

#	Hex	Binary	Assembly code	Description
0	2c	001 0 1110	Load 14	Load the value which is in memory location 14
1	b0	101 1 0000	Equal #0	if accumulator value is 0
2	d4	110 1 0100	Jump #4	Jump to instruction 4
3	c0	111 1 0000	halt	Stop execution
4	2f	001 0 1111	Load 15	Load the value which is in memory location 15
5	6+	011 0 1111	Add 15	Add the value of the memory location 15 to accumulator
6	4f	010 0 1111	Store 15	Store the value of accumulator in memory location 15
7	2c	001 0 1110	Load 14	Load the value which is in memory location 14
8	91	100 1 0001	Sub #1	Subtract value 1 from the accumulator
9	4c	010 0 1110	Store 14	Store the value of accumulator in memory location 14
10	cb	110 0 1011	Jump 11	Jump to instruction 11
11	00	000 0 0000	Data 0	no instruction/data, initialized to 0
12	00	000 0 0000	Data 0	"
13	00	000 0 0000	Data 0	"
14	06	000 0 0110	Data 6	initialized to stored value
15	01	000 0 0001	Data 1	initialized to store value

⑥ ACC 6 2 6 5 2 5 4 4 4 3 8 3 2
 M[14] 5 4 3 2 1 0
 M[15] 2 4 8 16 32 64

So in this assembly code when the program halts it leaves the value 64 in the memory cell 15.

in memory location 14
 if accumulator value is 0
 4

is in memory location 15
 of the memory location 15 to accumulator
 accumulator is in memory location 15.
 is in memory location 14
 from the accumulator
 accumulator in memory location 14

initialized to 0

initialized to stored value
 initialized to store value

16 2 1 32 1

The program works as follow

First the value of cell memory 14 is loaded in the accumulator. Then in the next step the value is compared with 0 which is not true so the program moves to the next step. In next step the assembly code is jump to instruction 4.

The program goes to the instruction 4 where the value of cell memory 15 is loaded in the accumulator. In next step the values are added and the result is stored in cell memory 15.

Then cell value of cell memory 14 is loaded in the accumulator. In next step 1 is subtracted from that value and stored in cell memory 14.

In next step the instruction is to jump to instruction 11 where

data initialized to 0.

The following steps continues untill the value of cell memory 14 becomes 0. The 0 and Equal #0 matches and the program terminates.

(d) if the value of cell memory 14 is changed to 10. Binary conversion of 10 ~~is~~ from hexadecimal ~~is~~ 0001 0000

So assembly code will be Data 0.
~~It~~ when the program will be executed it will load the value of cell memory 14 which 0.

Then 0 will match Equal #0 and the program will terminate.