

CHIP-8 Instruction Set

<http://octo-ide.com>

N is a number between 0 and 15.

NN is a number between 0 and 255.

NNN is an address between 0 and 4095.

vx and vy are registers (0-F).

i is the memory index register.

Instructions in gray rows may modify the vF register.

Machinecode	Octo Instruction	Comments
00E0	clear	Exit a subroutine
00EE	return	
1NNN	jump NNN	
2NNN	NNN	
3XNN	if vx != NN then	
4XNN	if vx == NN then	
5XY0	if vx != vy then	
6XNN	vx := NN	
7XNN	vx += NN	
8XY0	vx := vy	
8XY1	vx = vy	
8XY2	vx &= vy	
8XY3	vx ^= vy	
8XY4	vx += vy	vf = 1 on carry vf = 0 on borrow vf = old least significant bit vf = 0 on borrow vf = old most significant bit
8XY5	vx -= vy	
8XY6	vx >>= vy	
8XY7	vx <<= vy	
8XYE	vx <<= vy	
9XY0	if vx == vy then	Jump to address NNN + v0 Random number 0-255 AND NN
ANNN	i := NNN	
BNNN	jump0 NNN	
CXNN	vx := random NN	
DXYN	sprite vx vy N	vf = 1 on collision
EX9E	if vx -key then	Is a key not pressed?
EXA1	if vx key then	Is a key pressed?
FX07	vx := delay	Wait for a keypress
FX0A	vx := key	
FX15	delay := vx	
FX18	buzzer := vx	
FX1E	i += vx	Set i to a hex character Decode vx into binary-coded decimal Save v0-vx to i through (i+x) Load v0-vx from i through (i+x)
FX29	i := hex vx	
FX33	bcd vx	
FX55	save vx	
FX65	load vx	