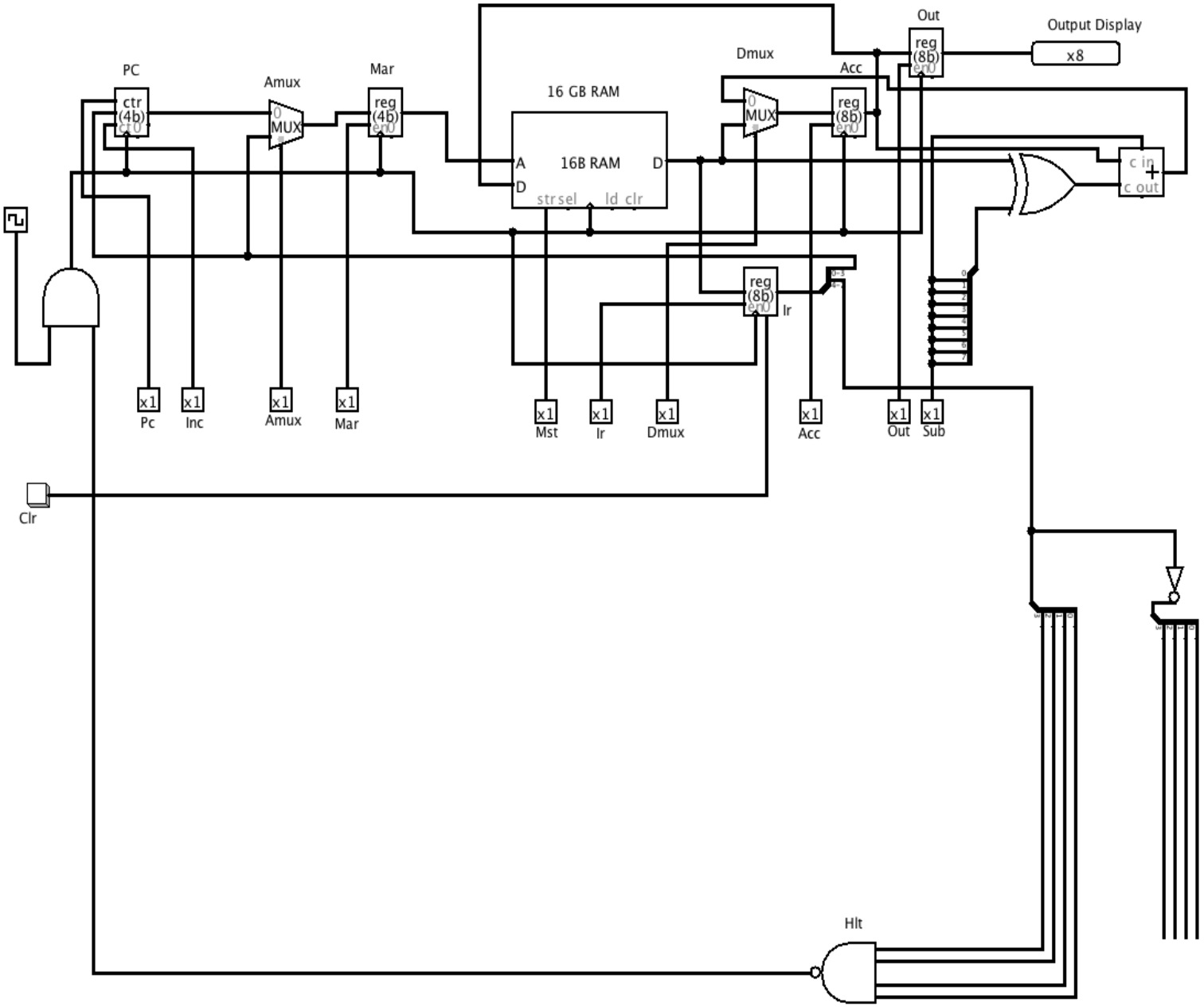
Part 1: Sam Datapath



2) Control Code: Pc, Inc, Amux, Mar, Mst, Ir, Dmux, Acc, Out, Sub (10 bits of control code)

Part 2: Instruction Fetch

Control Code										Action
Pc	Inc	Amux	Mar	Mst	Ir	Dmux	Acc	Out	Sub	(instr fetch)
0	1	0	1	0	0	0	0	0	0	PC→MAR;inc(PC)
0	0	0	0	0	1	0	0	0	0	Mem(MAR)→IR

4) Instruction Fetch worked correctly.

Part 3: Lda Execution

Control Code										Action
Pc	Inc	Amux	Mar	Mst	Ir	Dmux	Acc	Out	Sub	(Lda execution)
0	0	1	1	0	0	0	0	0	0	IR→MAR
0	0	0	0	0	0	1	1	0	0	Mem(MAR)→ACC

3) Lda instruction execution worked correctly.

Part 4:

Control Code										Action
Pc	Inc	Amux	Mar	Mst	Ir	Dmux	Acc	Out	Sub	(Sta execution)
0	0	1	1	0	0	0	0	0	0	IR→MAR
0	0	0	0	1	0	0	0	0	0	ACC→Mem(MAR)

1) **Sta instruction execution worked correctly.**

2) **When the SAM Hlt instruction is loaded into the IR and you toggle the clock, the Hlt stops the clock from entering any of the clocked registers, memory, etc.**

Control Code										Action
Pc	Inc	Amux	Mar	Mst	Ir	Dmux	Acc	Out	Sub	(Add Execution)
0	0	1	1	0	0	0	0	0	0	IR→MAR
0	0	0	0	0	0	0	1	0	0	ACC+Mem(MAR)→ACC

(Add execution worked!)

Control Code										Action
Pc	Inc	Amux	Mar	Mst	Ir	Dmux	Acc	Out	Sub	(Sub Execution)
0	0	1	1	0	0	0	0	0	0	IR→MAR
0	0	0	0	0	0	0	1	0	1	ACC-Mem(MAR)→ACC

(Sub execution worked)