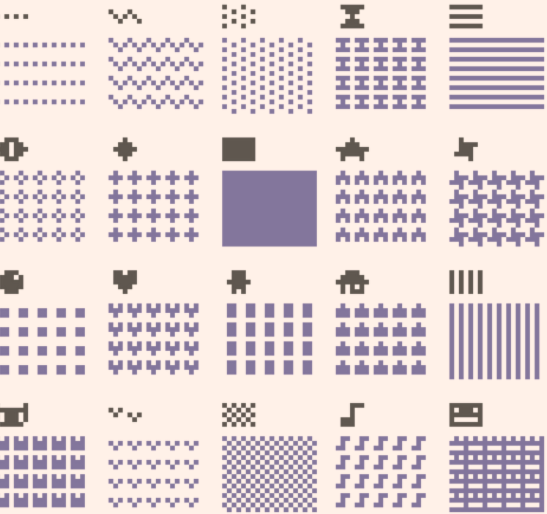
PIXELS

```
PGET(X,Y)
PSET(X,Y,[COL])
```

SHAPES

```
CIRC(X,Y,R,[COL])
CIRCFILL(X,Y,R,[COL])
LINE(X0,Y0,X1,Y1,[COL])
OVAL(X0,Y0,X1,Y1,[COL])
OVALFILL(X0,Y0,X1,Y1,[COL])
RECT(X0,Y0,X1,Y1,[COL])
RECTFILL(X0,Y0,X1,Y1,[COL])
FILLP(MASK)
```

32768	16384	8192	4096
2048	1024	512	256
128	64	32	16
8	4	2	1



SCREEN

```
CAMERA([X,Y])
CLIP([X,Y,W,H])
CLS([COL])
COLOR(COL)
FLIP()
```

MAP

```
CAMERA([X,Y])
CLIP([X,Y,W,H])
CLS([COL])
COLOR(COL)
TLINE(X0,Y0,X1,Y1,MX,MY,MDX,[MDY],[LAYERS])
```

MATH

```
-- NUMERIC RANGE
-32768.0 .. 32767.99
```

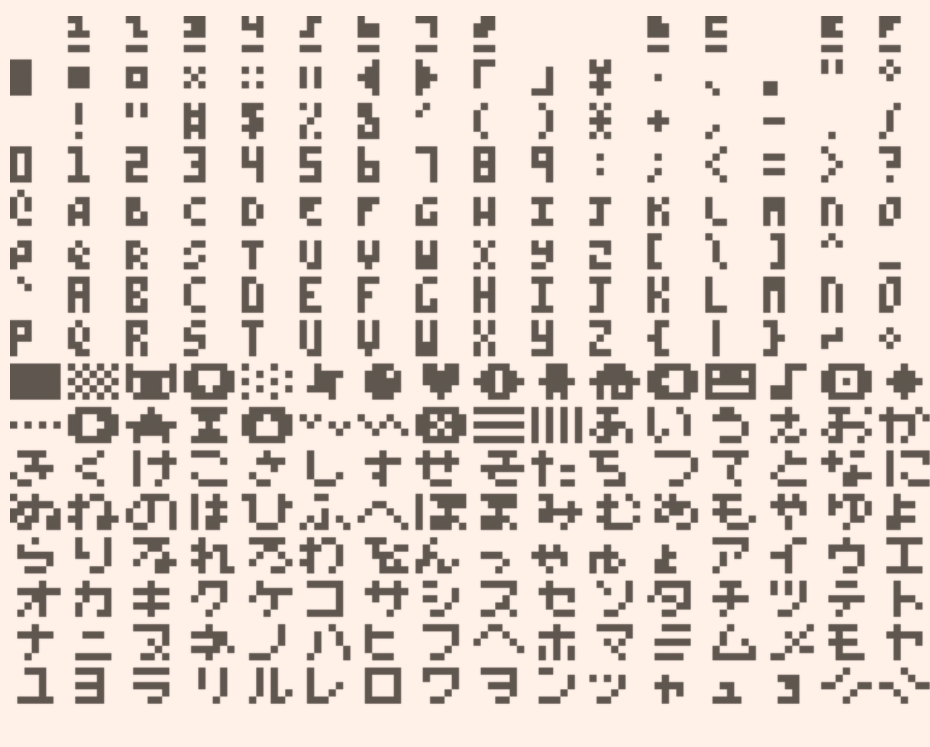
```
--
MAX(X,Y)
MIN(X,Y)
MID(X,Y,Z)
FLR(X)
CEIL(X)
```

```
COS(X)
SIN(X)
ATAN2(DX,DY)
```

```
--
SQRT(X)
ABS(X)
RND(X) -- 0 <= N < X
SRAND(X) -- SET RND SEED
SGN(X) -- -1 OR 1
-- FUNC -- OPERATOR
BAND(X,Y) &
BOR(X,Y) |
BXOR(X,Y) ^^
BNOT(X) ~
SHL(X,N) <<
SHR(X,N) >>
LSHR(X,N) >>>
ROTL(X,N) <<>
ROTR(X,N) >><
```

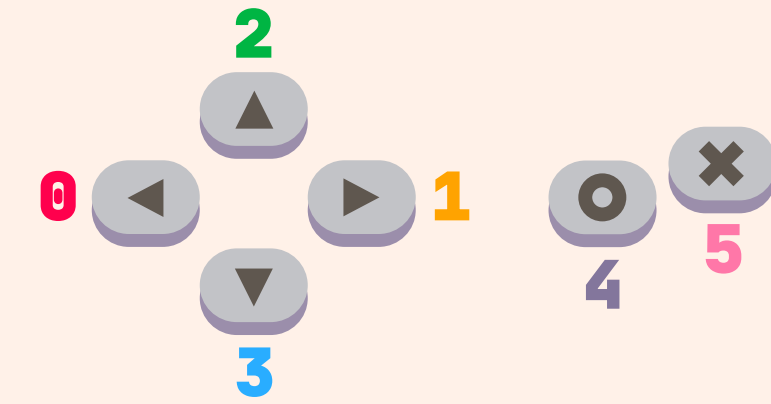
STRINGS+TYPES

```
S = "HELLO"
S = [[HELLO
MULTILINE]]
#STRING -- LENGTH
"X="..X -- CONCAT
CHR(C) -- CHR(64)="@"
ORD(STR) -- ORD("@")=64
SPLIT(STR,[SEP],[TO_NUM])
SUB(STR,POS0,[POS1])
TOSTR(VAL,[FLAGS])
TONUM(VAL,[FLAGS])
TYPE(VAL)
```



By @Liquidream - v1.1
Inspired by @LightBWK's

CONTROLS



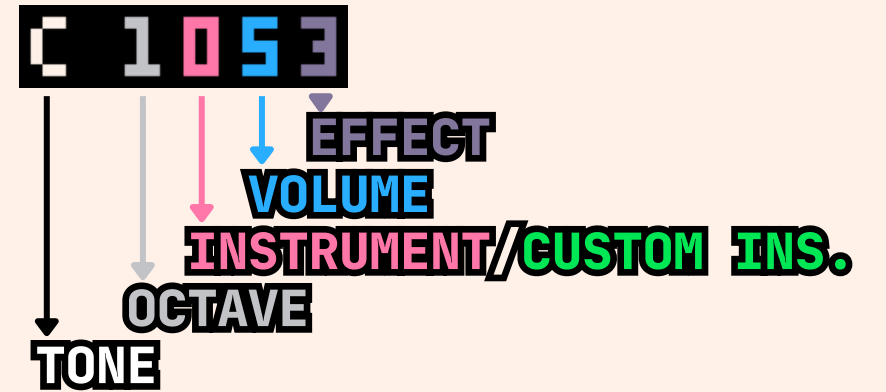
P1:▲▼◀▶ Z,X | C,V | N,M
P2:SFED LSHIFT,A | TAB,Q
PAUSE: P/ENTER
BTN([I,[P]])
BTNP([I,[P]])

AUDIO

```
SFX(N,[CH],[OFFSET],[LEN])
MUSIC([N,[FADE,[MASK]]])
```

TRACKER

C	D	F	G	A	C	D	F	G	A
#	#	#	#	#	#	#	#	#	#
S	D	G	H	J	2	3	5	6	7
C	D	E	F	G	A	B	C	D	E
Z	X	C	V	B	N	M	Q	W	E
R	T	Y	U						



-- EFFECTS

- 0 None
- 1 Slide
- 2 Vibrato
- 3 Drop
- 4 Fade In
- 5 Fade Out
- 6 Arpeggio Fast
- 7 Arpeggio Slow

A	■	= 0.5	N	♪	= -25792.5
B	▤	= 23130.5	O	📺	= 4
C	📺	= 20767.5	P	♣	= -20032.5
D	📺	= 3	Q	⋯	= -2560.5
E	📺	= 32125.5	R	📺	= 1
F	📺	= -18402.5	S	♣	= -20128.5
G	📺	= -1632.5	T	📺	= 6943.5
H	📺	= 20927.5	U	📺	= 2
I	📺	= -19008.5	V	📺	= -2624.5
J	📺	= -26208.5	W	📺	= 31455.5
K	📺	= -20192.5	X	📺	= 5
L	📺	= 0	Y	≡	= 3855.5
M	📺	= 21845.5	Z		= 21845.5