

A

B

C

D

E

A

B

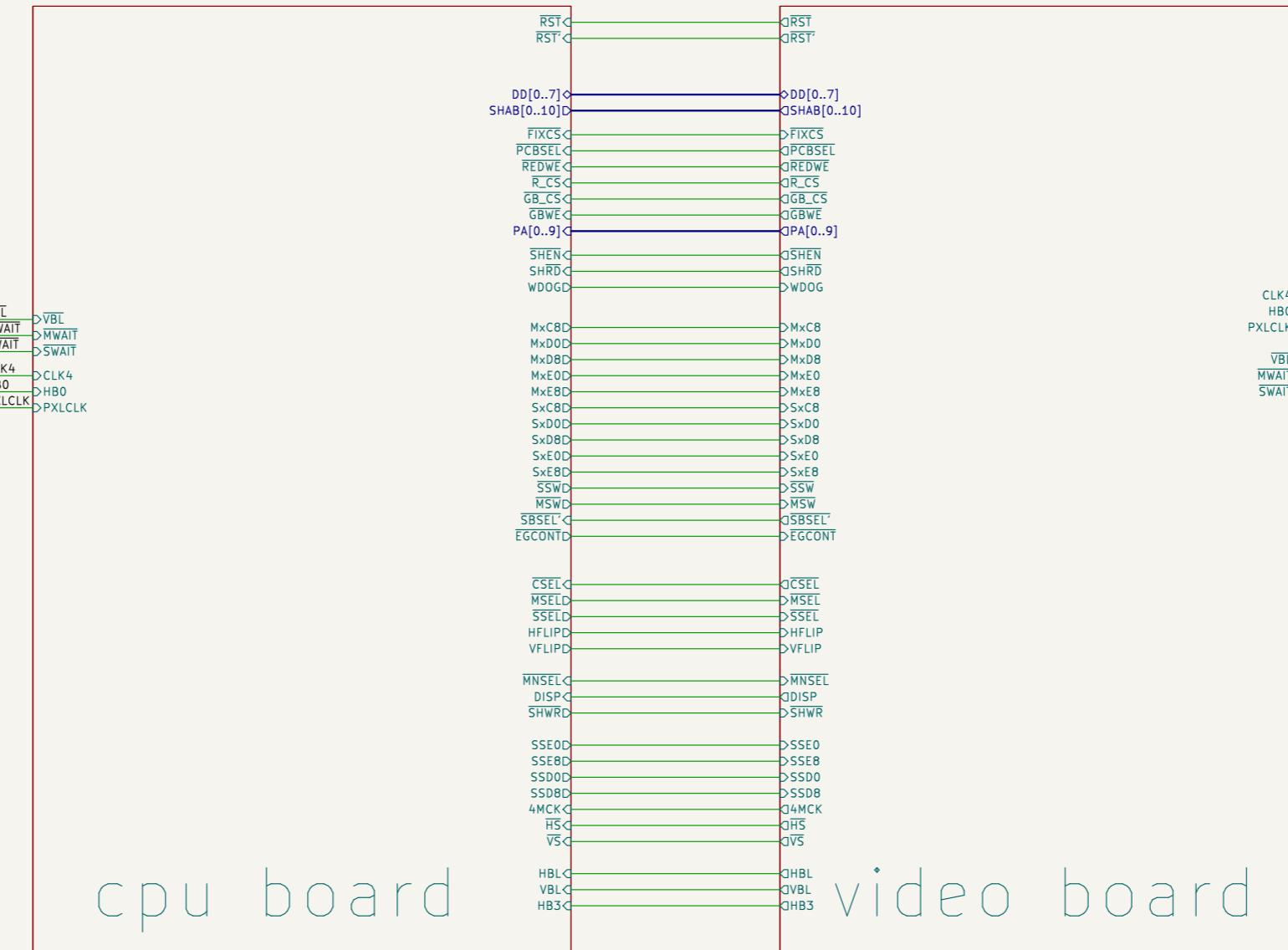
C

D

E

tehkanwch bootleg board

- original PCB has through-hole vias whereas the bootleg has filled vias
- original uses three custom packages from Mitsubishi with logic inside.
These were replaced by a small daughter board on the bootleg, serving the same functionality
- different edge connectors
- debug edge connector on video board not present on bootleg
- cabinet input logic partly missing and rewired on the bootleg to replace the trackball interface for a joystick one
- different power amplifier for sound without heat sink on the bootleg
- slightly different frequencies for crystal oscillators (cost reduction?)
- device reference markers (silkscreen) on bootleg have reversed order on bootleg



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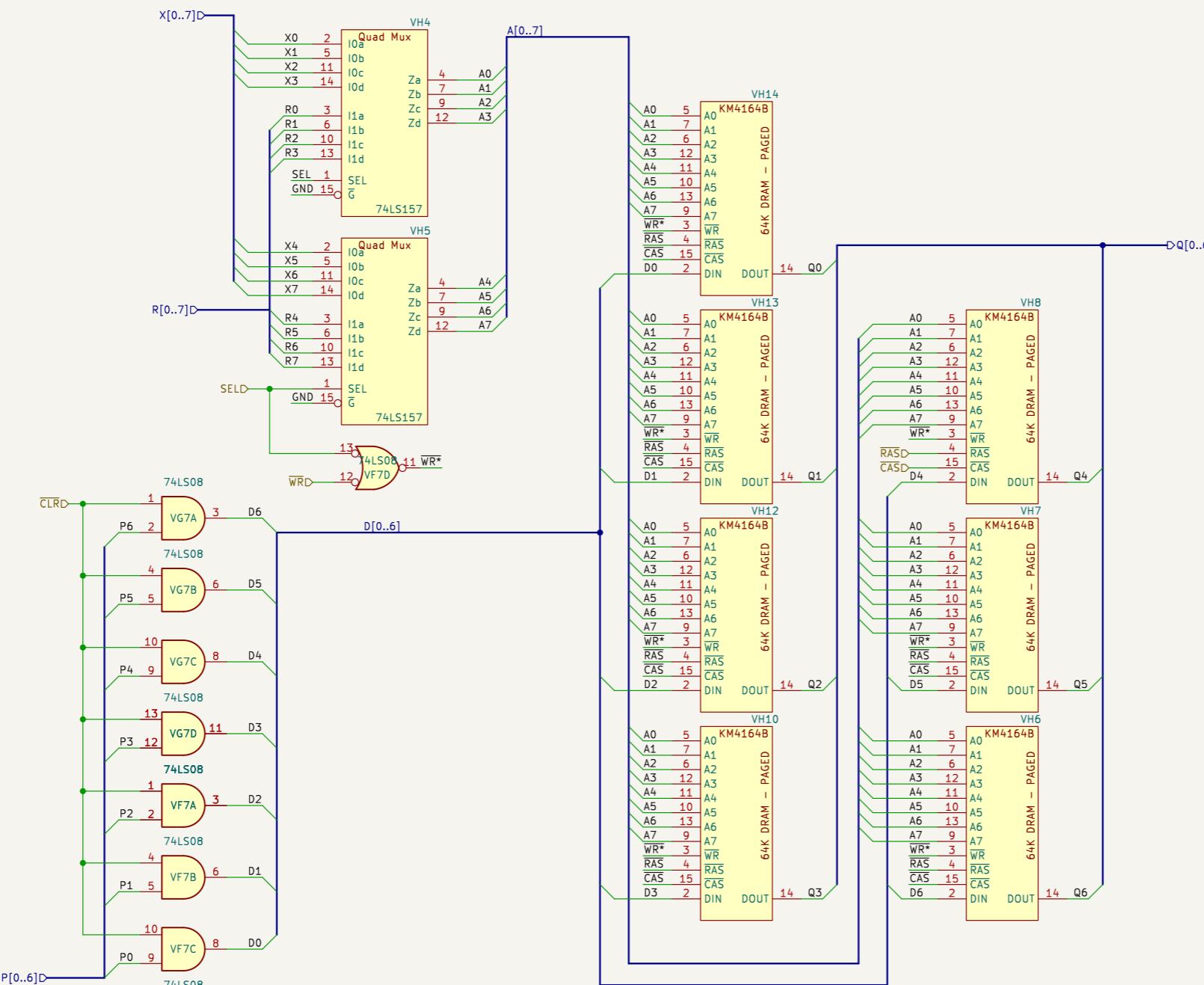


Sheet: /
 File: tehkanwch.kicad_sch

Title: TEHKAN WORLD CUP (tehkanwch bootleg)

Size: A3	Date: 2024-11-15
KiCad E.D.A. 8.0.9	Rev:

Id: 1/26



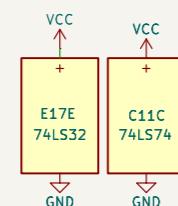
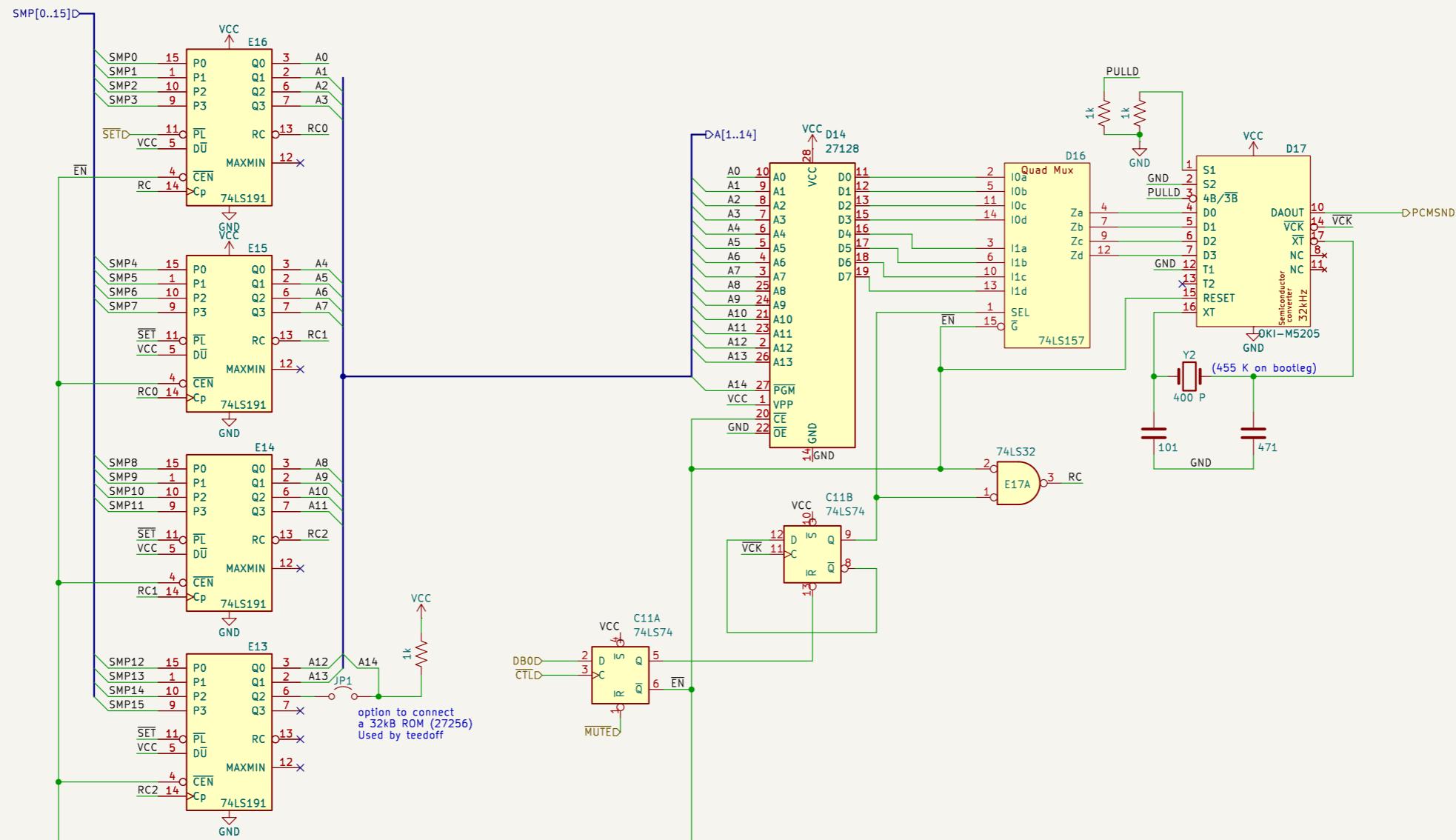
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Sheet: /video board/object/frame buffer B/
File: buffer.kicad_sch

Title: Line Buffer

Size: A3 | Date: 2024-11-15
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Rev: 2/26



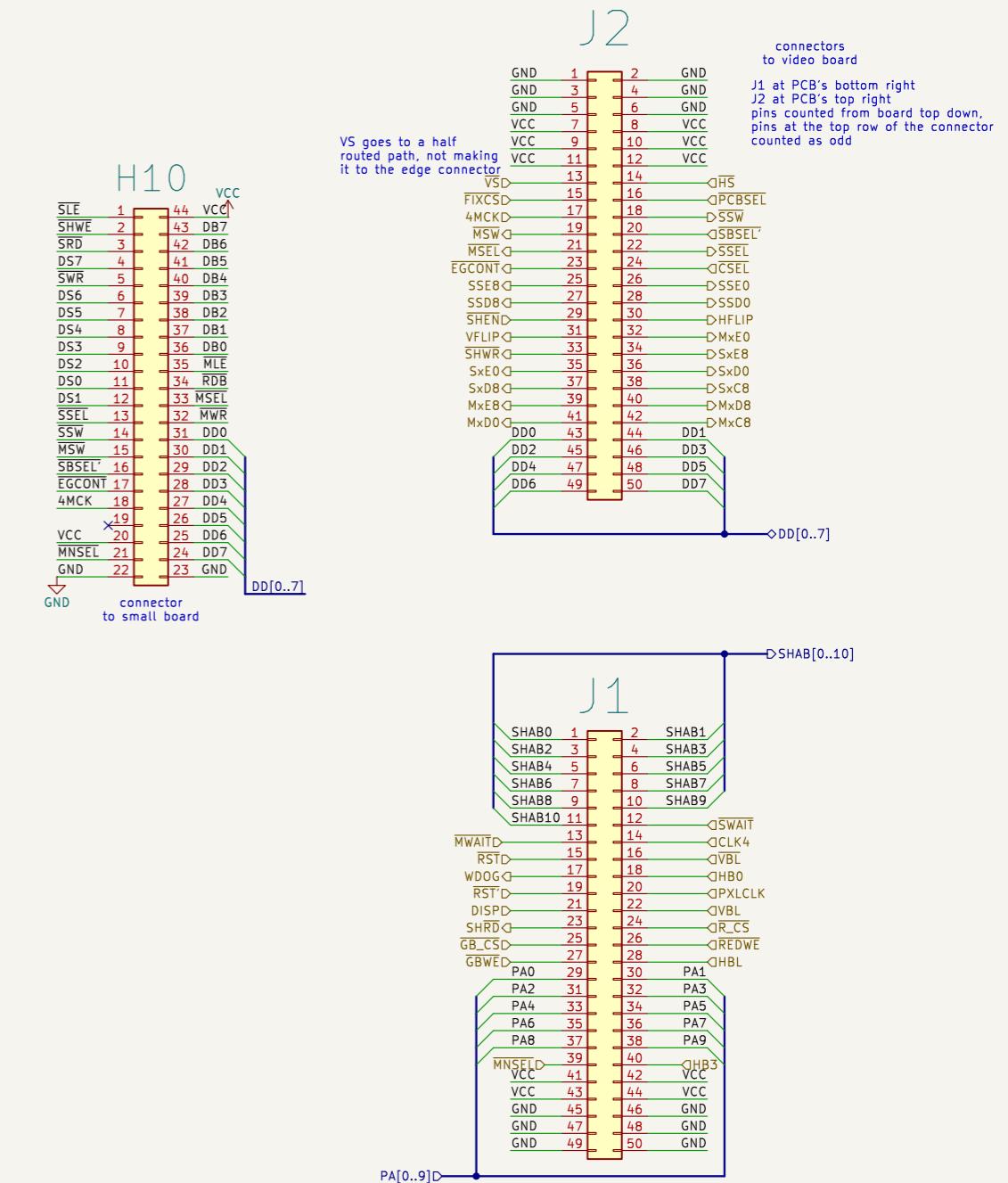
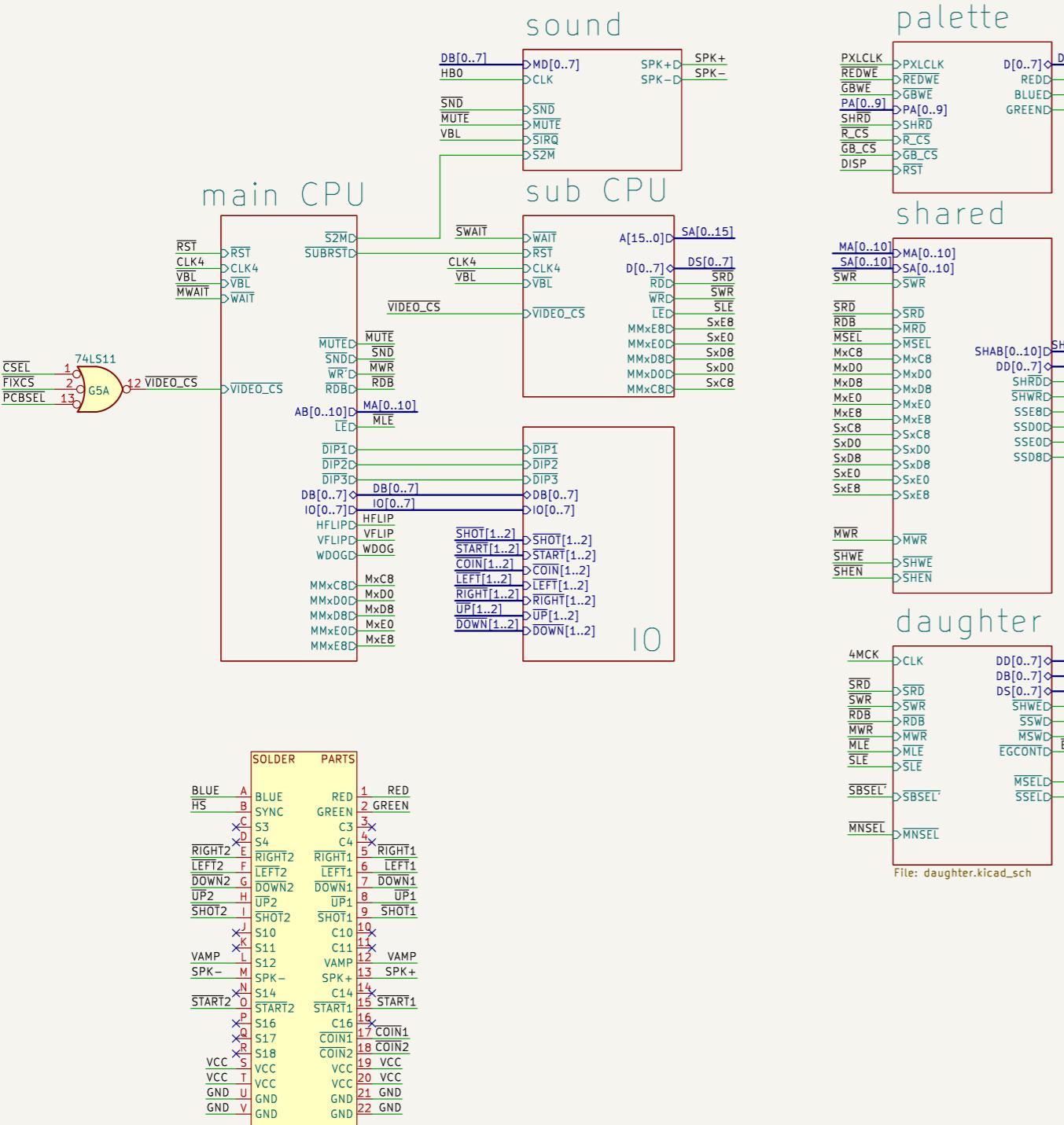
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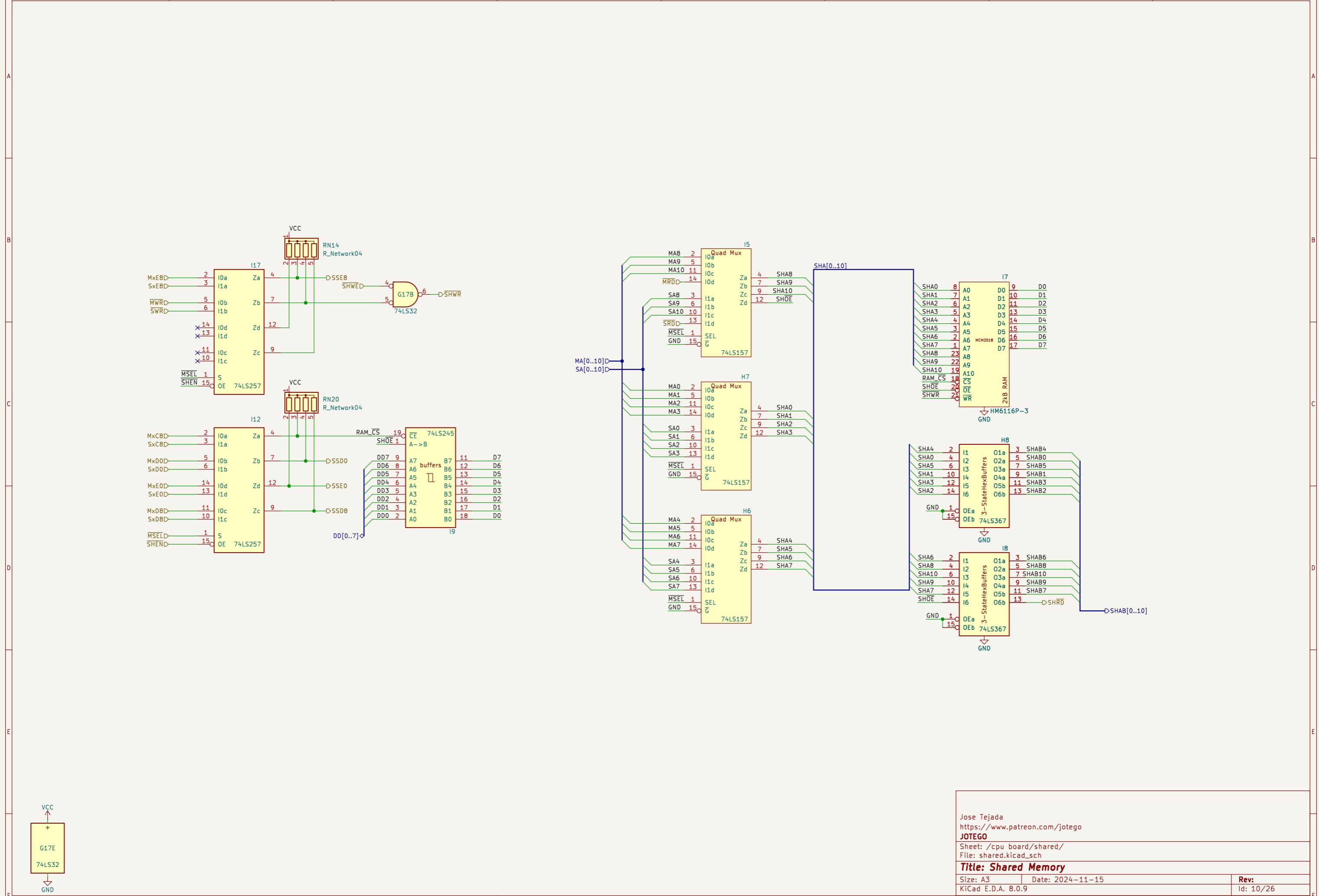
Sheet: /cpu_board/sound/PCM/
File: pcm.kicad_sch

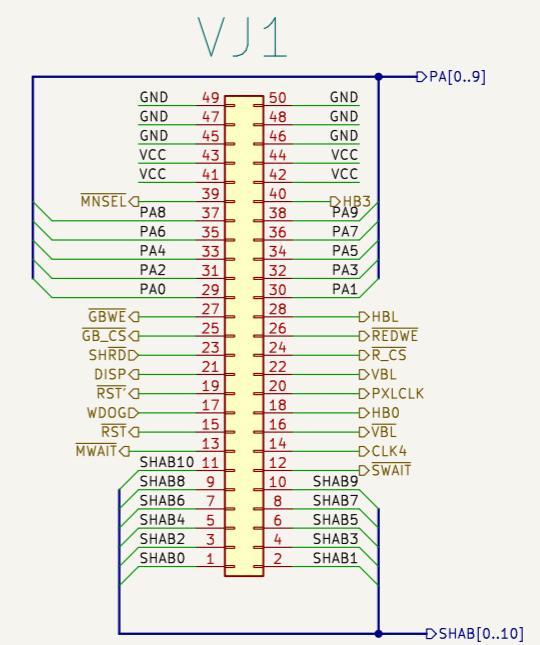
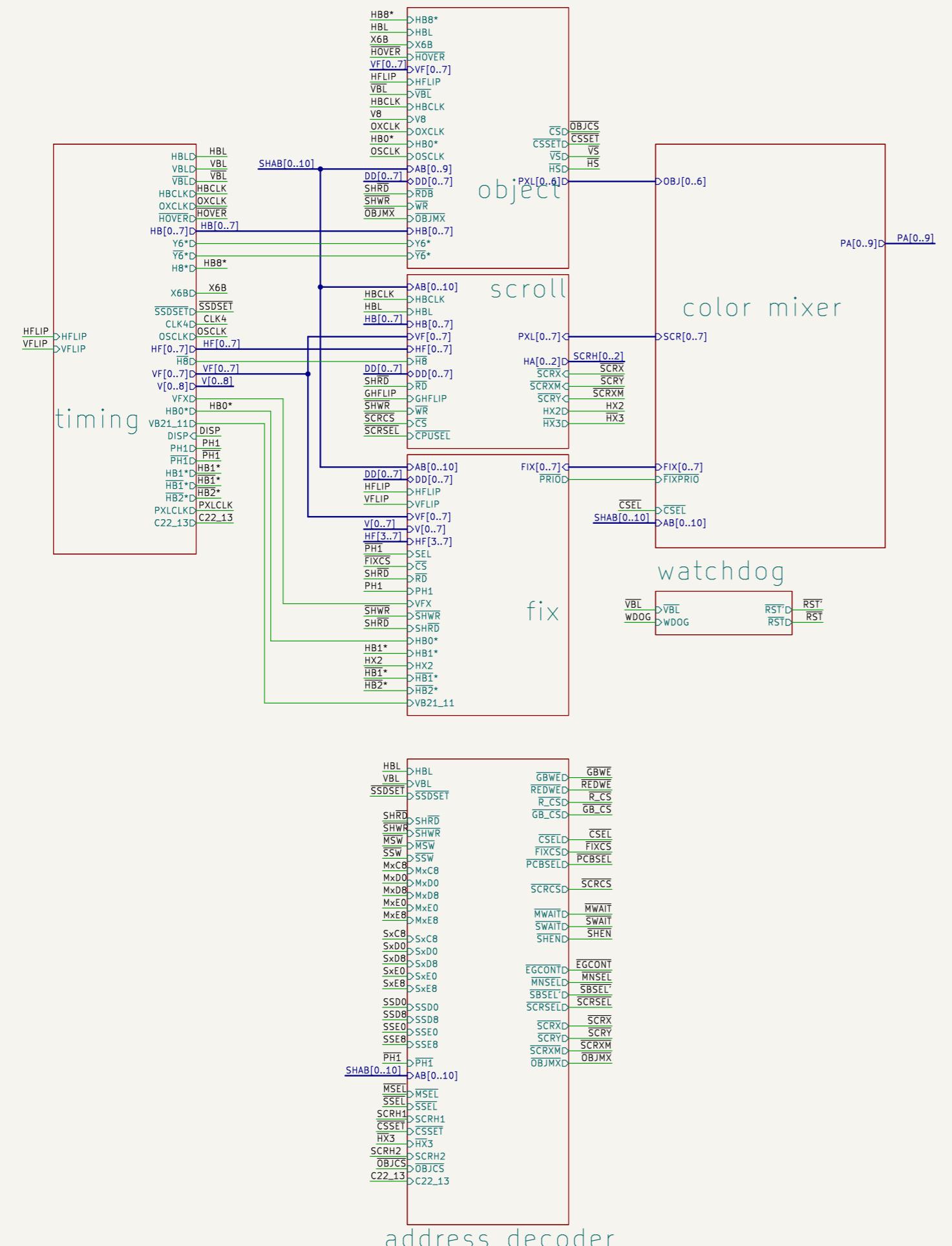
Title: PCM

Size: A3 Date: 2024-11-15
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Rev: Id: 5/26

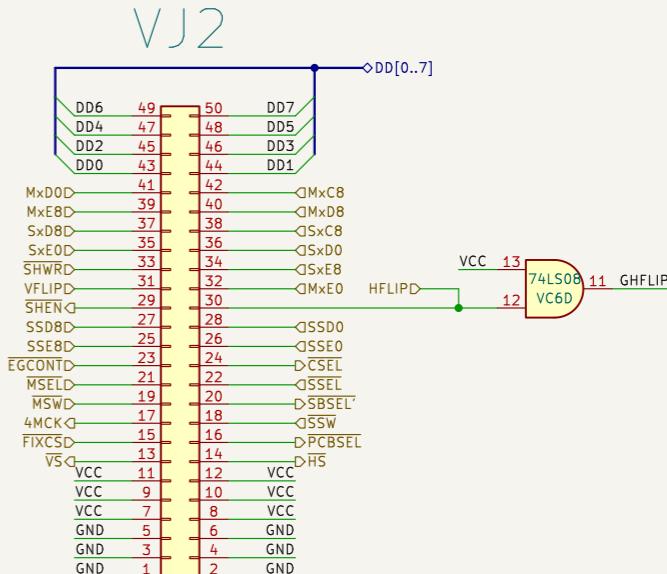






connectors
to CPU board

/J1 at PCB's top right
/J2 at PCB's bottom right
pins counted from board bottom up,
pins at the top row of the connector
counted as even



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File: video.kicad_sch

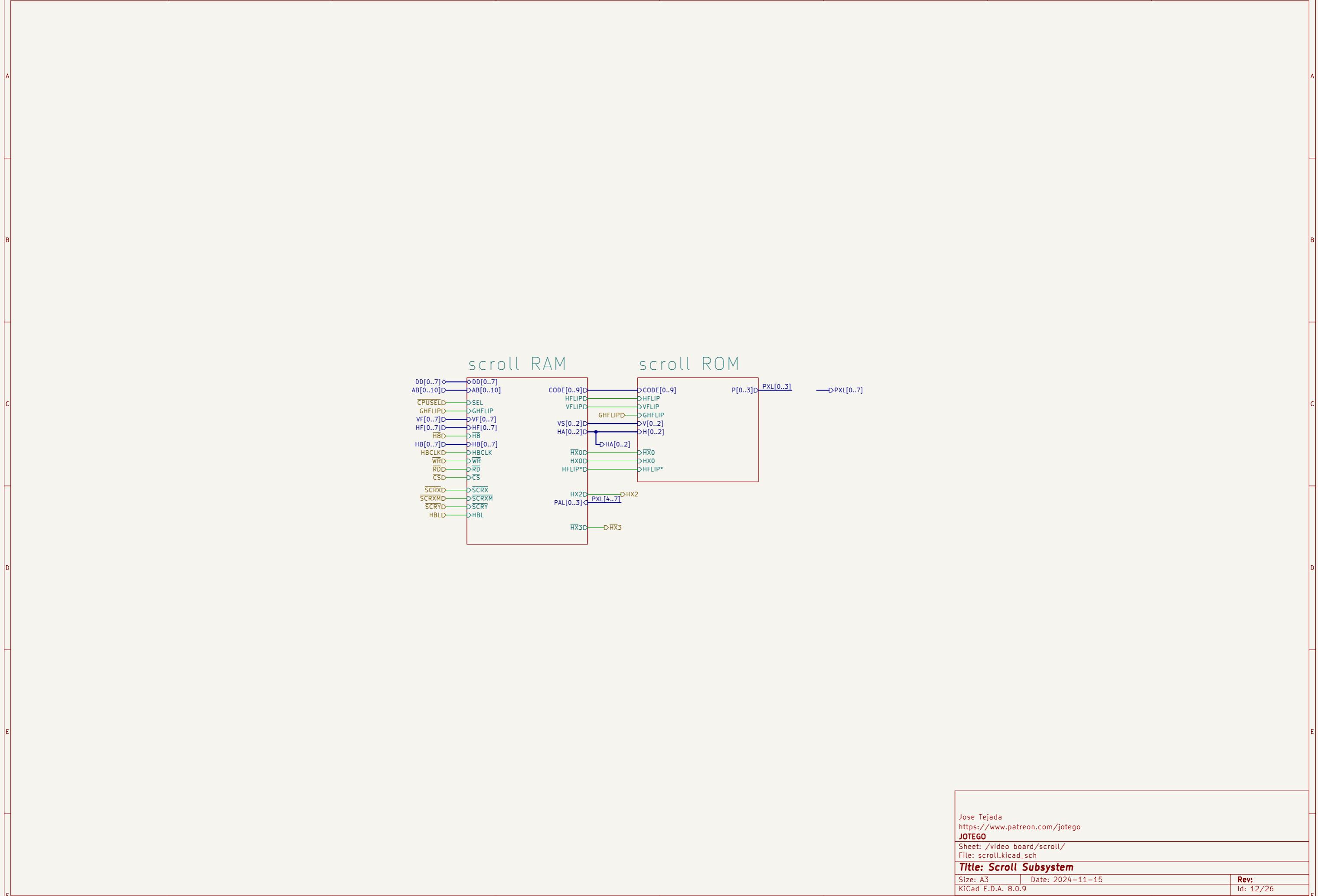
Size: A3 Date: 2024-11-15

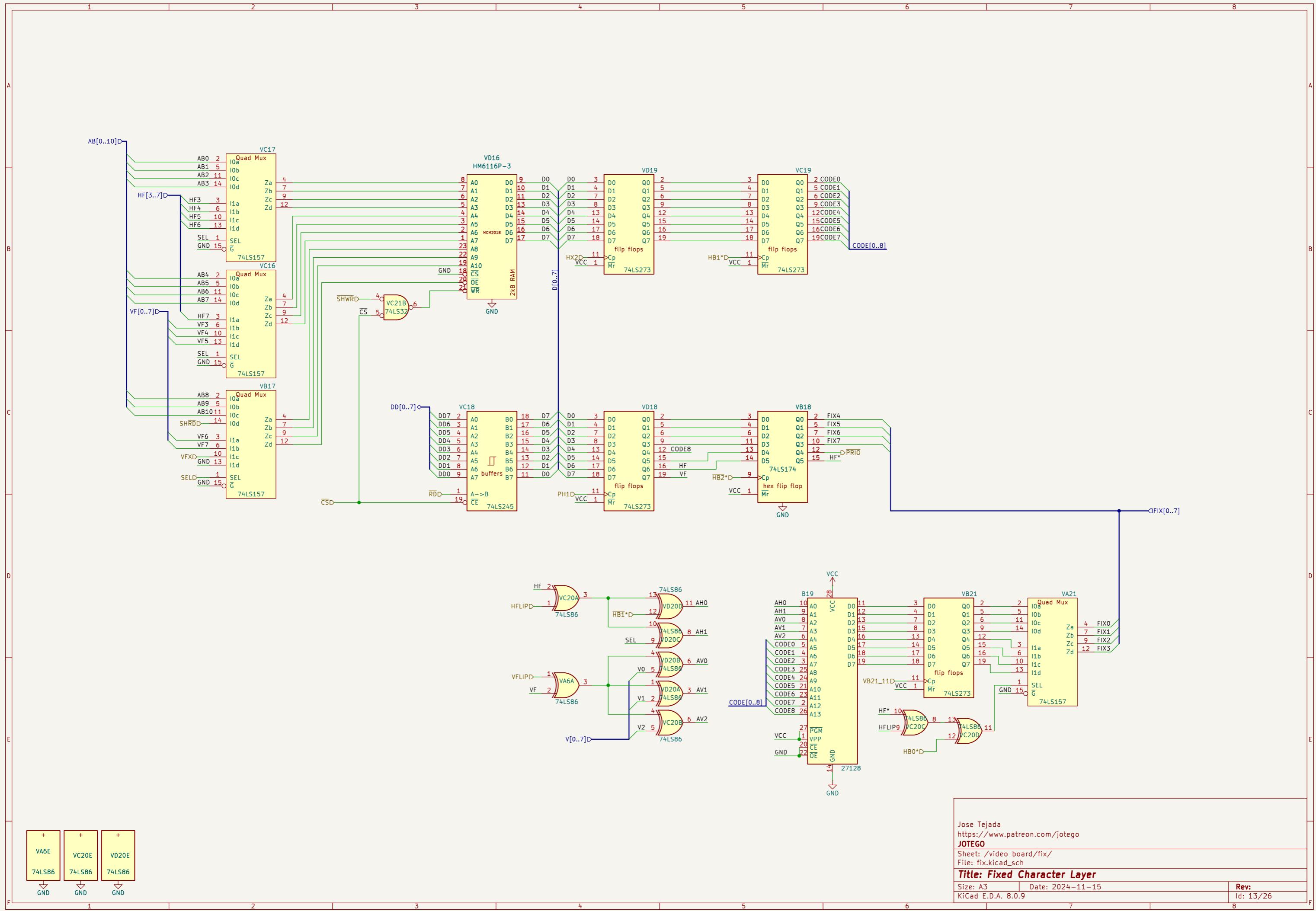
KiCad EDA 8.0.9

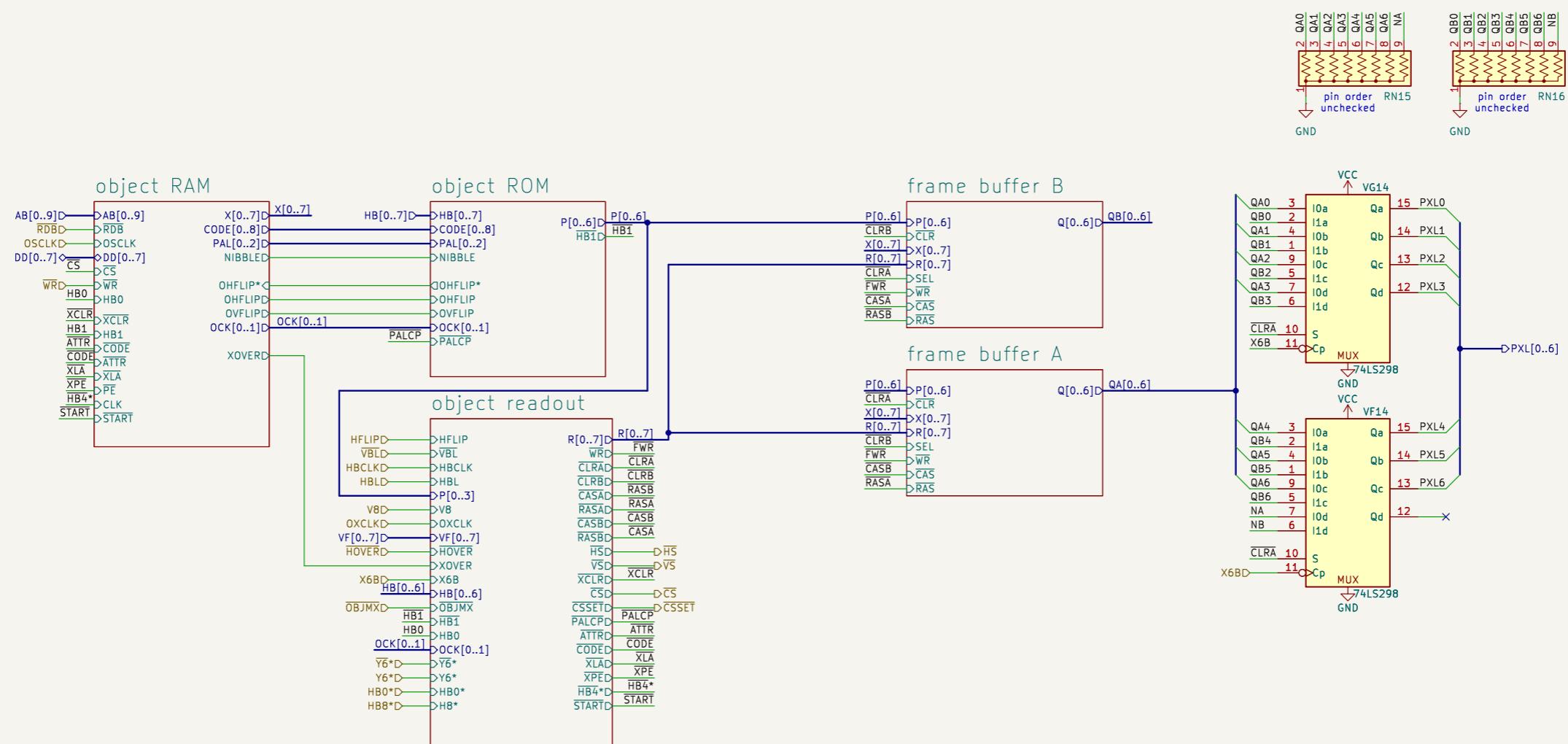
RICHARD E.D.A. 8.0.9

For more information about the study, please contact Dr. John Smith at (555) 123-4567 or via email at john.smith@researchinstitute.org.

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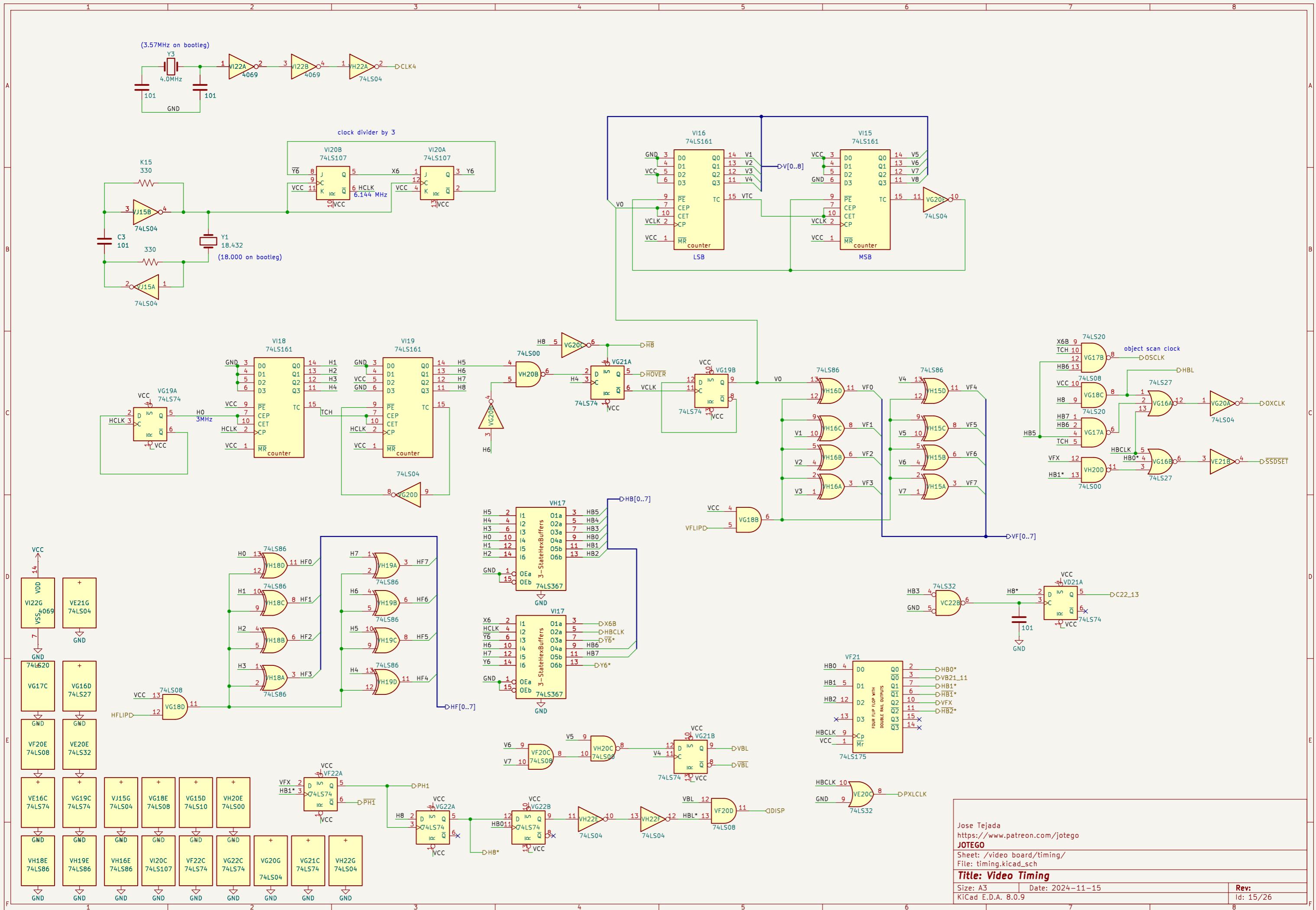
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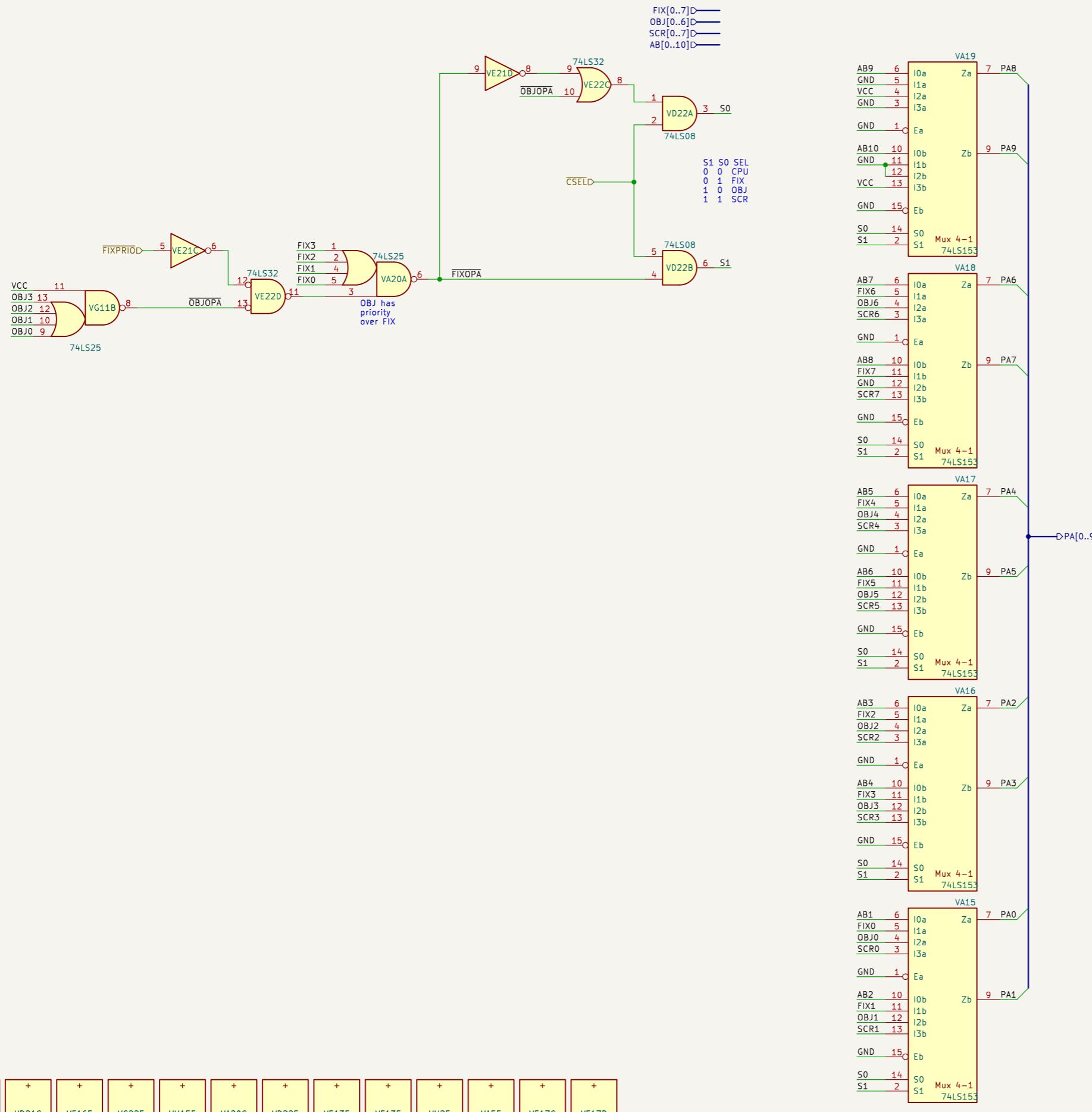
Sheet: /video board/object/
File: object.kicad_sch

Title: Object Subsystem

Size: A3 Date: 2024-11-15
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Rev: Id: 14/26





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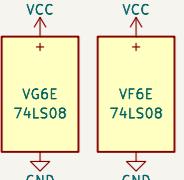
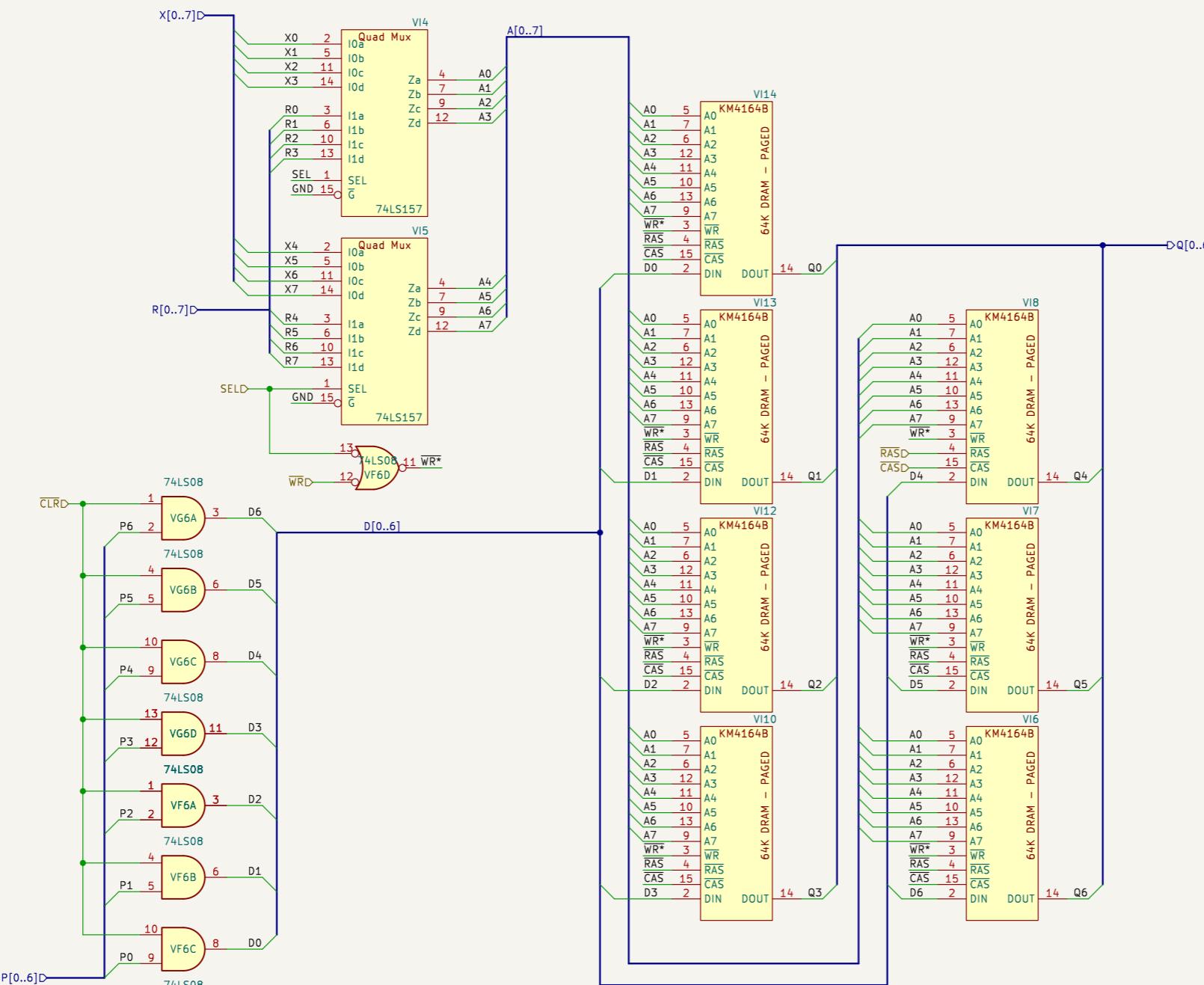
File: colmix.kicad_sch

Title: Color mixer

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KRISG E.D.W.G. 8.0.9

Digitized by srujanika@gmail.com



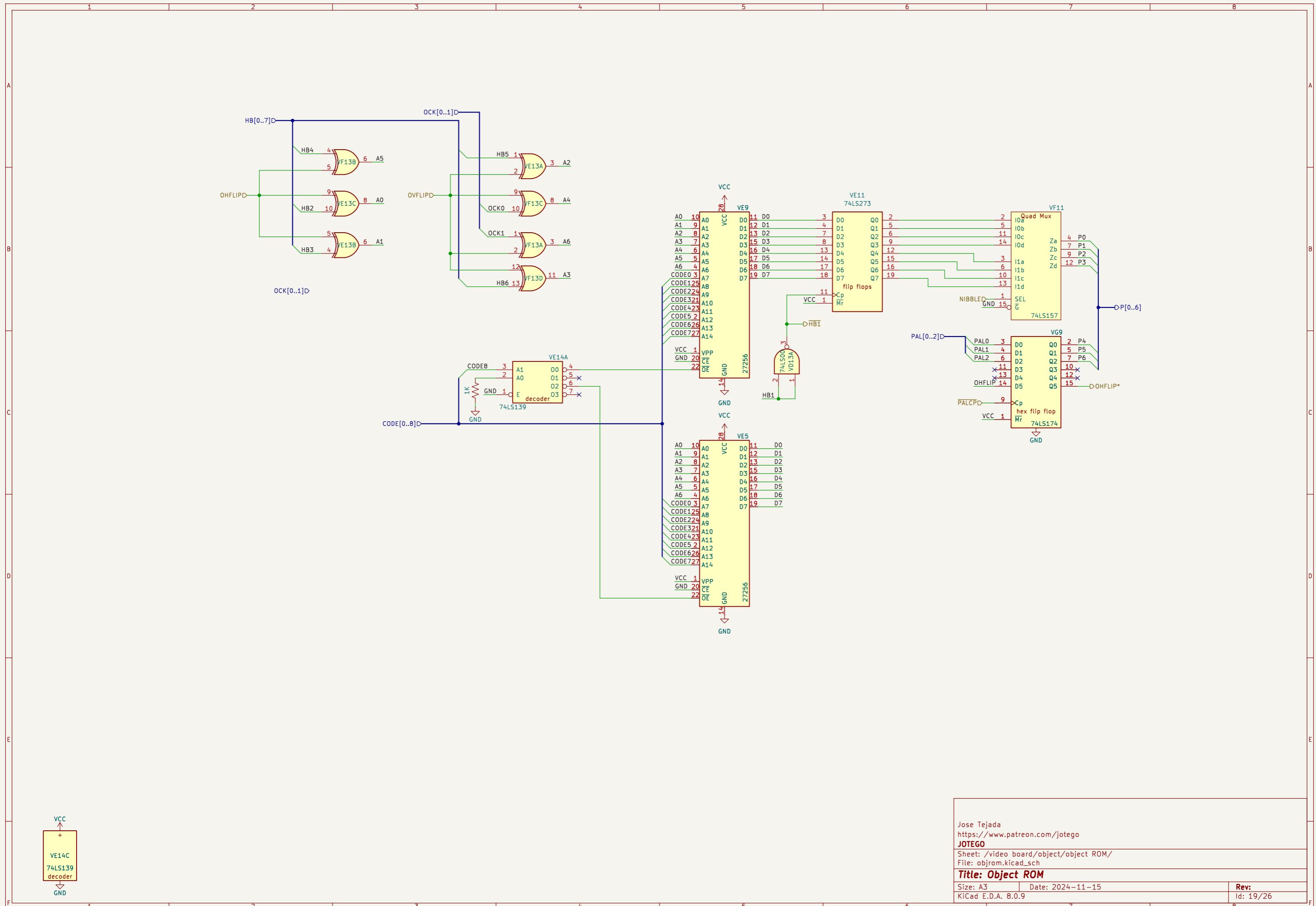
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Sheet: /video board/object/frame buffer A/
File: buffer.kicad_sch

Title: Line Buffer

Size: A3 | Date: 2024-11-15
KiCad E.D.A. 8.0.9

Rev:
Id: 17/26



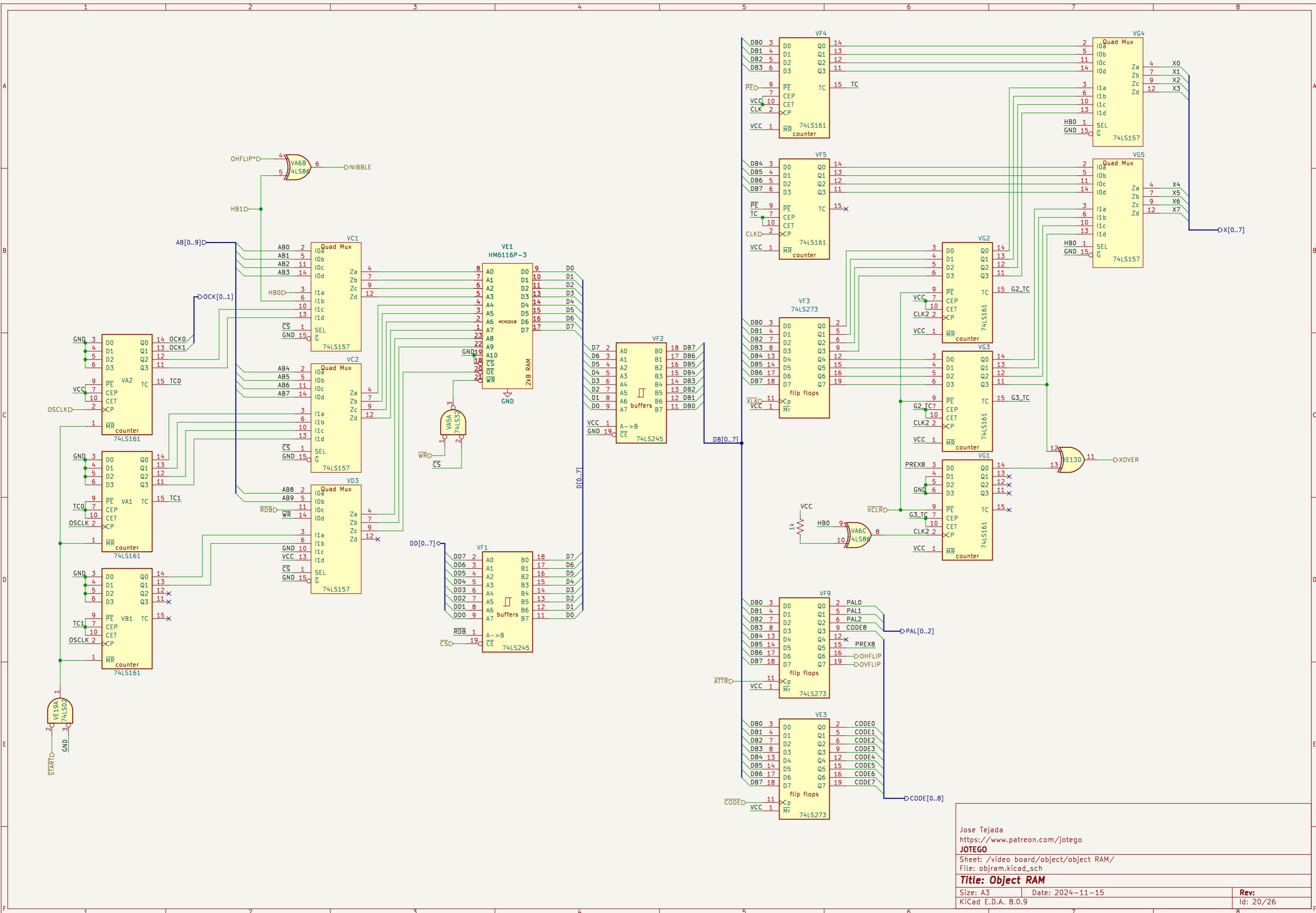
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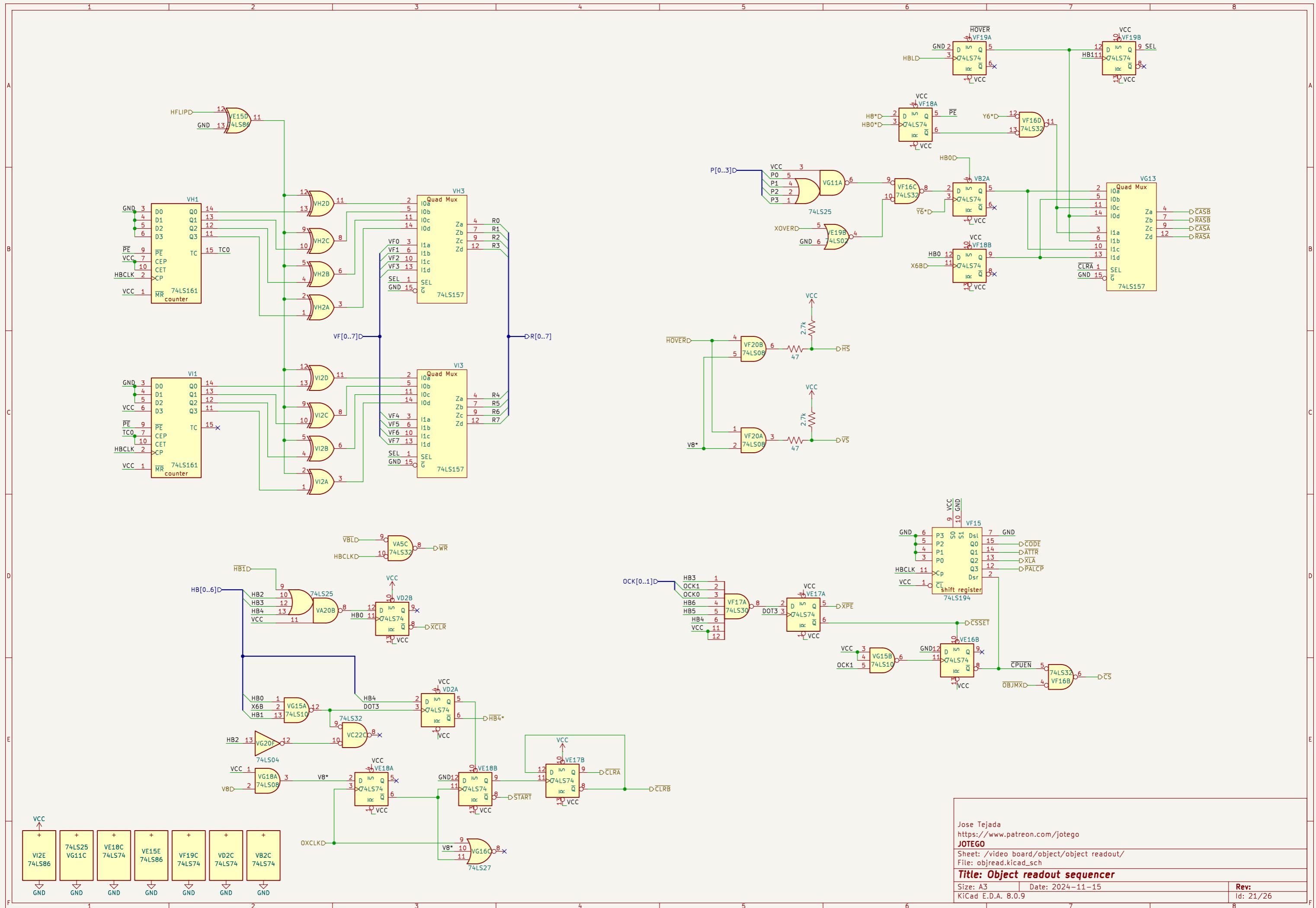
Sheet: /video board/object/object ROM/
File: objrom.kicad_sch

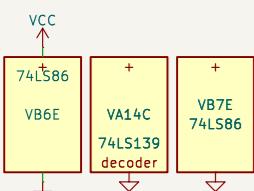
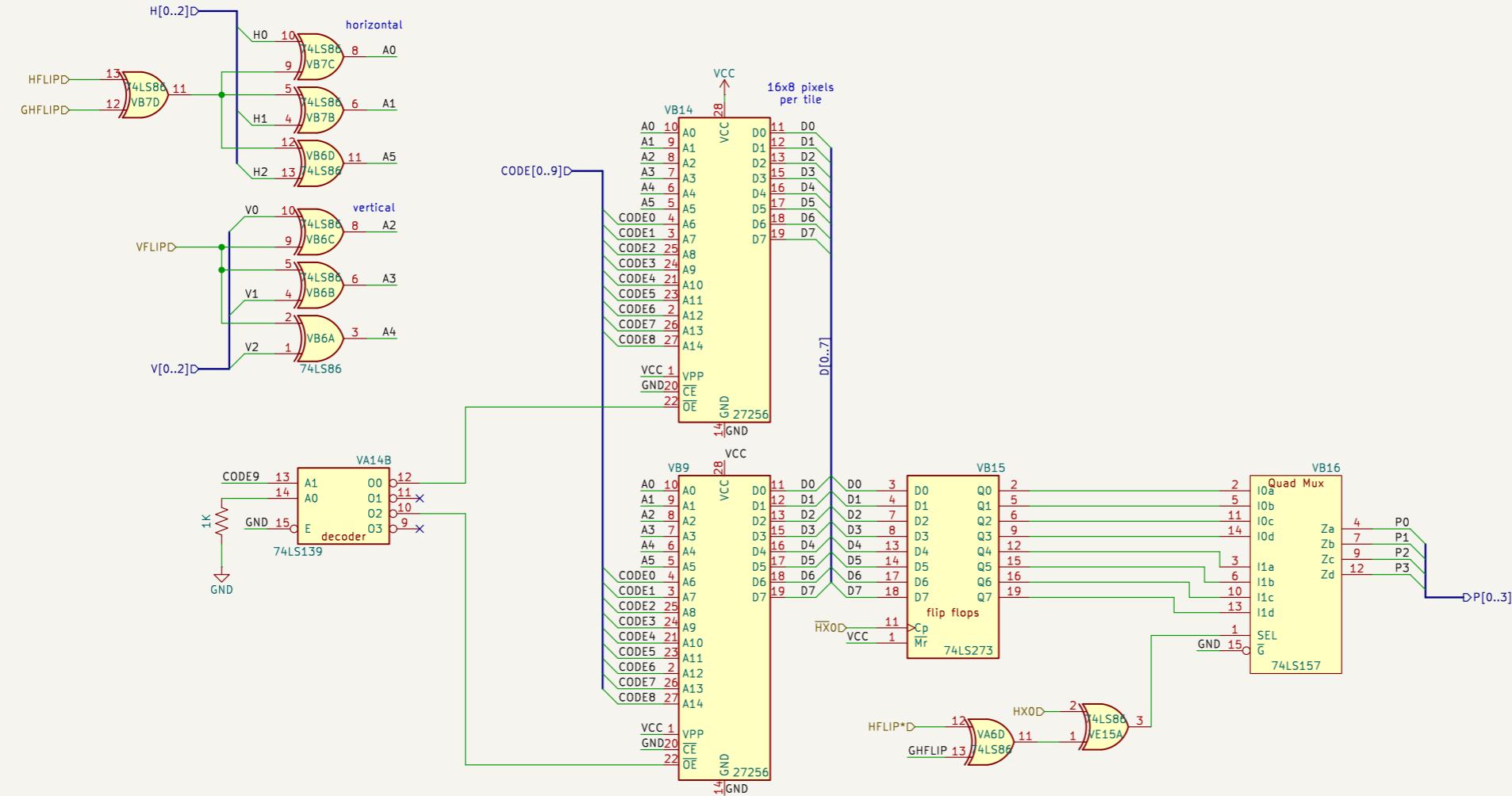
Title: Object ROM

Size: A3 | Date: 2024-11-15
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Rev: 19/26







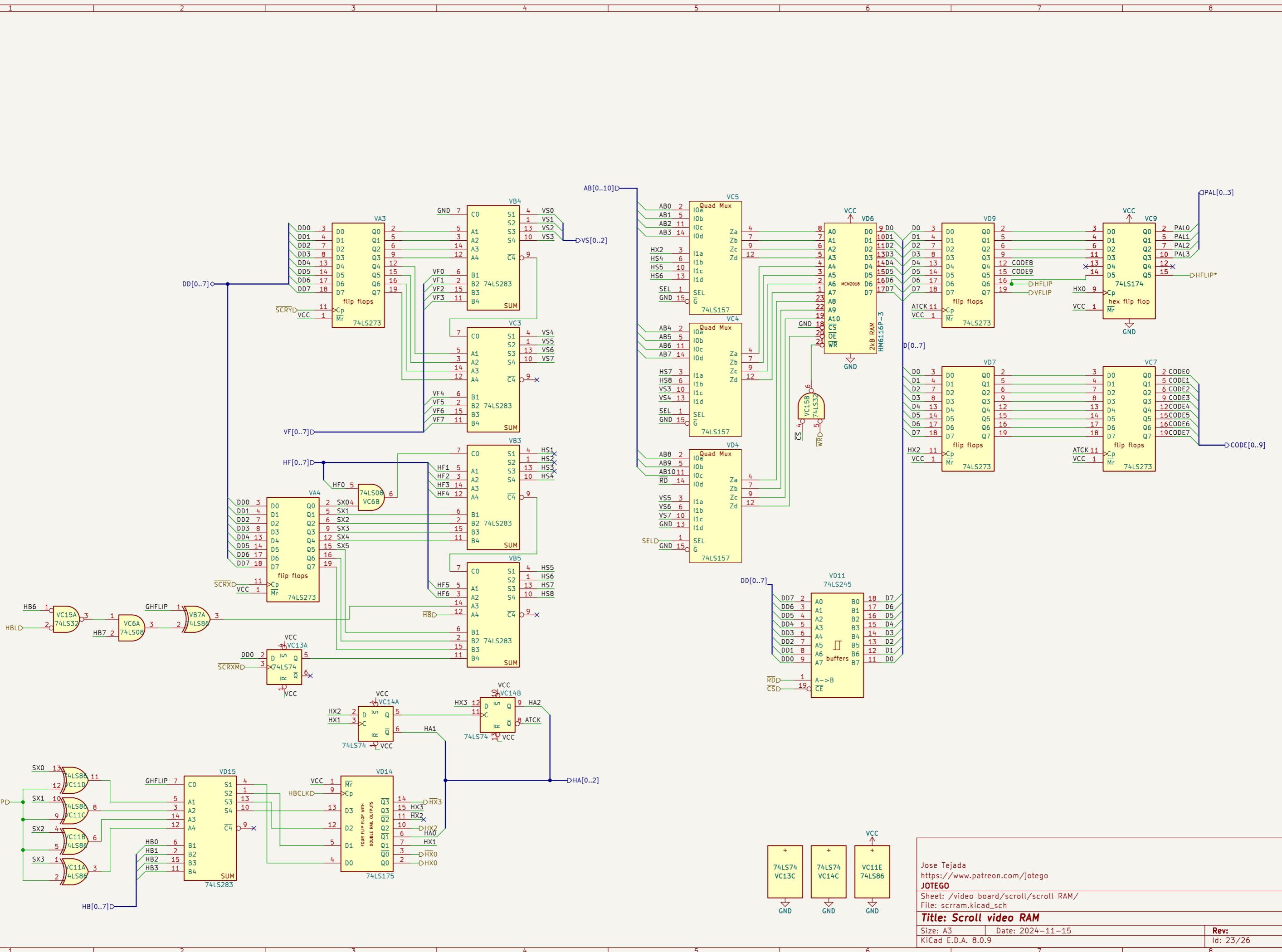
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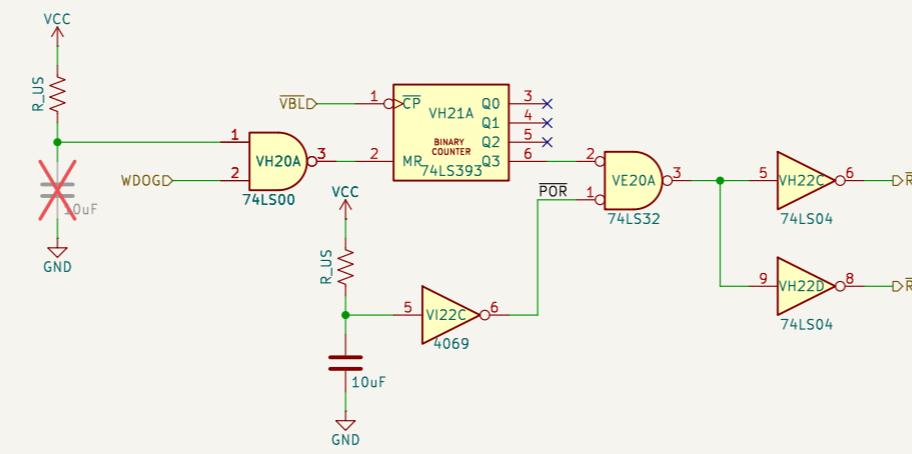
Sheet: /video board/scroll/scroll ROM/
File: scrom.kicad_sch

Title: scroll ROM

Size: A3 | Date: 2024-11-15
KiCad E.D.A. 8.0.9

Rev:
Id: 22/26





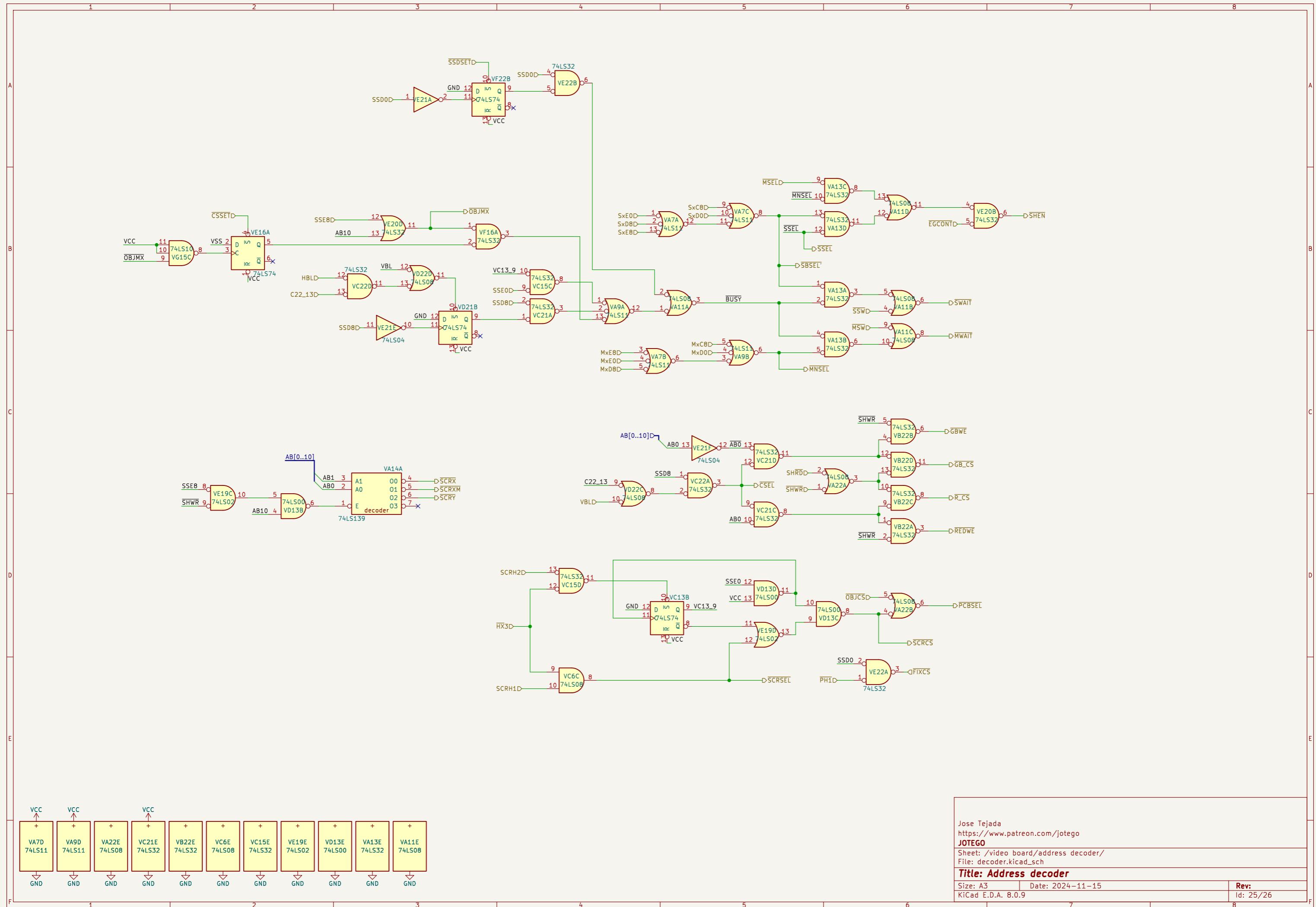
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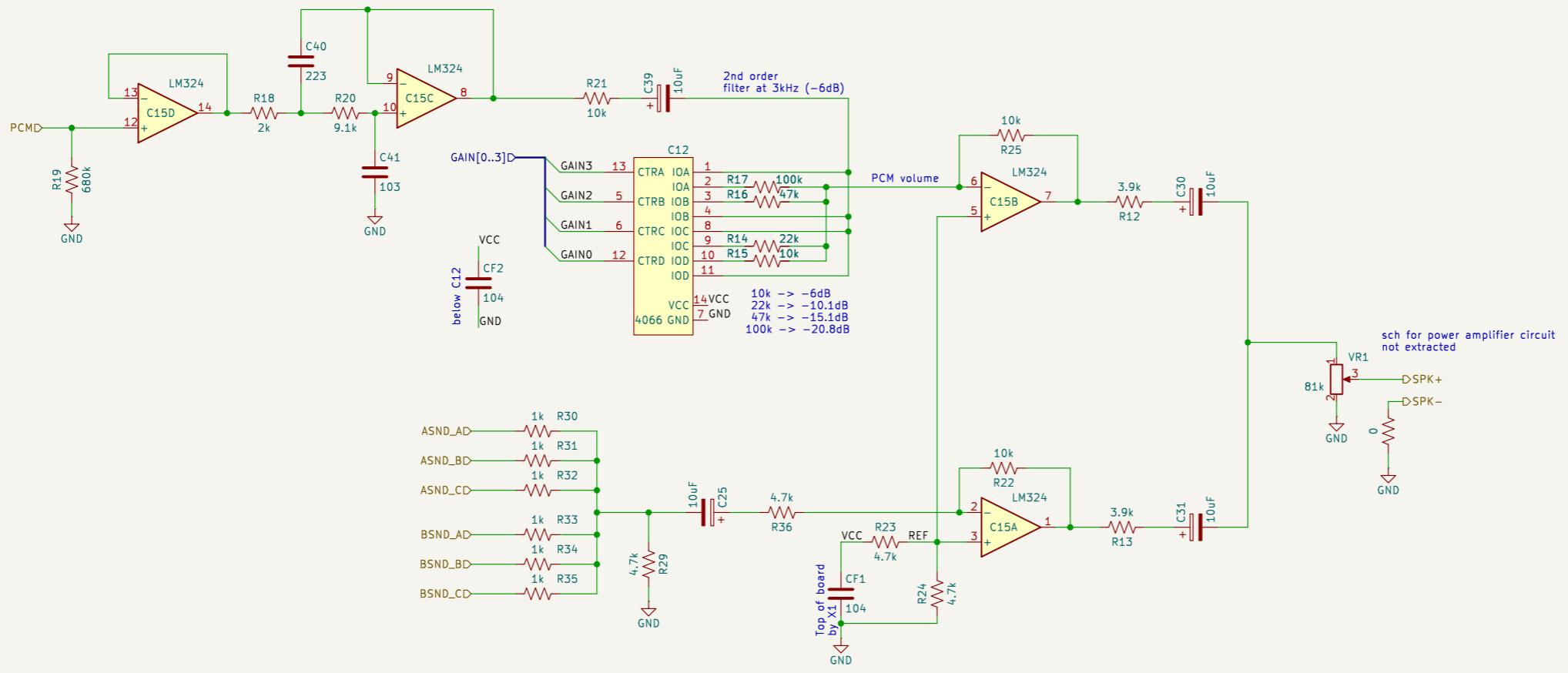
Sheet: /video board/watchdog/
File: watchdog.kicad_sch

Title: Watchdog Circuit

Size: A3 Date: 2024-11-15
KiCad E.D.A. 8.0.9

Rev: Id: 24/26





Passive component references
when shown, come from original PCB.
The bootleg did not have
references for passives.

Device components follow bootleg references.
The bootleg counts letters from left to right and numbers from bottom to top.
The original counts numbers left to right and letters bottom to top.



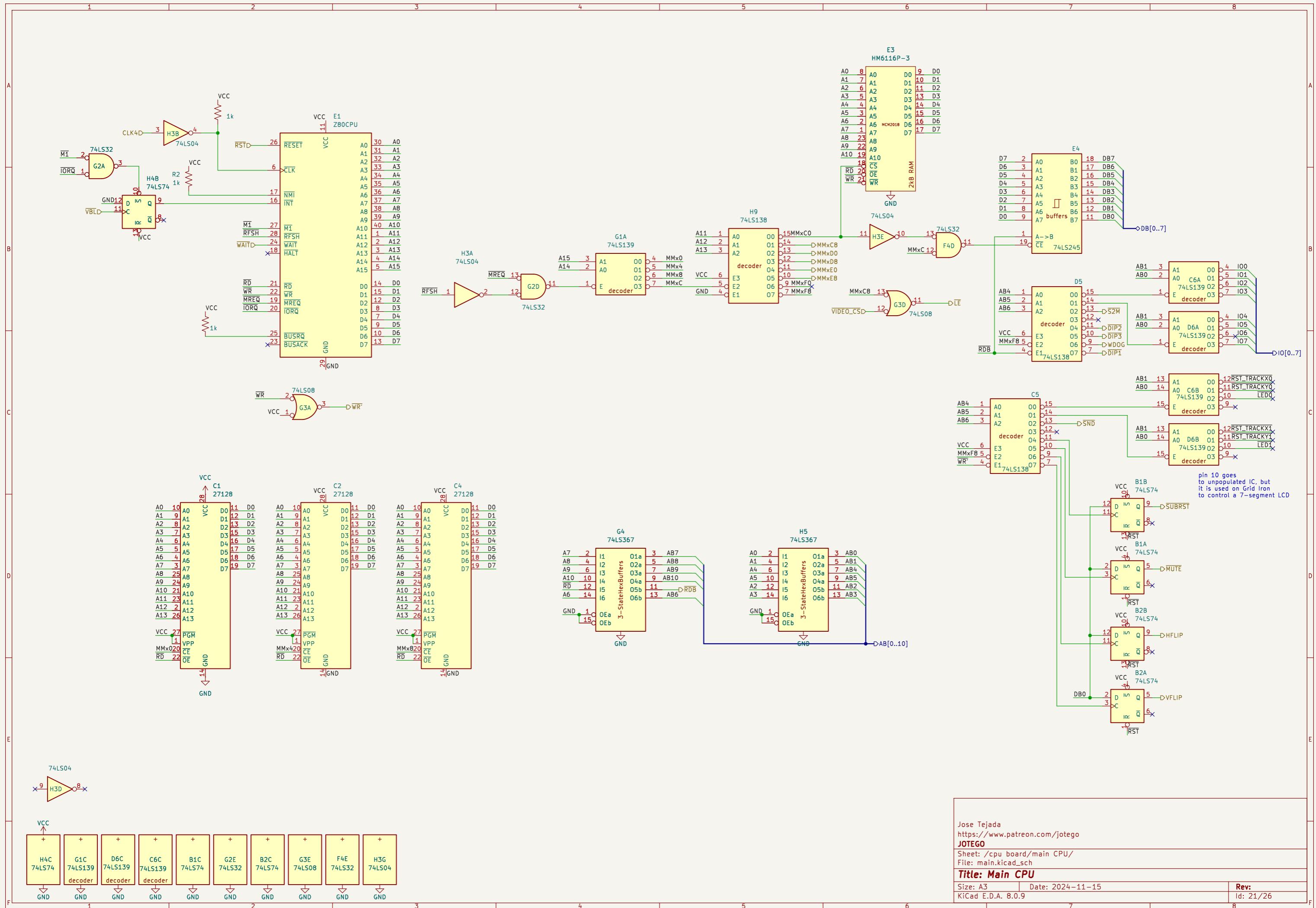
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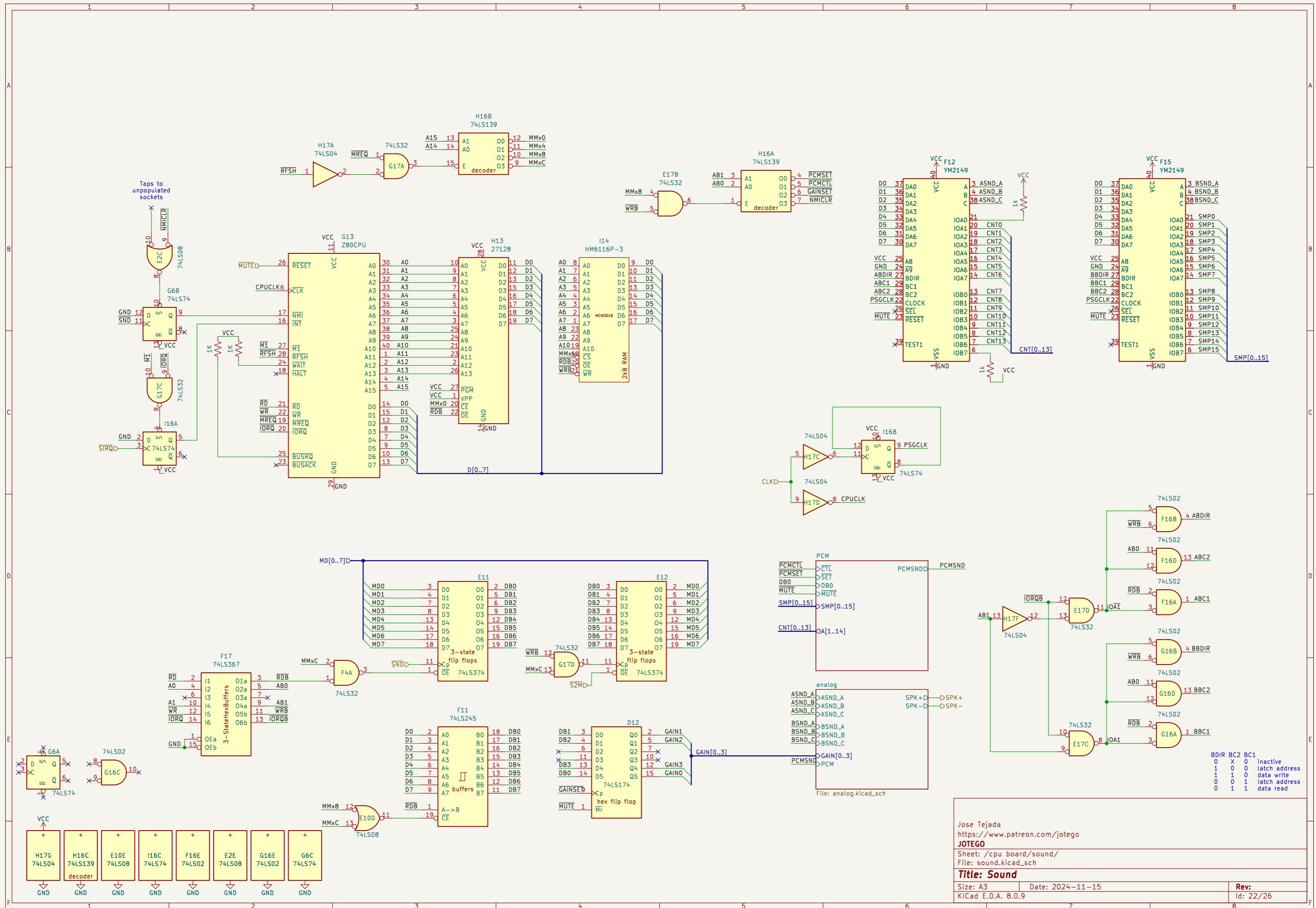
Sheet: /cpu board/sound/analog/
File: analog.kicad_sch

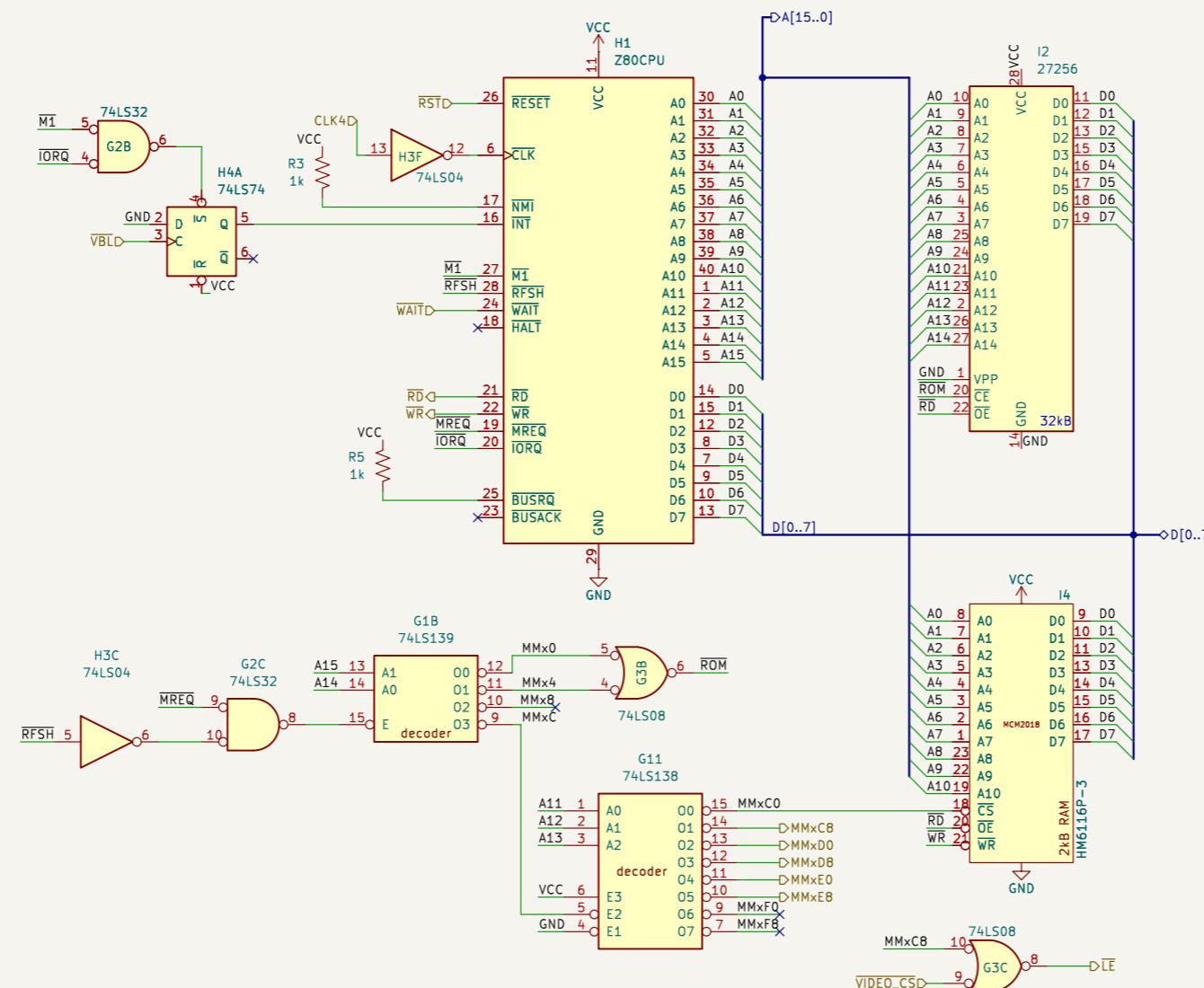
Title: Sound amplifiers

Size: A3 | Date: 2024-11-15
KiCad E.D.A. 8.0.9

Rev: | Id: 26/26







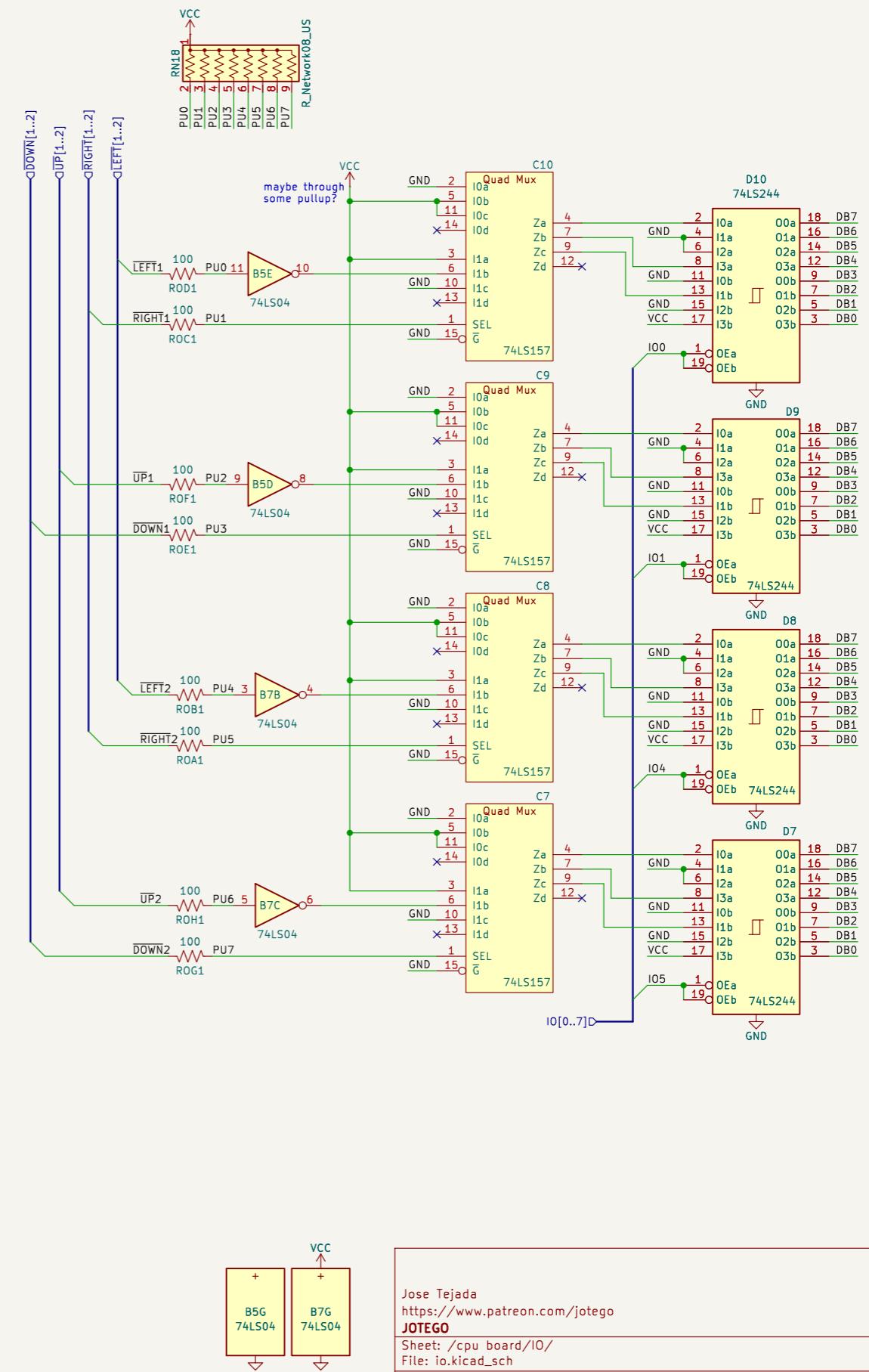
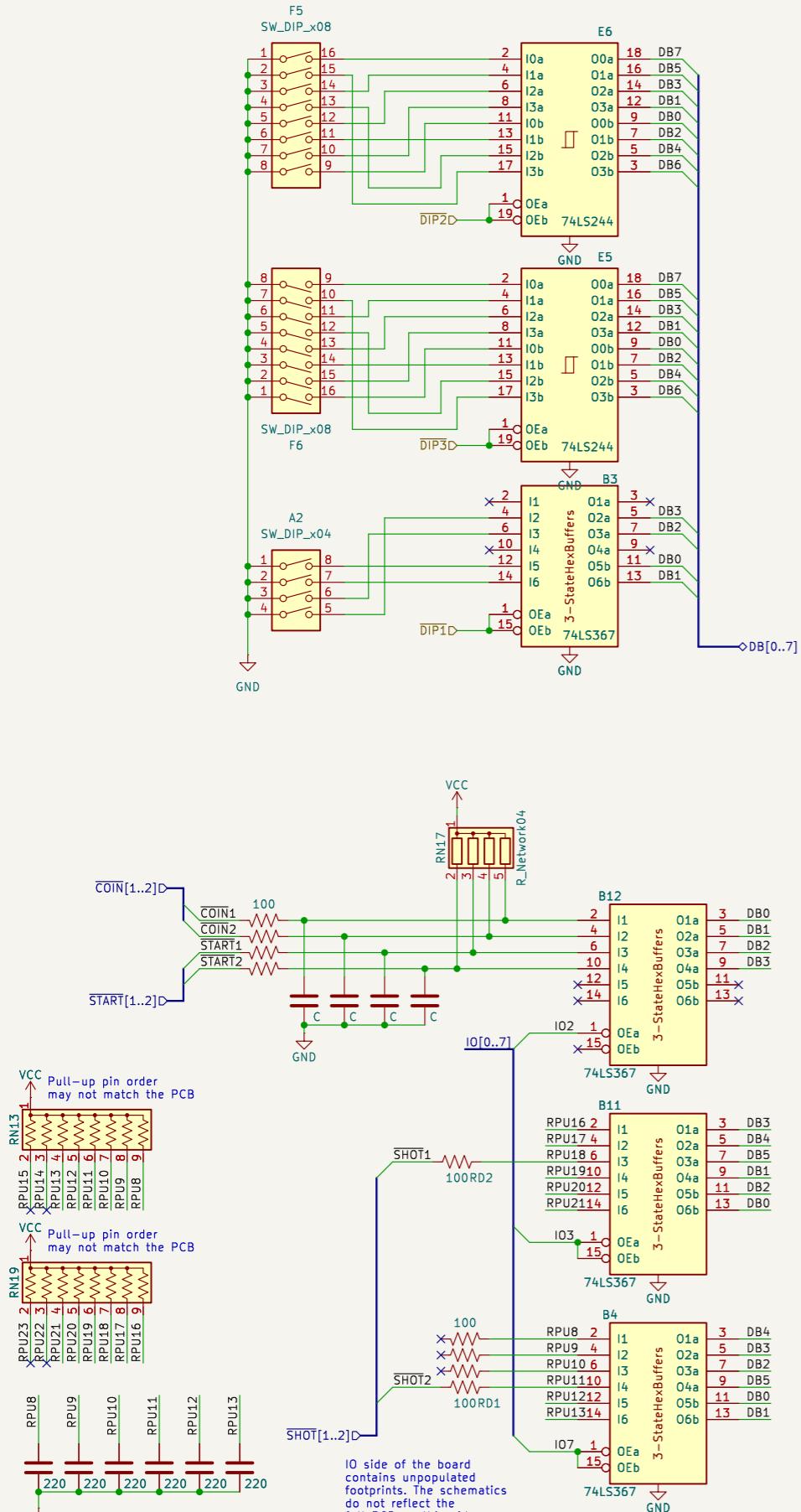
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Sheet: /cpu board/sub CPU/
File: subcpu.kicad_sch

Title: Subordinate CPU

Size: A3 | Date: 2024-11-15
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Rev:
Id: 23/26



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Sheet: /cpu_board/IO/
File: io.kicad_sch

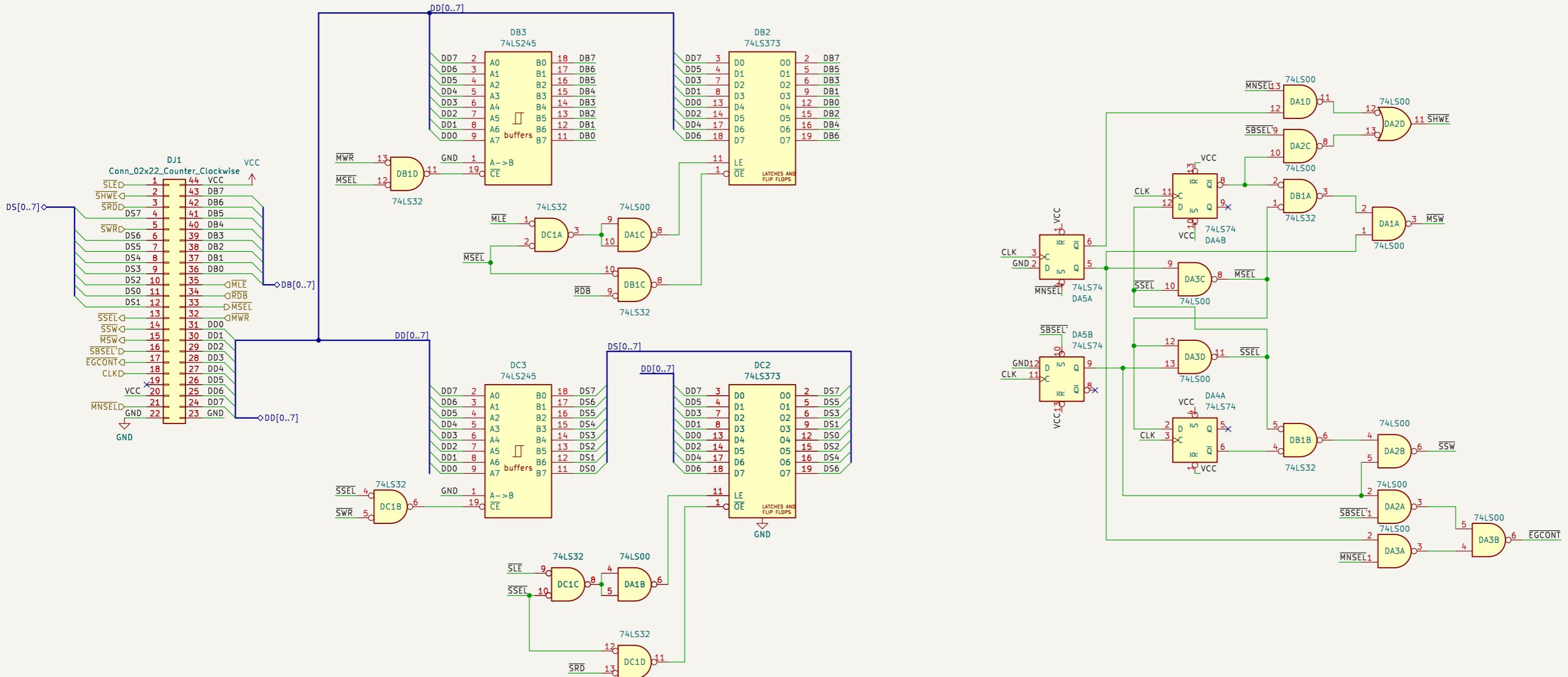
Title: Cabinet Input/Output

Size: A3 Date: 2024-11-15

KiCad E.D.A. 8.0.9

Rev:

Id: 24/26



This circuit takes three small boards on the original PCB. These boards were manufactured by Mitsubishi and contain the circuits seen on the bootleg
- MA7053 x2, 28 pin each
- MA7054 x1, 15 pins
The layout around the daughter board on the bootleg differs slightly from the original in order to adjust the pinout to a single 44-pin board.

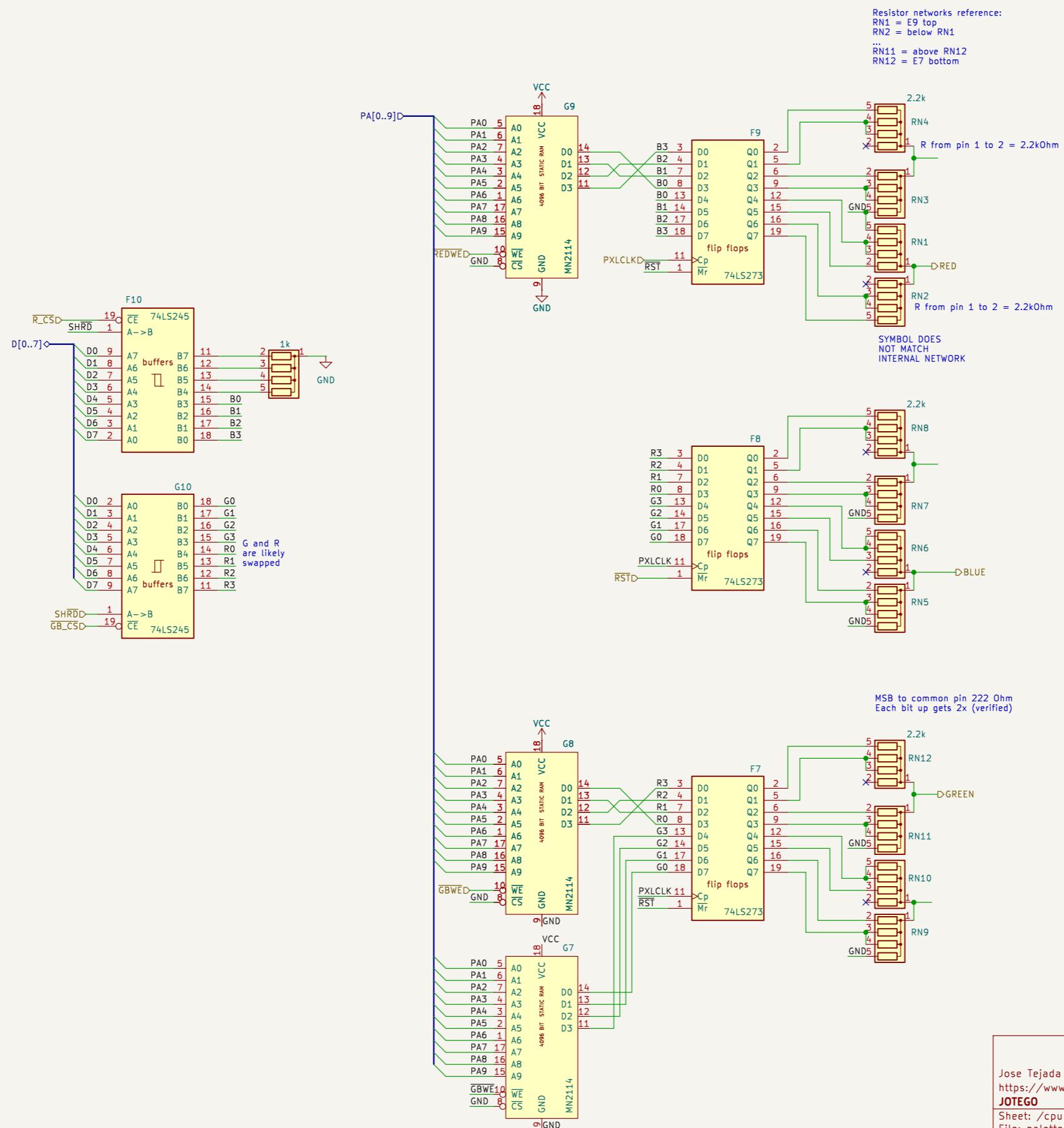
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File: daughter.kicad_sch

Size: A3 Date: 2024-11-15
KiCad F D A 8 0 9

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Resistor networks reference:
RN1 = E9 top
RN2 = below RN1
...
RN11 = above RN12
RN12 = E7 bottom

R from pin 1 to 2 = 2.2kOhm

SYMBOL DOES
NOT MATCH
INTERNAL NETWORK

MSB to common pin 222 Ohm
Each bit up gets 2x (verified)

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Sheet: /cpu_board/palette/
File: palette.kicad_sch

Title: Color Palette

Size: A3	Date: 2024-11-15
KiCad E.D.A. 8.0.9	Rev: #/26