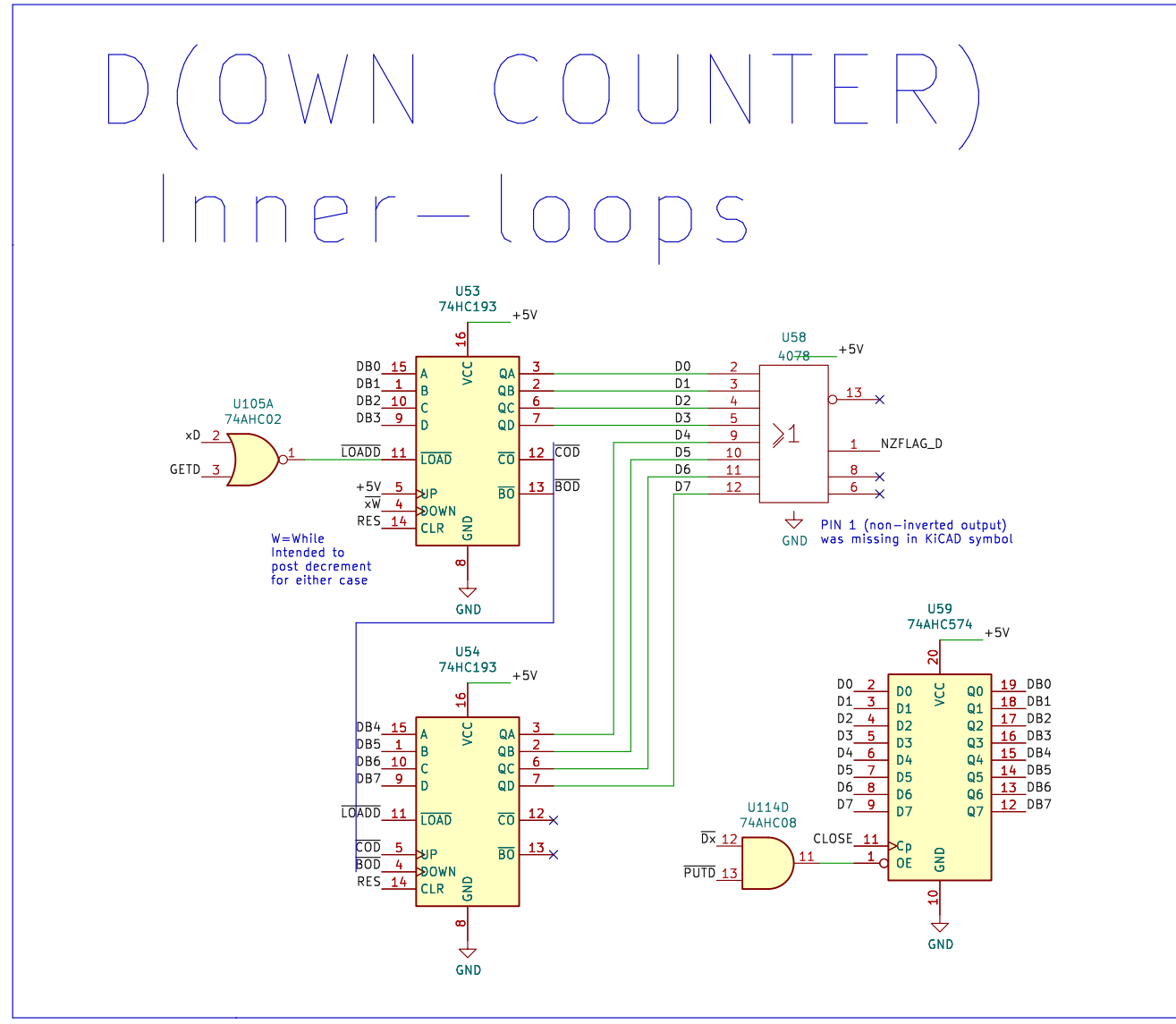
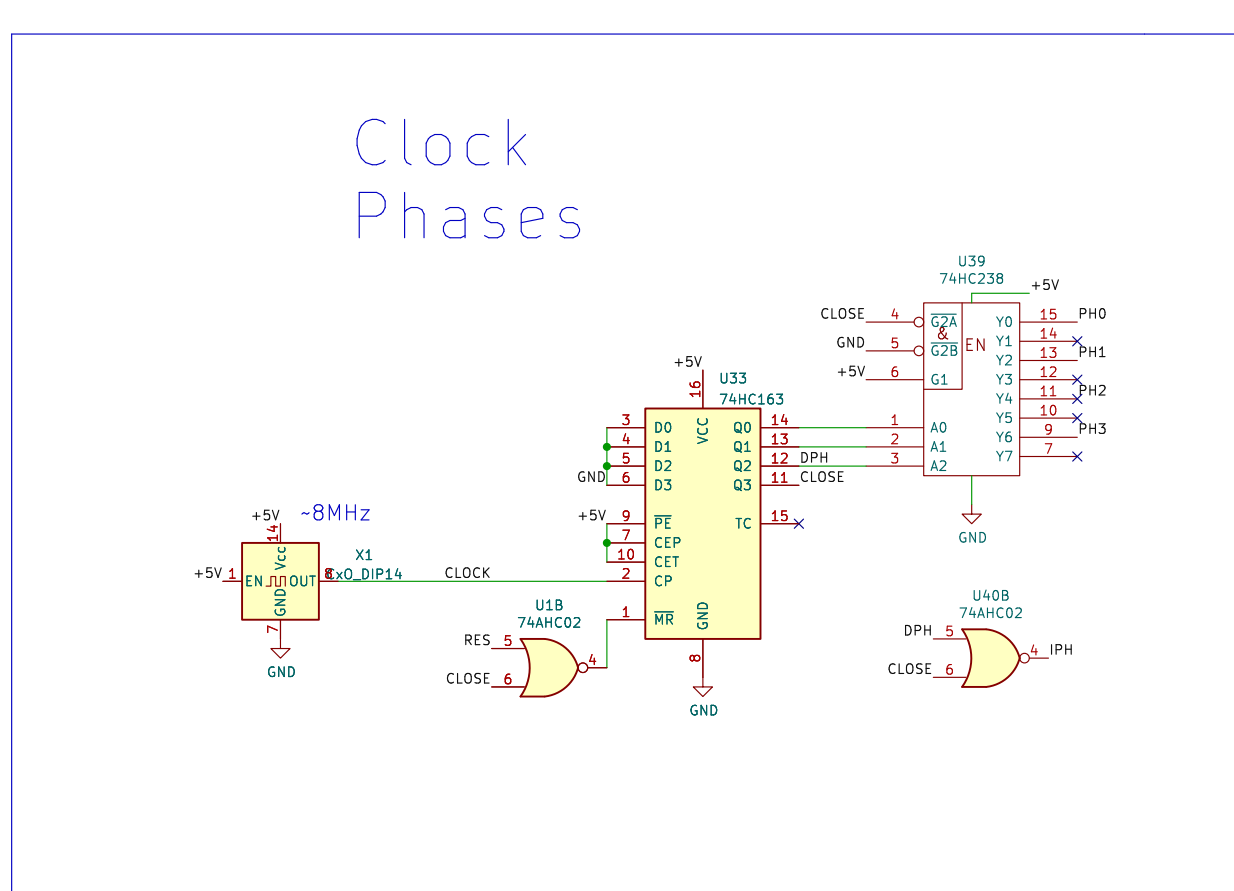
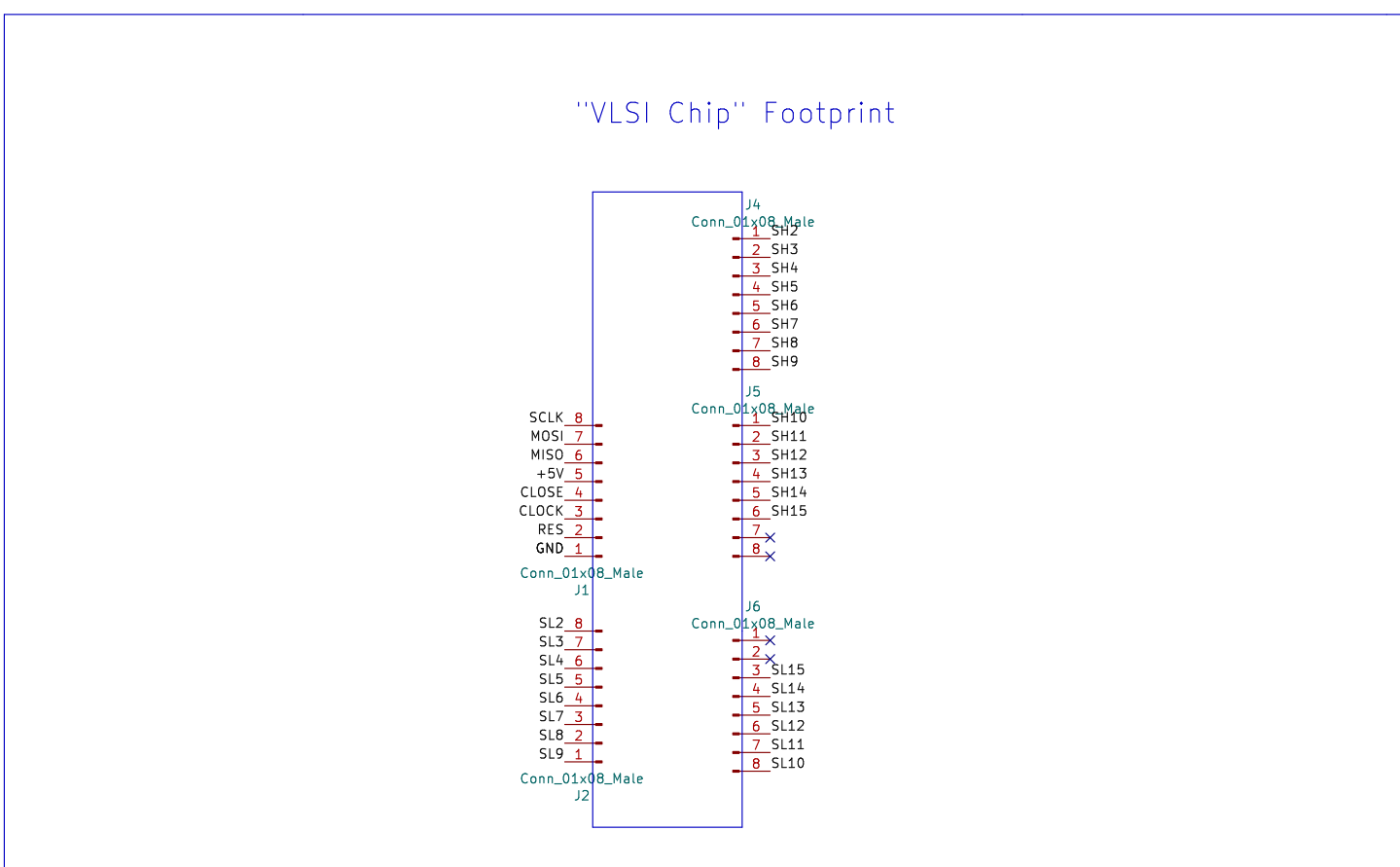


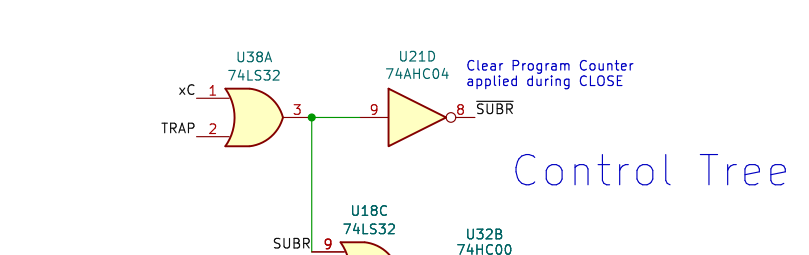
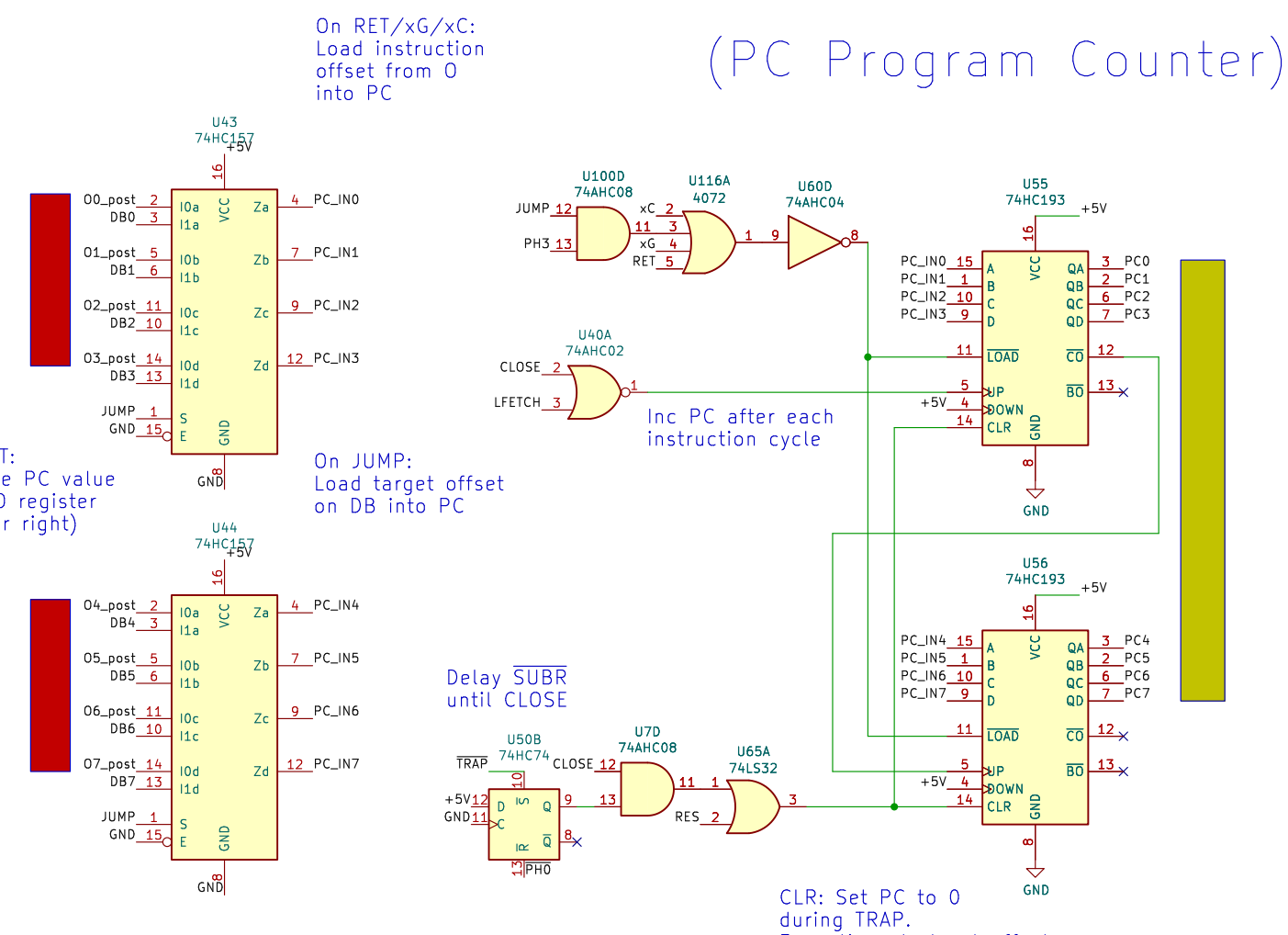
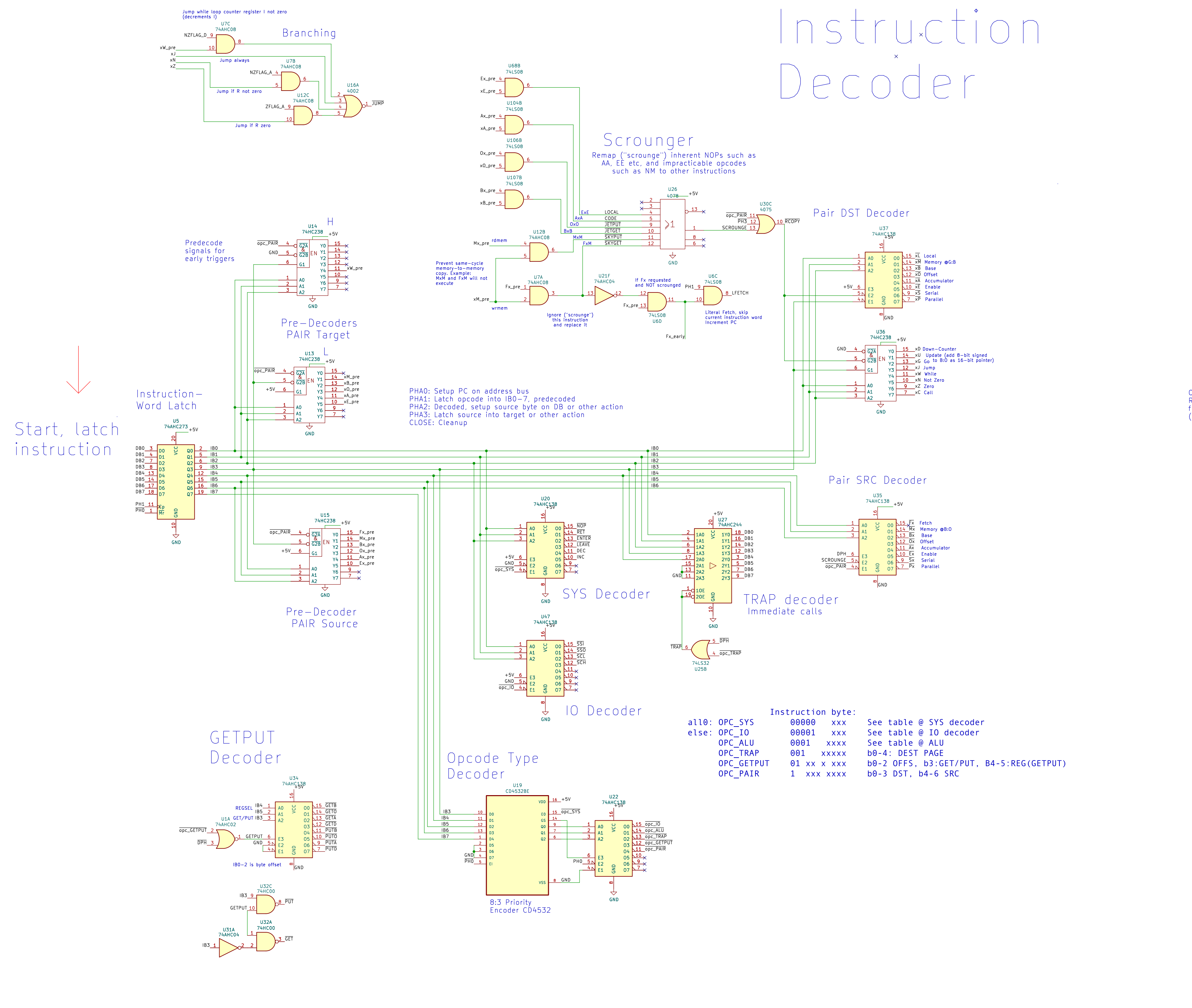
Sonne-8 Microcontroller

Reference Schematics

Rev. Myth

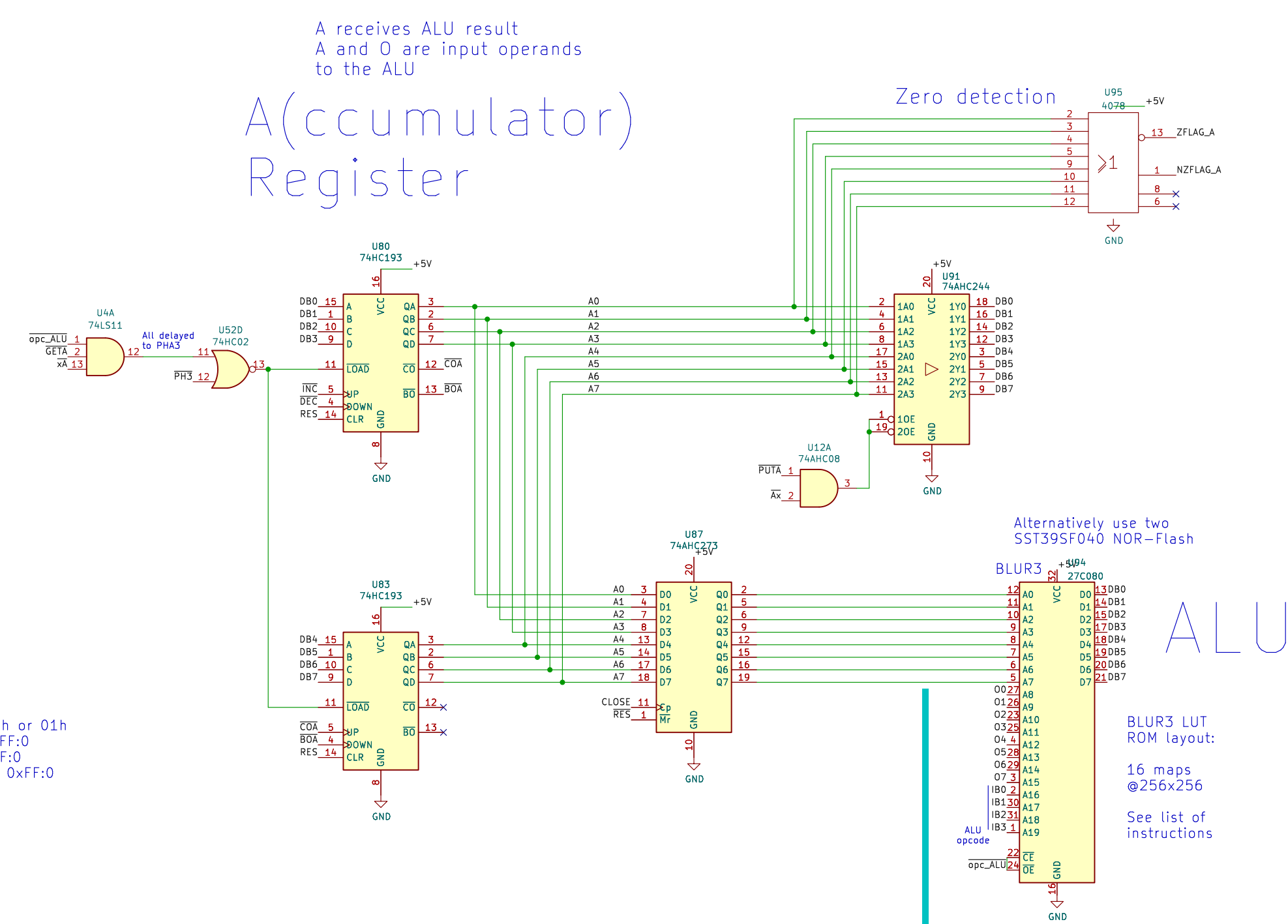


Instruction Decoder

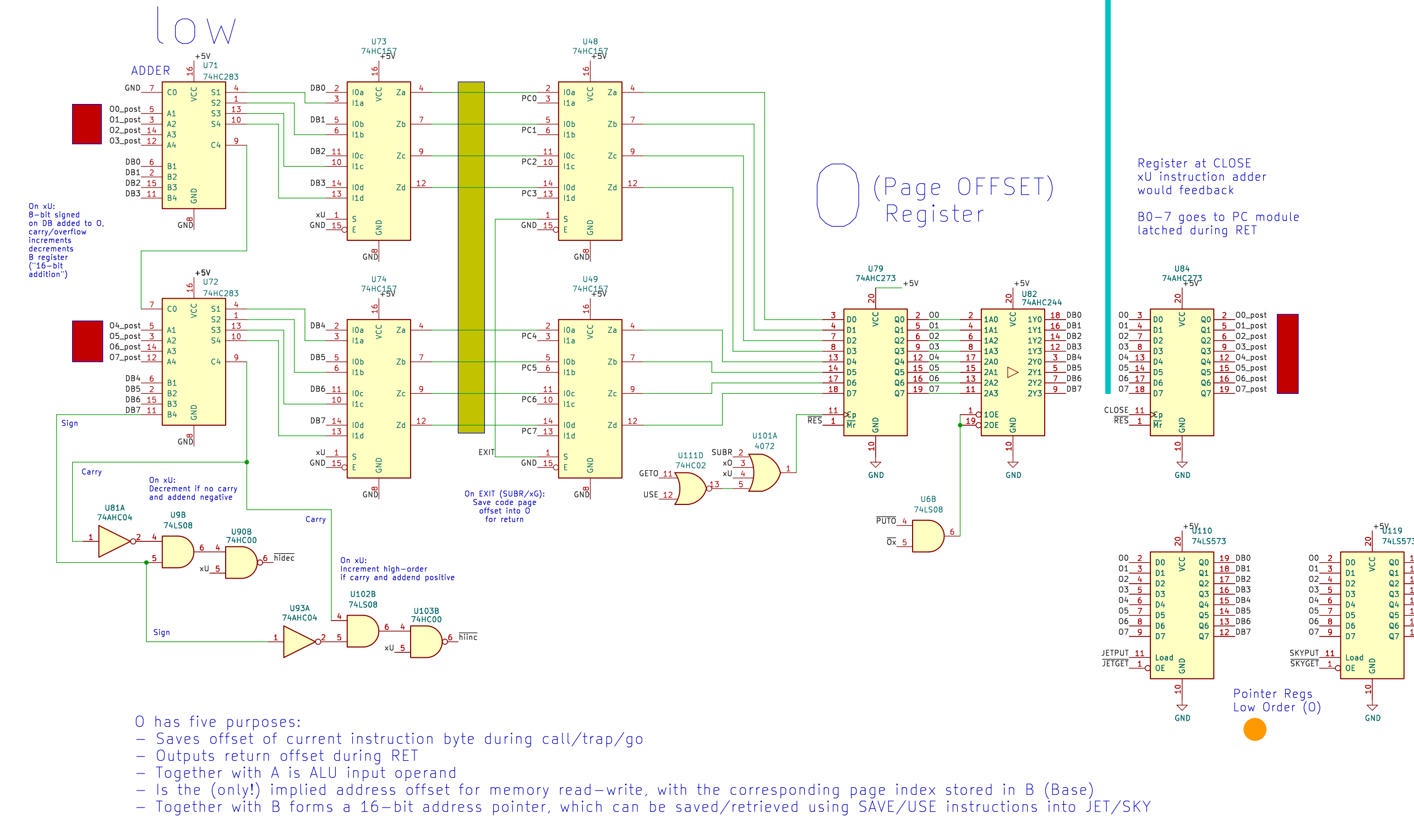


- ### ALU Instructions
- 0 OCA (Ones Complement A) / A := ~A
 - 1 OCO (Ones Complement O) / A := ~O
 - 2 SIA (Shift left A) / A := A << 1
 - 3 SLO (Shift left O) / A := O << 1
 - 4 SRA (Shift right A) / A := A >> 1
 - 5 SRO (Shift right O) / A := O >> 1
 - 6 AND (A := A & O)
 - 7 OR (A := A | O)
 - 8 XOR (A := A ^ O, bits 0-7)
 - 9 CAR (Carry Bit / A := 9th bit of A + O) 0th or 6th
 - 10 ADD (Add / A := A + O) 0th or 6th
 - 11 SBA (Shift left A) / A := A << 1
 - 12 SRO (Shift right A) / A := A >> 1
 - 13 ALD (Flag: A less than O) / A := (A < O) ? 0xFF : 0
 - 14 ALO (Flag: A less than O) / A := (A < O) ? 0xFF : 0
 - 15 ALO (Flag: A greater than O) / A := (A > O) ? 0xFF : 0

A(accumulator) Register



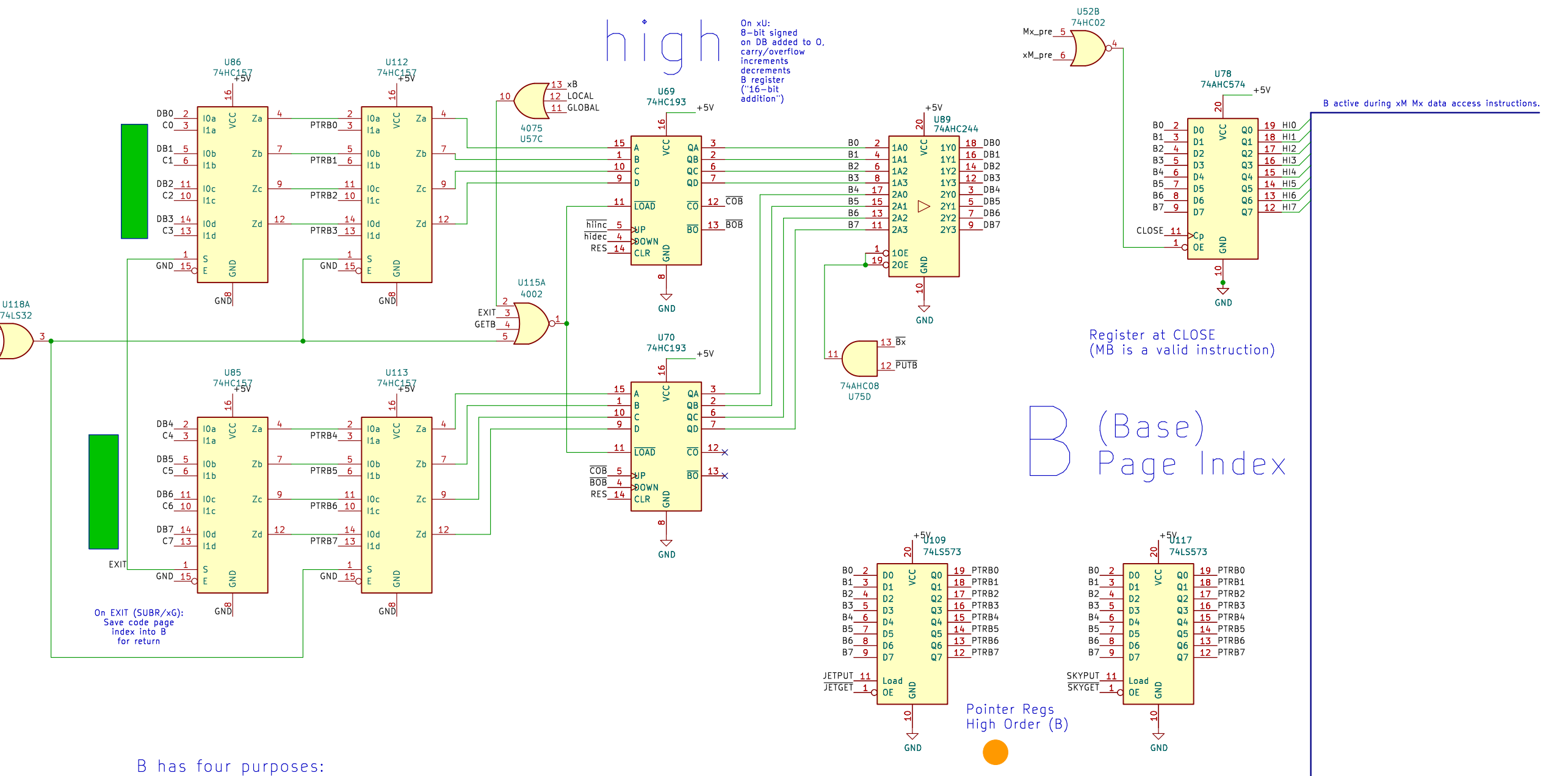
ALU



O (Page OFFSET) Register

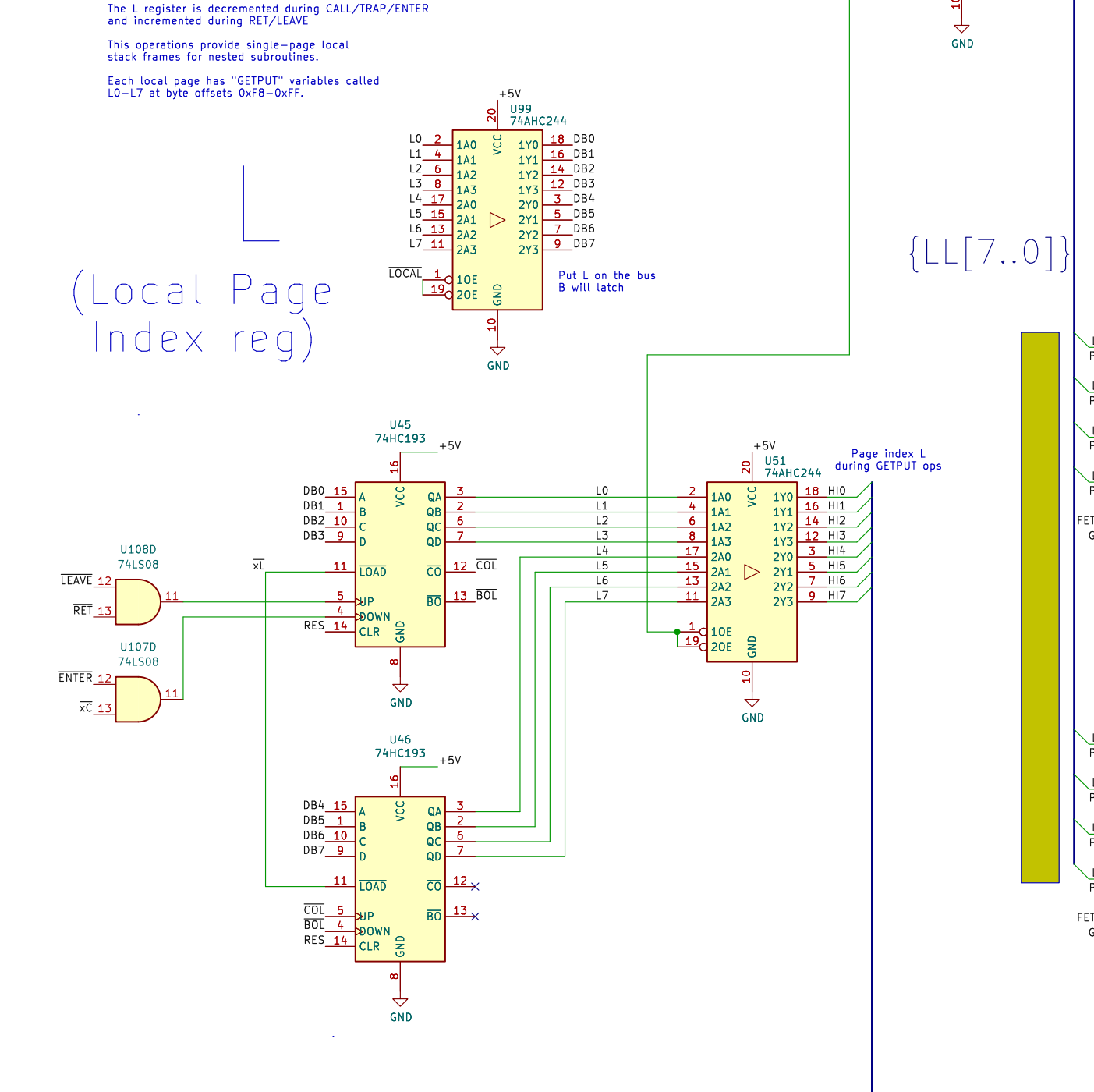
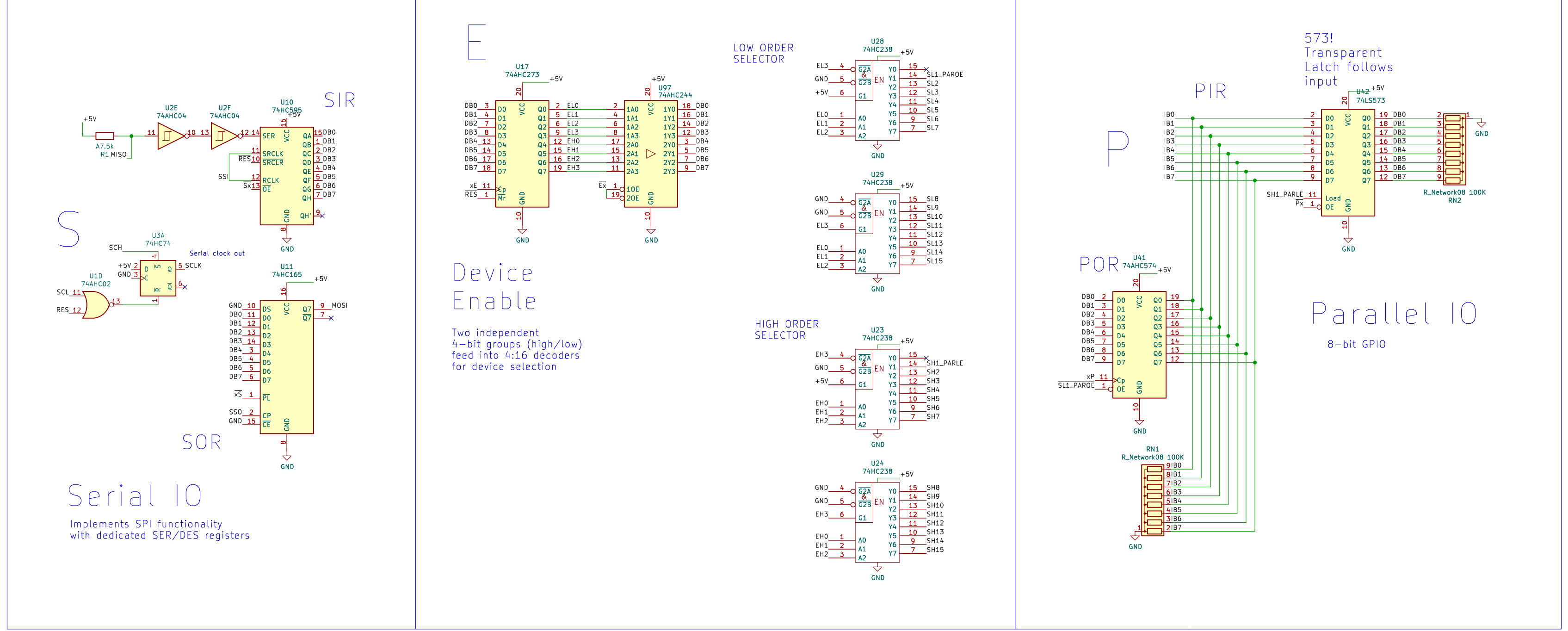
- O has five purposes:
- Saves offset of current instruction byte during call/trap/go
 - Outputs return offset during RET
 - Together with A is ALU input operand
 - Is the (only) implied address offset for memory read-write, with the corresponding page index stored in B (Base)
 - Together with B forms a 16-bit address pointer, which can be saved/retrieved using SAVE/USE instructions into JET/SKY

B (Base) Page Index



- B has four purposes:
- Saves page index of current instruction byte during call/trap/go
 - Outputs return page index during RET
 - Is the implied page index for memory read-write, with the corresponding byte offset stored in O (Offset)
 - Together with O forms a 16-bit address pointer, which can be saved/retrieved using SAVE/USE instructions into JET/SKY

Input/Output

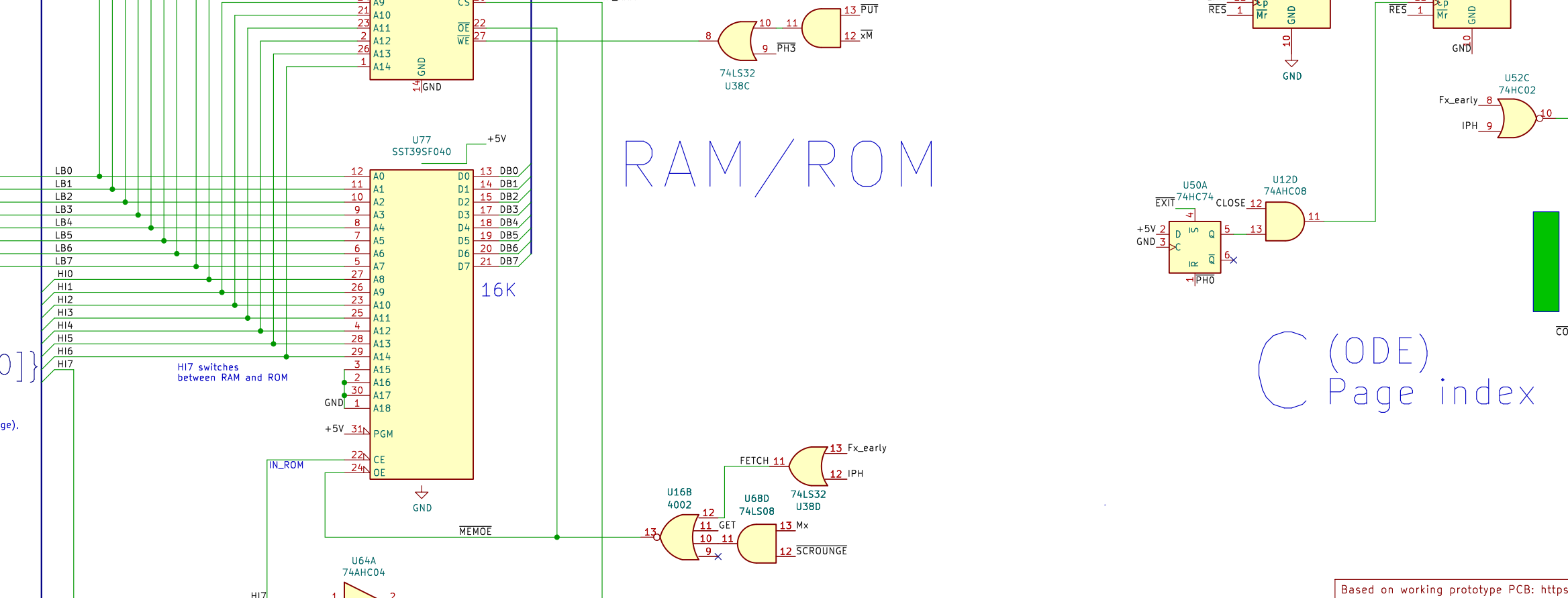


{LL[7..0]}

{LO[7..0]}

{HI[7..0]}

RAM/ROM



C (ODE) Page index