

A

B

C

D

E

A

B

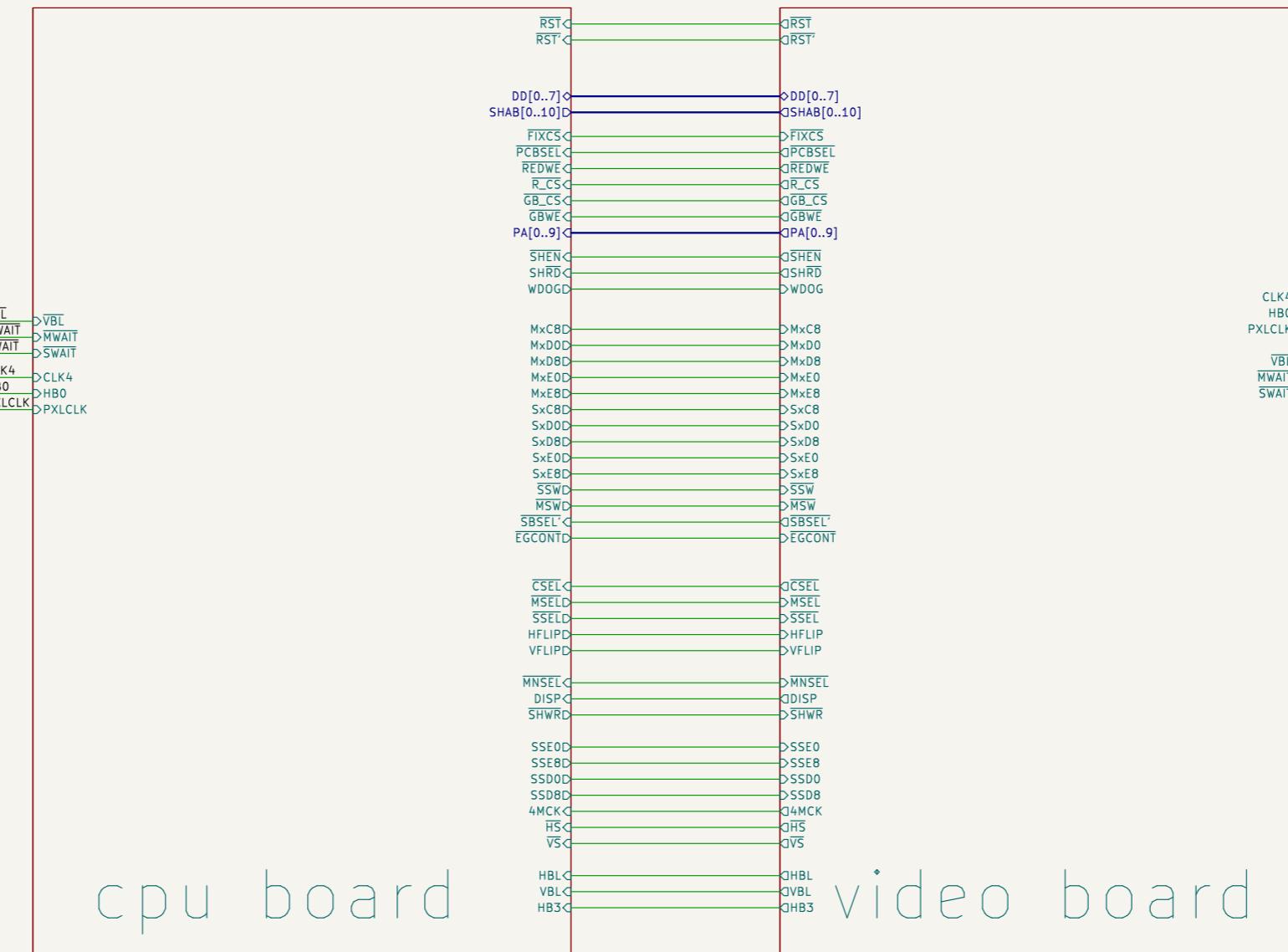
C

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



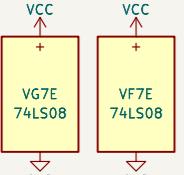
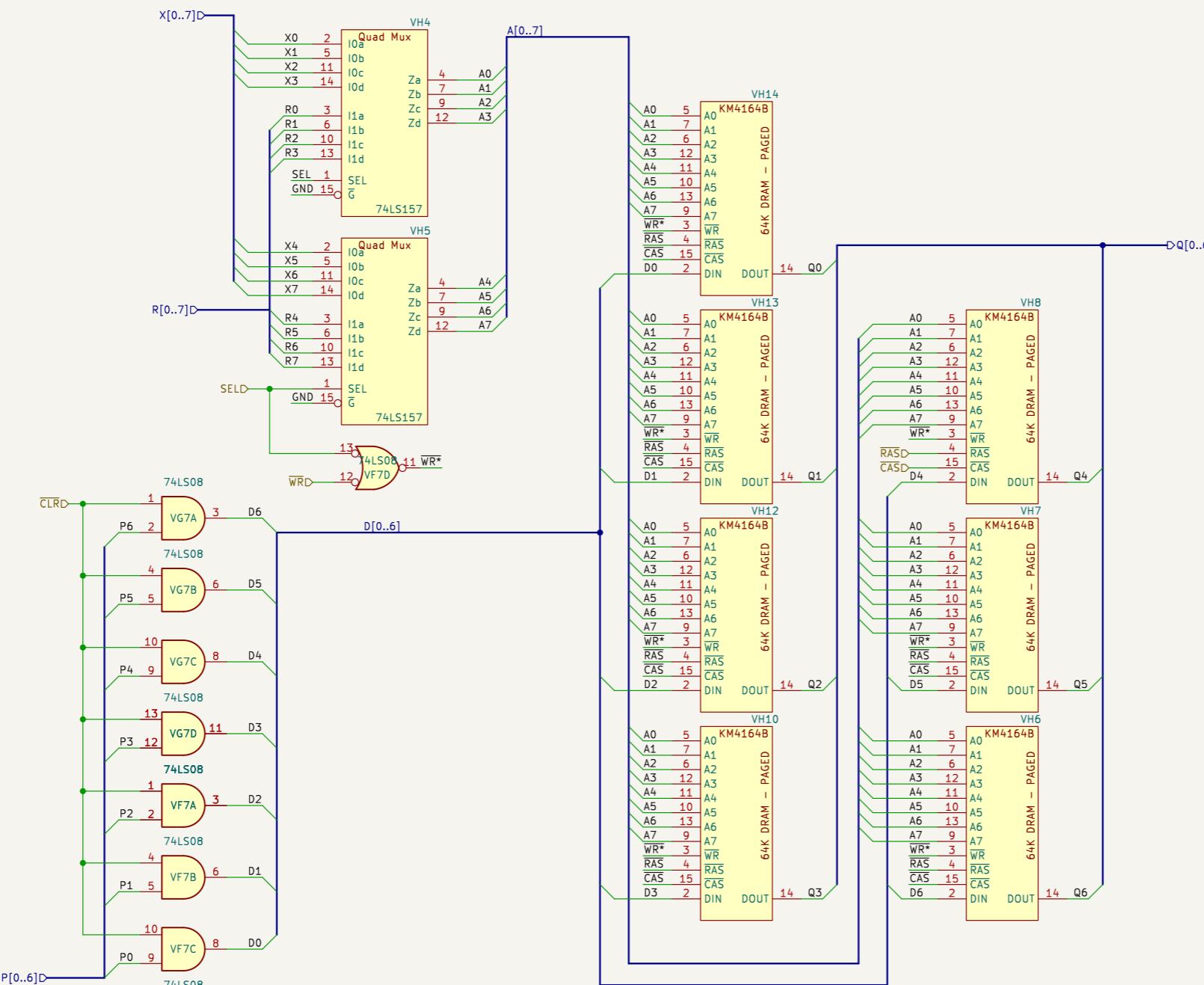
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO



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



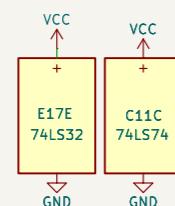
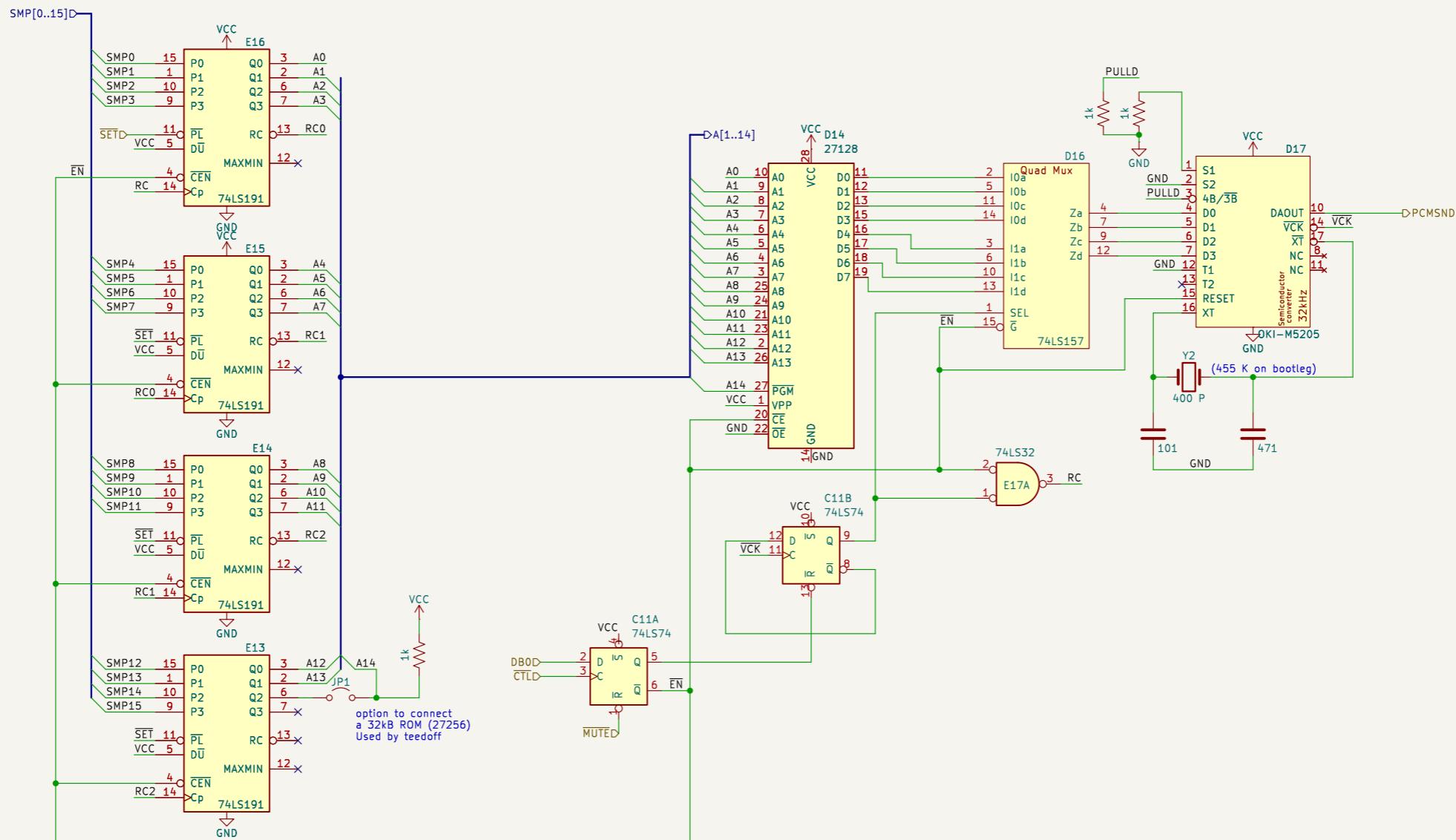
Jose Tejada
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Sheet: /video board/object/frame buffer B/
File: buffer.kicad_sch

Title: Line Buffer

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

Rev: 2/26



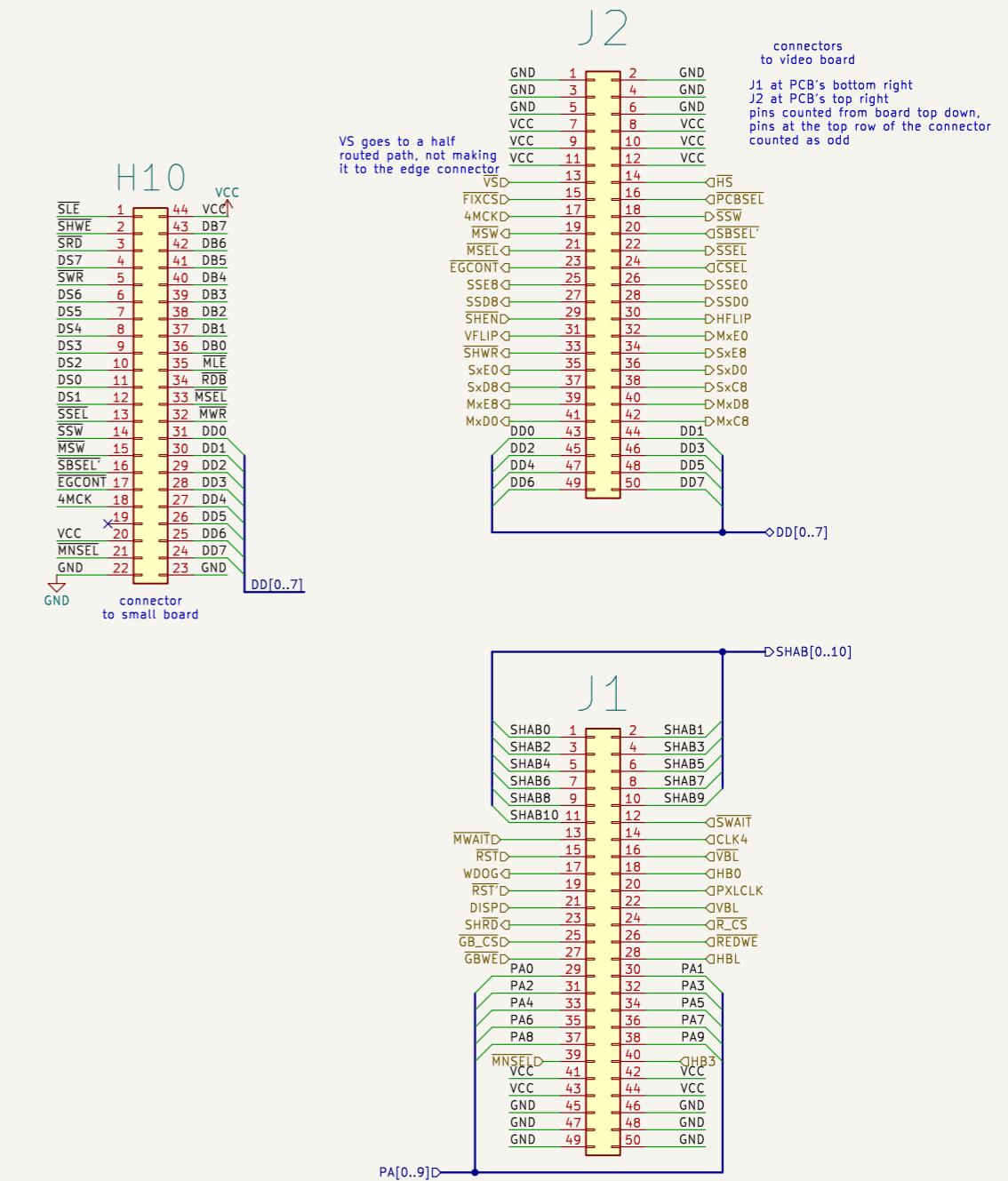
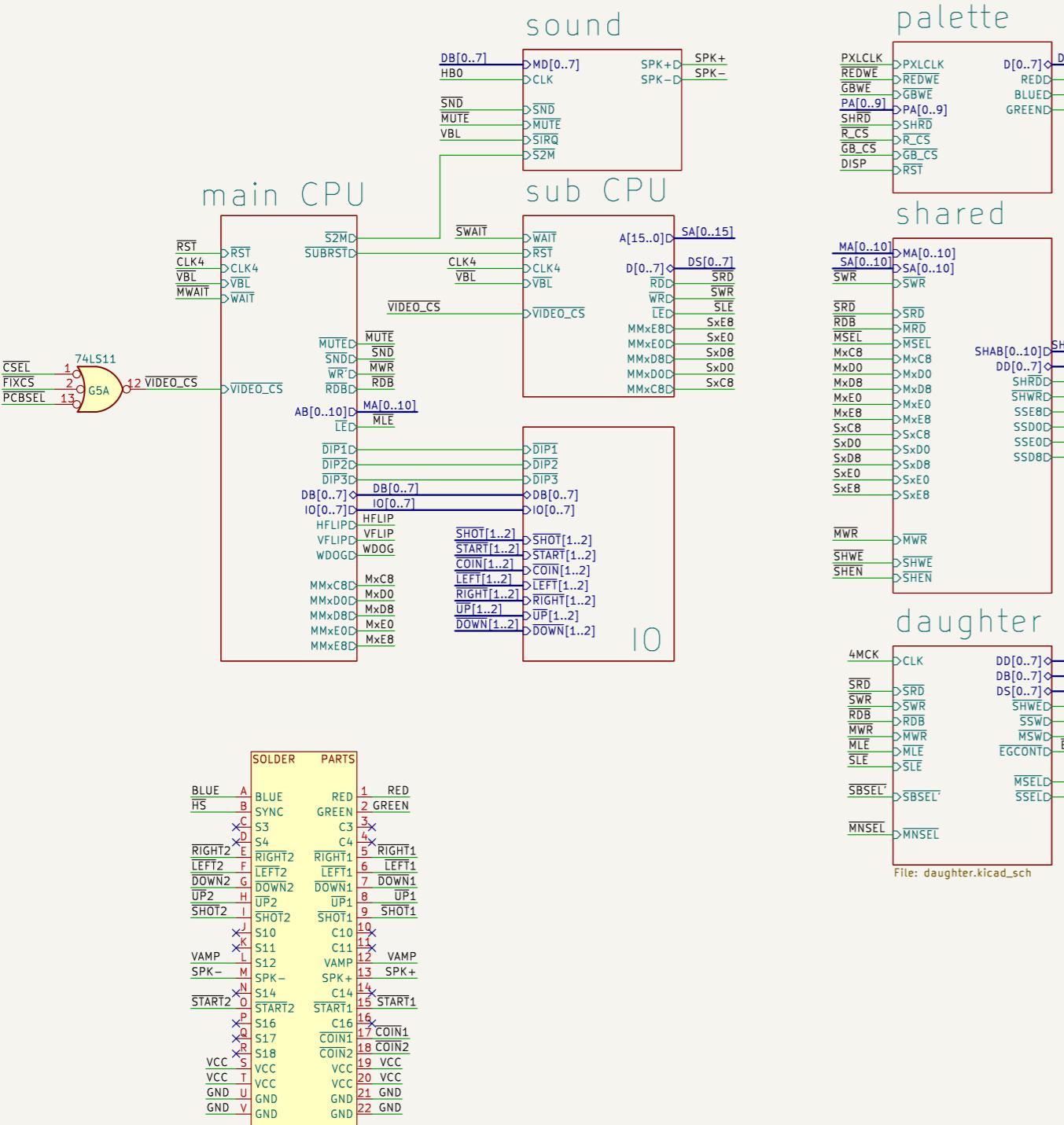
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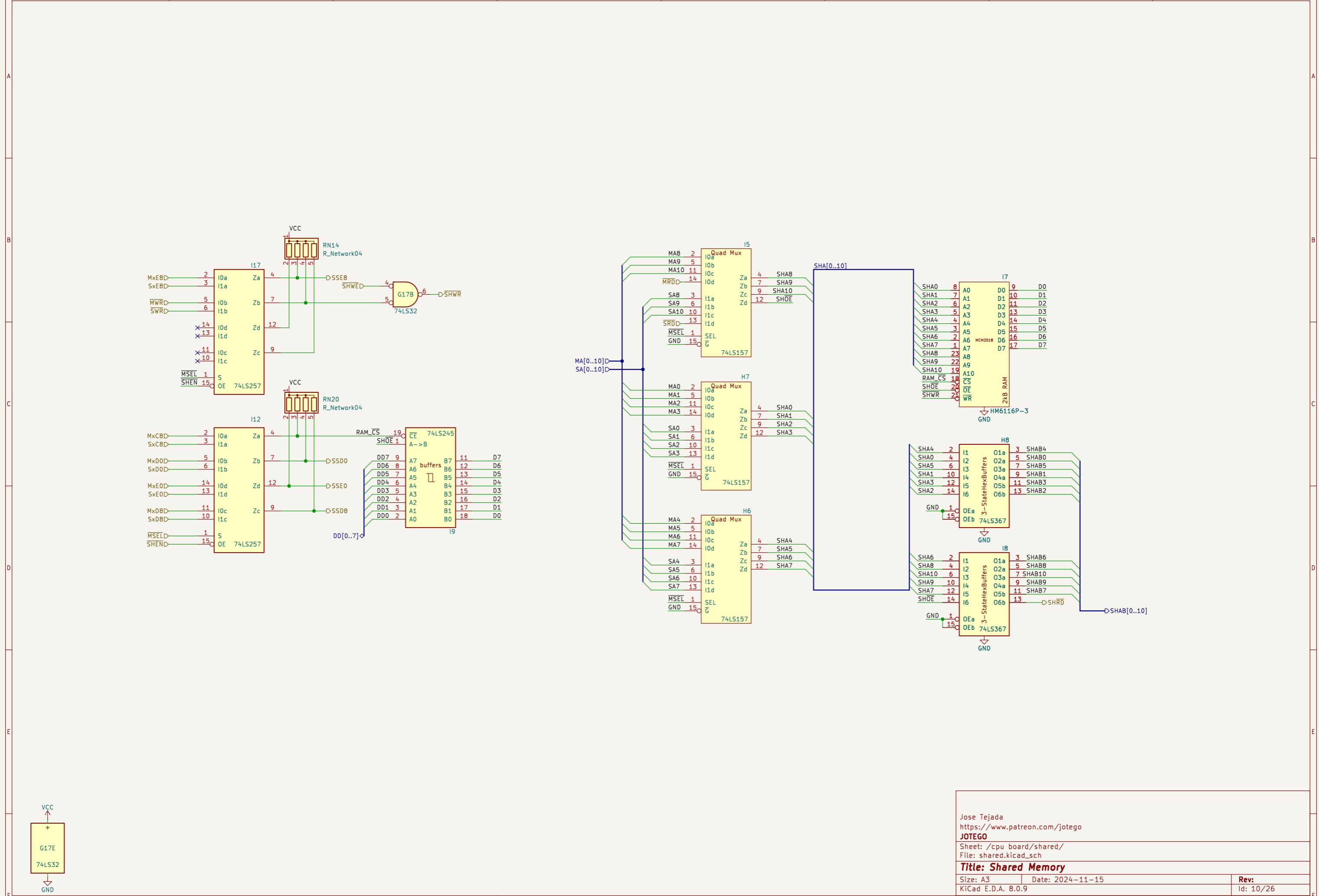
Sheet: /cpu_board/sound/PCM/
File: pcm.kicad_sch

Title: PCM

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

Rev: Id: 5/26





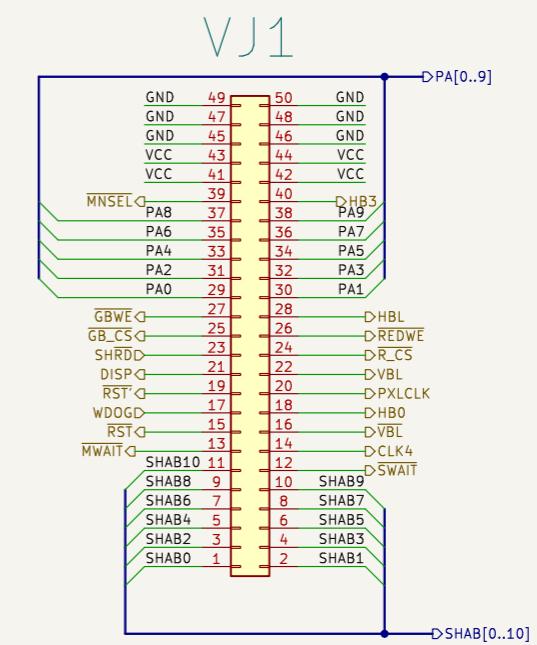
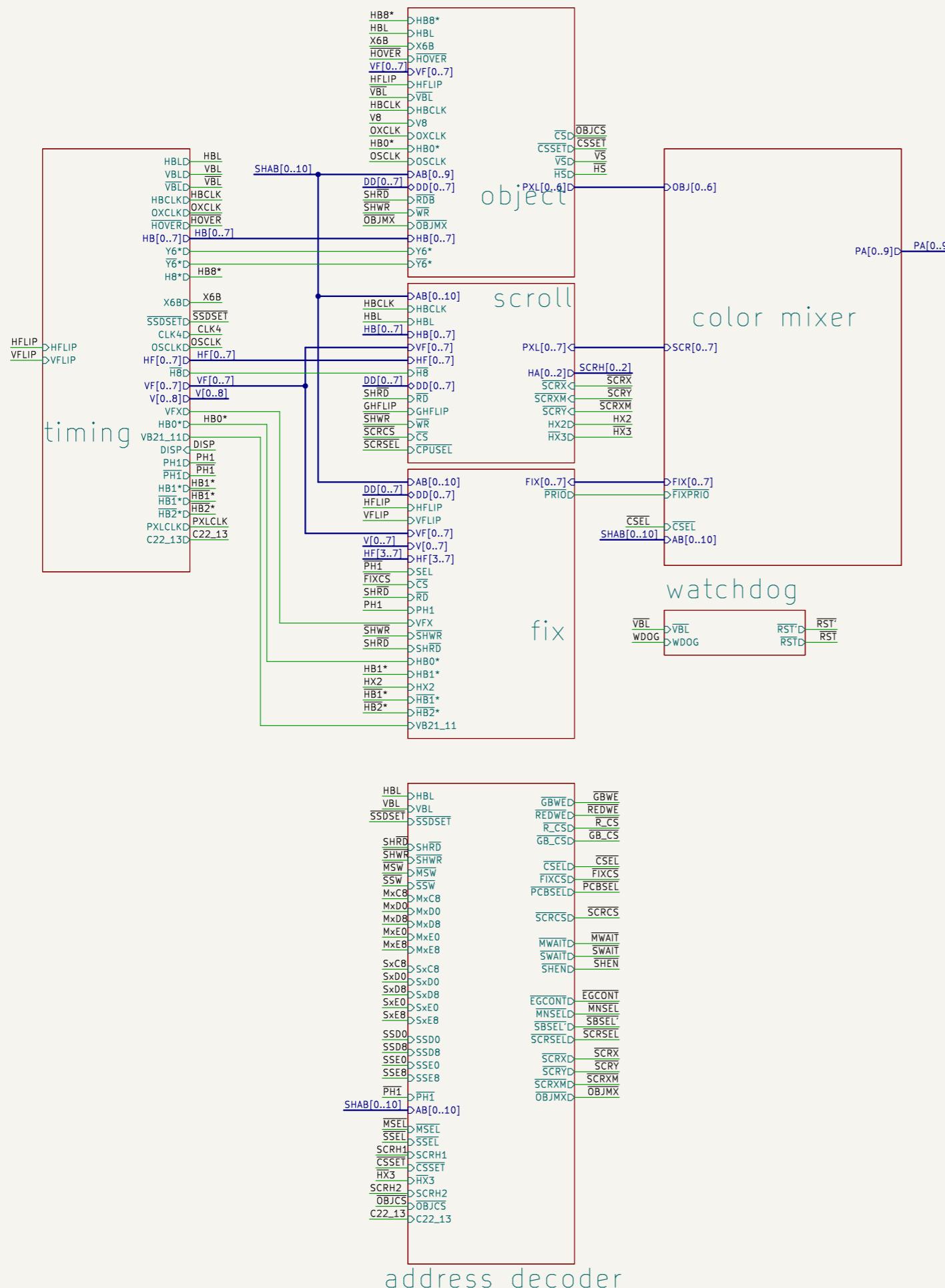
Jose Tejada
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Sheet: /cpu_board/shared/
File: shared.kicad_sch

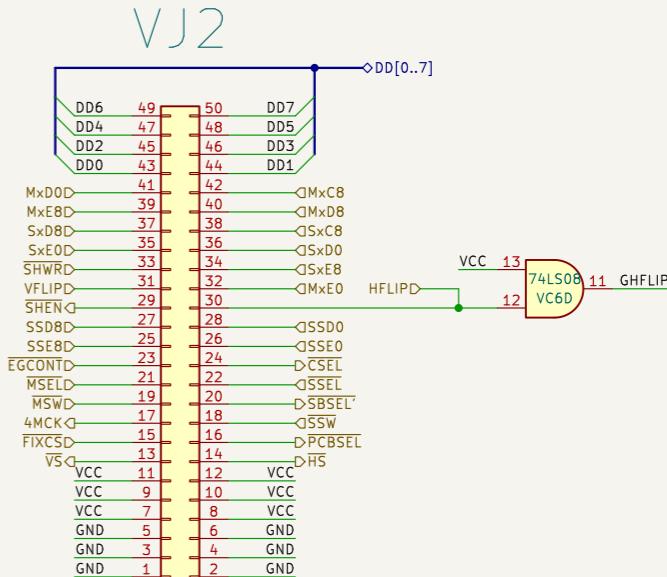
Title: Shared Memory

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

Rev: | Id: 10/26



VJ1 at PCB's top right
VJ2 at PCB's bottom right
pins counted from board bottom up,
pins at the top row of the connector
counted as even



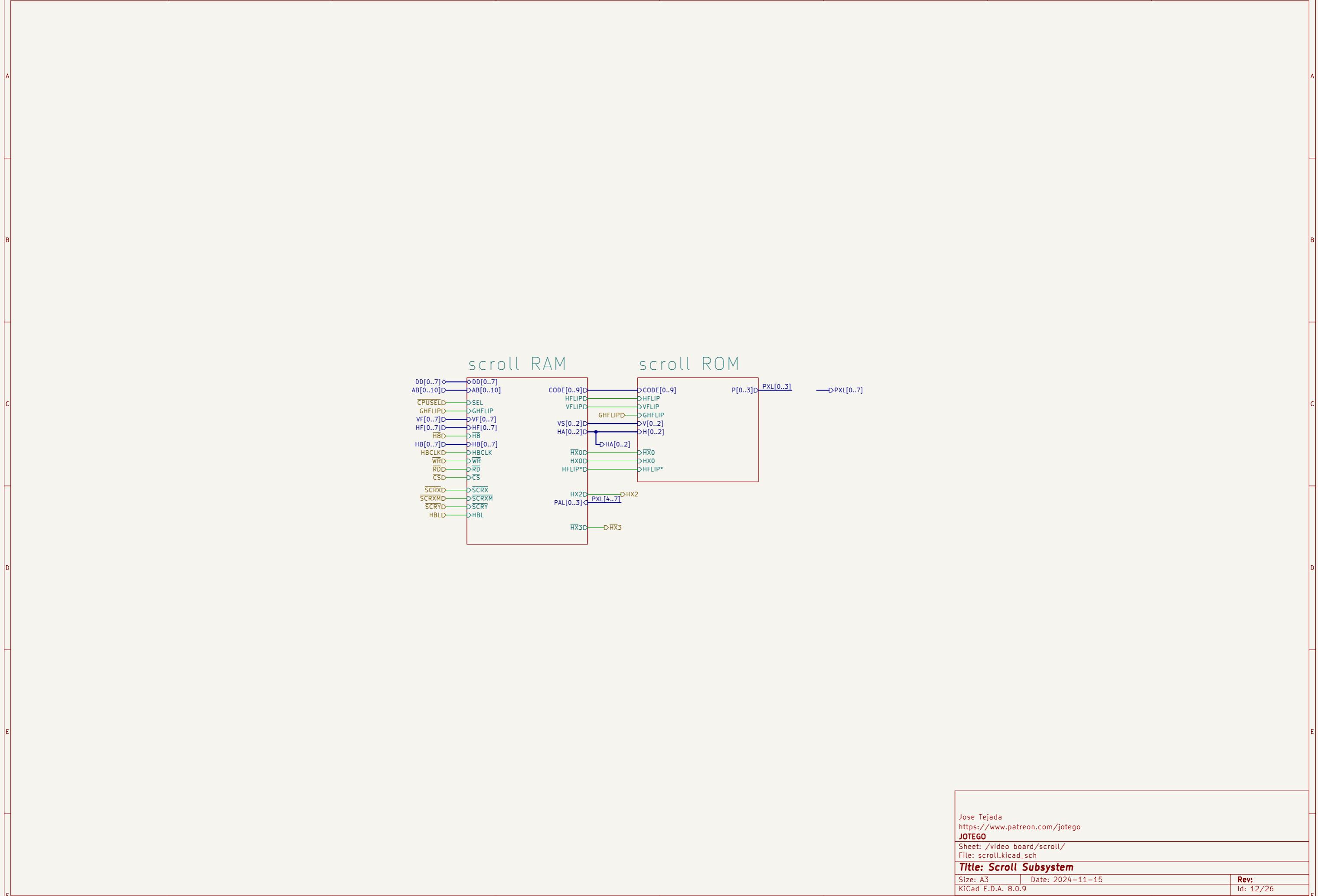
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JOTEGO

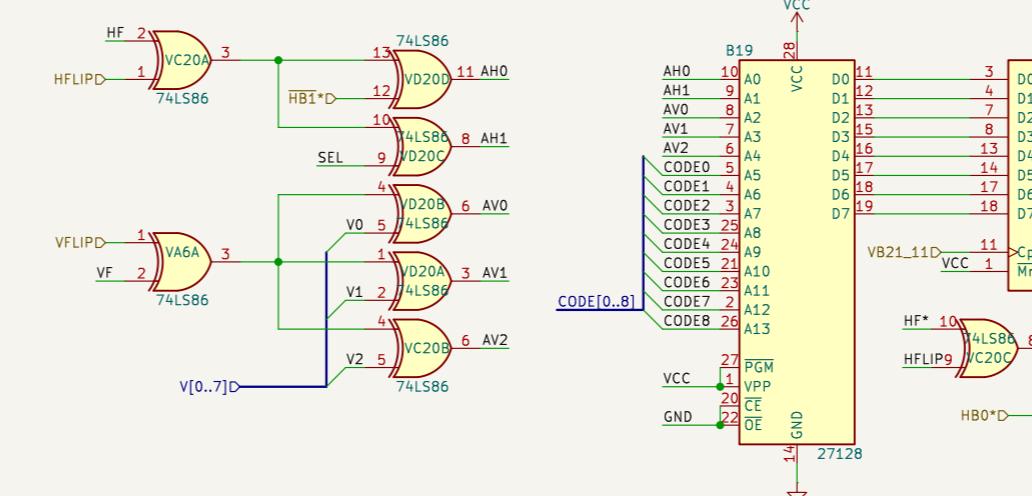
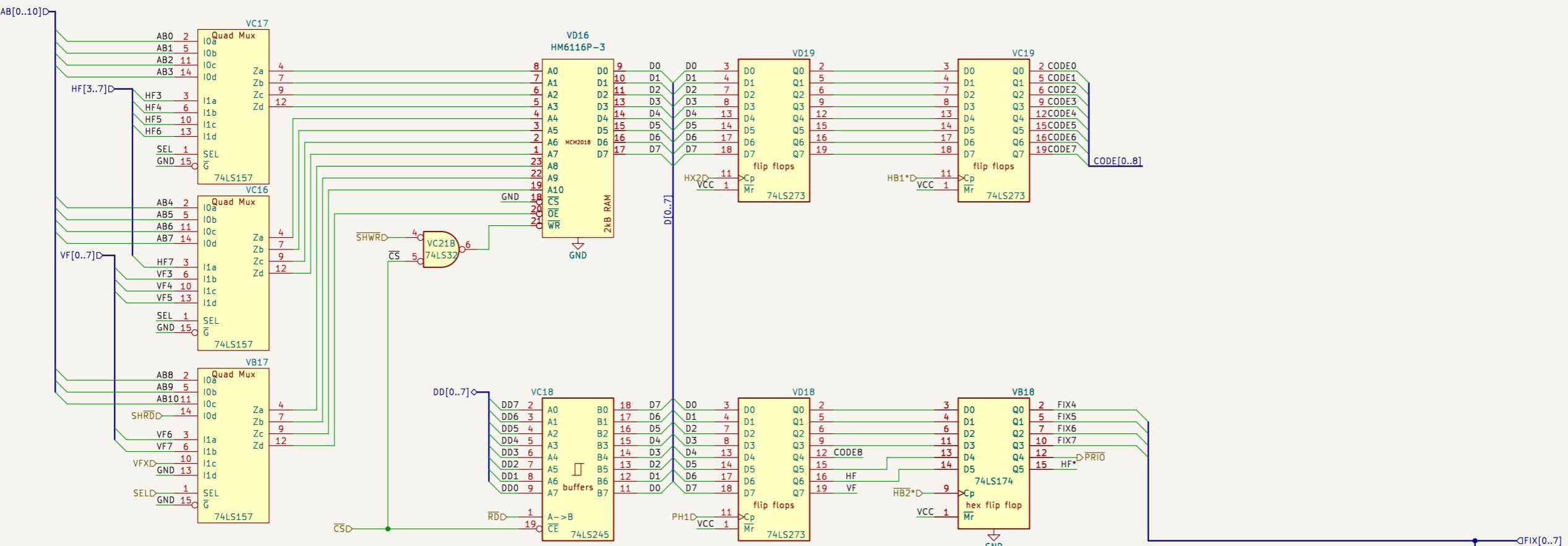
Sheet: /video board/
File: video.kicad_sch

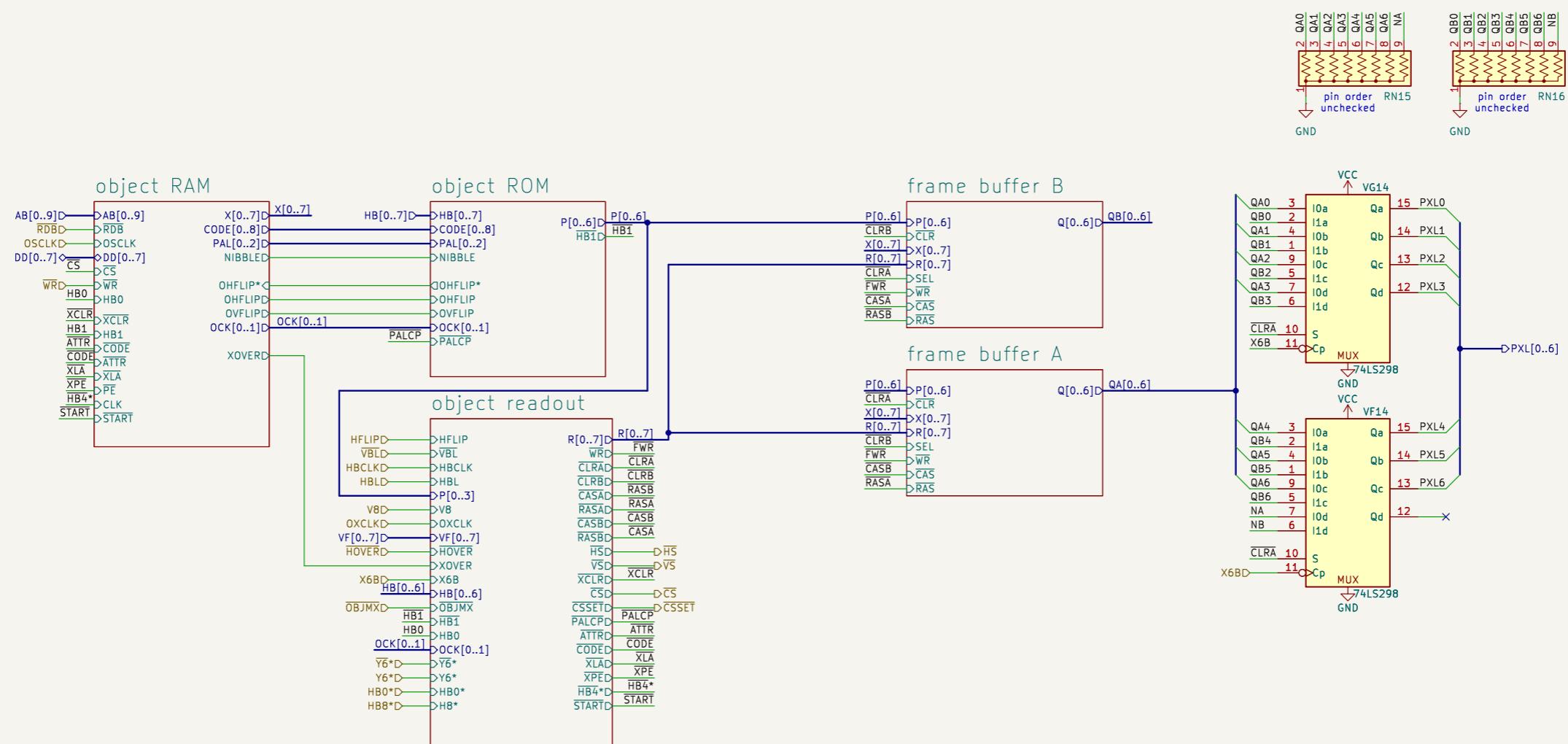
Title: Video board (bottom board)

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

Rev: Id: 11/26







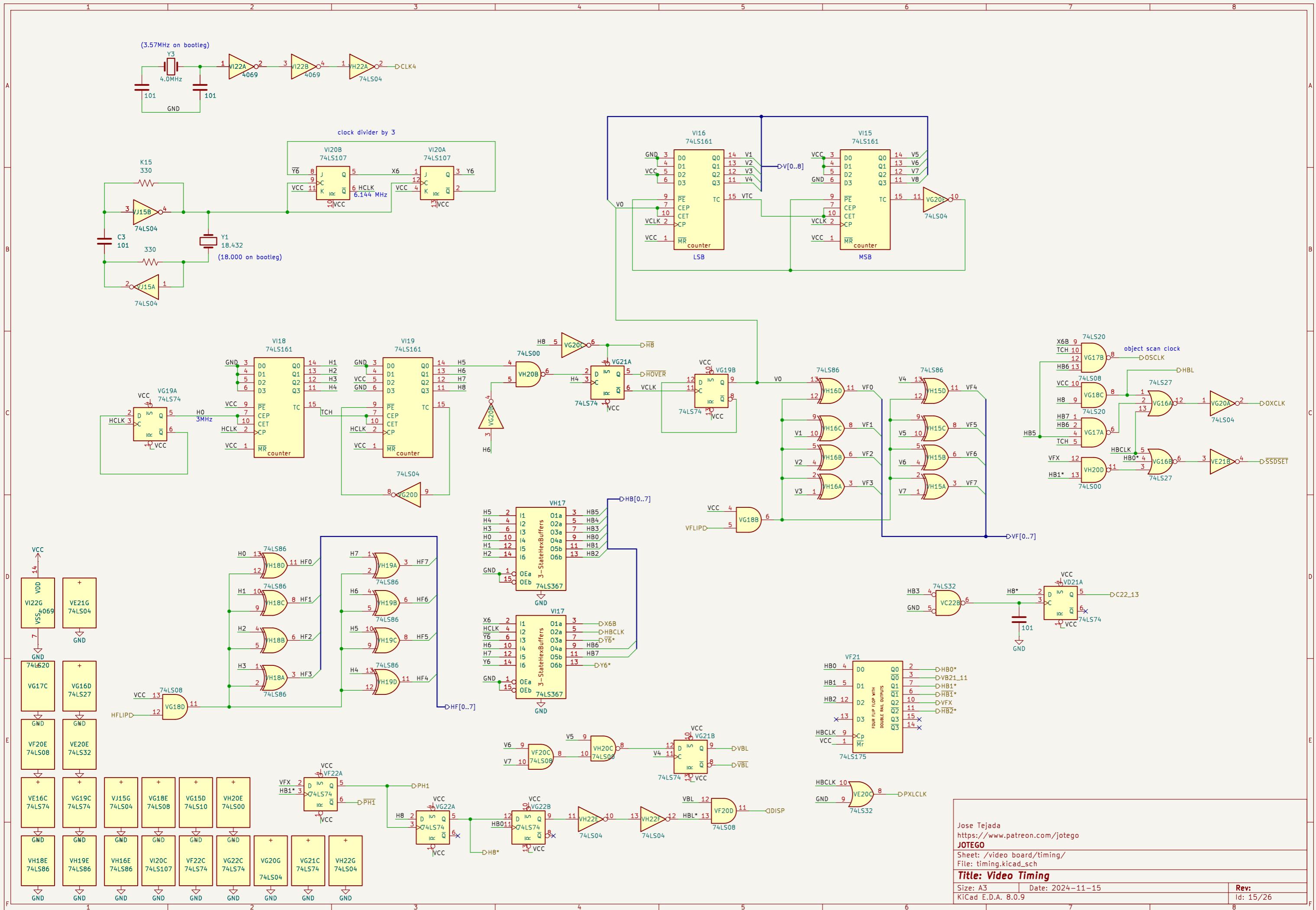
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Sheet: /video board/object/
File: object.kicad_sch

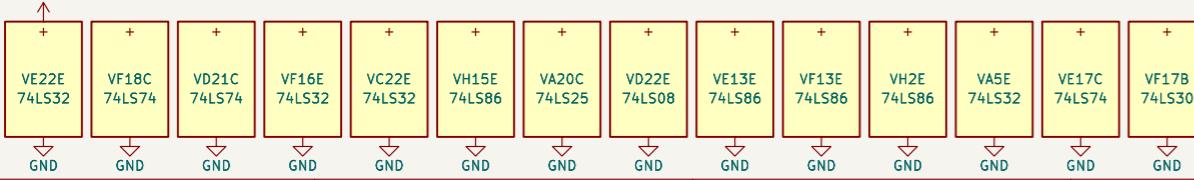
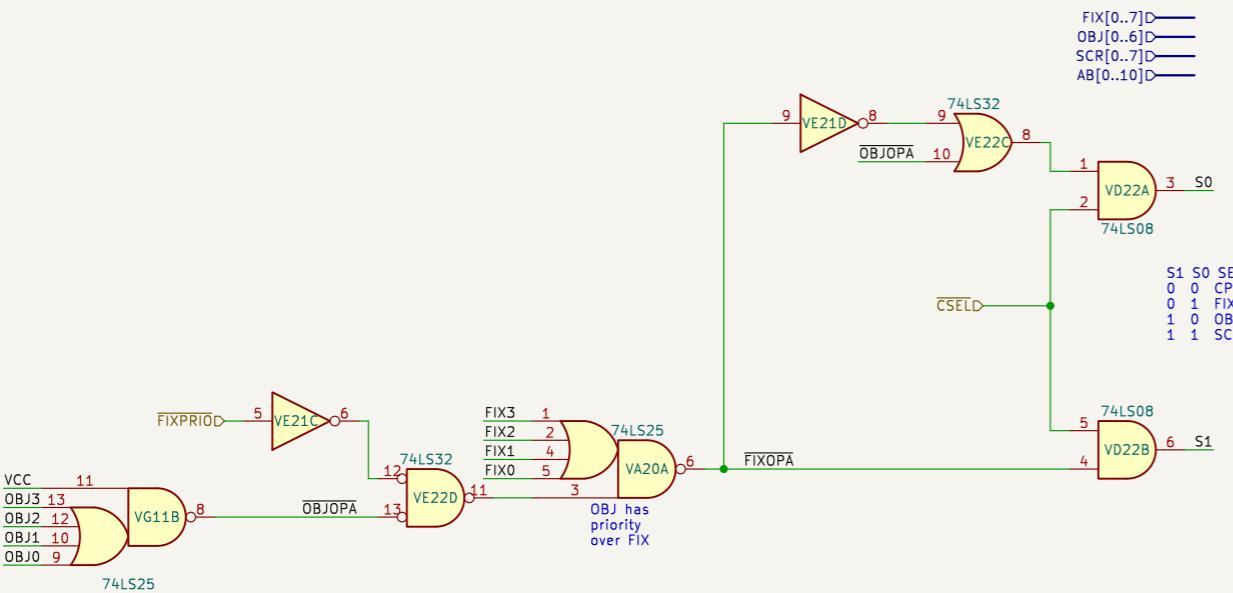
Title: Object Subsystem

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

Rev: Id: 14/26

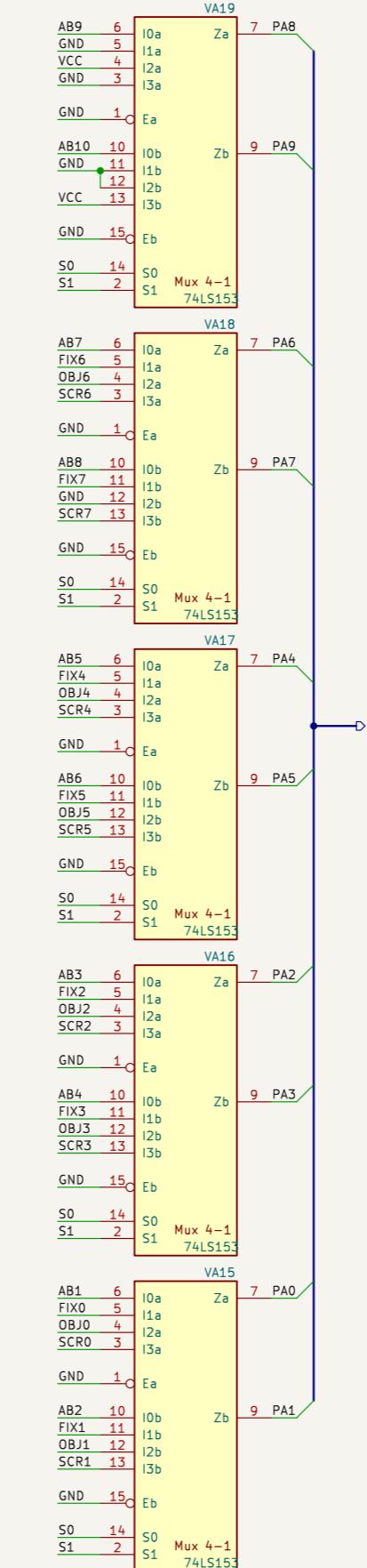


1 2 3 4 5 6 7 8



4

5



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Sheet: /video board/color mixer/
File: colmix.kicad_sch

Title: Color mixer

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

Rev:
Id: 16/26

A

A

B

B

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D

E

E

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F

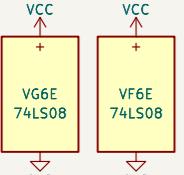
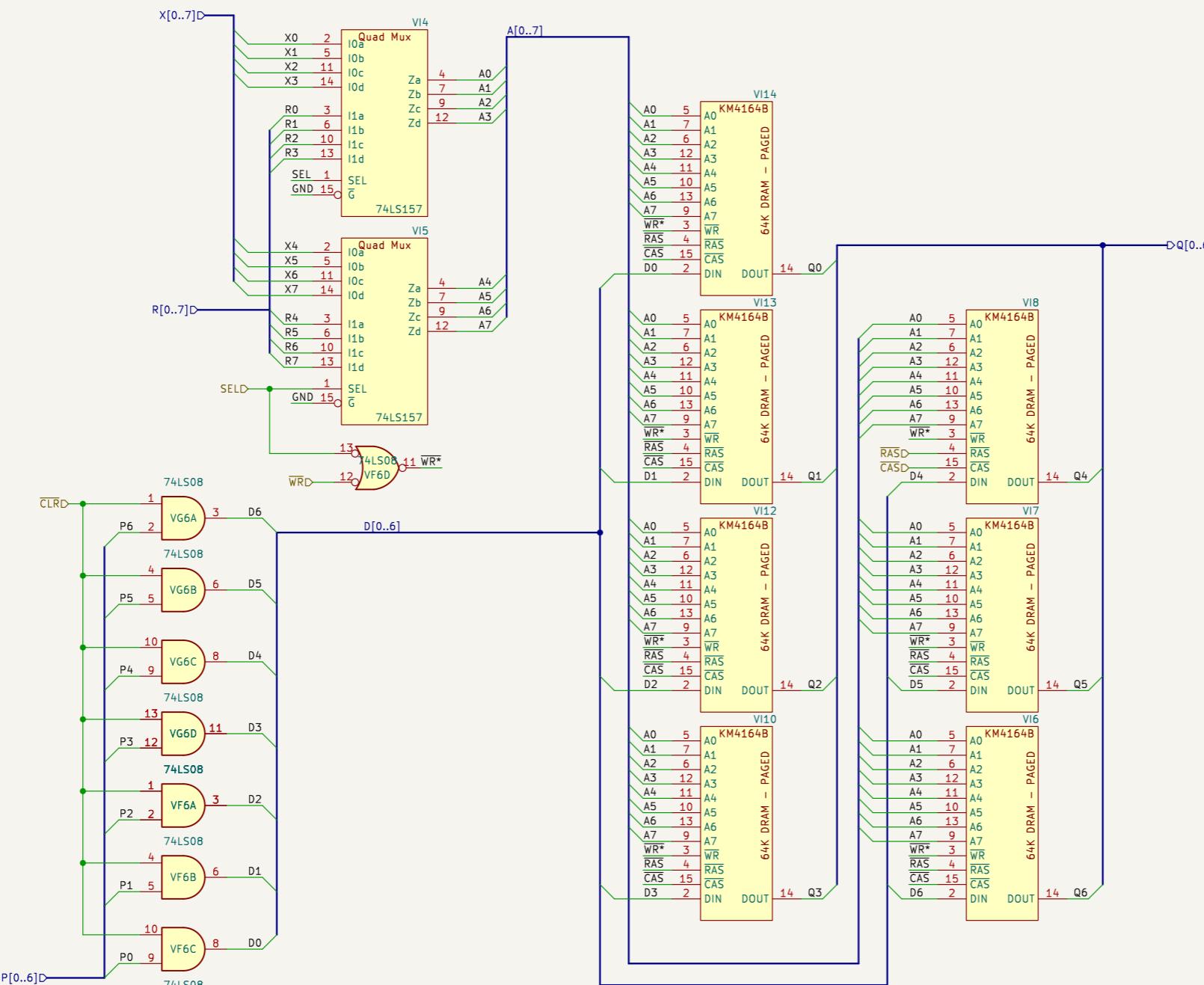
4

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8



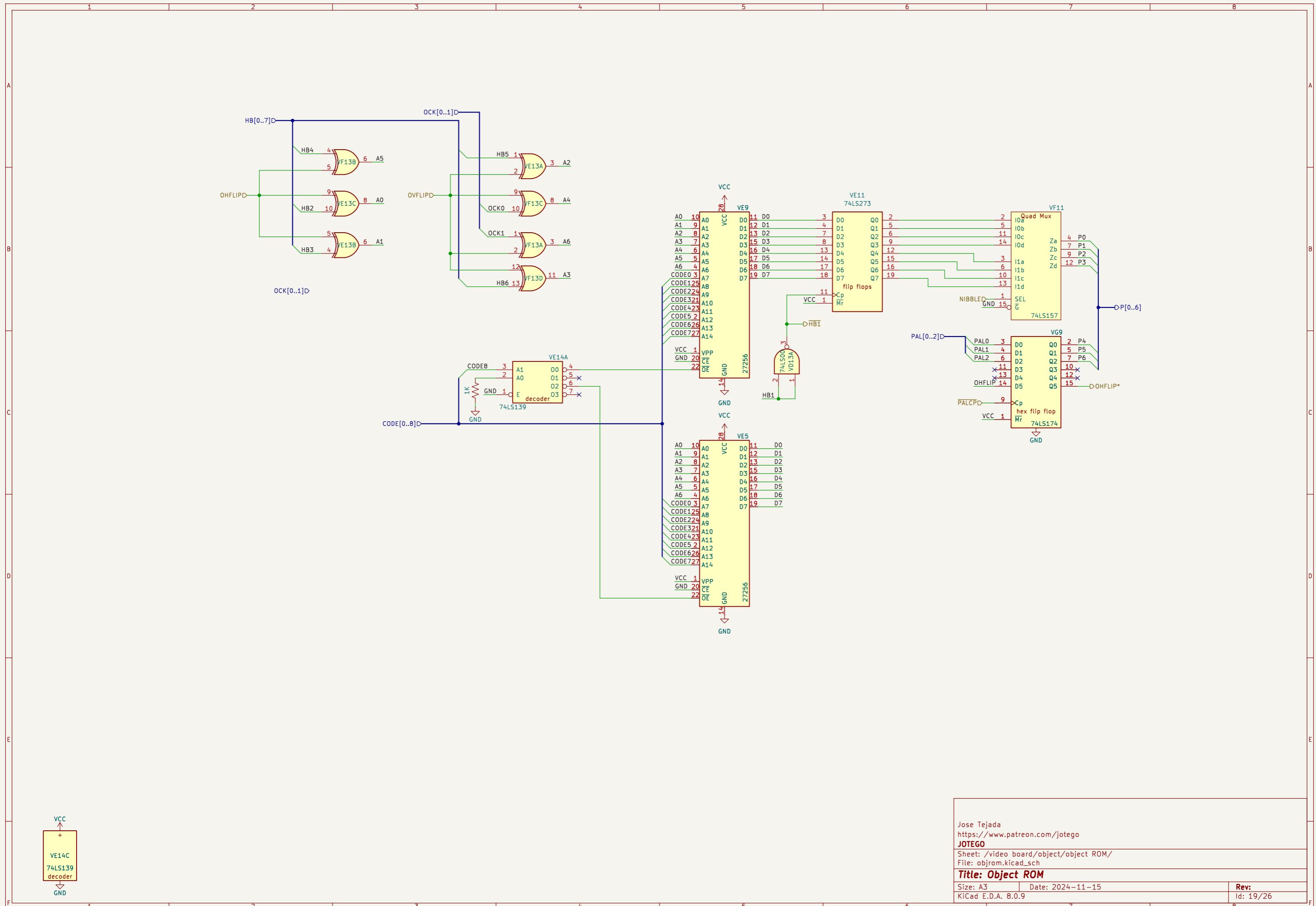
Jose Tejada
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Sheet: /video board/object/frame buffer A/
File: buffer.kicad_sch

Title: Line Buffer

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

Rev:
Id: 17/26



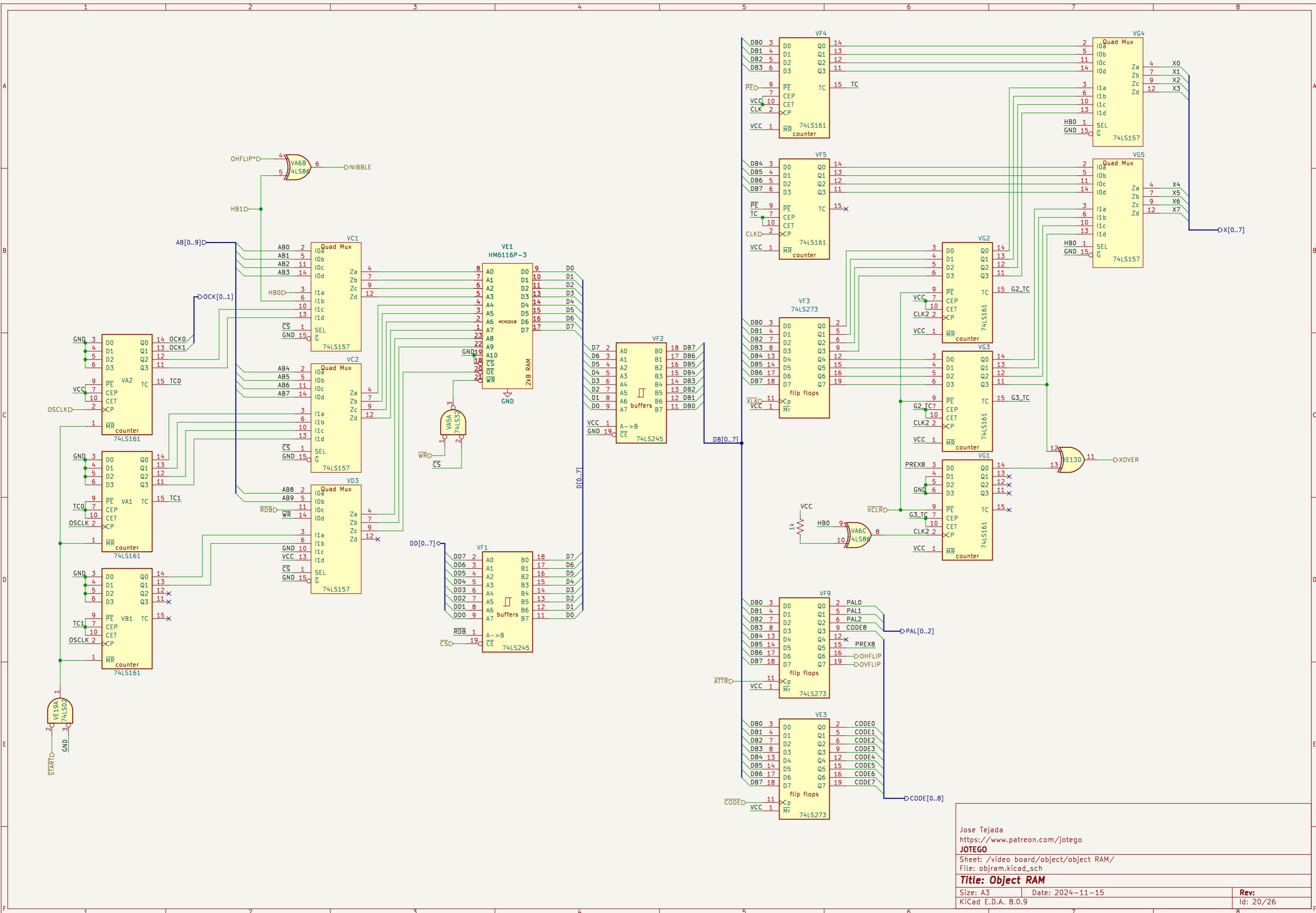
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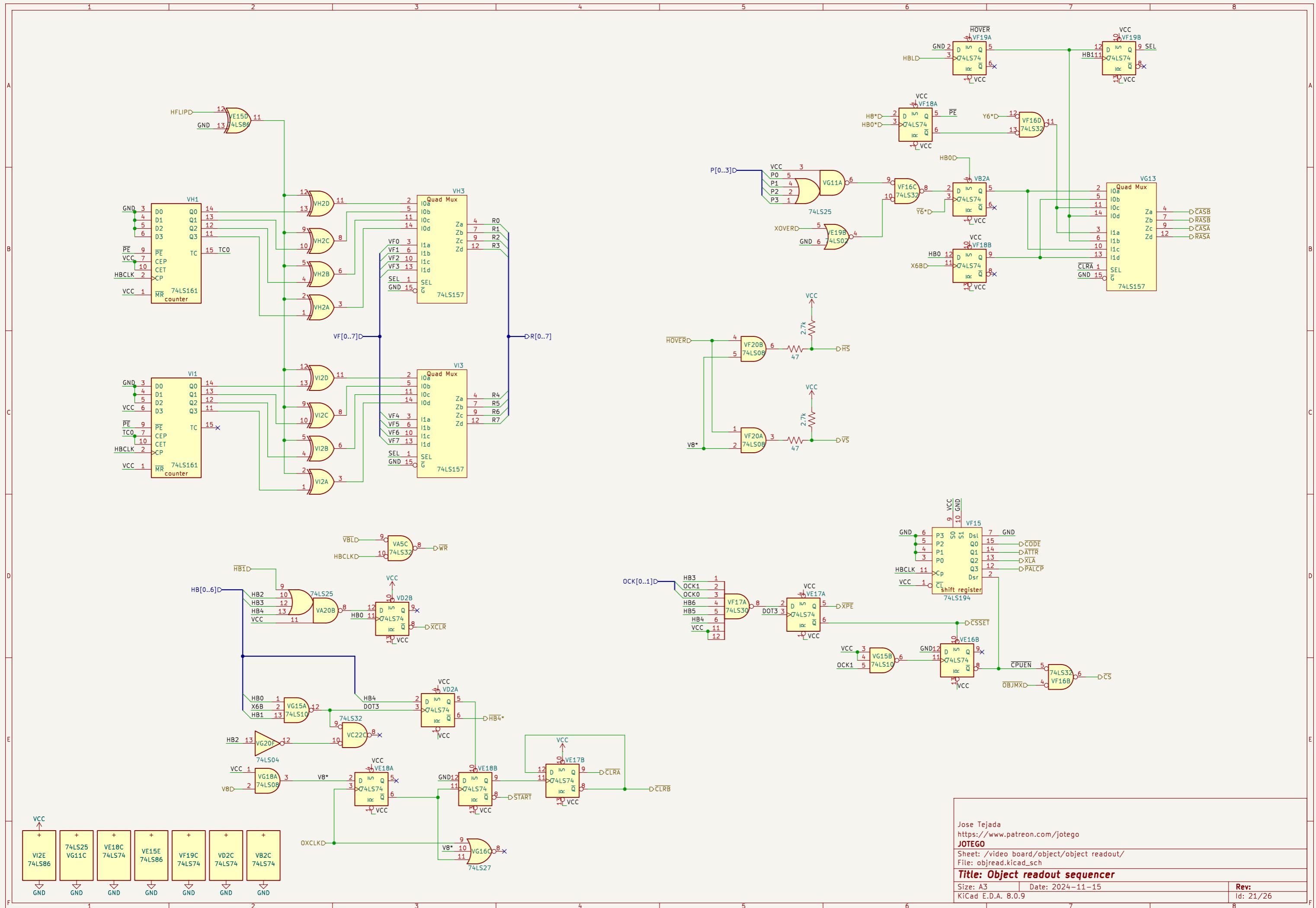
Sheet: /video board/object/object ROM/
File: objrom.kicad_sch

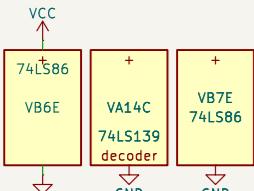
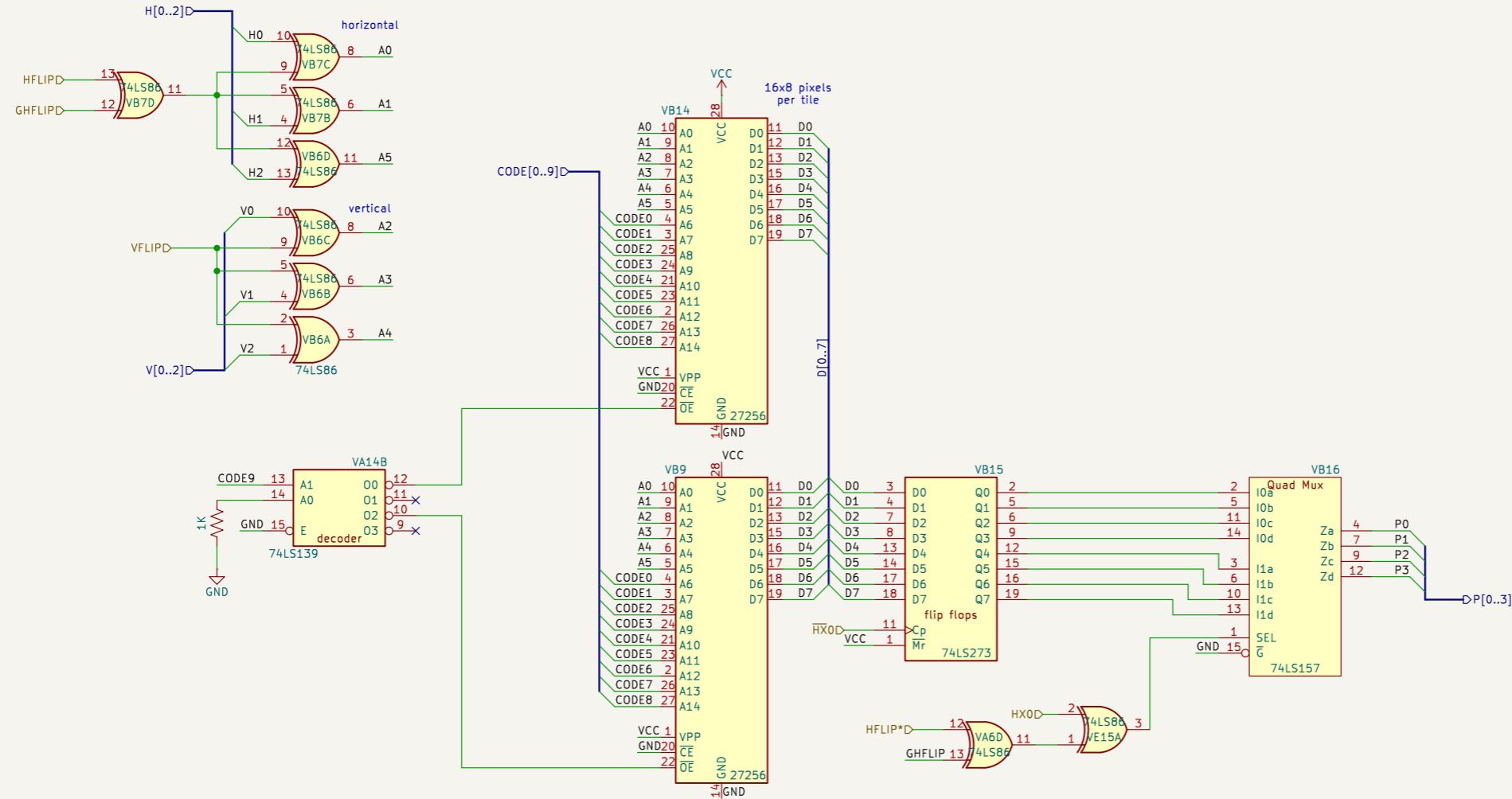
Title: Object ROM

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

Rev: 19/26







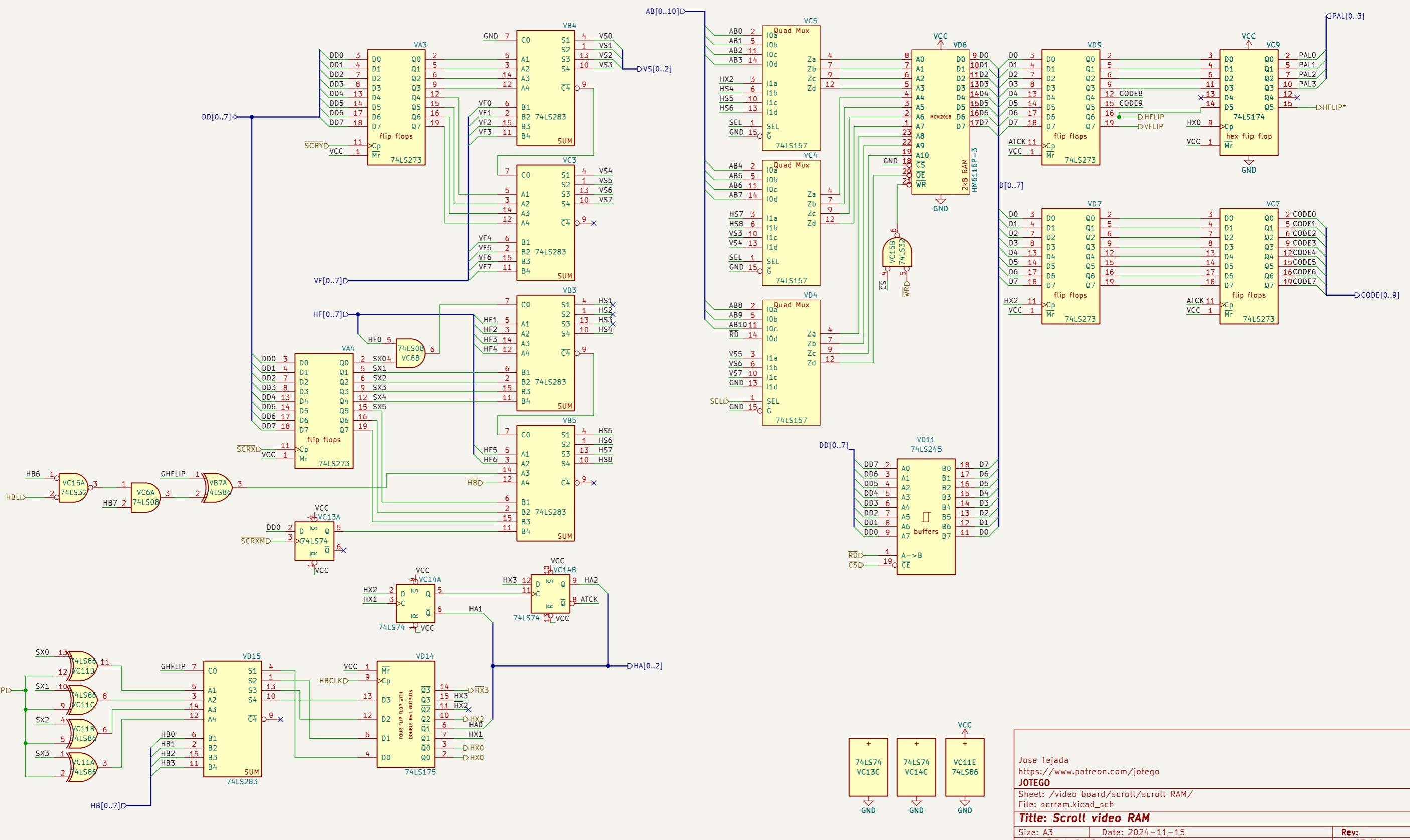
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Sheet: /video board/scroll/scroll ROM/
File: scrom.kicad_sch

Title: scroll ROM

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

Rev:
Id: 22/26



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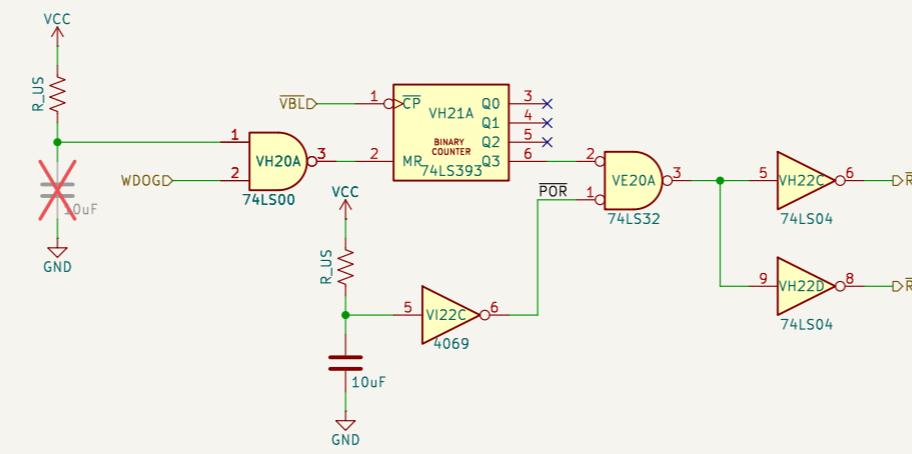
JOTEGO
Sheet: /video board/scroll/scroll RAM/
File: scroll.kicad.sch

Title: Scroll video RAM

Size: A3 Date: 2024/ 11

KiCad EDA 8.0.9

7



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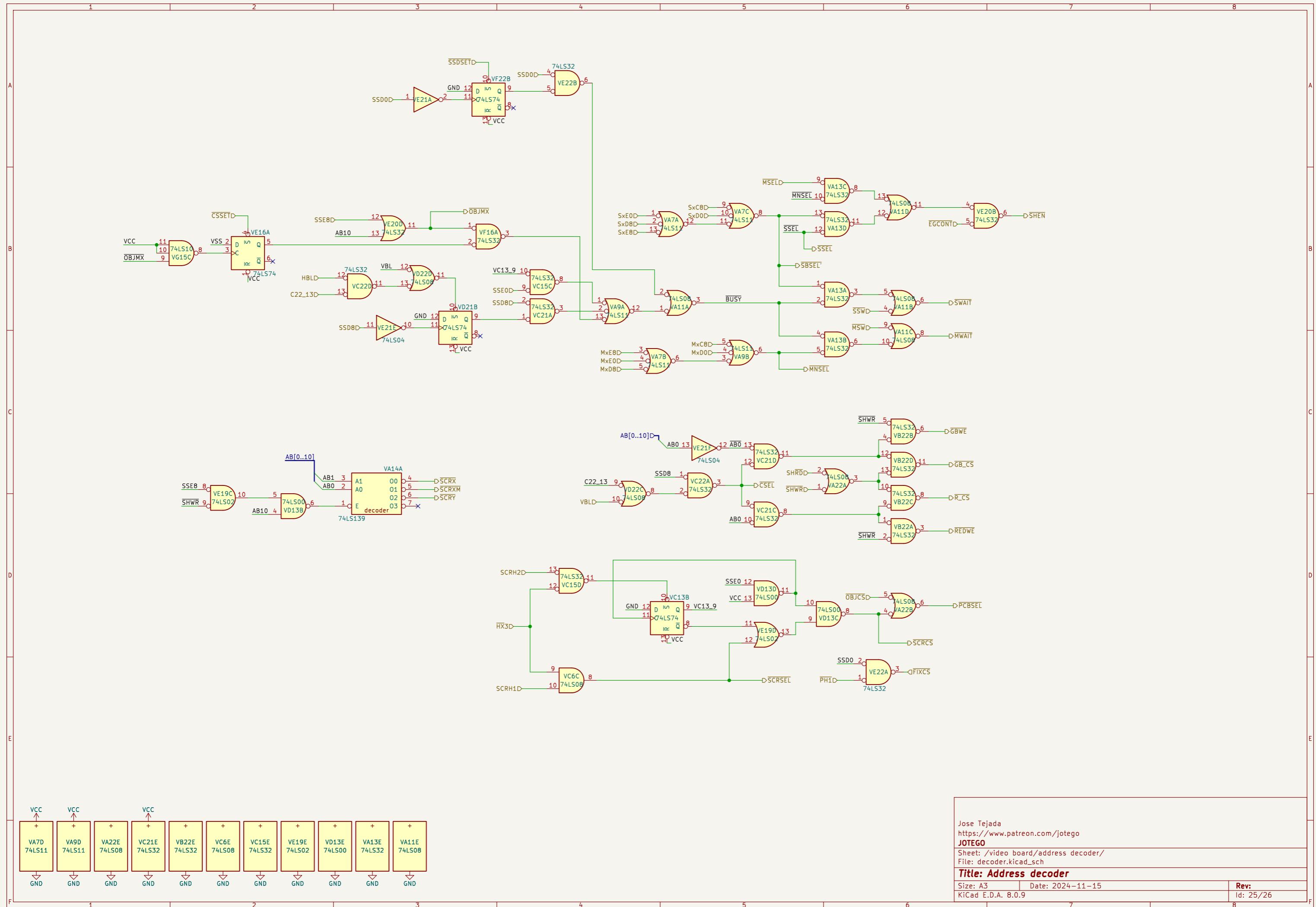
Sheet: /video_board/watchdog/
File: watchdog.kicad_sch

Title: Watchdog Circuit

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

7

Rev:
Id: 24/26



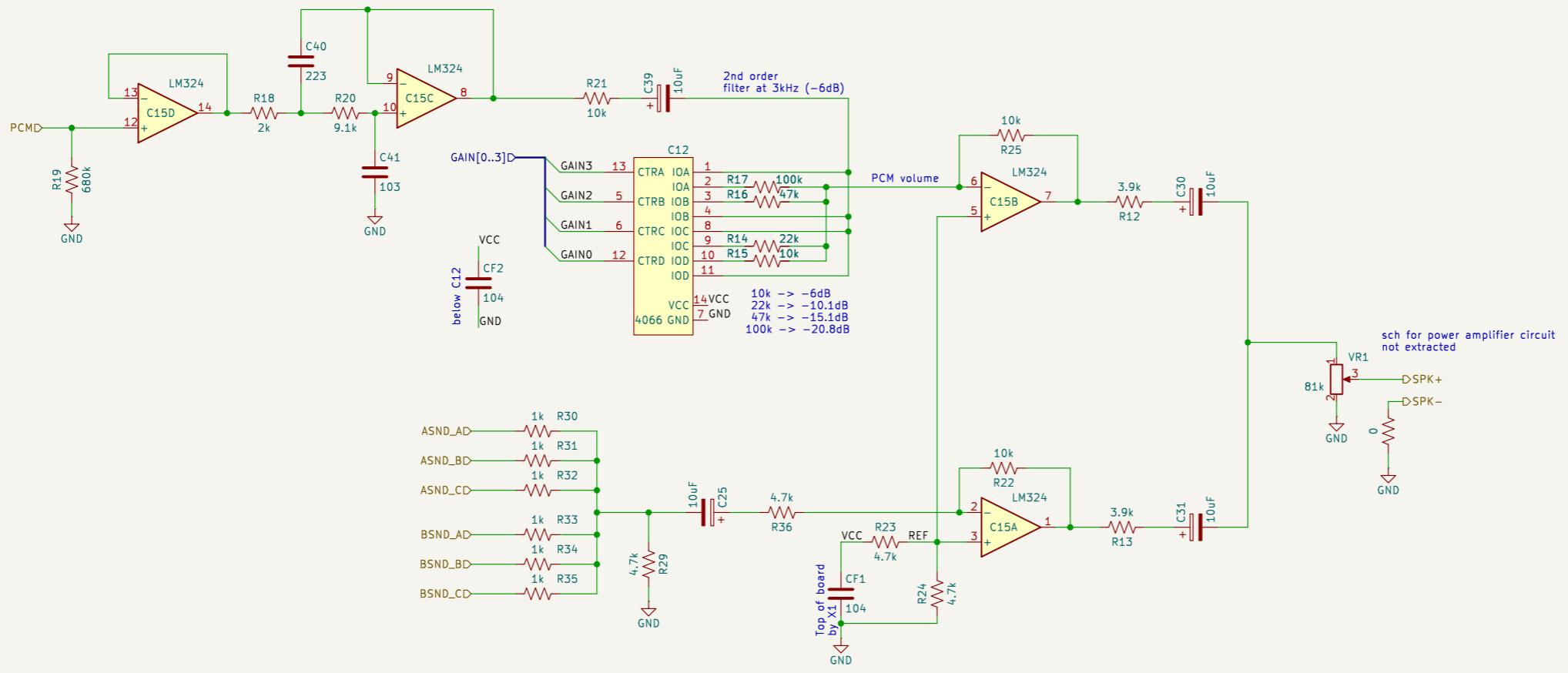
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Sheet: /video board/address decoder/
File: decoder.kicad_sch

Title: Address decoder

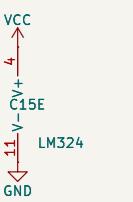
Size: A3 | Date: 2024-11-15
KiCad E.D.A. 8.0.9

Rev: 25/26



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.



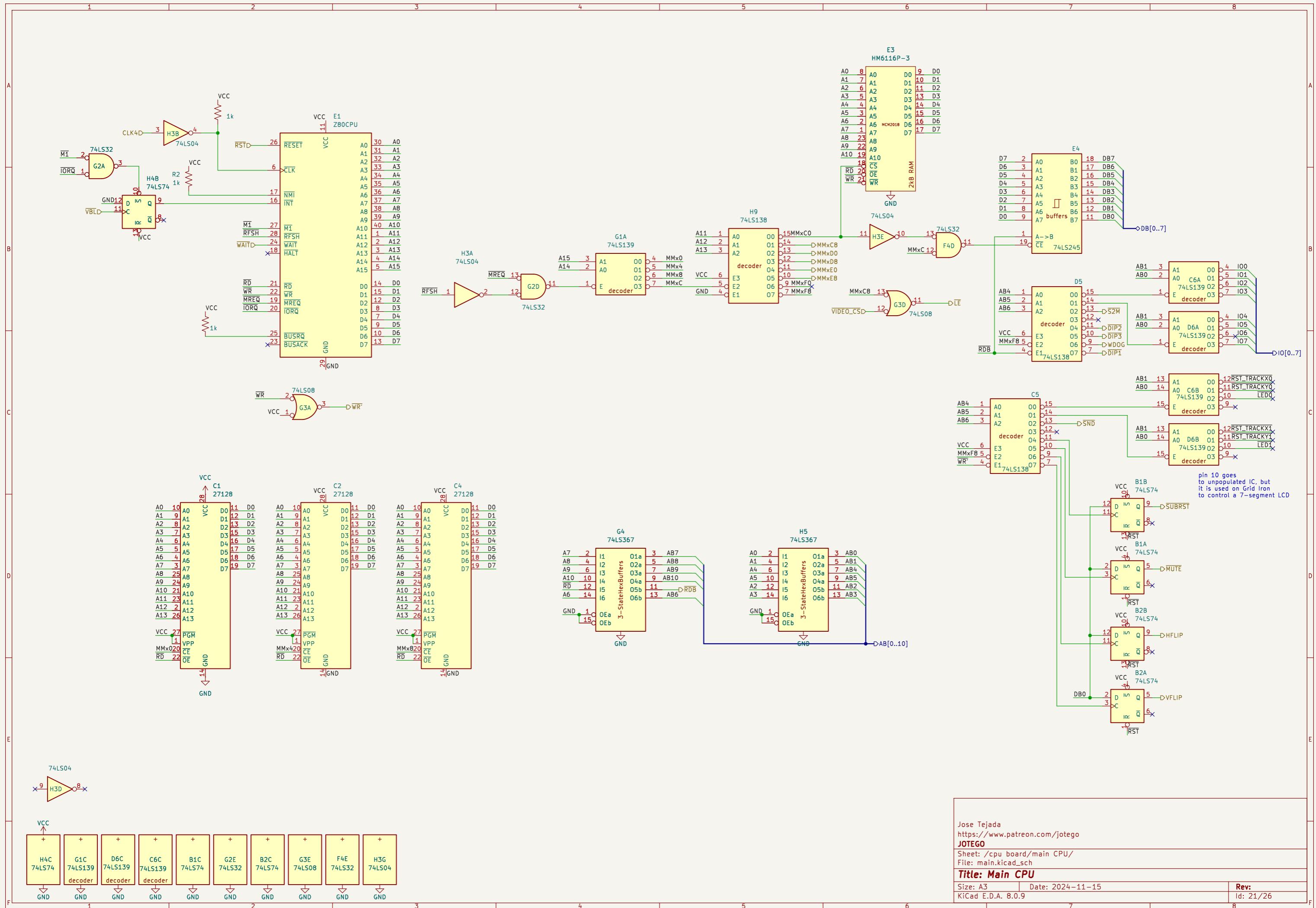
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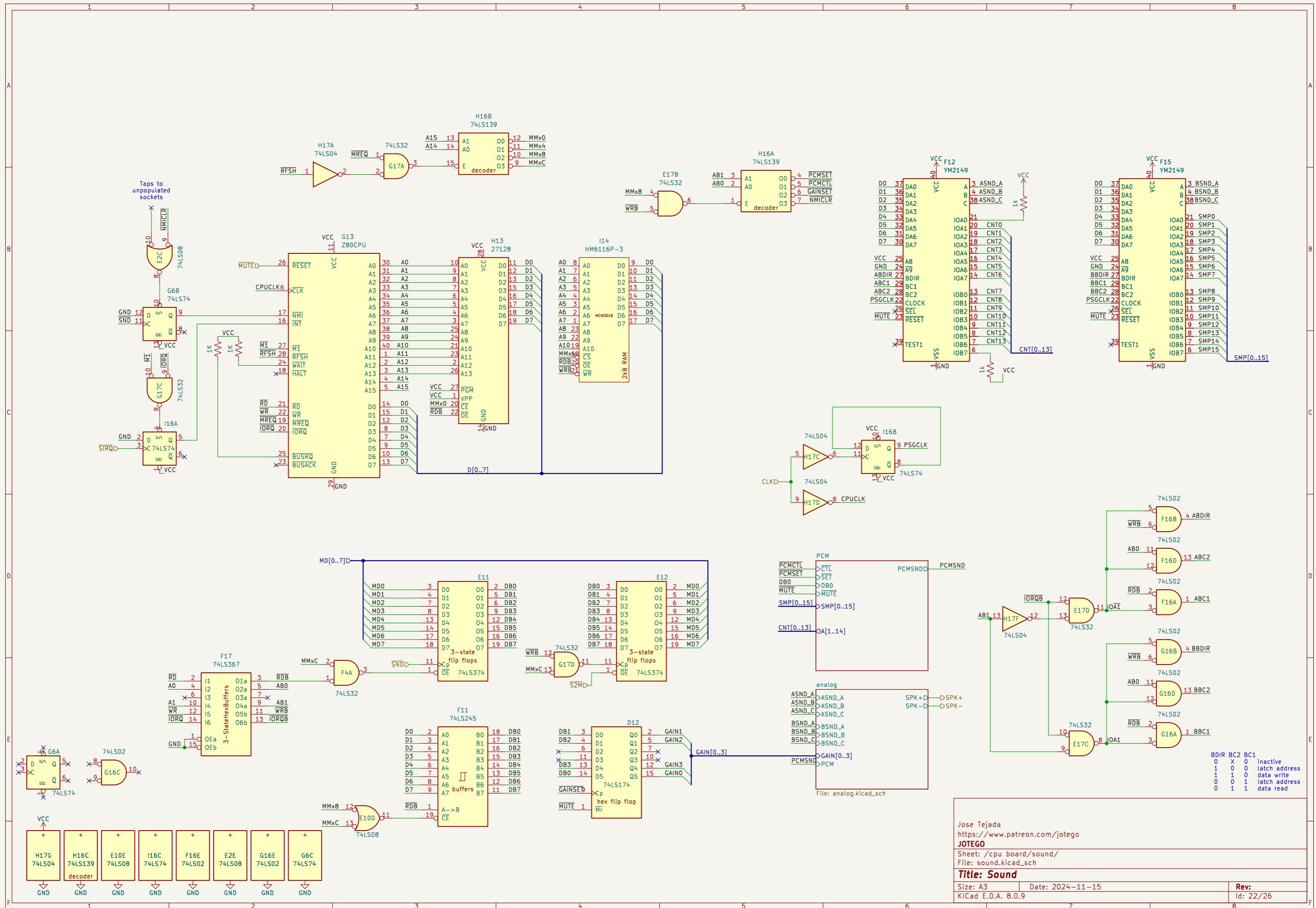
Sheet: /cpu board/sound/analog/
File: analog.kicad_sch

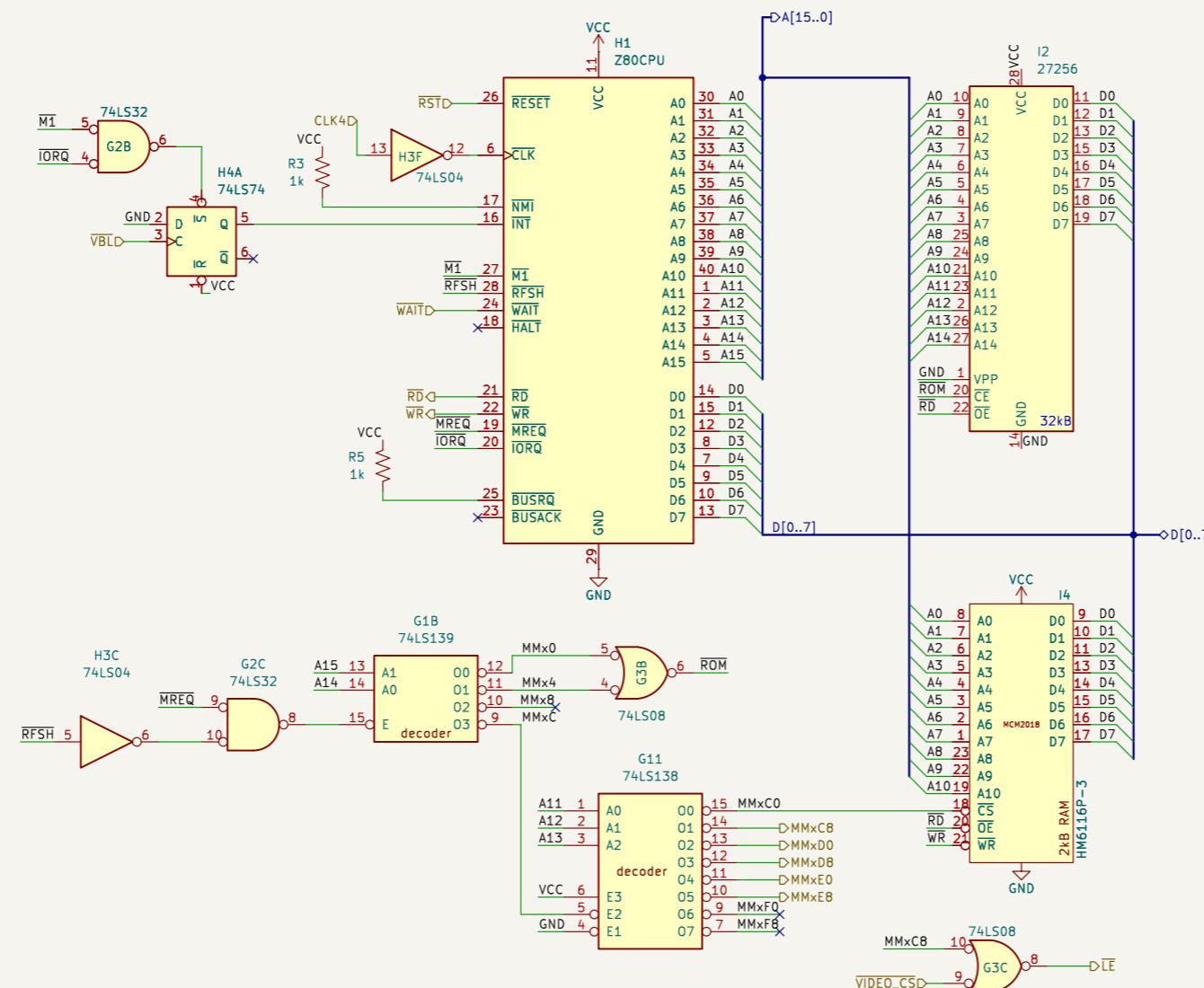
Title: Sound amplifiers

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

Rev: | Id: 26/26







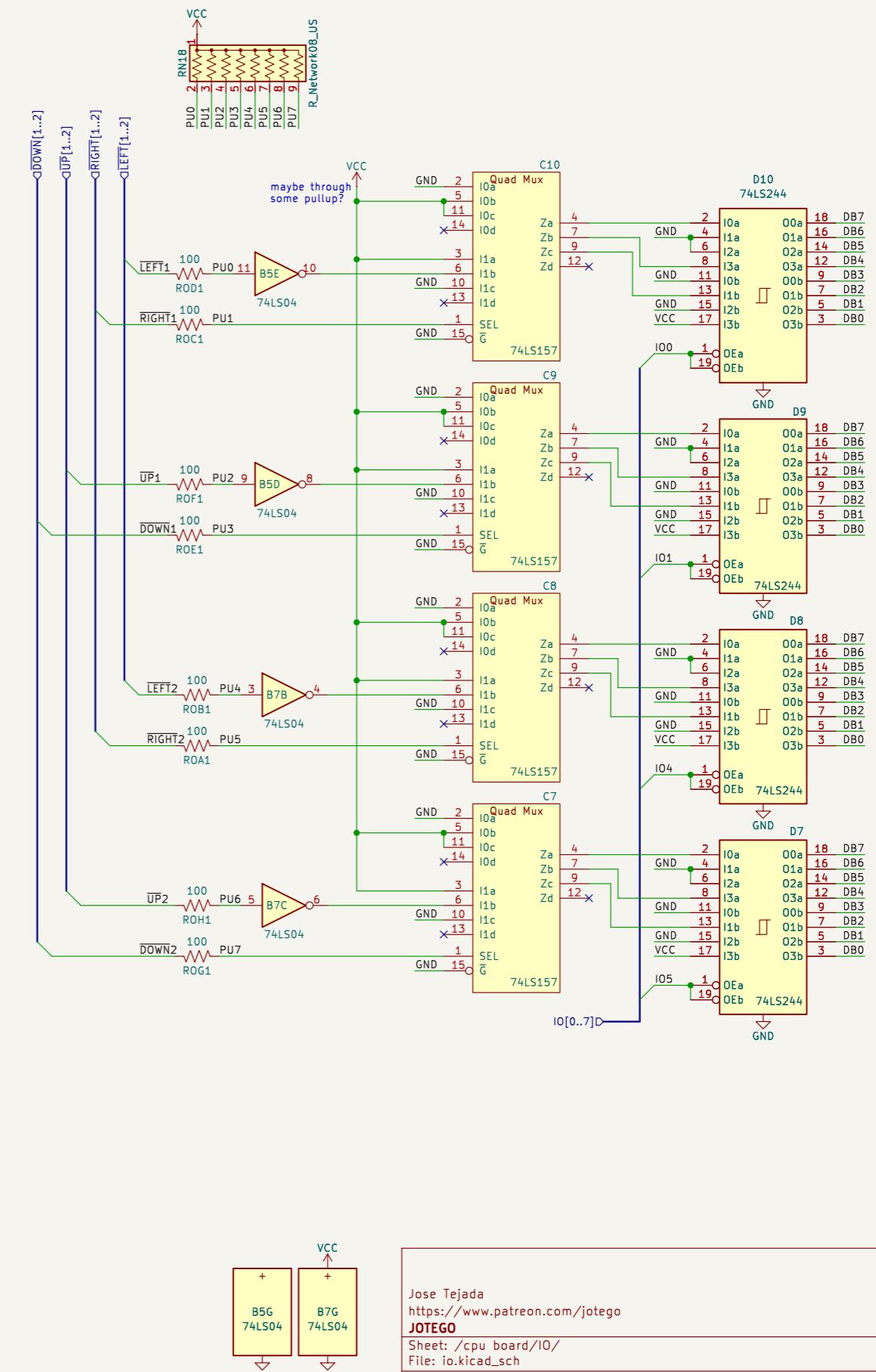
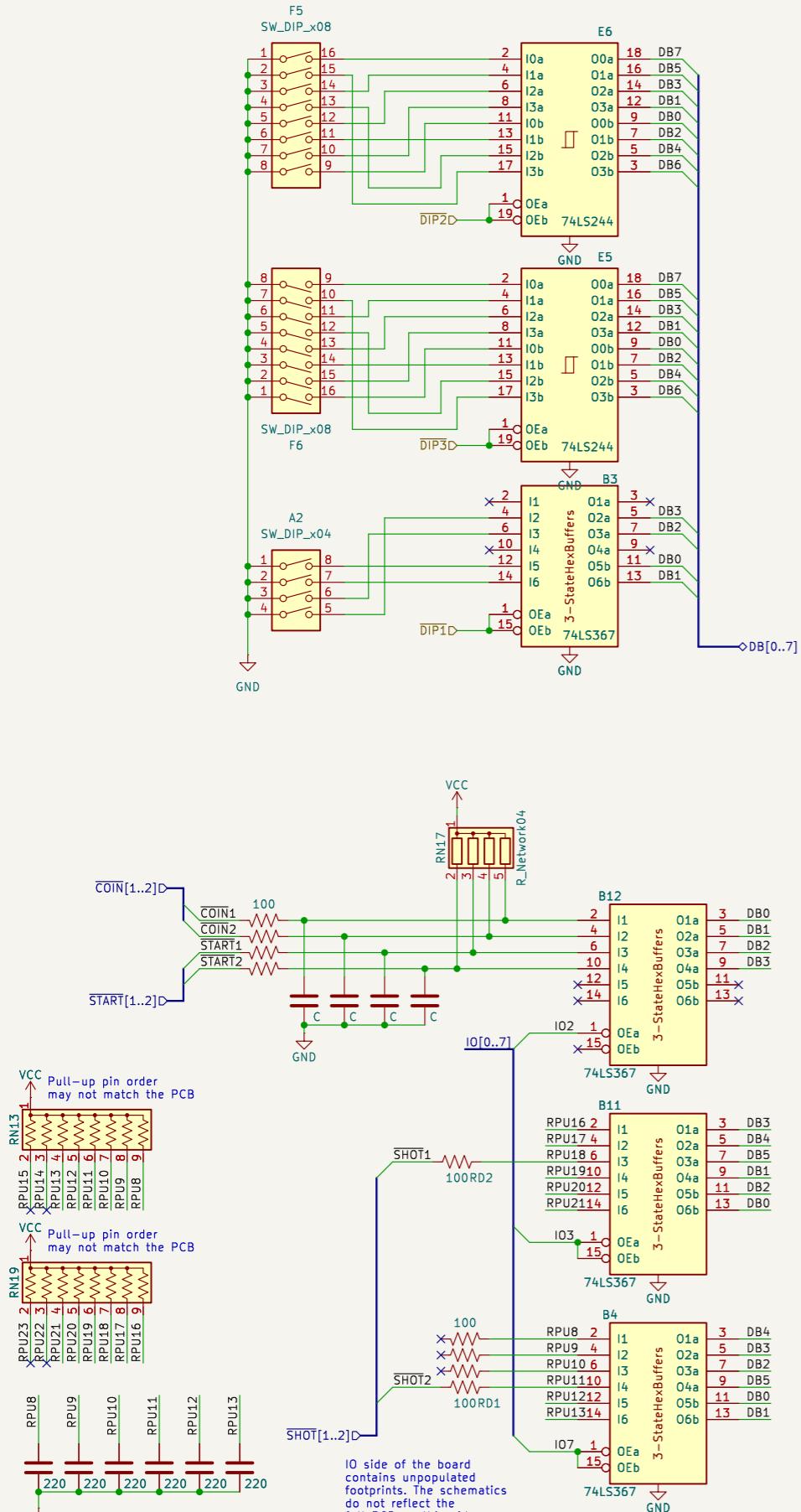
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Sheet: /cpu board/sub CPU/
File: subcpu.kicad_sch

Title: Subordinate CPU

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

Rev:
Id: 23/26



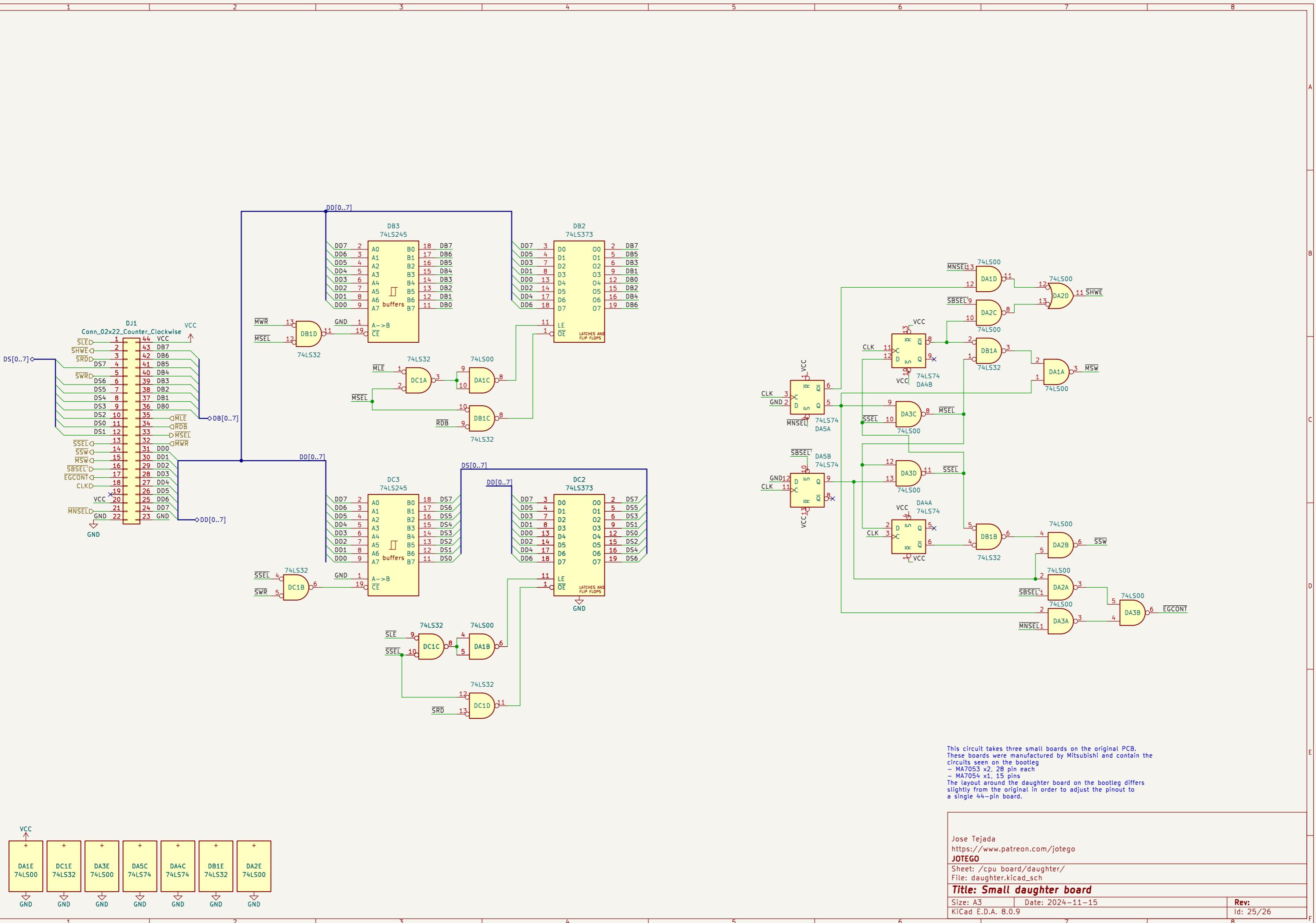
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JOTEGO

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
 - MA7054 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.

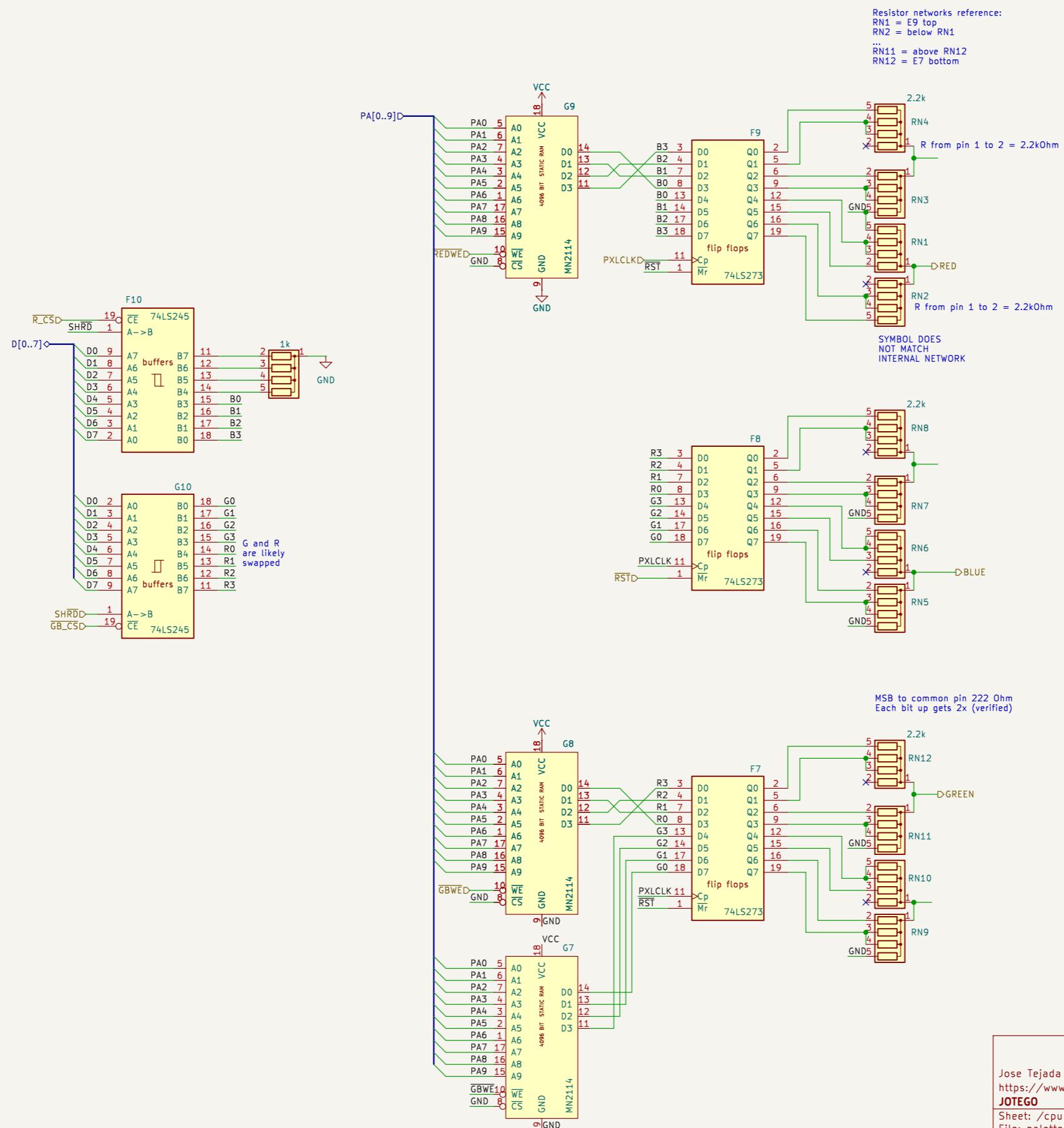
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Sheet: /cpu_board/daughter/
 File: daughter.kicad_sch

Title: Small daughter board

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

Rev: 25/26



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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:
Id: #/26