

16-bit Subtract Program

This program subtracts two 16-bit numbers. It computes:

$$CD = CD - XY$$

For example:

C:	1001 1101	D:	1101 0101	40,405
X:	0101 1001	Y:	1001 1101	- 22,941
C:	0100 0100	D:	0011 1000	17,464

Here is slightly different example, in which the jump is not taken:

C:	1001 1101	D:	1101 0101	40,405
X:	0101 1001	Y:	0001 1101	- 22,813
C:	0100 0100	D:	1011 1000	17,592

Address	Instruction	
0000 0000	0000 1111	B = Y
0000 0001	1000 0101	A = NOT B
0000 0010	0011 1000	Y = A
0000 0011	0000 1110	B = X
0000 0100	1000 0101	A = NOT B
0000 0101	0011 0000	X = A
0000 0110	1011 0000	XY = XY + 1
0000 0111	0000 1110	B = X
0000 1000	1000 0000	A = B+C
0000 1001	0010 0000	M1 = A
0000 1010	0000 1011	B = D
0000 1011	0001 0111	C = Y
0000 1100	1000 1000	D = B+C
0000 1101	0001 0100	C = M1
0000 1110	1110 1000	BNC DONE
0000 1111	0000 0000	.
0001 0000	0001 0100	.
0001 0001	0000 1010	B = C
0001 0010	1000 0001	A = B+1
0001 0011	0001 0000	C = A
0001 0100	1010 1110	Done: HALT