

Pip Assembler Summary

Symbols Used

X for a symbolic or numeric data address.

#N for a literal number N as data

Acc refers to the accumulator

L refers to a symbolic code label or numeric code address

Instructions Pseudo Python syntax for what happens

Data Flow

LOD X (or #N) $Acc = X$ (or N)

STO X $X = Acc$ (copy Acc to location X)

Control

JMP L $IP = L$ (go to instruction L)

JMZ L if $Acc == 0$: $IP = L$ else: $IP = IP + 2$ (normal)

NOP No operation; just go to next instruction

HLT Halt execution

Arithmetic-Logic

ADD X (or #N) $Acc = Acc + X$ (or N)

SUB X (or #N) $Acc = Acc - X$ (or N)

MUL X (or #N) $Acc = Acc * X$ (or N)

DIV X (or #N) $Acc = Acc / X$ (or N)

AND X (or #N) if $Acc \neq 0$ and $X \neq 0$: $Acc = 1$ else: $Acc = 0$

NOT if $Acc == 0$: $Acc = 1$ else: $Acc = 0$

CPZ X if $X == 0$: $Acc = 1$ else: $Acc = 0$

CPL X if $X < 0$: $Acc = 1$ else: $Acc = 0$

In source files: An instruction may be preceded by a label and a colon. Any line may end with a comment. A comment starts with ';' and extend to the end of the line.

0000	ADD
0001	SUB
0010	MUL
0011	DIV
0100	LOD
0101	STO
1000	AND
1001	NOT
1010	CPZ
1011	CPL
1100	JMP
1101	JMZ
1110	NOP
1111	HLT