

This is the AutoIt Chip8 main window (The non GDI version) :



When playing a Game click inside this box to get the focus for the keyboard.
(and to avoid the annoying windows error sounds)



Button explanations:



Run: Start/Stop the emulation

Step: When the Emulation is paused, this button advances one instruction per click.

- + Increase/Decrease speed delay

BC/FC: Background/Foreground Color chooser.

R: Resets the emulation, restarting the Current rom in the stepping mode. Click on the Run button to start the emulation again.

(this is useful if you want to use the Step function)

B: Reboot the emulation, clearing the memory and loading the built in rom.

M: Mute Sound.

8: This button may make some Games playable - for e.g. if they have graphical glitches.

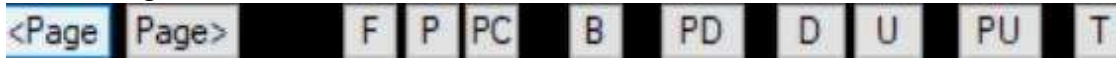
Load: Loads a new Chip8 rom into the memory.

Most of the buttons below affect the right side of the AutoIt Chip emulator.

Some of these are Multi function buttons.

A Multi function button had the main purpose to steer through the Monitor view, but can be used for

other things when not in monitor view.



Page < > switches the Info page. (See the images at the bottom)

F: **On monitor:** Jump to the Font start. **Else:** Change the display to Font #1

P: **On monitor:** Jump to the Program start. **Else:** Change the display to Font #2

PC: **On monitor:** Jump to The PC address. **Else:** Change the pixel type used on the display.

B: **On monitor:** Jump to the bottom of the memory. **Else:** Open the Activity window

PD: **On monitor:** Jump a page down. **Else:** Open the extra keys window.

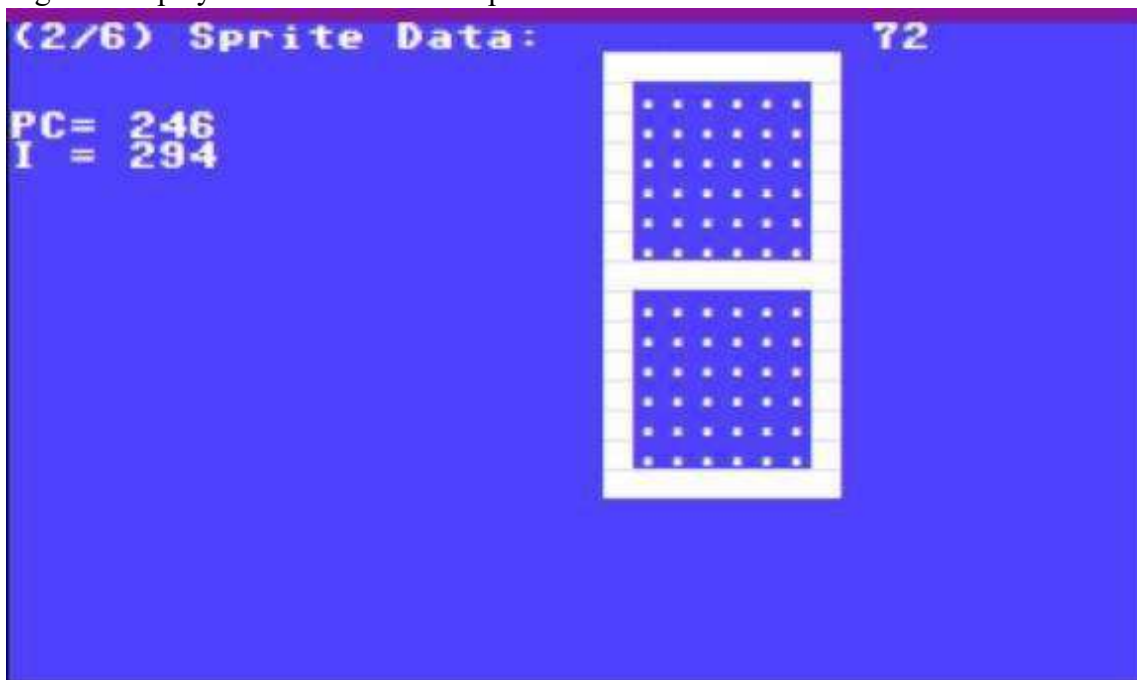
D: **On monitor:** Move the memory view down.

U: **On monitor:** Move the memory view up.

PU: **On monitor:** Jump a page Up.

T: **On monitor:** Jump to the Beginning of the memory. **Else:** Opens the config file in the Notepad.

Page 2 - Displays the Current drawn Sprite:



Page 3 - Registers and Stack

```
(3/6) V Register and Stack
V(00)=2C      S(0)=000      Cycle 72
V(01)=08      S(1)=000      PC: 246 582
V(02)=10      S(2)=000      I= 0294 660
V(03)=00      S(3)=000      SP= 0
V(04)=00      S(4)=000
V(05)=00      S(5)=000
V(06)=00      S(6)=000
V(07)=00      S(7)=000
V(08)=00      S(8)=000
V(09)=00      S(9)=000
V(0A)=00      S(A)=000
V(0B)=00      S(B)=000
V(0C)=00      S(C)=000
V(0D)=00      S(D)=000
V(0E)=00      S(E)=000
V(0F)=00      S(F)=000
```

Page 4 - Emulator State (Opcodes, Instruction, Registers and Error Messages...)

```
(4/6) Emulator state
PC: 246 cycle 72 I= 0294
Opcode:.....1246 (4678)
Instruction 1000 (4096)
Address:.....246 (582)
byte:.....46 (70)
Value.....6 (6)
Vx:.....2 (2)
Vy:.....4 (4)
Delay= 00 Sound= 00 Sound is On
iNNN Jump to address
Address = 246
ErrorMsg: Stopped: Infinite Loop 246
```

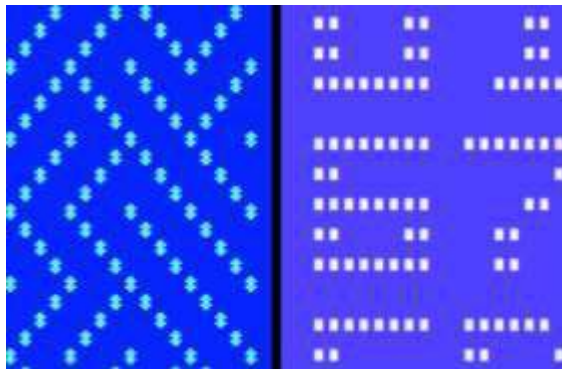
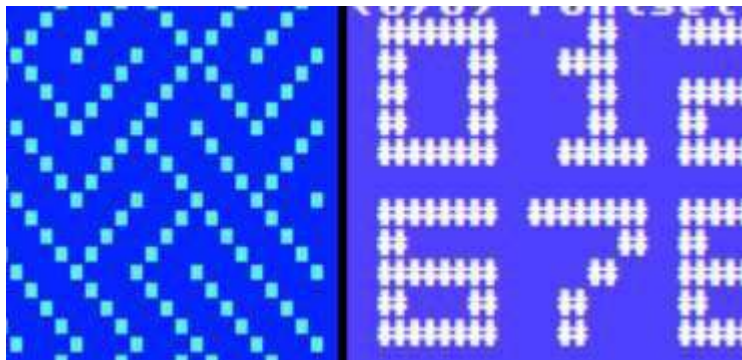
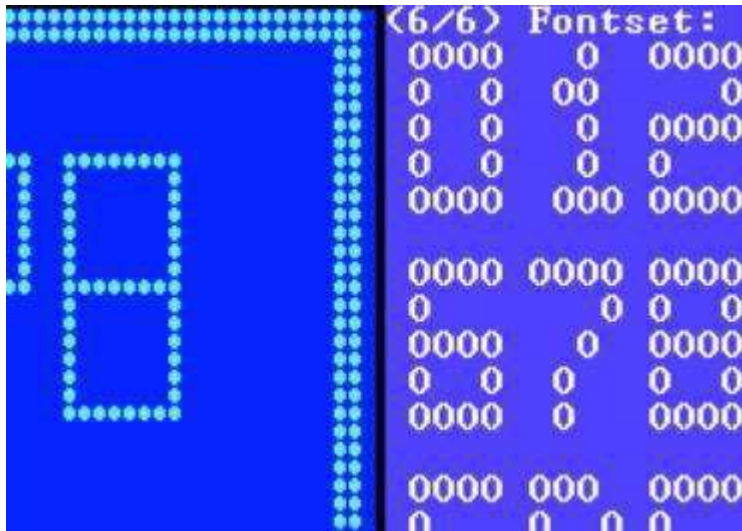
The error message will display what caused the Emulator to Stop.



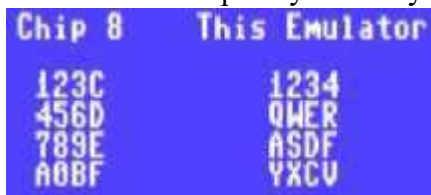
Page 6 - Current fontset. Only the first 16 chars (which is default font) are displayed:



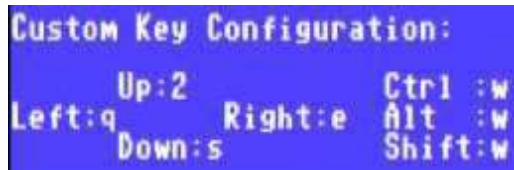
Some of the different Pixel types:



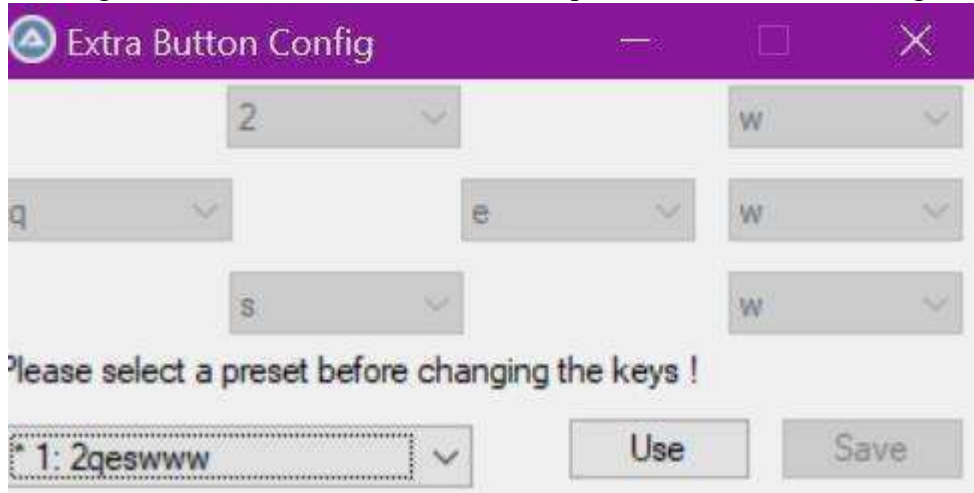
The standard Chip8 keyboard layout is assigned to the following windows keys:



However, you can assign 7 of these keys to Arrow (Up, Left, Right, Down) Ctrl, Alt and Shift keys. The first info page is displaying the currently used custom keys:



Pressing the Multi function button PD will open the Extra Button Configurator:



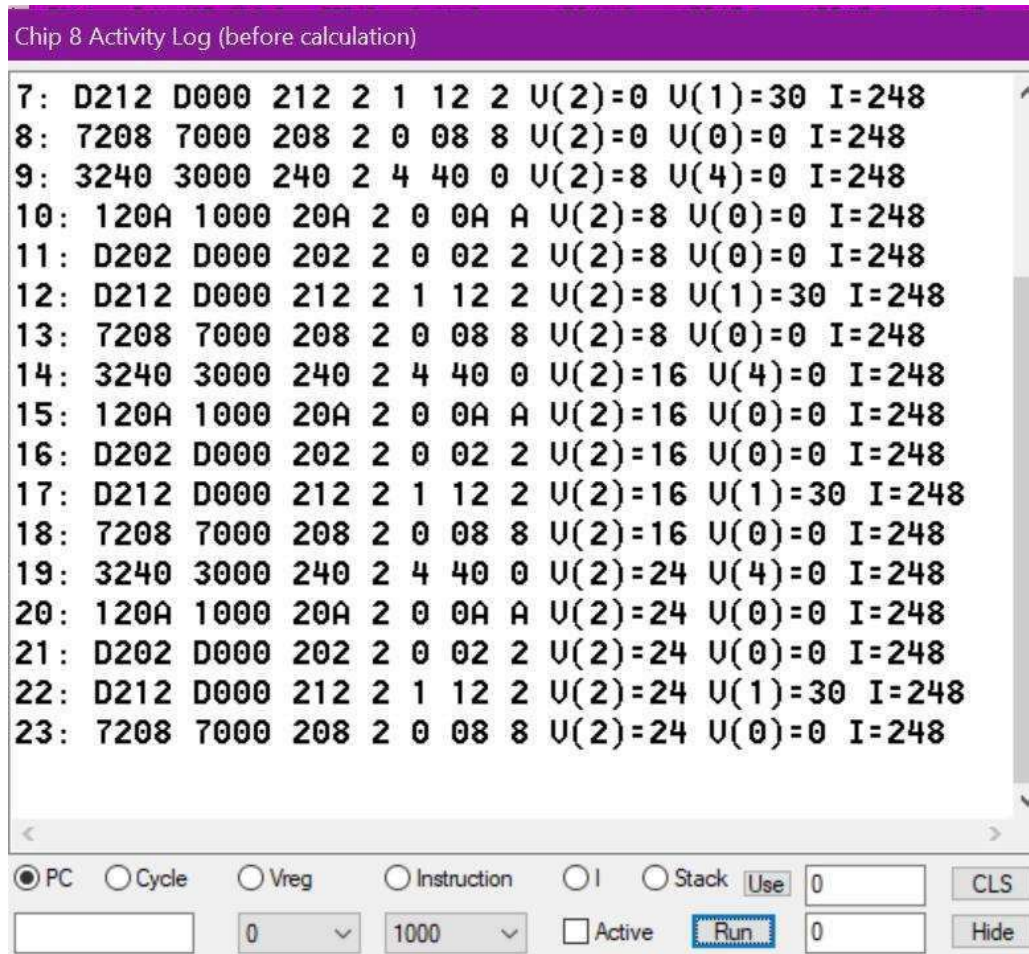
Currently the first 2 presets are already defined and can not be changed. (bottom left side)

The non changeable presets have a * in front of the number and all other buttons are

disabled. To change the keys, first select a Preset (2 to 9). Then choose the Keys from the boxes above.

The "Use" button will choose the Current settings (but will not save it to the Ini file) and the window will be closed.

The Save button will save the Current settings to the Ini file, overwriting the existing preset !



The displayed String format means:

Cycle Nr. Opcode Instruction Address Vy Vx Byte Value Content of Vy Content of Vx and I

The CLS button clears the Output.

The Hide button stops the Data collection and hides the window.

The 2 Input boxes are used for Decimal/Hexadecimal conversion. The above is decimal (0-10). The below is for the Hexadecimal numbers (0-F).

The Use button will place the Decimal number to the Input box to the left side.

The Run button will start/stop the emulation from here.

The Active checkbox activates the debugging functions. The emulation can be stopped whenever a PC, Cycle, Vreg, Instruction, I or Stack contains a number.

For PC, Cycle, Vreg, I and Stack, enter the desired number into the Bottom Left box.

Vreg needs, additionally a number from the box below it.

Instruction will stop the emulation whenever the selected instruction is executed.

This emulator was written in December 2024 (first in Blizbasic then converted to AutoIt) while watching the following video series:

<https://www.youtube.com/watch?v=AsukaPLuTsU>

Some of the bug fixing was done with the help of : [https://](https://www.youtube.com/watch?v=YvZ3LGaNiS0)

www.youtube.com/watch?v=YvZ3LGaNiS0

and with the help of <https://github.com/Timendus/chip8-test-suite> and <https://chip8.dotslashdan.com/>

and <https://tobiasvl.github.io/blog/write-a-chip-8-emulator/#instructions>

The roms are from the following sites:

<https://github.com/kripod/chip8-emulator>

<https://github.com/Timendus/chip8-test-suite>

[te https://](https://www.zophar.net/chip8/00schip8.html)

www.zophar.net/chip8/00schip8.html

<https://chip8.dotslashdan.com/>

<https://github.com/loktar00/chip8>

More links:

<https://github.com/craigthomas/Chip8Java>

<https://github.com/gulrak/cadmium>

<https://chip8.gulrak.net/>

<https://github.com/JohnEarnest/Octo/blob/gh-pages/js/emulator.js>

<https://github.com/JohnEarnest/chip8Archive>

Additional notes:

The beeping Sound can be changed through the ini file. At the start, the beep.wav is loaded by default (and the entry in the ini file is made).

You can change the ini file to point at any wav file. (eventually mp3 as well).

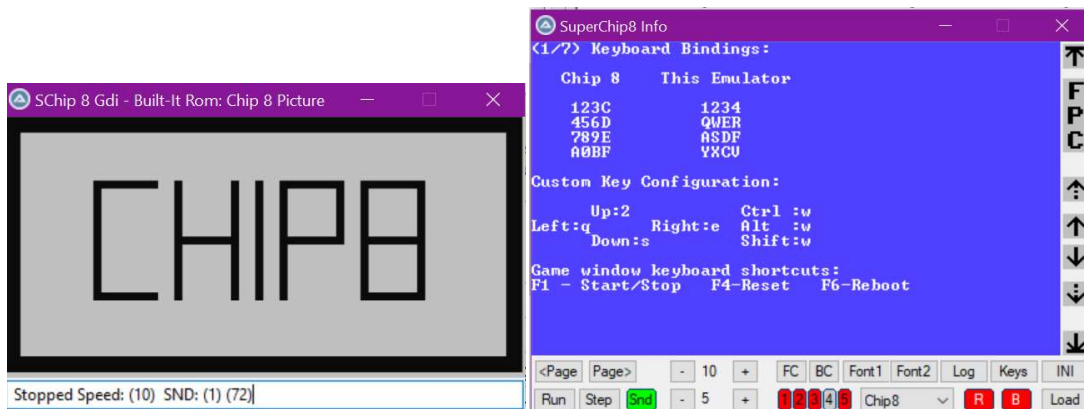
In the ini file, you can set up 2 sound drivers (functions to play the sound) 0 - Using the _WinApi functions

1 - Using the AutoIt's _PlaySound() function

The Sound driver changes are active only upon restarting the emulator.

The second font used here is the C64 Pro mono, which can be downloaded from here <https://style64.org/c64-truetype/>

The Super Chip8 version has a few differences, like:
Split window - Game and Info windows are now separated:



The buttons are on the different positions as well and all the multi function buttons are converted to normal buttons.

Additionally, this version has selectable profiles, which turn the various "Quirks" On or Off. (Buttons 1-5 and the Chip 8 combo box)

The Reset button (Red R) resets the emulation and starts the Game. Holding shift while pressing the reset button will only reset the emulation allowing you to debug/trace the machine state from the beginning.

The F1/F4/F6 keyboard shortcuts are useable only while the game window is active.

Clicking on the x button on the info window will minimize it to the taskbar. You can close the emulation only from the Game window.