Ben Eater 8-Bit Computer Instructions Overview

Opcode	Dec	Bin	Step 0	Step 1	Step 2	Step 3	Step 4	Usage	Description
NOP	00	0000	CO|MI	RO|II|CE	0	0	0	0000 XXXX	No operation
LDA	01	0001	CO|MI	RO|II|CE	IO|MI	RO|AI	0	0001 AAAA	Load contents of memory address AAAA into A register
ADD	02	0010	CO|MI	RO|II|CE	IO|MI	RO|BI	EO|AI|FI	0010 AAAA	Load contents of memory address AAAA into A register , add A+B, store result in A register
SUB	03	0011	CO|MI	RO|II|CE	IO|MI	RO|BI	EO|AI|SU|FI	0011 AAAA	Load contents of memory address AAAA into B register, subtract A-B, store result in A register
STA	04	0100	CO|MI	RO|II|CE	IO|MI	AO|RI	0	0100 AAAA	Store contents of A register at memory address AAAA
LDI	05	0101	CO|MI	RO|II|CE	IO|AI	0	0	0101 VVVV	Load 4-bit immediate value into A register (loads VVVV into A register)
JMP	06	0110	CO|MI	RO|II|CE	IO|J	0	0	0110 AAAA	Unconditional jump: Set program counter to AAAA, to resume execution from there
JC	07	0111	CO|MI	RO|II|CE	IO|J / 0	0	0	0111 AAAA	Jump if carry: Set program counter to AAAA when carry flag is set, to resume from there. When carry flag is not set, resume normally.
JZ	08	1000	CO|MI	RO|II|CE	IO|J / 0	0	0	1000 AAAA	Jump if zero: Set program counter to AAAA when zero flag is set, to resume from there. When zero flag is not set, resume normally.
	09	1001	CO|MI	RO|II|CE	0	0	0		
	10	1010	CO|MI	RO|II|CE	0	0	0		
	11	1011	CO|MI	RO|II|CE	0	0	0		
	12	1100	CO|MI	RO|II|CE	0	0	0		
	13	1101	CO|MI	RO|II|CE	0	0	0		
OUT	14	1110	CO|MI	RO|II|CE	AO|OI	0	0	1110 XXXX	Output contents of A register to 7-segment display; displayed as decimal
HLT	15	1111	CO|MI	RO|II|CE	HLT	0	0	1111 XXXX	Halt execution