Specifications for the Four-Instruction Computer (FIC)

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State Transition Table

state	I	carry	Mem/A	Mem/R	MemWR	A	PC	R	carry	state	
						A	PC	R	carry	-	*(defaults)*
fd	add	x	PC	Mem	0	D	PC+1	-	-	mr_add	
fd	nor	x	PC	Mem	0	D	PC+1	-	-	mr_nor	
fd	sav	x	PC	Mem	0	D	PC+1	-	-	mw0	
fd	jcz	0	PC	Mem	0	x	D	-	-	fd	
fd	jcz	1	PC	Mem	0	x	PC+1	-	0	fd	
mw0	x	x	A	R	0	-	-	-	-	mw1	
mw1	x	x	A	R	1	-	-	-	-	mw2	
mw2	x	x	A	R	0	x	-	-	-	fd	
mr_add	x	x	A	Mem	0	x	-	R+D	R+D carry	fd	
mr_nor	x	x	A	Mem	0	x	-	R nor D	0	fd	

Instructions

MS Bits	Instruction	Description
00	add	add value at address encoded in instruction to R, resetting/setting carry as appropriate
01	nor	nor value at address encoded in instruction with R, resetting carry
10	jcz	jump to address encoded in instruction if carry is not set, resetting carry otherwise
11	sav	save value in R at address encoded in instruction

I/O

Initialization: external loader may take over clock and data bus
Regular I/O: when going from state fd, if PC was 0, R takes value of input register and output register takes value in R

Block Diagram