Chip8 Emulator in C

Kirjan Kohuladas/kprime21

Overview

Compact Hexadecimal Interpretive Programming – 8-bit

Components

- Memory - 4kB ram (4096 bytes - 4096 address lines each line is 1 byte)
- Display - 64 x 32 pixels
- Registers
  - Program Counter (16 bits)
  - Index Register (16 bits)
  - Stack - call subroutines and functions (16 bits)
  - Delay timer - decremented at 60Hz (8 bits)
  - Sound timer - decremented at 60Hz (8 bits)
  - 15 General purpose registers - V0 - VF (8 bits)

Memory

- all memory is RAM, 4096 bytes.
  - 4096 addressable lines
  - 12 bits needed
  - each addressable line represents an addresss of 1 byte.
- interpreter located 0x000-0x1FF (not in our case)
- program located 0x200 - 0x...
- font located before program 0x000-0x1FF (popular area - 0x050 - 0x09F)

Font

- font character should be 4px x 5px
- first byte is the character (draw vertically in nvim to see)
- stored in memory, index register set to specific font in memory to draw it

Display

- 60Hz - 60 times per second

Main

- Read through emulator guide

To Do

- Setup directory to ignore makefile outputs

Finished

- Set up SDL libray in C file
- Set up make file for compilation

Reference

- https://tobiasvl.github.io/blog/write-a-chip-8-emulator/