cpu

Plik: cpu.kicad_sch

fpga

Plik: fpga.kicad_sch

isa

Plik: isa.kicad_sch

ramrom

Plik: ramrom.kicad_sch

This homebrew specs:
- 486 CPU
- XC2S100 FPGA as "chipset"
- 4MB of SRAM - 8x HM628512 (512KB chips) (32 bit, 2*32bit access)
- 16 bit ISA slots, for various expansion inc. graphics and multi/io including uart
- onboard PIC (8259) and PIT (8253)
- crude KB controller implemented by FPGA

H4
MountingHole

H3
MountingHole

H2
MountingHole

H1
MountingHole

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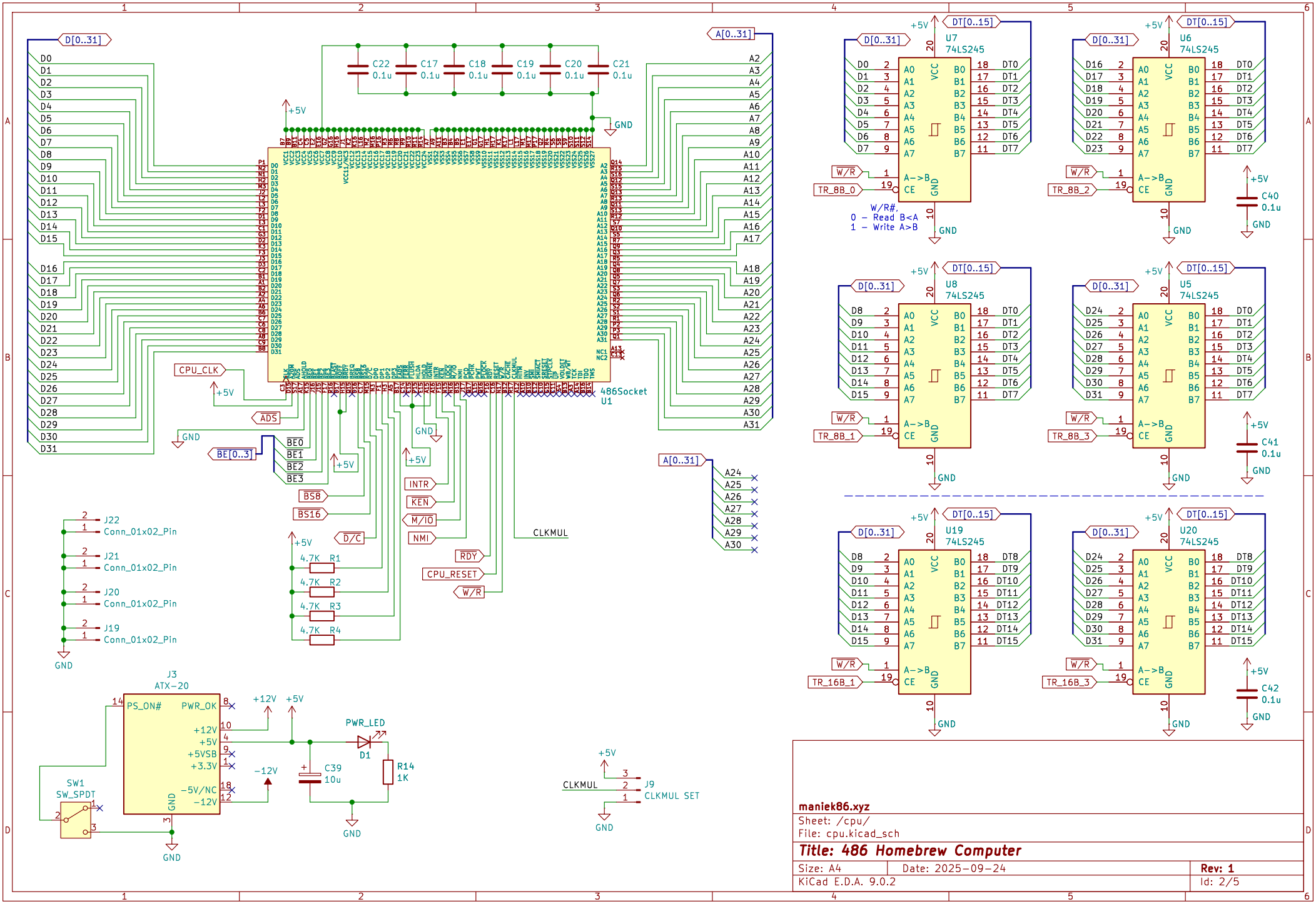
Sheet: /
File: homebrew_486.kicad_sch

Title: 486 Homebrew Computer

Size: A4	Date: 2025-09-24	**Rev: 1**
KiCad E.D.A. 9.0.2		Id: 1/5



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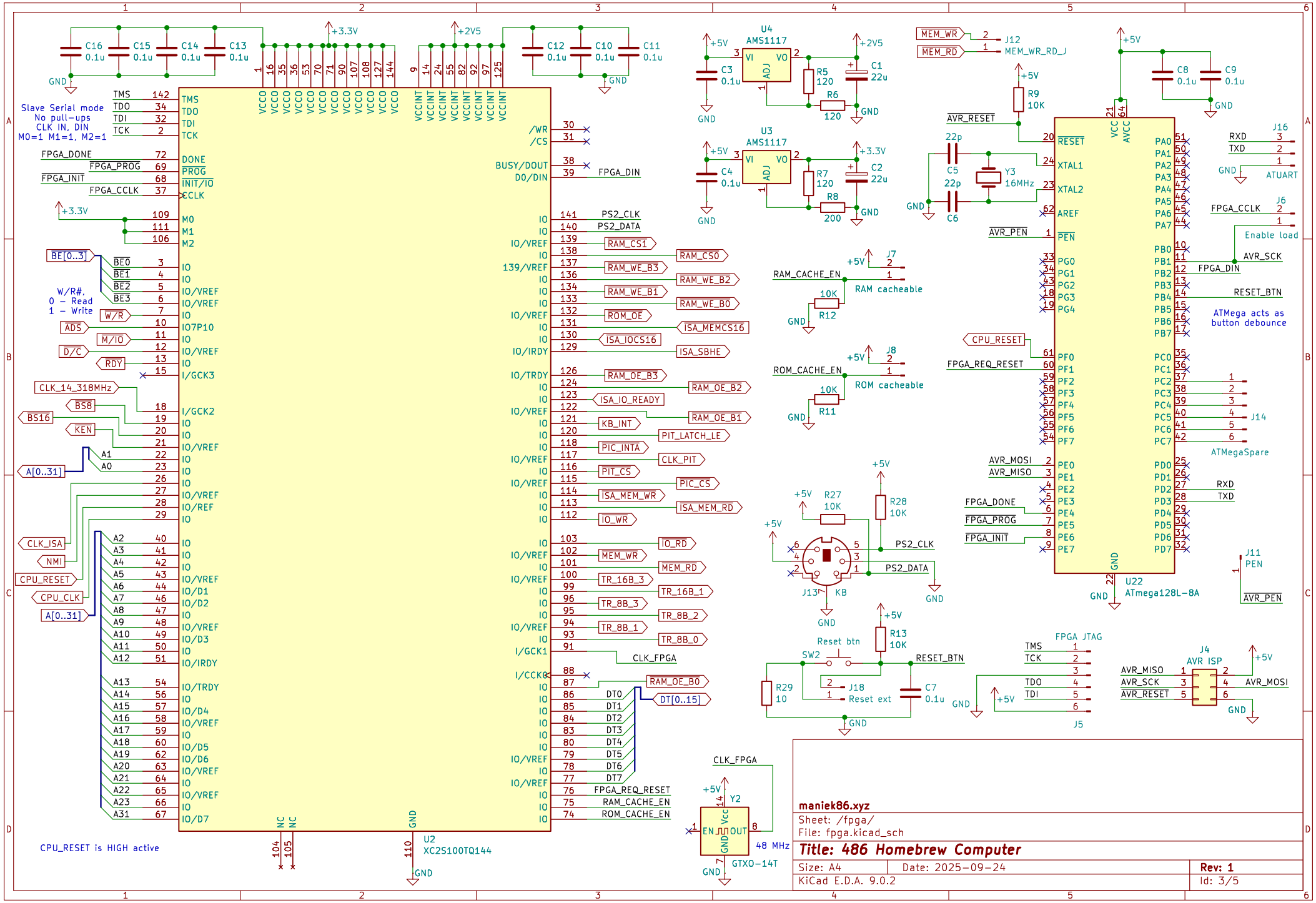
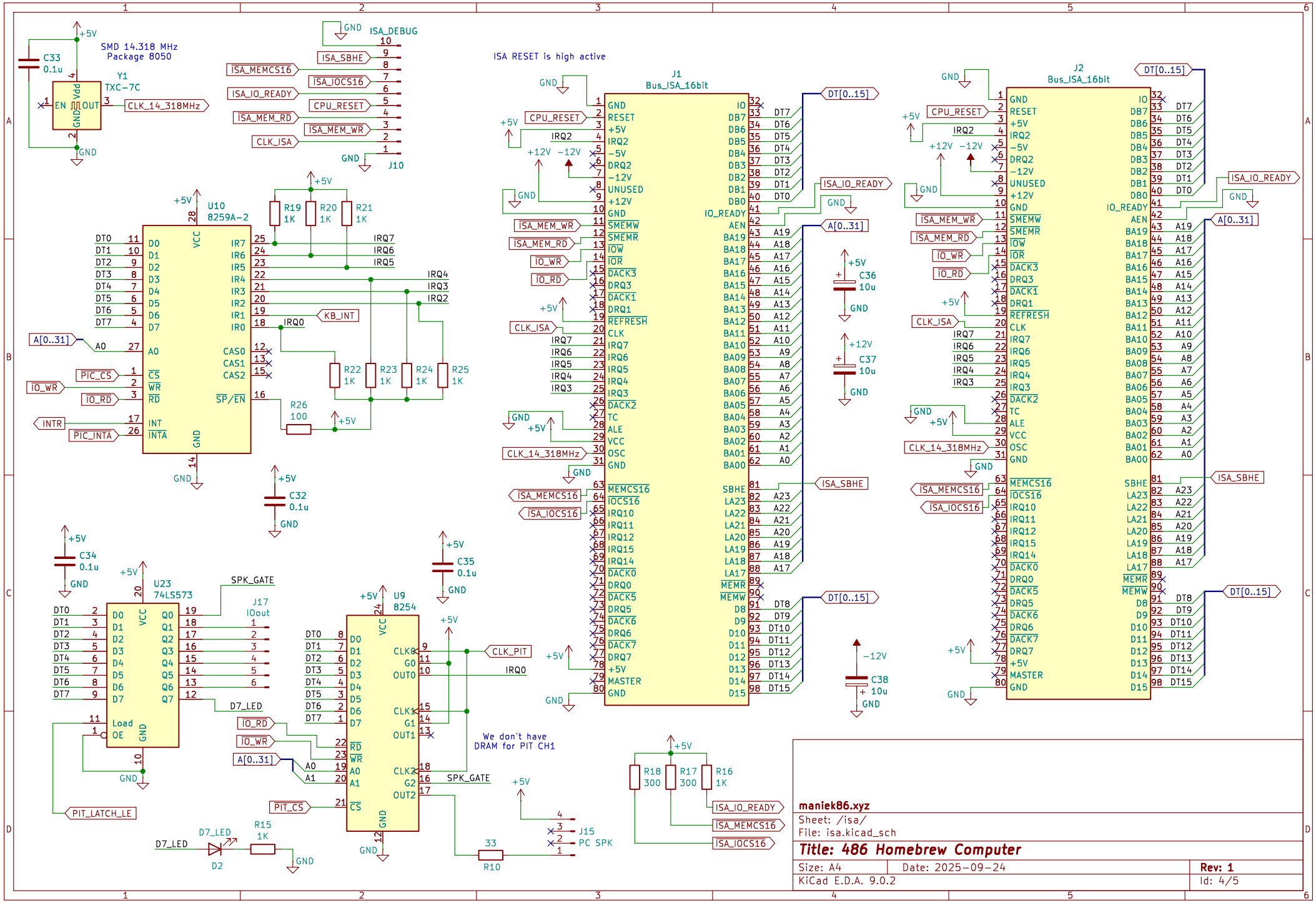
Sheet: /cpu/

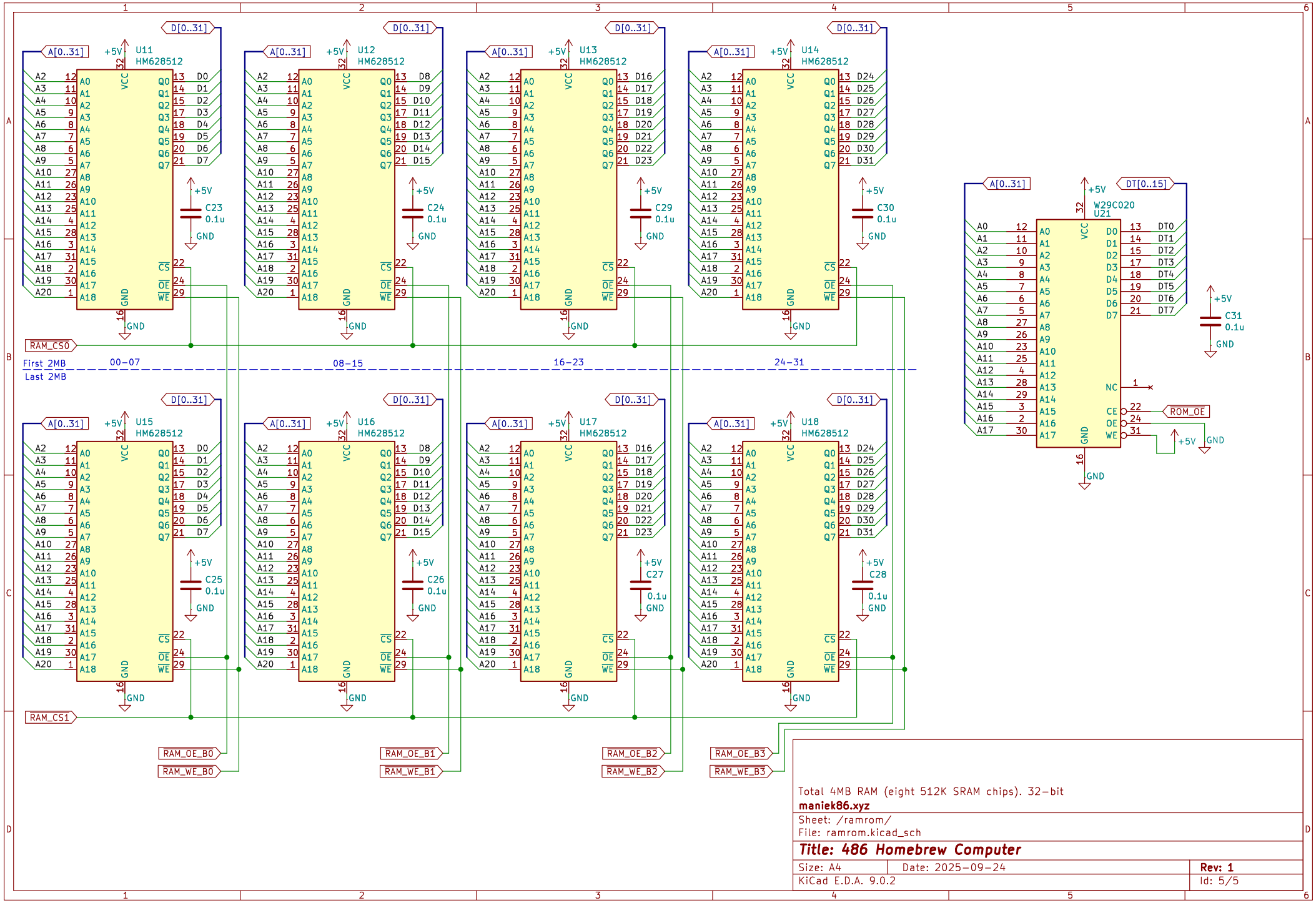
File: cpu.kicad_sch

Title: 486 Homebrew Computer

Size: A4	Date: 2025-09-24	**Rev: 1**
KiCad E.D.A. 9.0.2		Id: 2/5


Slave Serial mode
No pull-ups
CLK IN, DIN
M0=1 M1=1, M2=1
W/R#,
0 – Read
1 – Write
CPU_RESET is HIGH active
U2
XC2S100TQ144
U3
AMS1117
U4
AMS1117
U22
ATmega128L-8A
Y2
48 MHz
GTXO-14T
Y3
16MHz
RAM cacheable
ROM cacheable
Reset btn
Reset ext
FPGA JTAG
AVR ISP
ATMega acts as
button debounce
Enable load
ATMegaSpare
maniek86.xyz
Sheet: /fpga/
File: fpga.kicad_sch
Title: 486 Homebrew Computer
Size: A4
Date: 2025-09-24
Rev: 1
KiCad E.D.A. 9.0.2
Id: 3/5


SMD 14.318 MHz
Package 8050
Y1
TXC-7C
C33
0.1u
CLK_14_318MHz
ISA_DEBUG
ISA_SBHE
ISA_MEMCS16
ISA_IOCS16
ISA_IO_READY
CPU_RESET
ISA_MEM_RD
ISA_MEM_WR
CLK_ISA
J10
U10
8259A-2
R19 1K
R20 1K
R21 1K
R22 1K
R23 1K
R24 1K
R25 1K
R26 100
KB_INT
IRQ0
IRQ2
IRQ3
IRQ4
IRQ5
IRQ6
IRQ7
A[0..31]
PIC_CS
IO_WR
IO_RD
INTR
PIC_INTA
C32
0.1u
ISA RESET is high active
J1
Bus_ISA_16bit
J2
Bus_ISA_16bit
DT[0..15]
C36
10u
C37
10u
C38
10u
U23
74LS573
SPK_GATE
J17
IOout
D7_LED
PIT_LATCH_LE
C34
0.1u
C35
0.1u
U9
8254
CLK_PIT
IRQ0
We don't have
DRAM for PIT CH1
SPK_GATE
PIT_CS
R15 1K
D7_LED
D2
R10 33
J15
PC SPK
R18 300
R17 300
R16 1K
maniek86.xyz
Sheet: /isa/
File: isa.kicad_sch
Title: 486 Homebrew Computer
Size: A4
Date: 2025-09-24
Rev: 1
KiCad E.D.A. 9.0.2
Id: 4/5


A[0..31]
D[0..31]
+5V
U11
HM628512
U12
HM628512
U13
HM628512
U14
HM628512
C23
0.1u
C24
0.1u
C29
0.1u
C30
0.1u
GND
RAM_CS0
First 2MB
Last 2MB
00–07
08–15
16–23
24–31
U15
HM628512
U16
HM628512
U17
HM628512
U18
HM628512
C25
0.1u
C26
0.1u
C27
0.1u
C28
0.1u
RAM_CS1
RAM_OE_B0
RAM_WE_B0
RAM_OE_B1
RAM_WE_B1
RAM_OE_B2
RAM_WE_B2
RAM_OE_B3
RAM_WE_B3
DT[0..15]
W29C020
U21
C31
0.1u
NC
CE
OE
WE
ROM_OE
Total 4MB RAM (eight 512K SRAM chips). 32–bit
maniek86.xyz
Sheet: /ramrom/
File: ramrom.kicad_sch
Title: 486 Homebrew Computer
Size: A4
Date: 2025–09–24
Rev: 1
KiCad E.D.A. 9.0.2
Id: 5/5