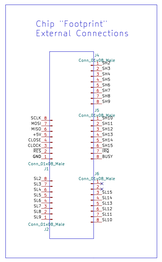
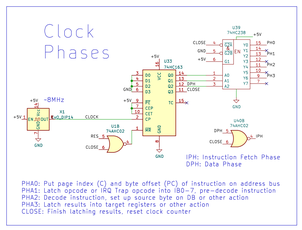
Sonne-8 Microcontroller Reference Schematics Rev. Myth

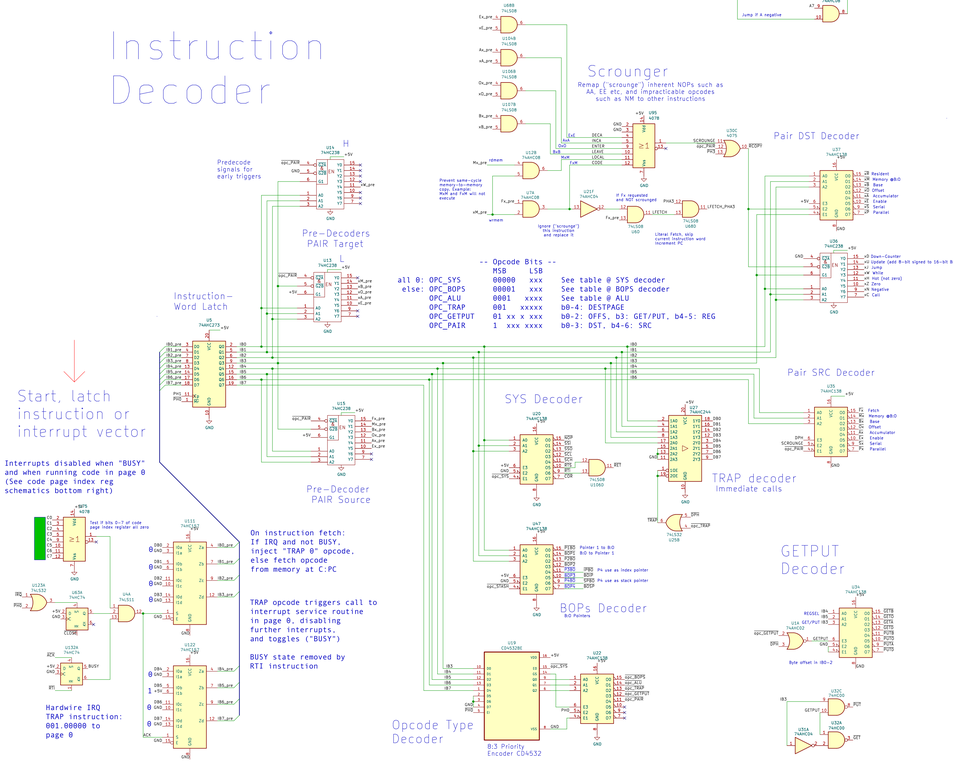
Chip "Footprint" External Connections



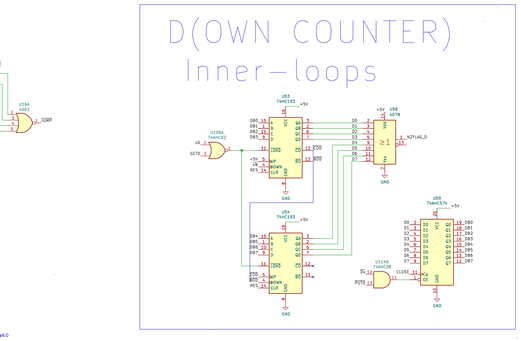
Clock Phases



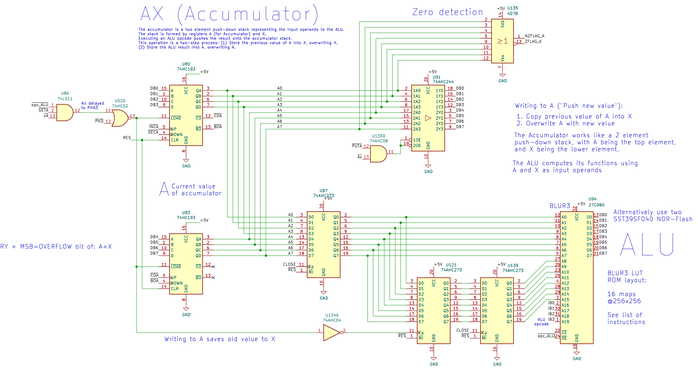
Instruction Decoder



D(OWN COUNTER) Inner-loops



AX (Accumulator)



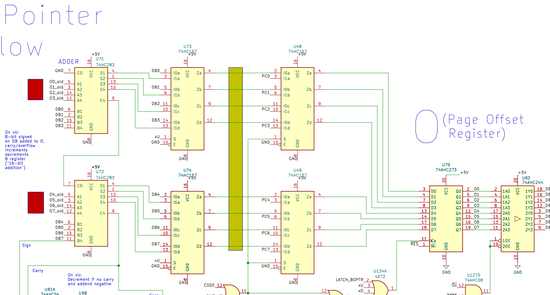
ALU

ALU Instructions

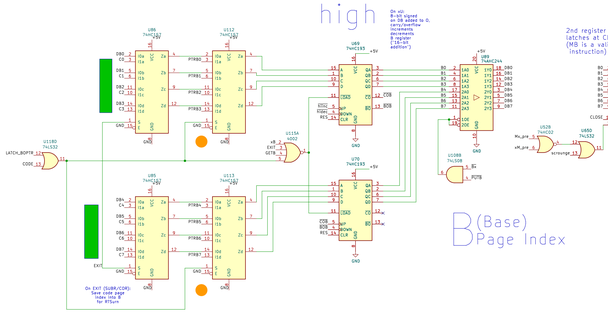
(Results are pushed)

0 DUP ("Copy of A")	A := A
1 SWAP ("Copy of X")	A := X
2 NOTA ("One's Complement of A")	A := ~A
3 NOTX ("One's Complement of X")	A := ~X
4 SLA ("Shift left A")	A := A<<1
5 SLX ("Shift left X")	A := X<<1
6 SRA ("Shift right A")	A := A>>1
7 SRX ("Shift right X")	A := X>>1
8 AND ("A boolean-and X")	A := A & X
9 IOR ("A inclusive-or X")	A := A | X
10 EOR ("A exclusive-or X")	A := A ^ X
11 ADD ("Add X to A")	A := A + X, bits 0-7
12 OVF ("Carry/Overflow of: A plus X")	A := Zero + LSB=CARRY + MSB=OVERFLOW bit of: A+X
13 AEX ("A less than X")	A := (A<X)? 0xFF:0
14 AEX ("A equal to X")	A := (A==X)? 0xFF:0
15 AGX ("A greater than X")	A := (A>X)? 0xFF:0

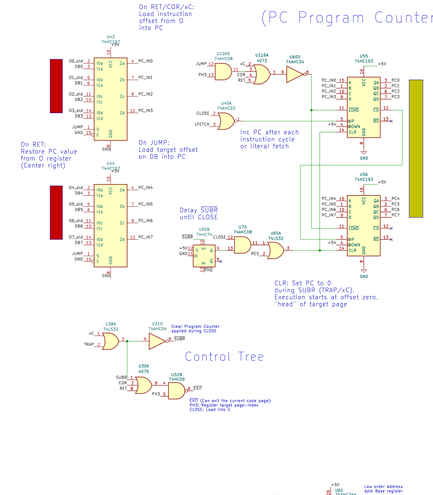
B:0 Pointer low



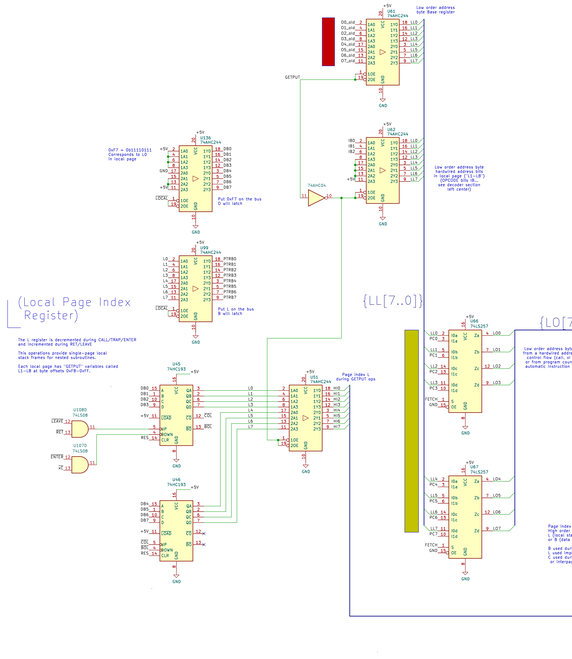
B:0 Pointer high



(PC Program Counter)



(Local Page Index Register)



Input/Output

S Serial IO

Implements SPI functionality with dedicated SER/DES registers

SIR
Serial Input Register

SOR
Serial Output Register

Serial clock out

E Device Enable Register

Two independent 4-bit groups (high/low) fired into 4c16 decoders for device selection

LOW ORDER SELECTOR

HIGH ORDER SELECTOR

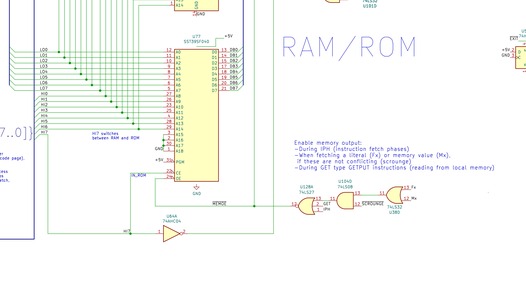
P Parallel IO

PIR
Parallel Input Register

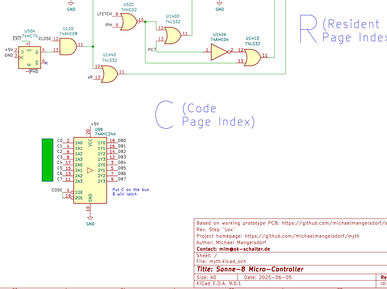
External GPIO BUS

POR
Parallel Output Register

RAM/ROM



C (Code Page Index)



Based on working prototype PCB: https://github.com/michaelmangelsdorf/sonne8
Rev. Step "Cor"
Project homepage: https://github.com/michaelmangelsdorf/myth
Author: Michael Mangelsdorf
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Sheet: /
File: myth.kicad_sch
Title: Sonne-8 Micro-Controller
Size: A0 Date: 2025-06-05 Rev: Myth
KiCad 8.0.4 9.0.1 ID: 1/1