List of Instructions for the 8-Bit Computer

Instruction Format

MSB							LSB
C	B	A	M	S3	S2	S1	S0

S0-S3, M Function select for 74181 ALU:

M = 0 C_n = 0 (Carry Input)

Select	Store in	Function
0	B	A PLUS 1
1	C	(A + B) PLUS 1
2	C	(A + !B) PLUS 1
3	A	ZERO
4	C	A PLUS A!B PLUS 1
5	C	(A + B) PLUS A!B PLUS 1
6	C	A MINUS B
7	C	A!B
8	C	A PLUS AB PLUS 1
9	C	A PLUS B PLUS 1
A	C	(A + !B) PLUS AB PLUS 1
B	C	AB
C	B	A PLUS A PLUS 1
D	C	(A + B) PLUS A PLUS 1
E	C	(A + !B) PLUS A PLUS 1
F	B	A

M = 0 C_n = 1

Select	Store in	Function
0	B	A
1	C	A + B
2	C	A + !B
3	A	MINUS 1 (2's complement)
4	C	A PLUS A!B
5	C	(A + B) PLUS A!B
6	C	A MINUS B MINUS 1
7	C	A!B MINUS 1
8	C	A PLUS AB
9	C	A PLUS B
A	C	(A + !B) PLUS AB
B	C	AB MINUS 1
C	B	A PLUS A (Each bit is shifted to the next more significant position)
D	C	(A + B) PLUS A
E	C	(A + !B) PLUS A
F	B	A MINUS 1

M = 1

Select	Store in	Function
0	B	!A
1	C	!(A + B)
2	C	!AB
3	A	0
4	C	!(AB)
5	B	!B
6	C	A ^ B
7	C	A!B
8	C	!A + B
9	C	!(A ^ B)
A	B	B
B	C	AB
C	A	1
D	C	A + !B
E	C	A + B
F	B	A

C,B,A Special Instructions:

C-A	Function
0	$C_n = 0$
2	$C_n = 1$
4	Store Input Port 1 in address A
6	Store Input Port 2 in address A
8	Output A to Port 3
A	Output A to Port 4
C	Jump to address A
E	If A == B then Jump, $C_n = 1$