

A

B

C

D

E

A

B

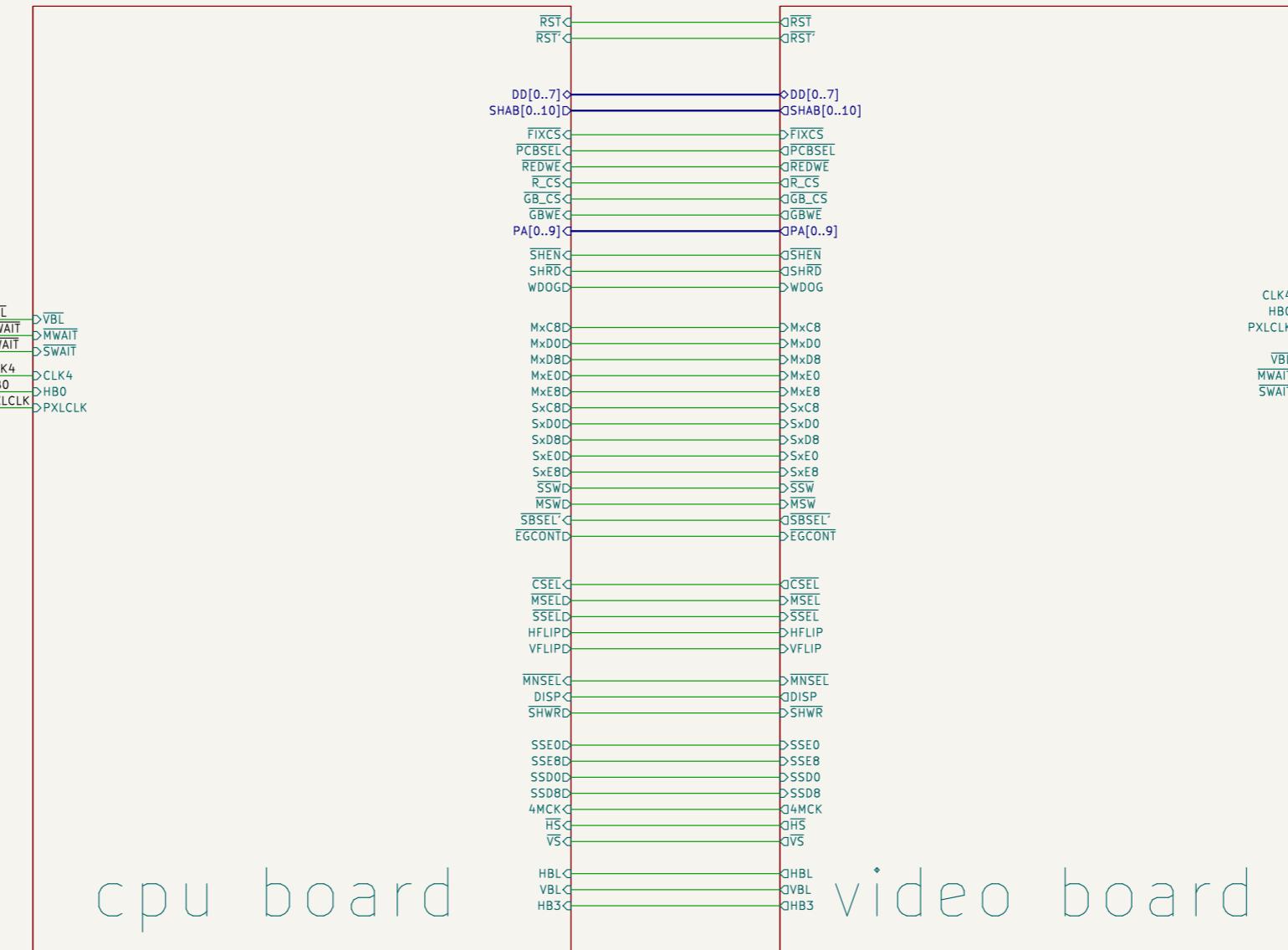
C

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



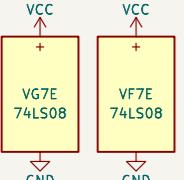
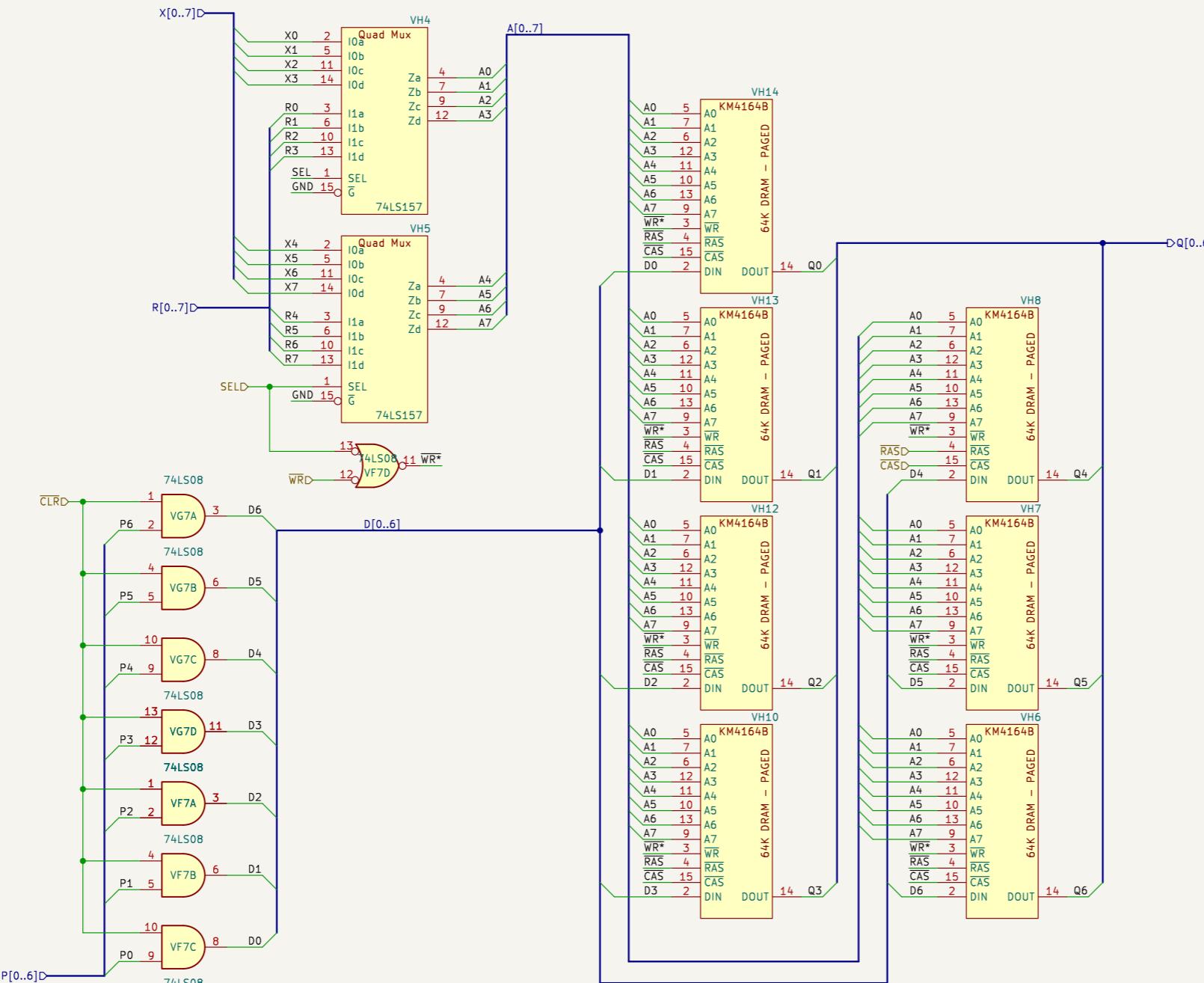
Sheet: / File: tehkanwch.kicad_sch

Title: TEHKAN WORLD CUP (tehkanwch bootleg)

Size: A3 Date: 2024-11-15

KiCad E.D.A. 8.0.9

Rev: 1/26



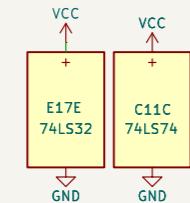
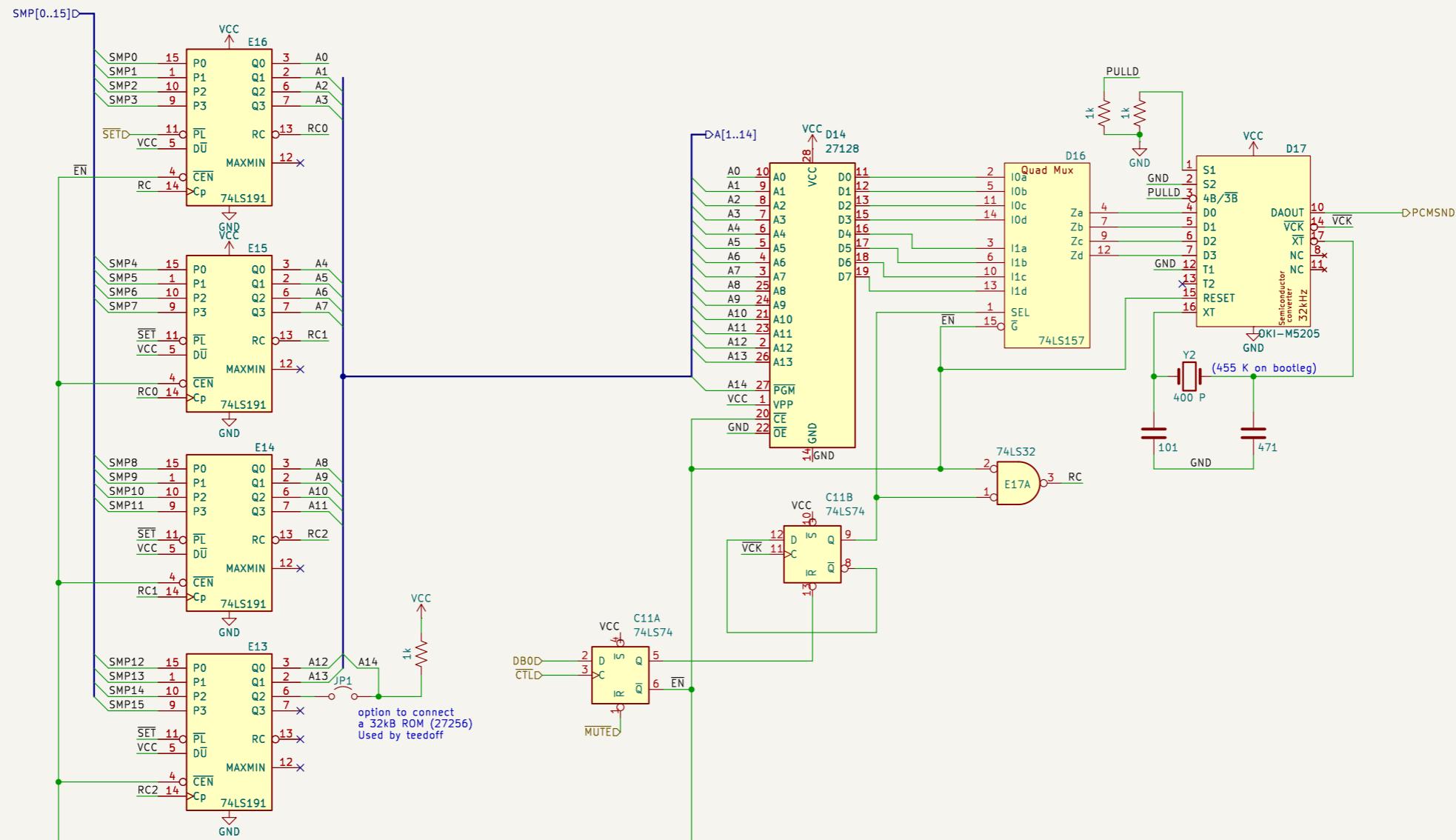
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

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



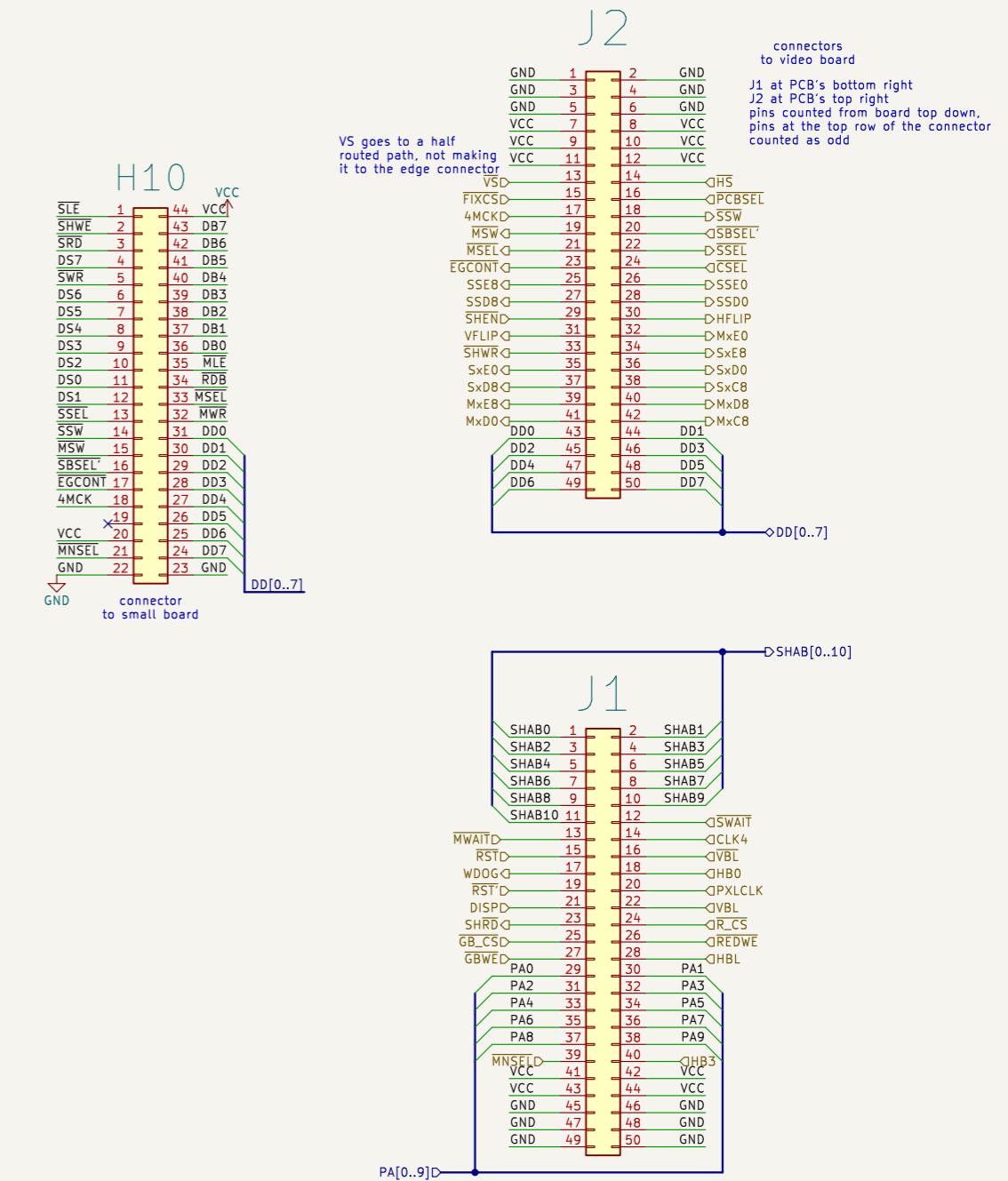
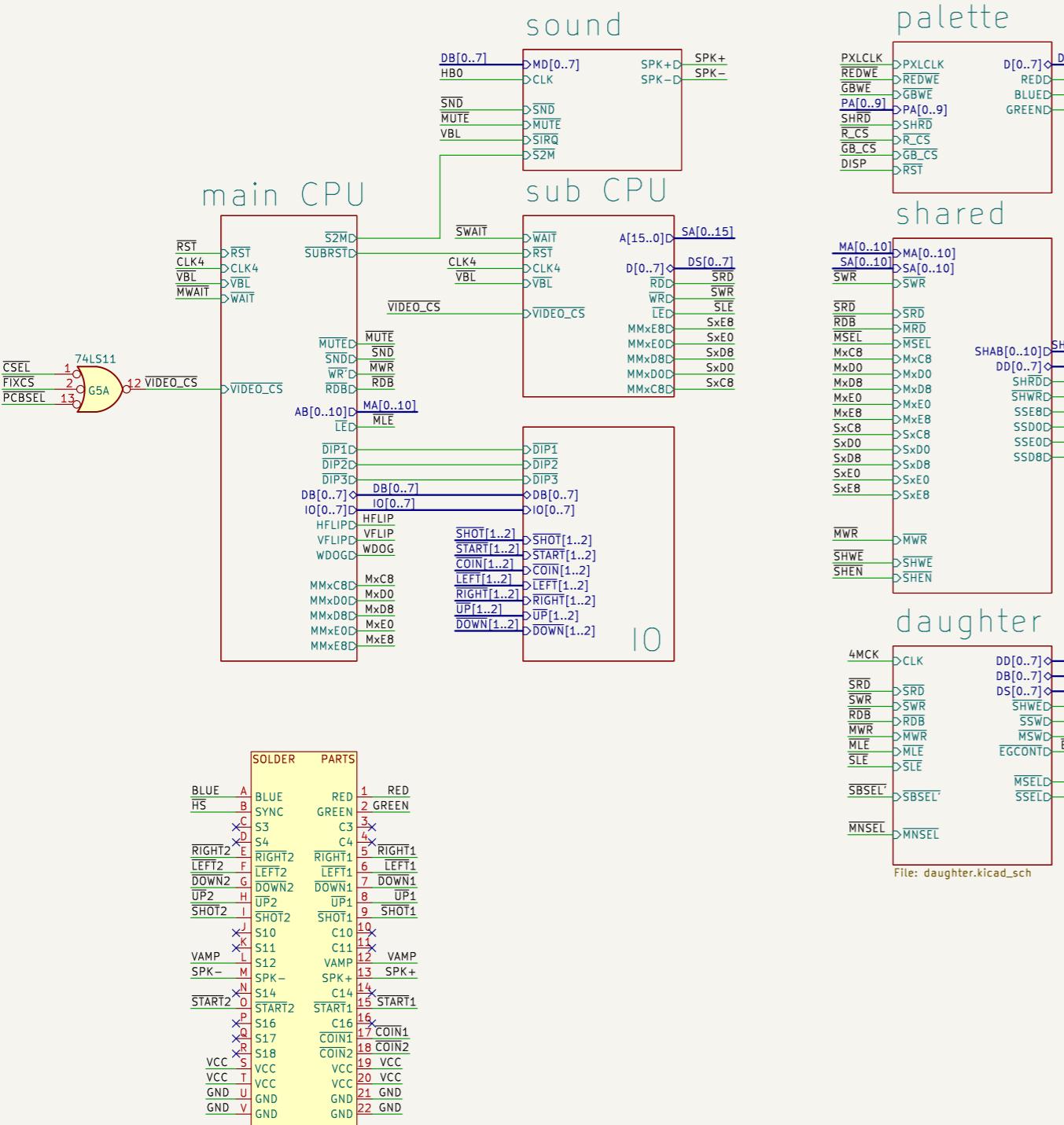
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

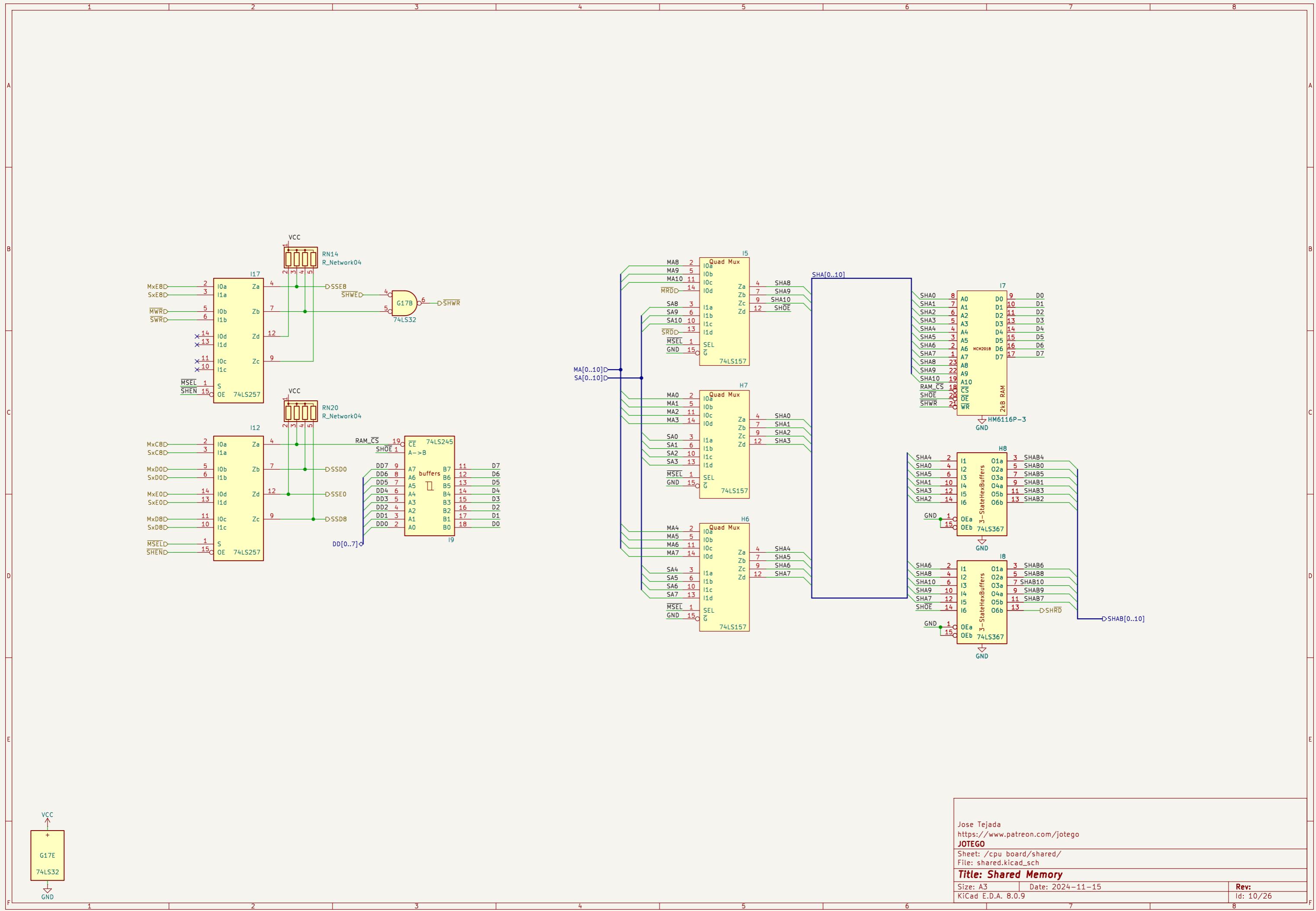
Sheet: /cpu_board/sound/PCM/
File: pcm.kicad_sch

Title: PCM

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

Rev: Id: 5/26





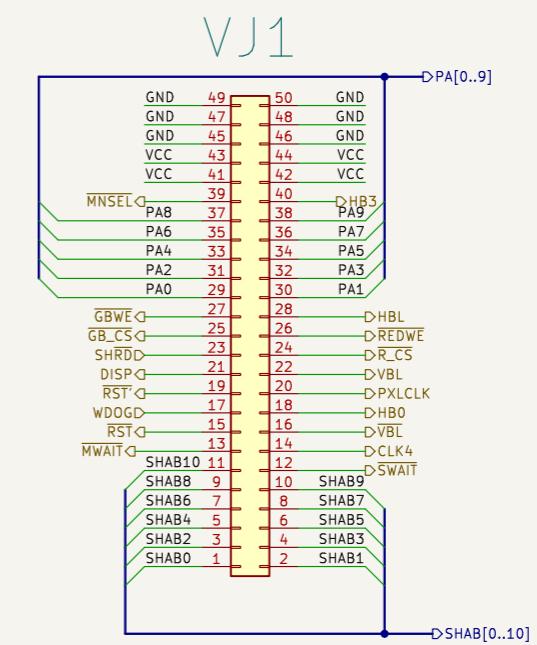
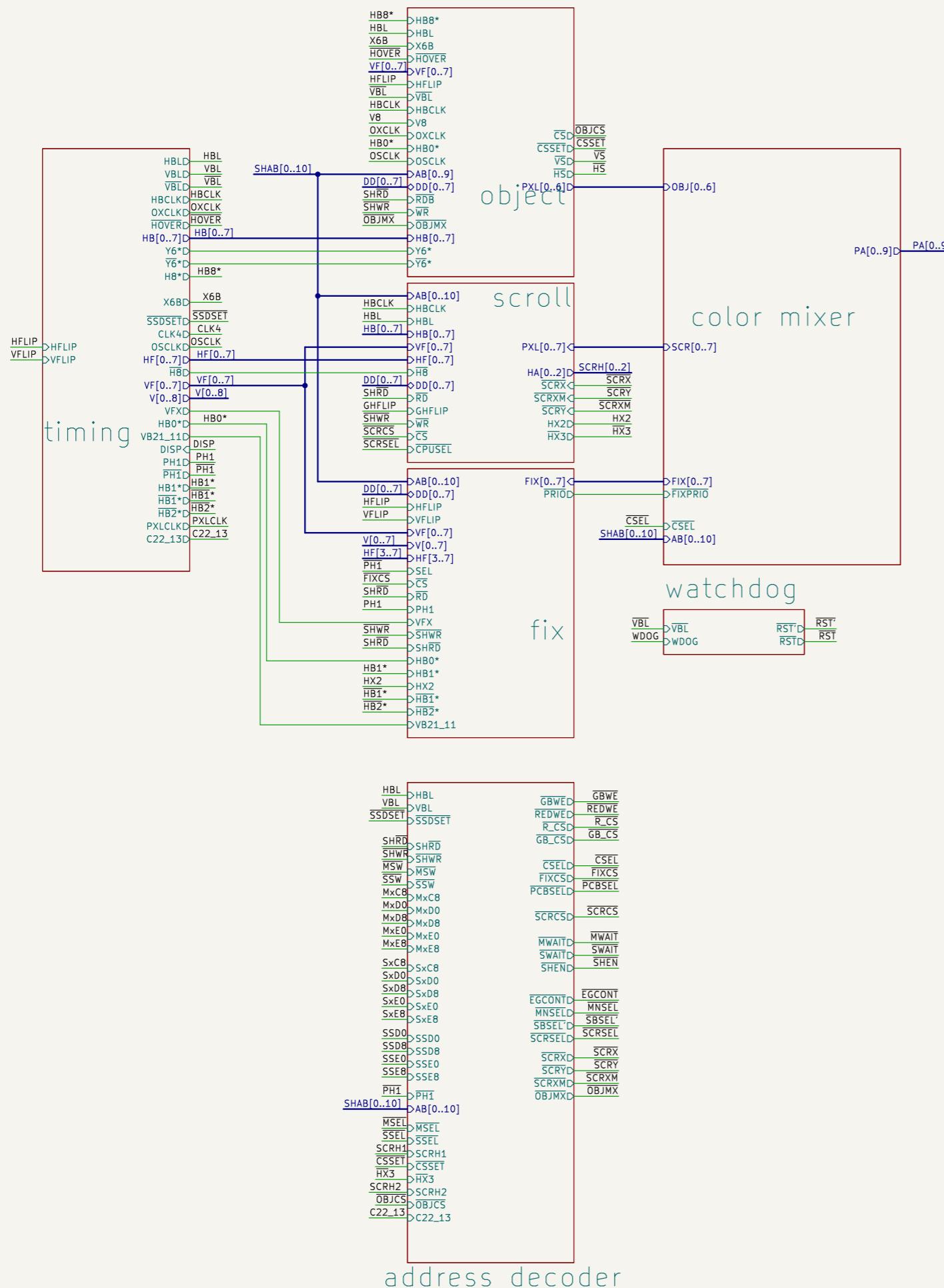
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

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

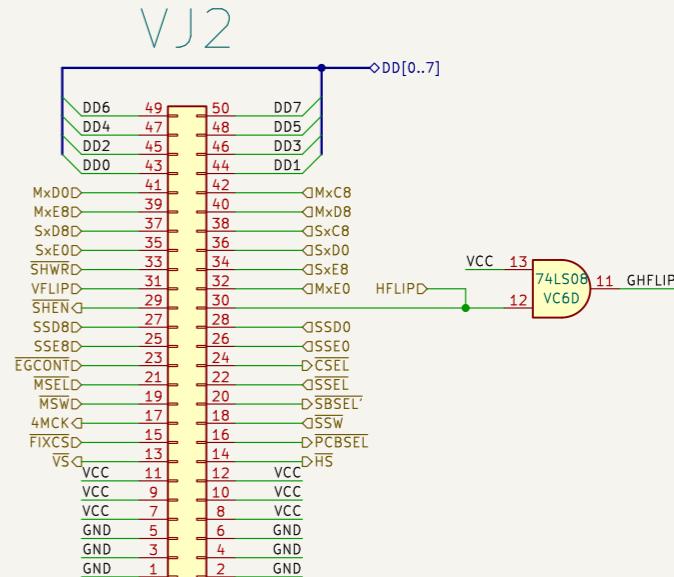
Title: Shared Memory

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



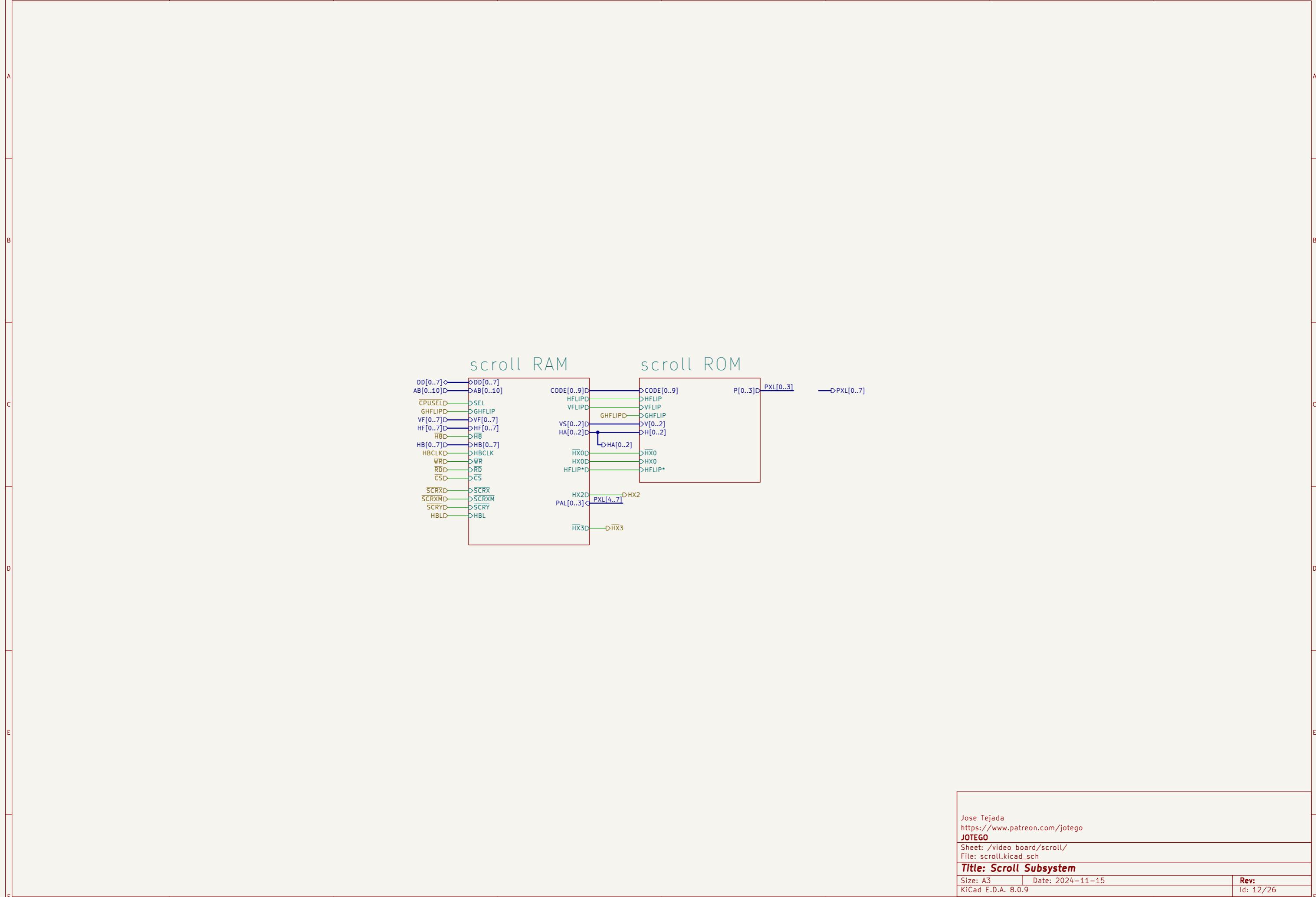
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

Sheet: /video board/
File: video.kicad_sch

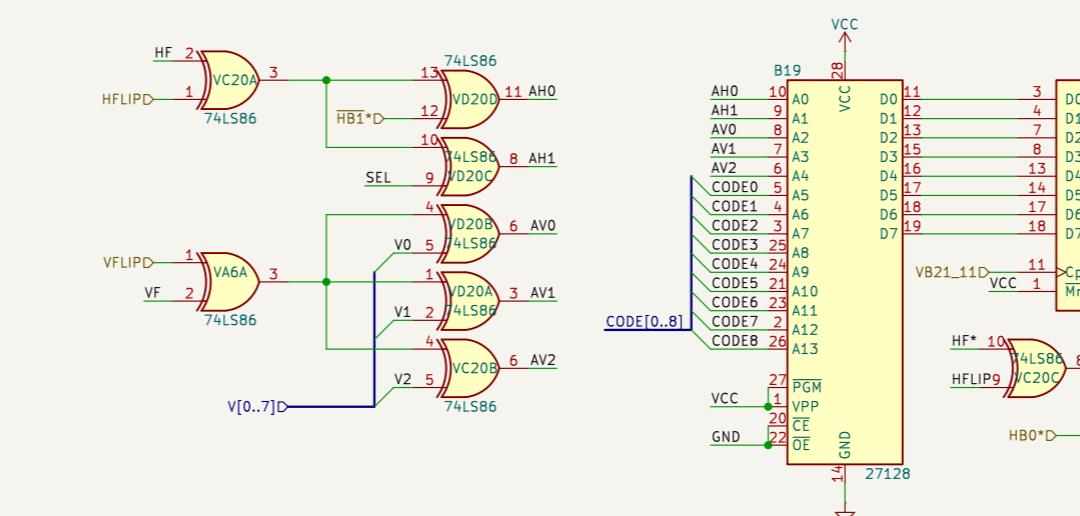
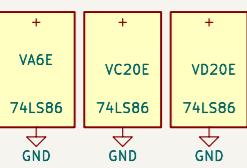
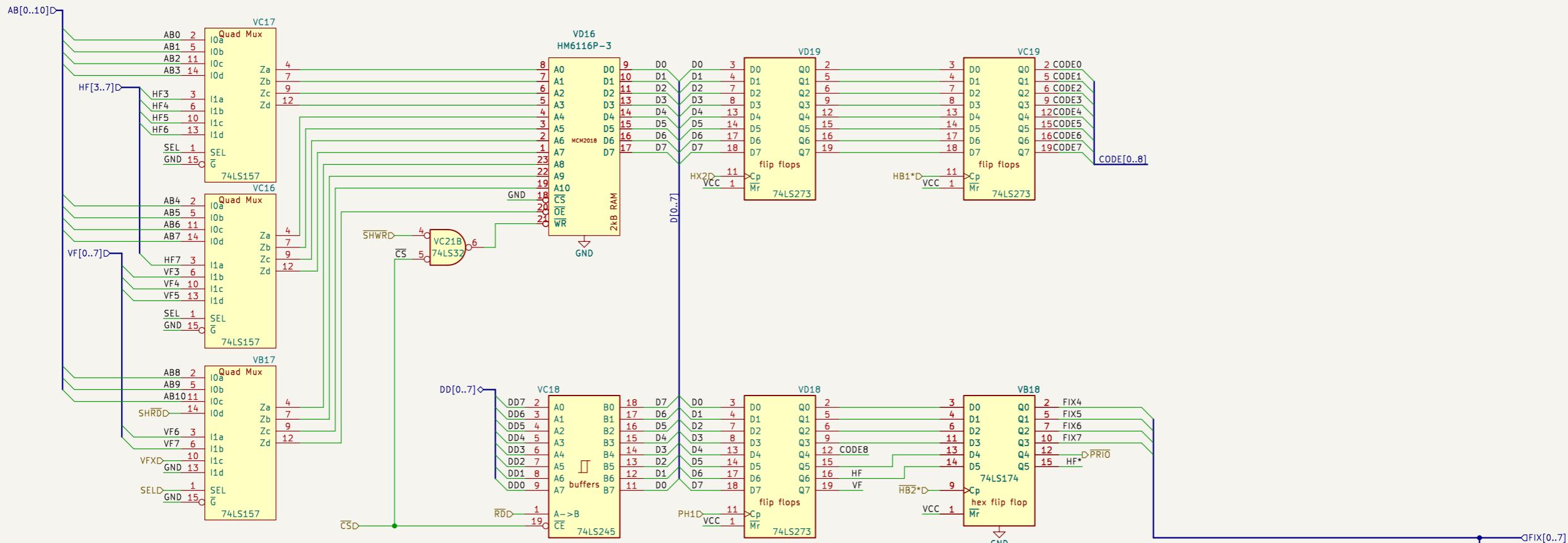
Title: Video board (bottom board)

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

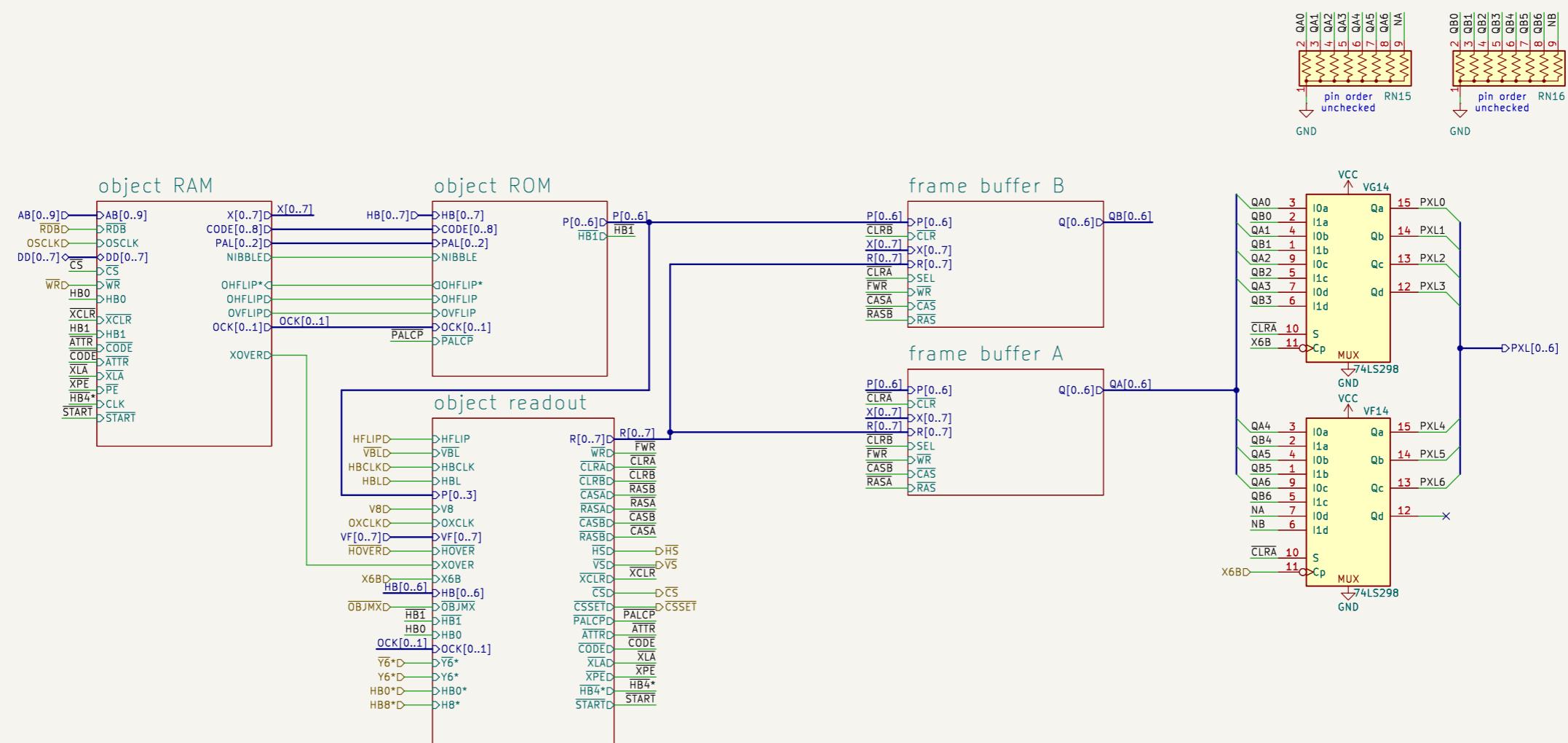
Rev: Id: 11/26



A



Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO
 Sheet: /video board/fix/
 File: fix.kicad_sch
Title: Fixed Character Layer
 Size: A3 Date: 2024-11-15
 KiCad E.D.A. 8.0.9 Rev:
 Id: 13/26



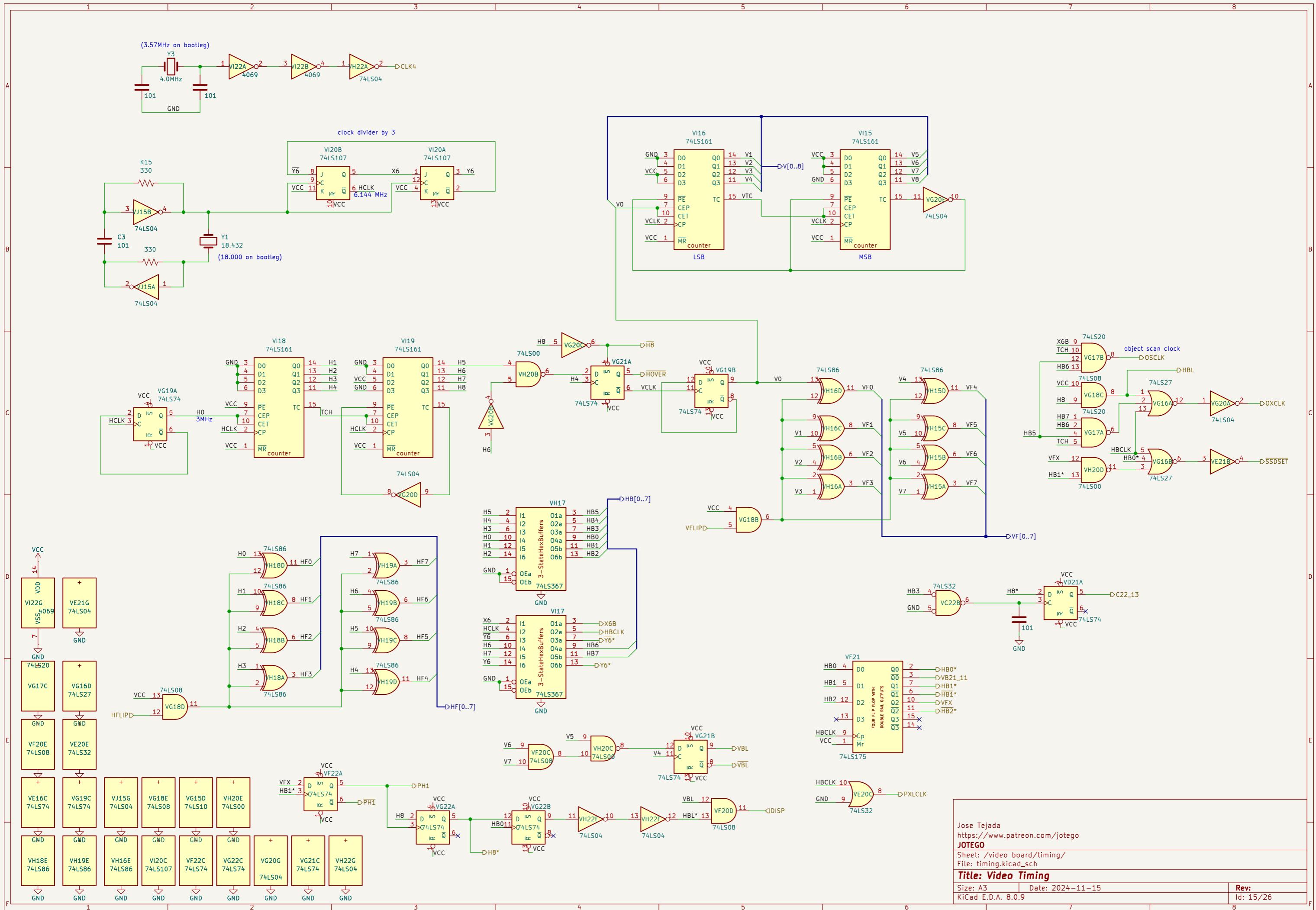
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

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

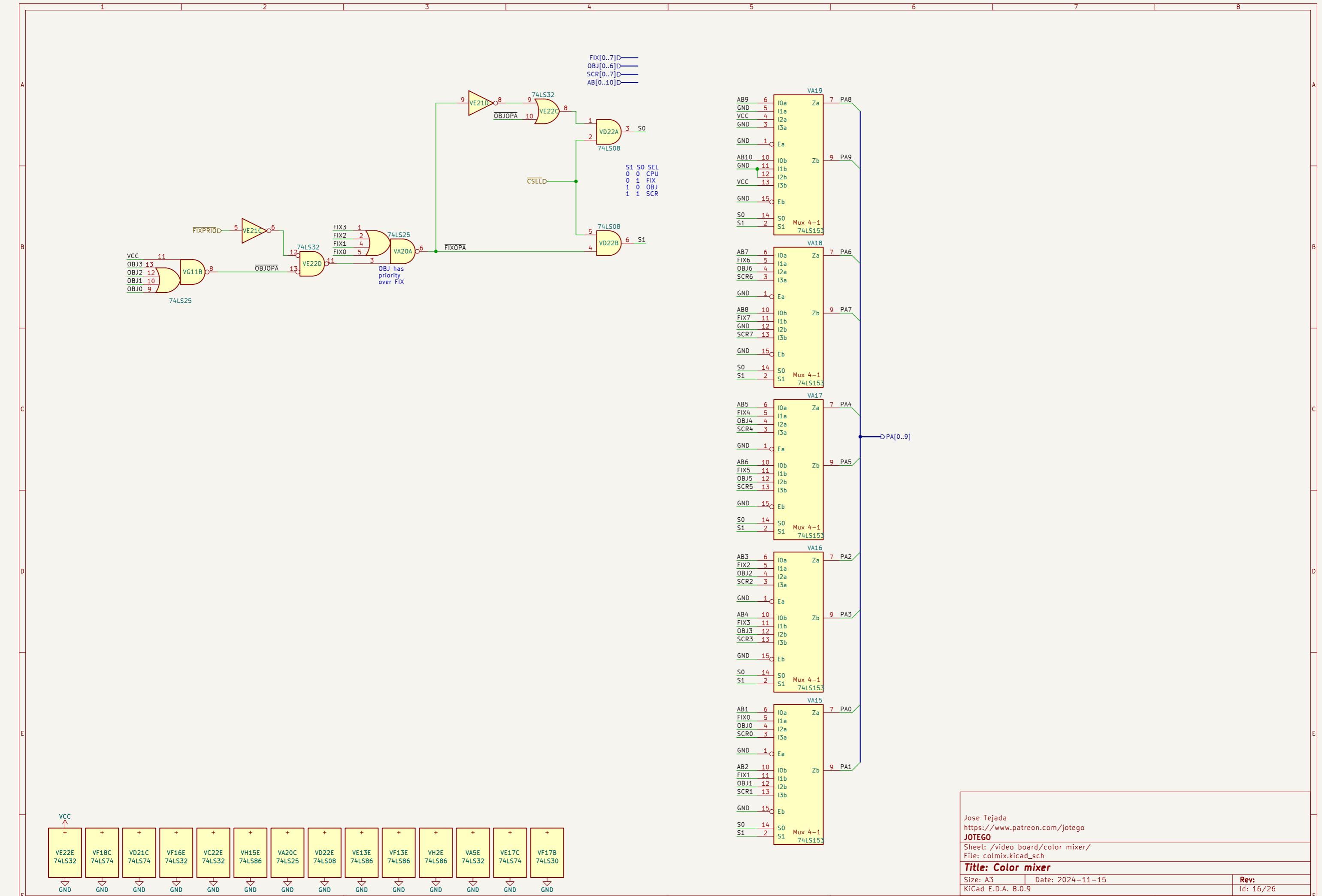
Title: Object Subsystem

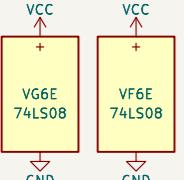
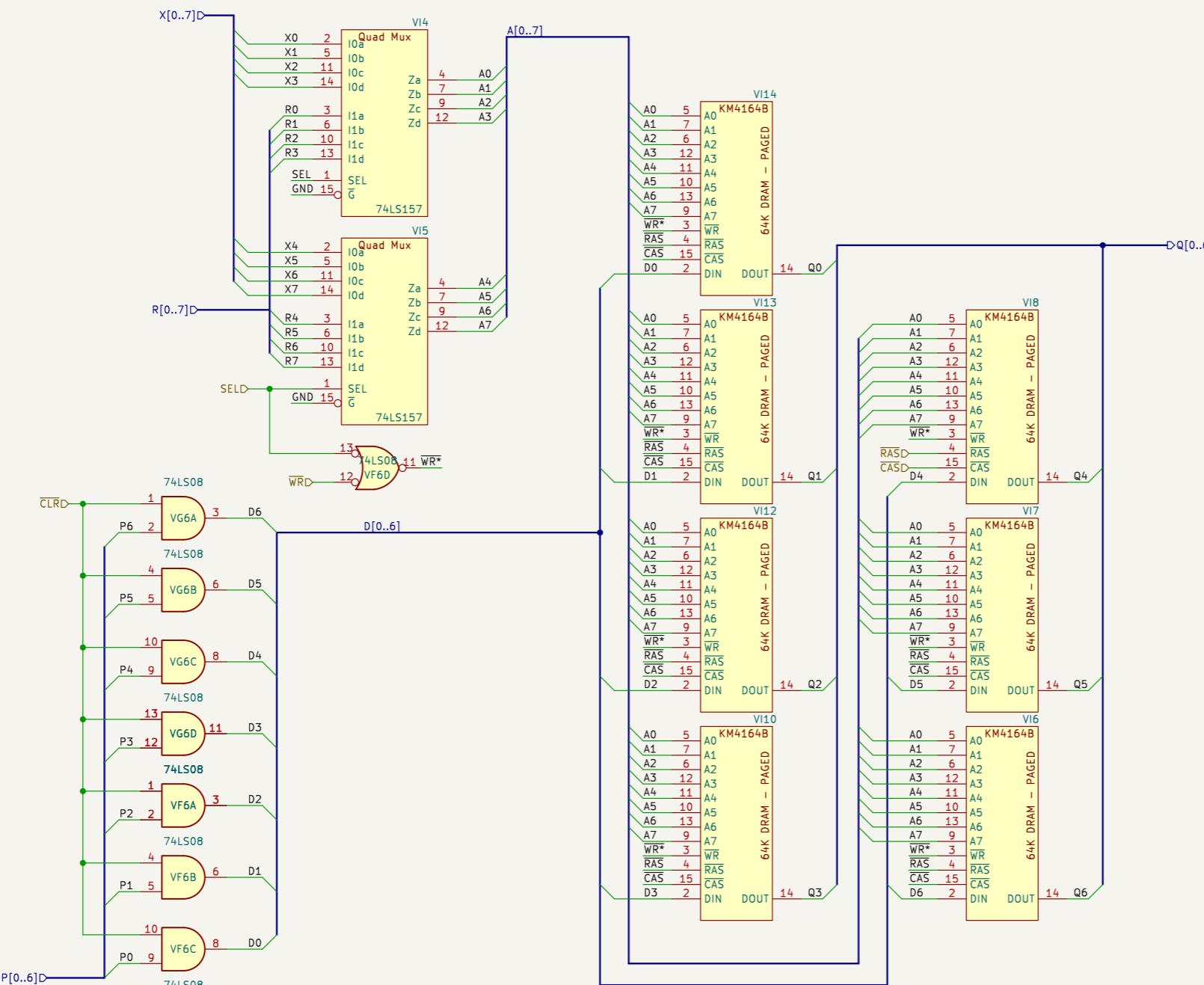
Size: A3 | Date: 2024-11-15
KiCad E.D.A. 8.0.9

Rev: 14/26



1 2 3 4 5 6 7 8





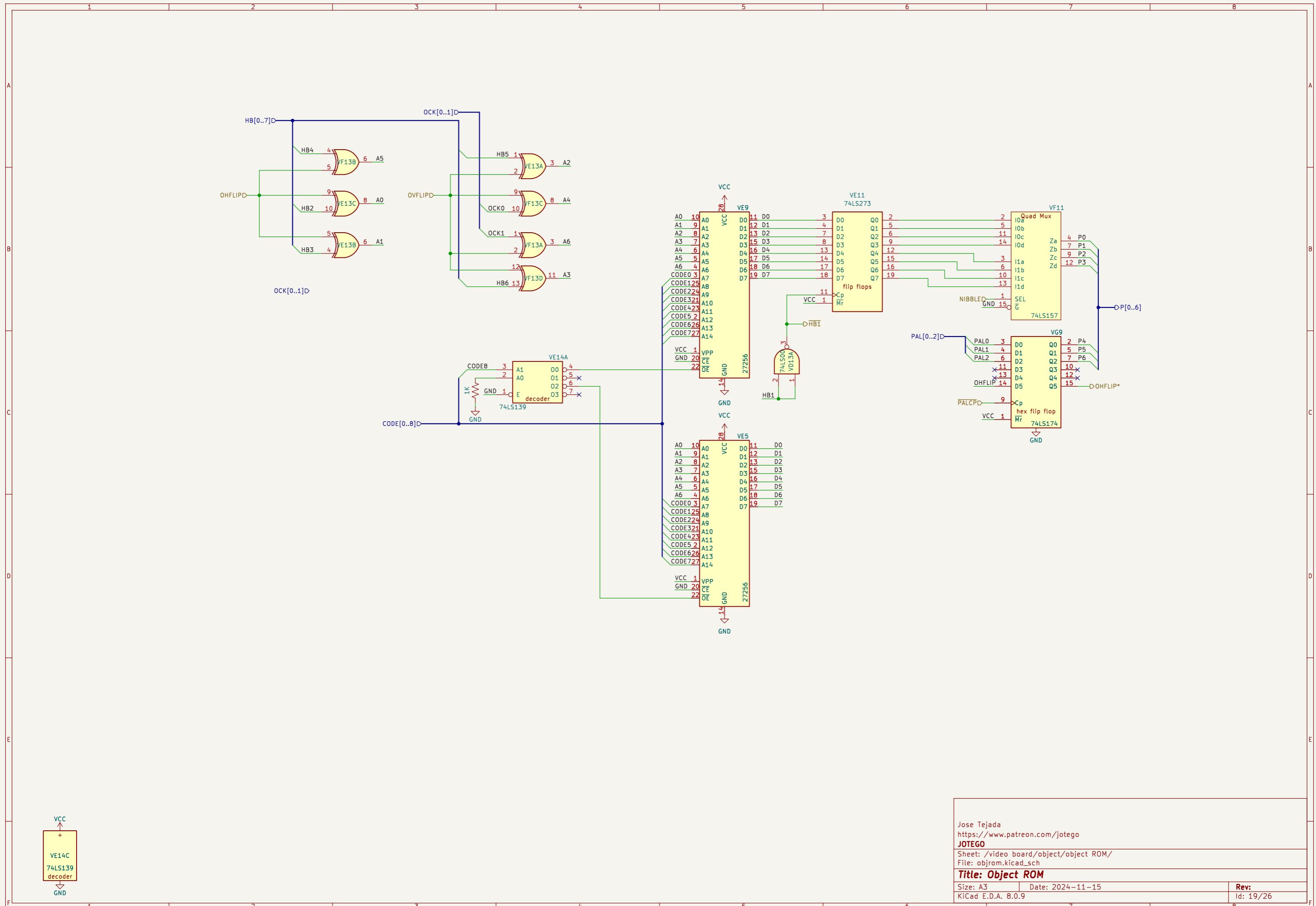
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

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: 17/26



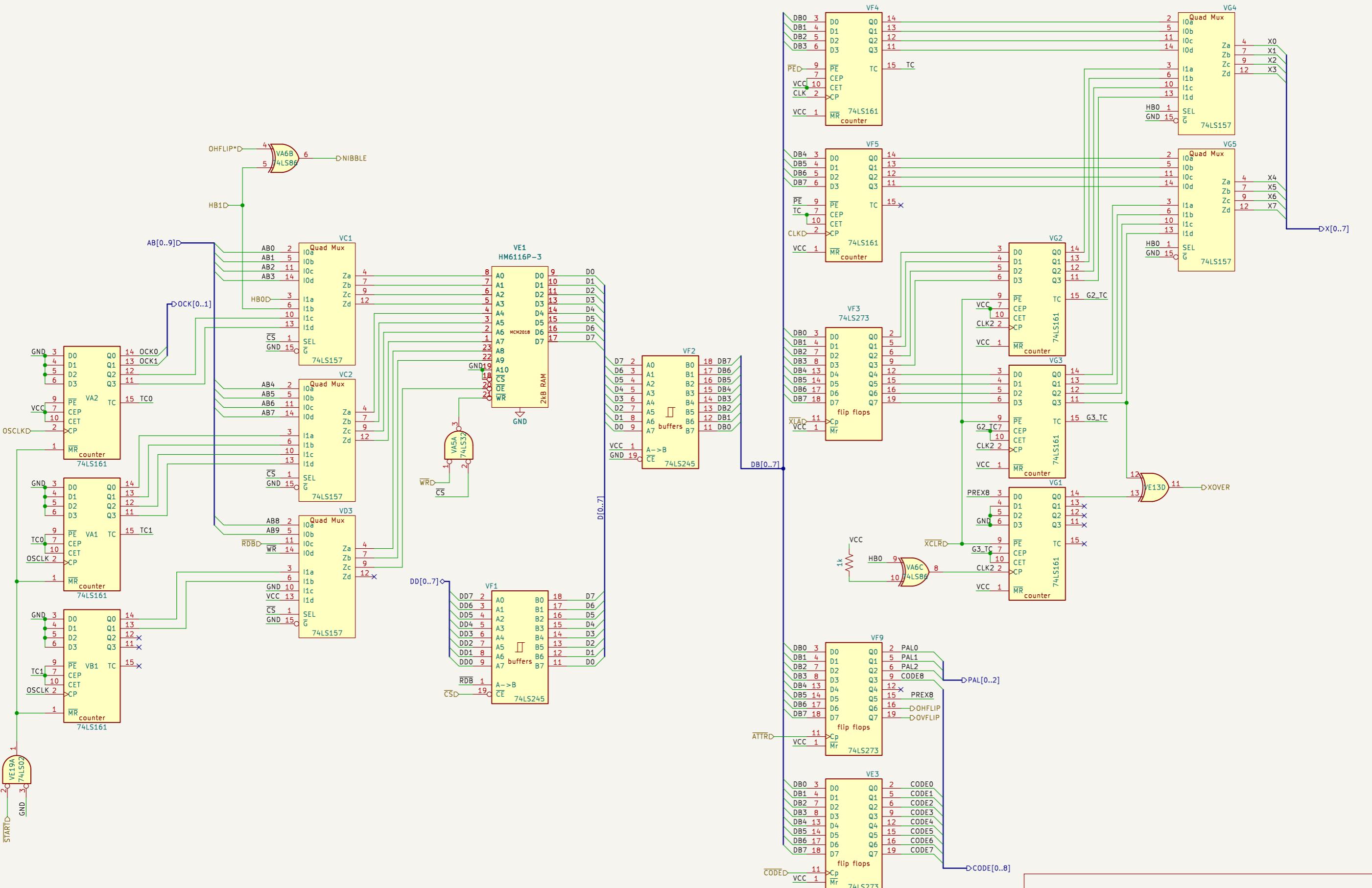
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

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



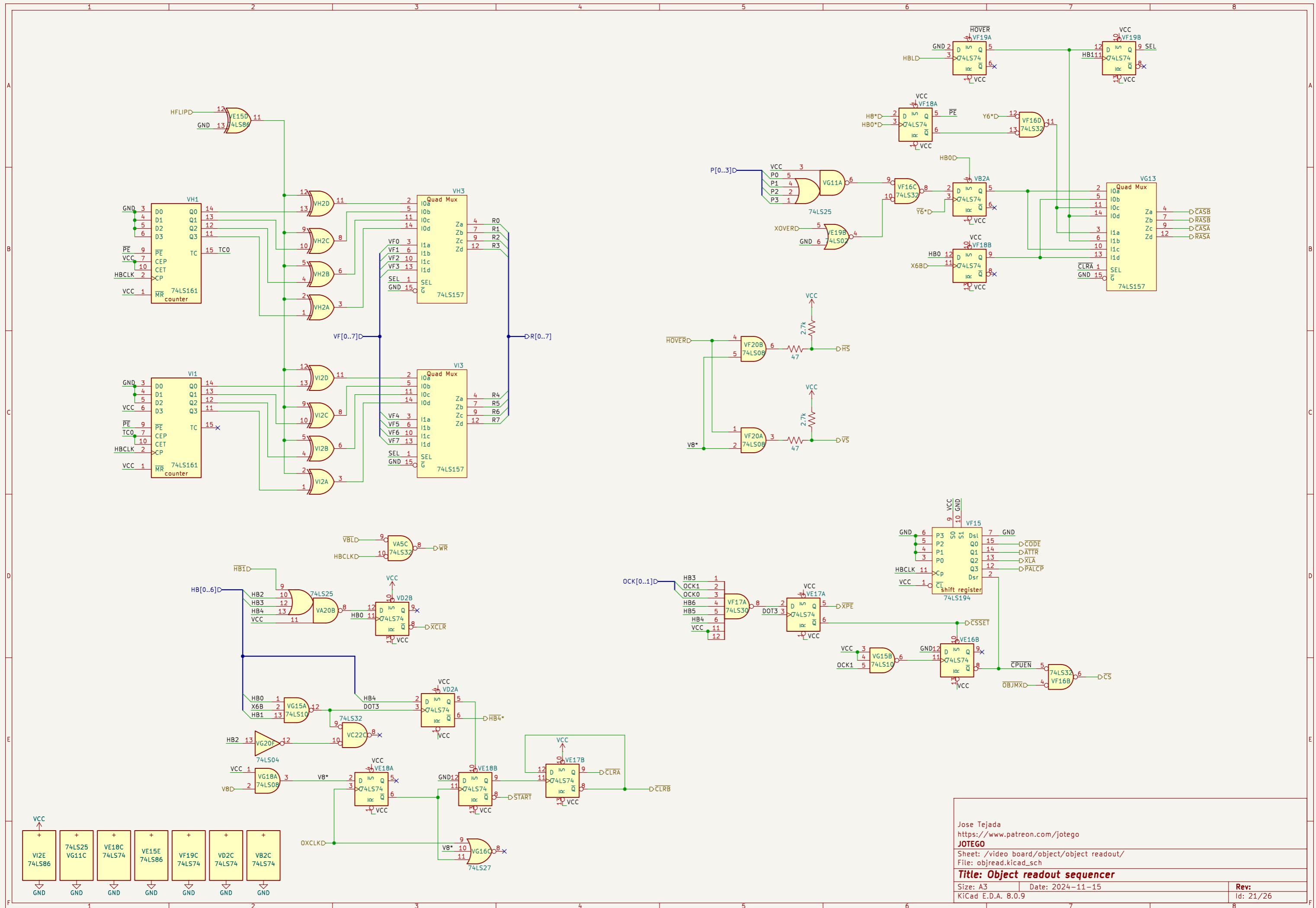
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

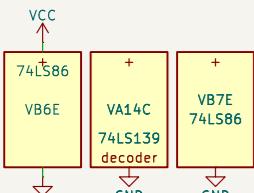
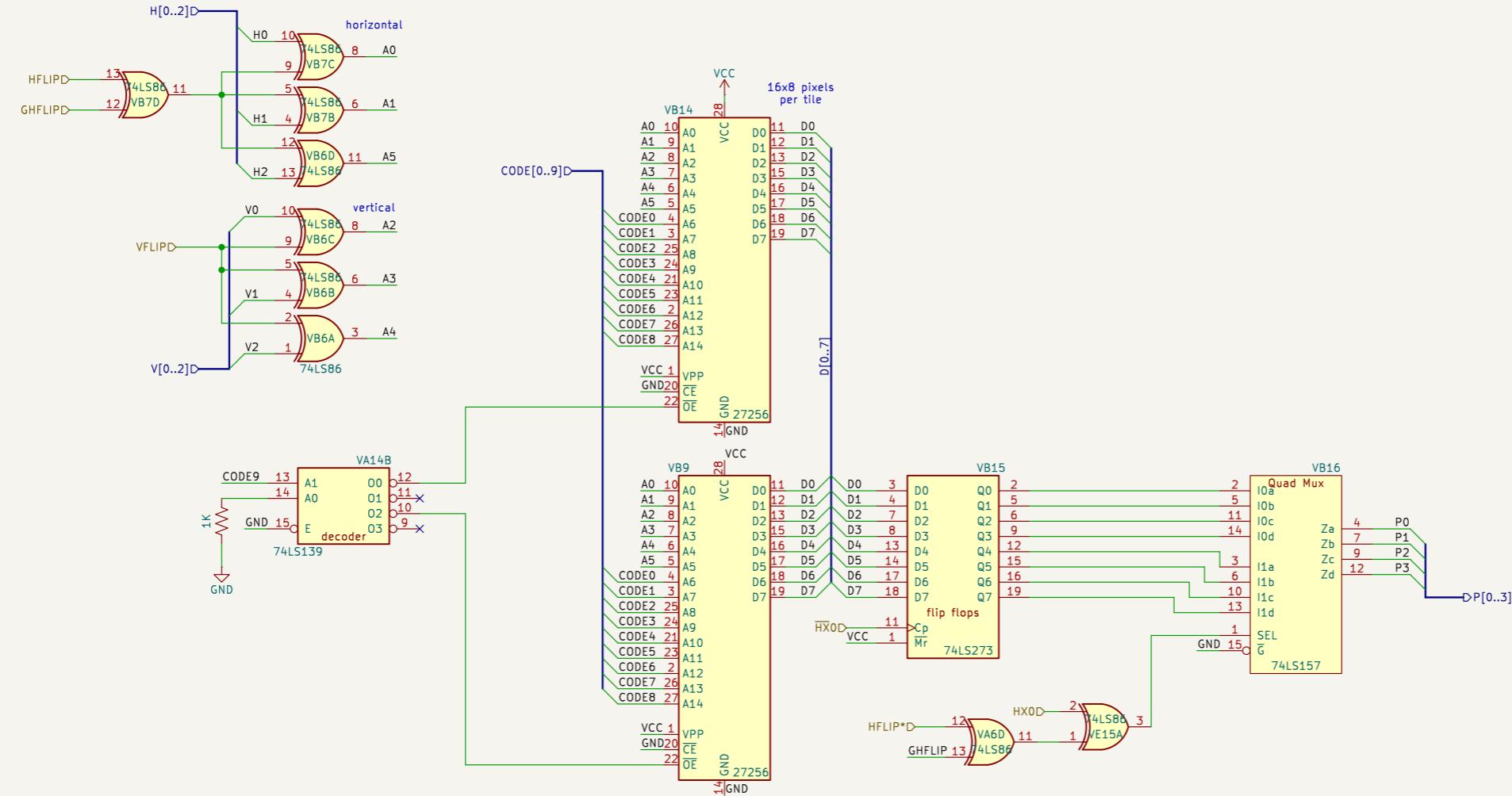
Sheet: /video board/object/object RAM/
File: objram.kicad_sch

Title: Object RAM

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

Rev: | Id: 20/26





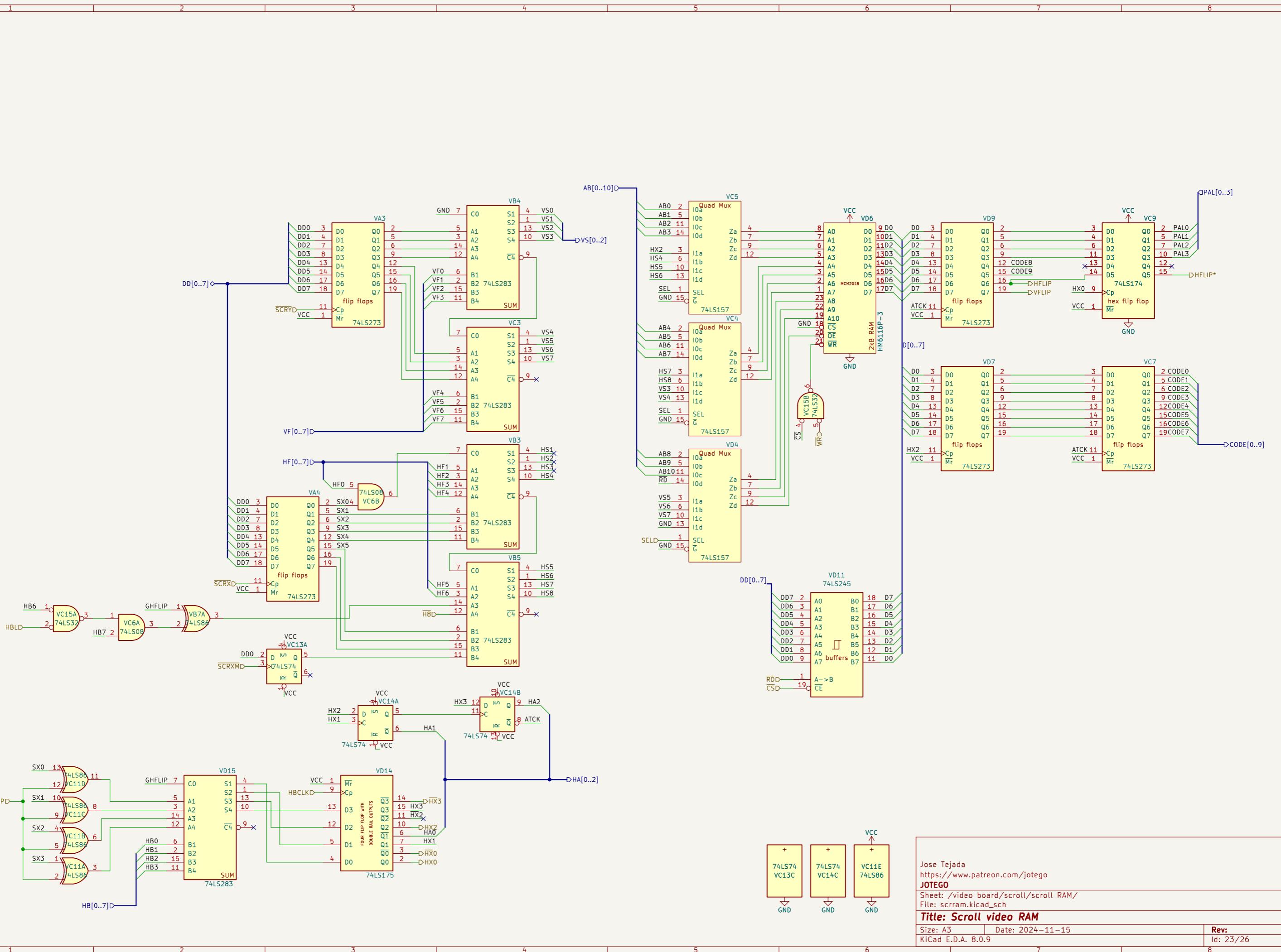
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

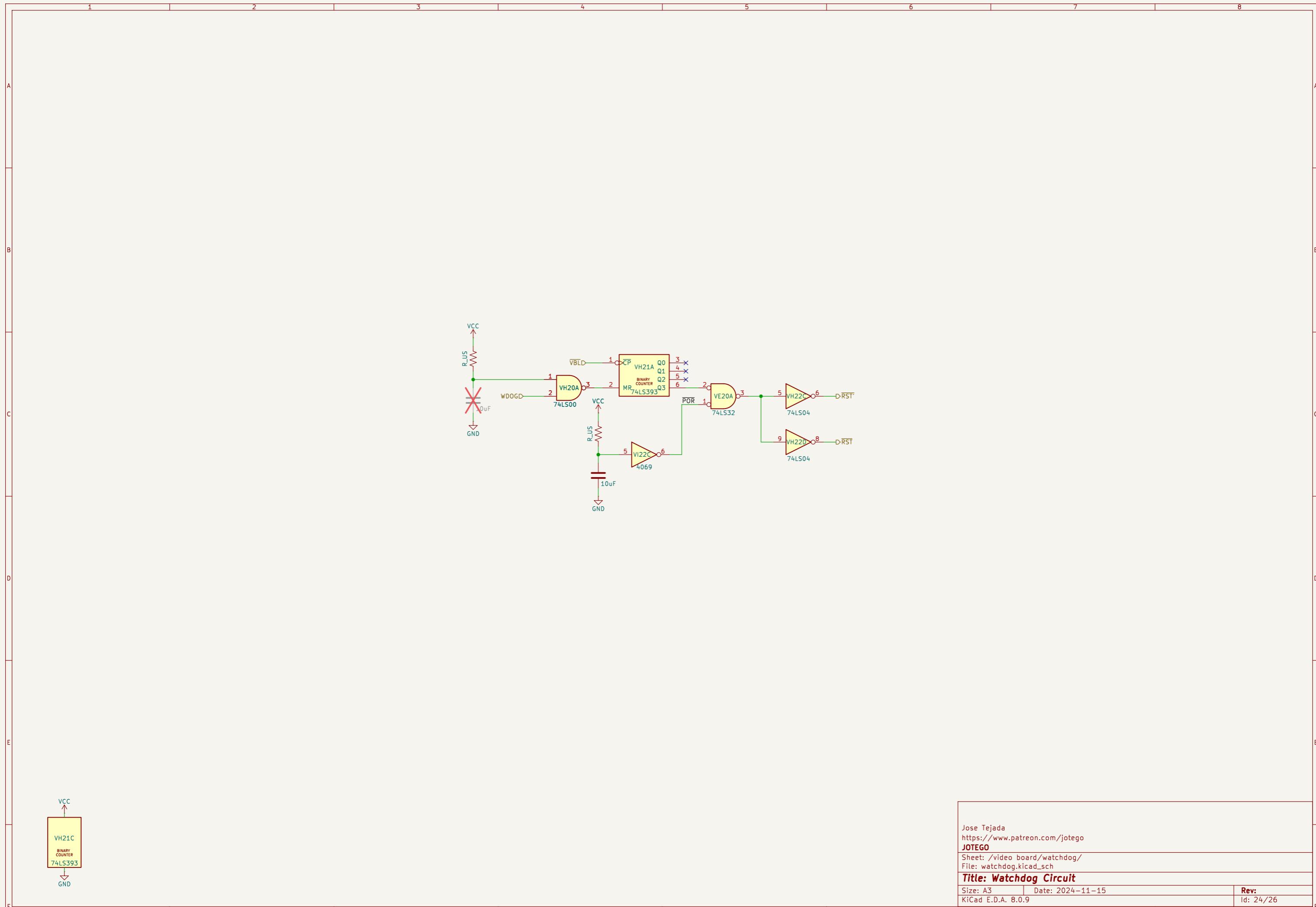
Sheet: /video board/scroll/scroll ROM/
File: scrom.kicad_sch

Title: scroll ROM

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

Rev:
Id: 22/26



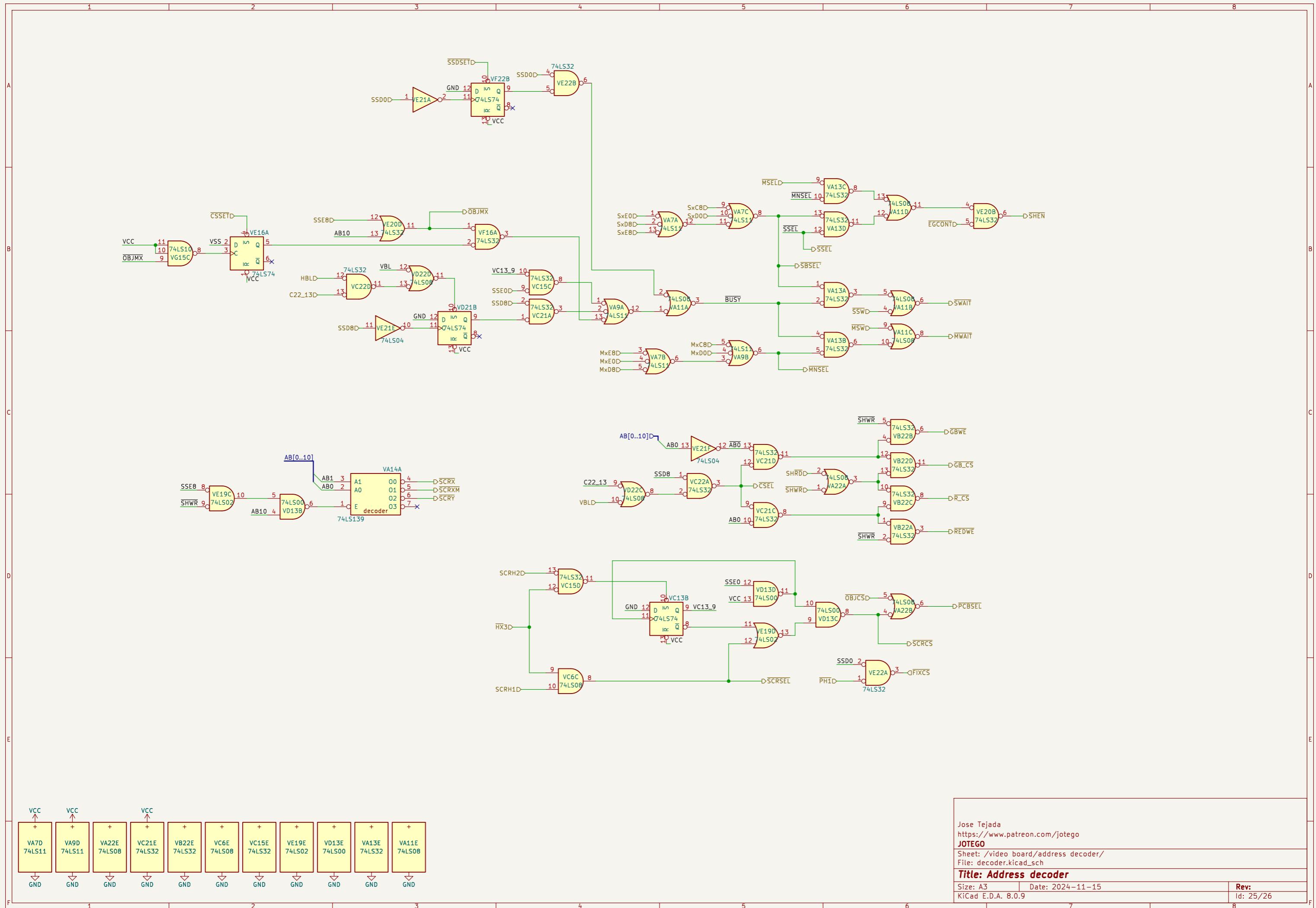


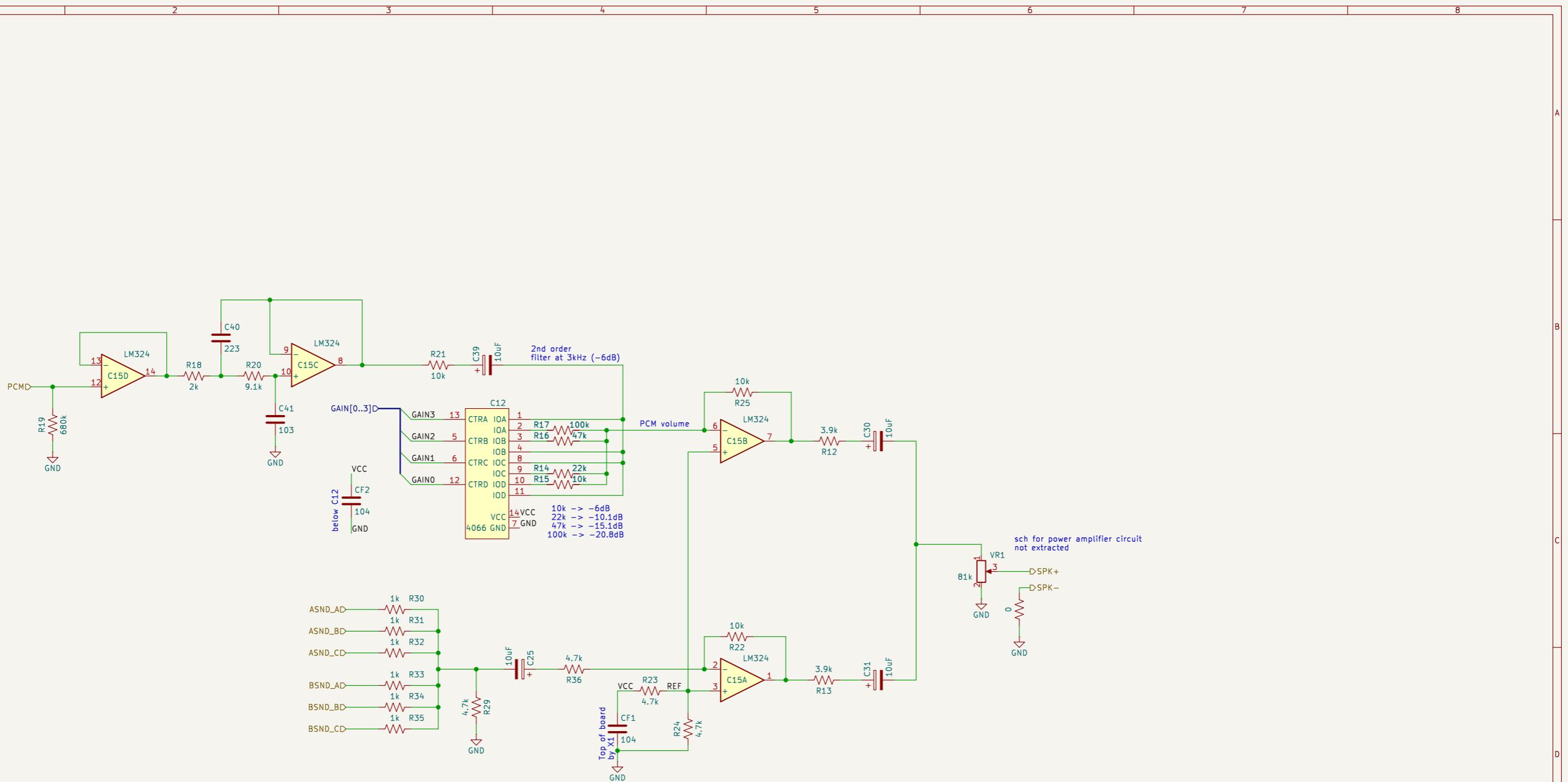
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

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: 24/26

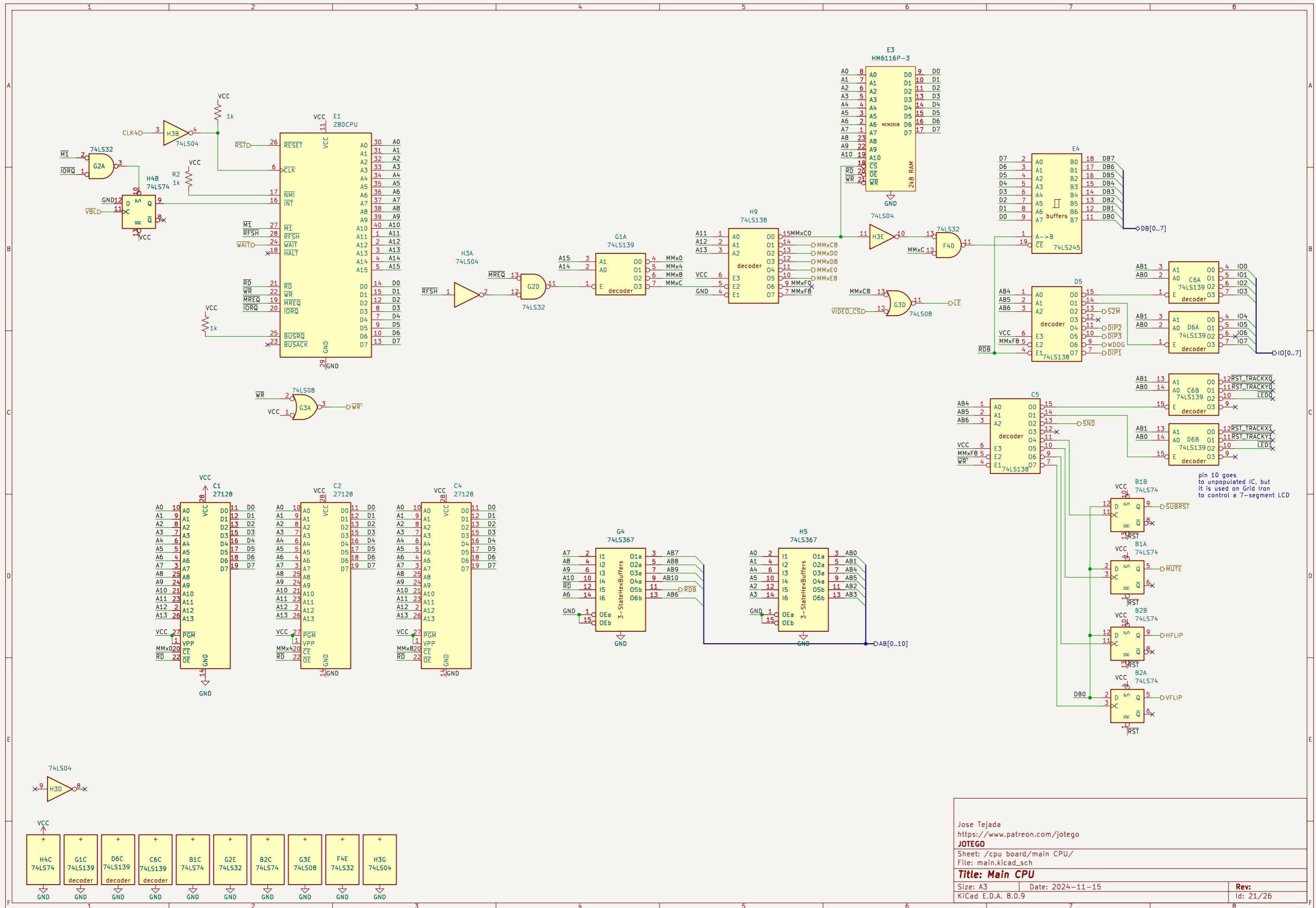


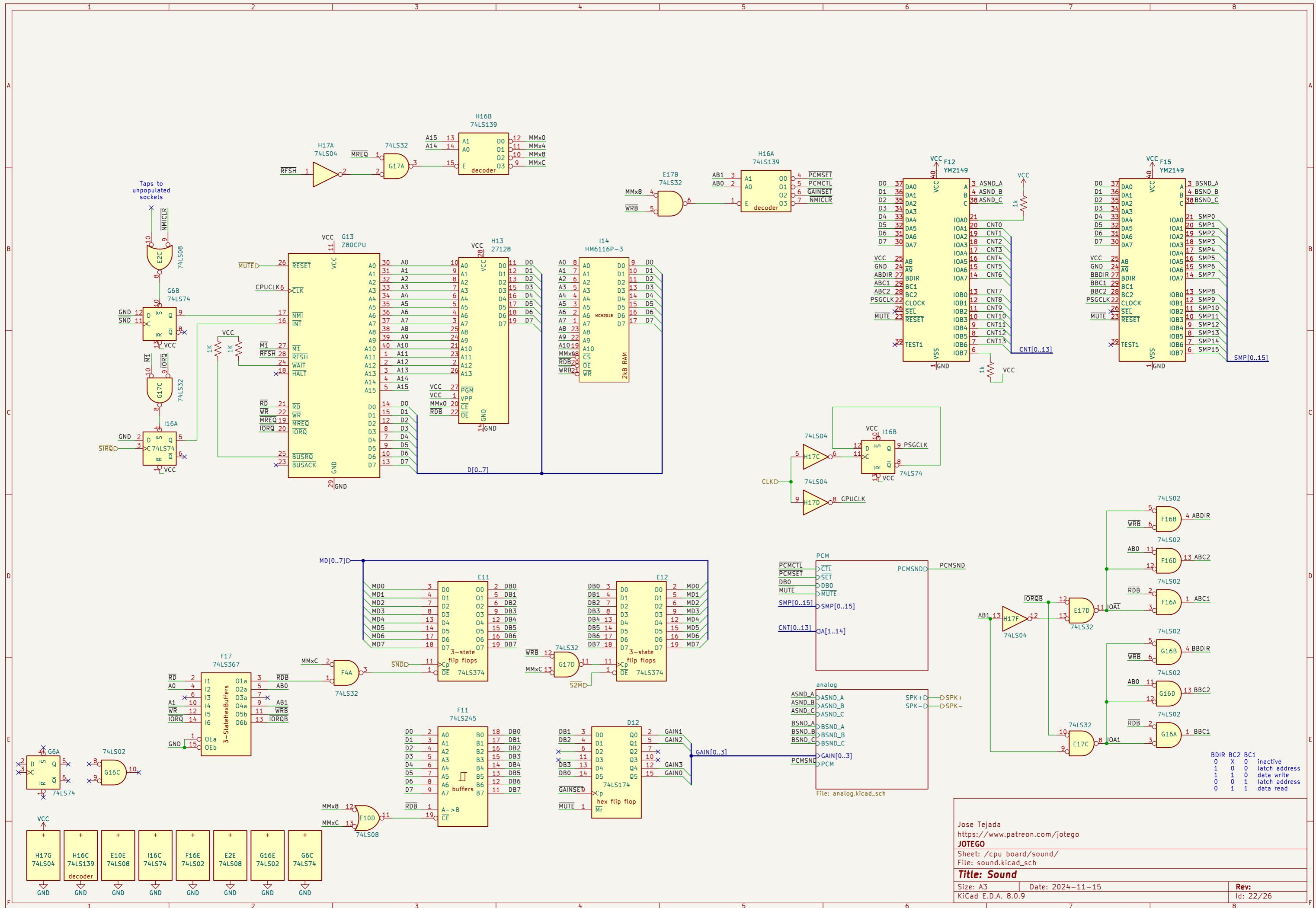


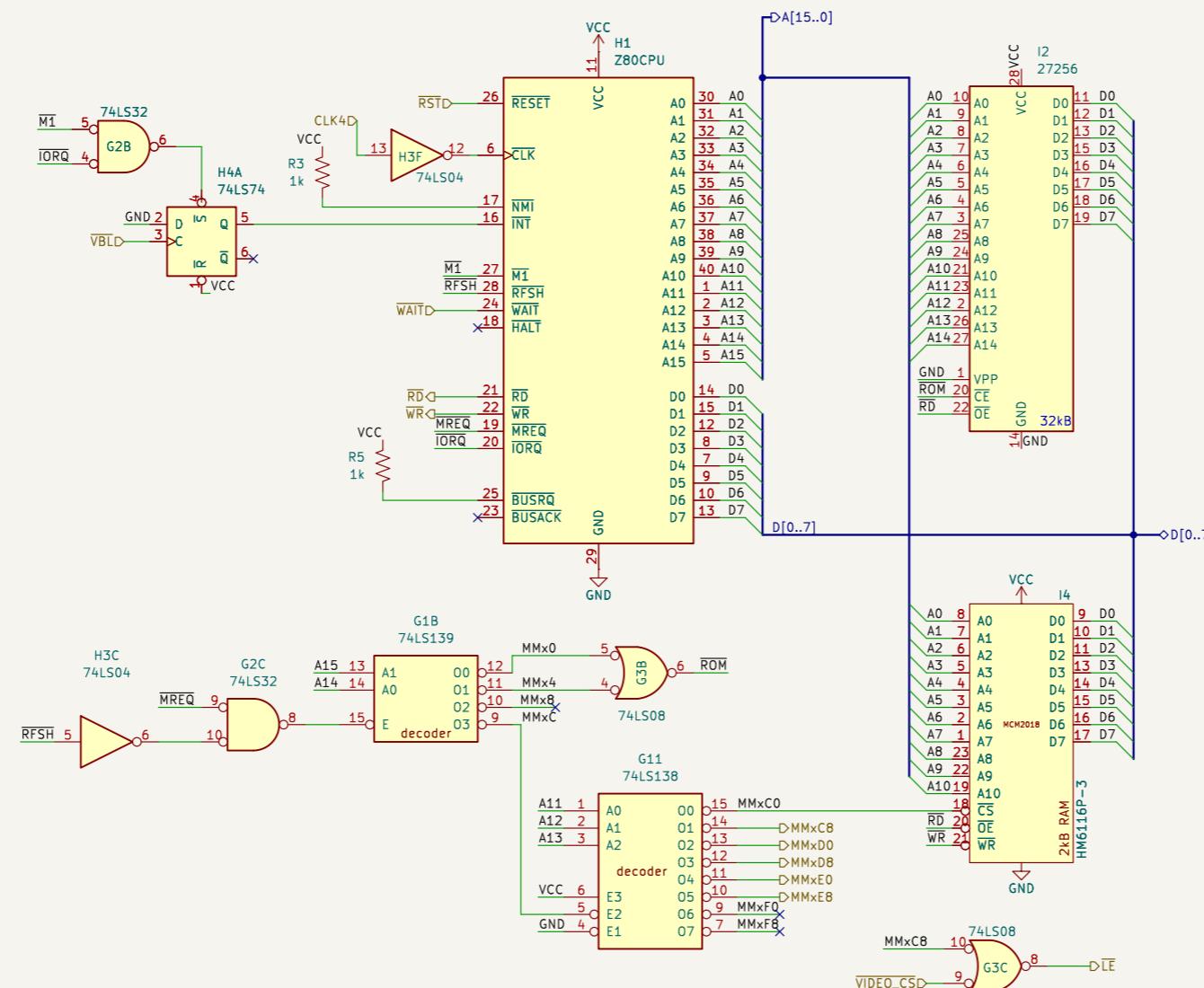
Passive component references
when shown, come from original PCB.
The bootleg did not have
references for passives.

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.

VCC 4 11 V+ C15E LM324 GND		Jose Tejada https://www.patreon.com/jotego JOTEGO 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: 26/26	







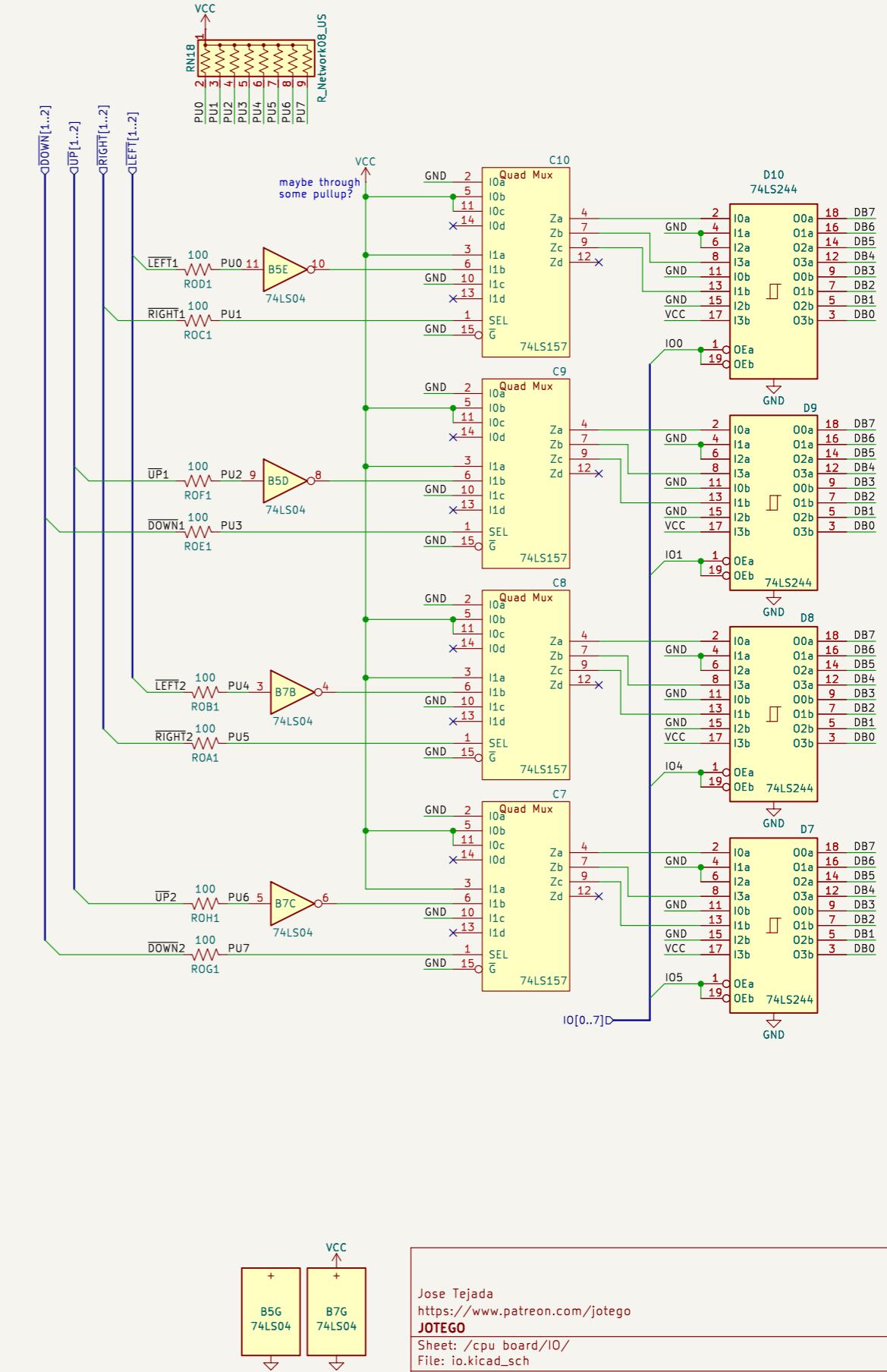
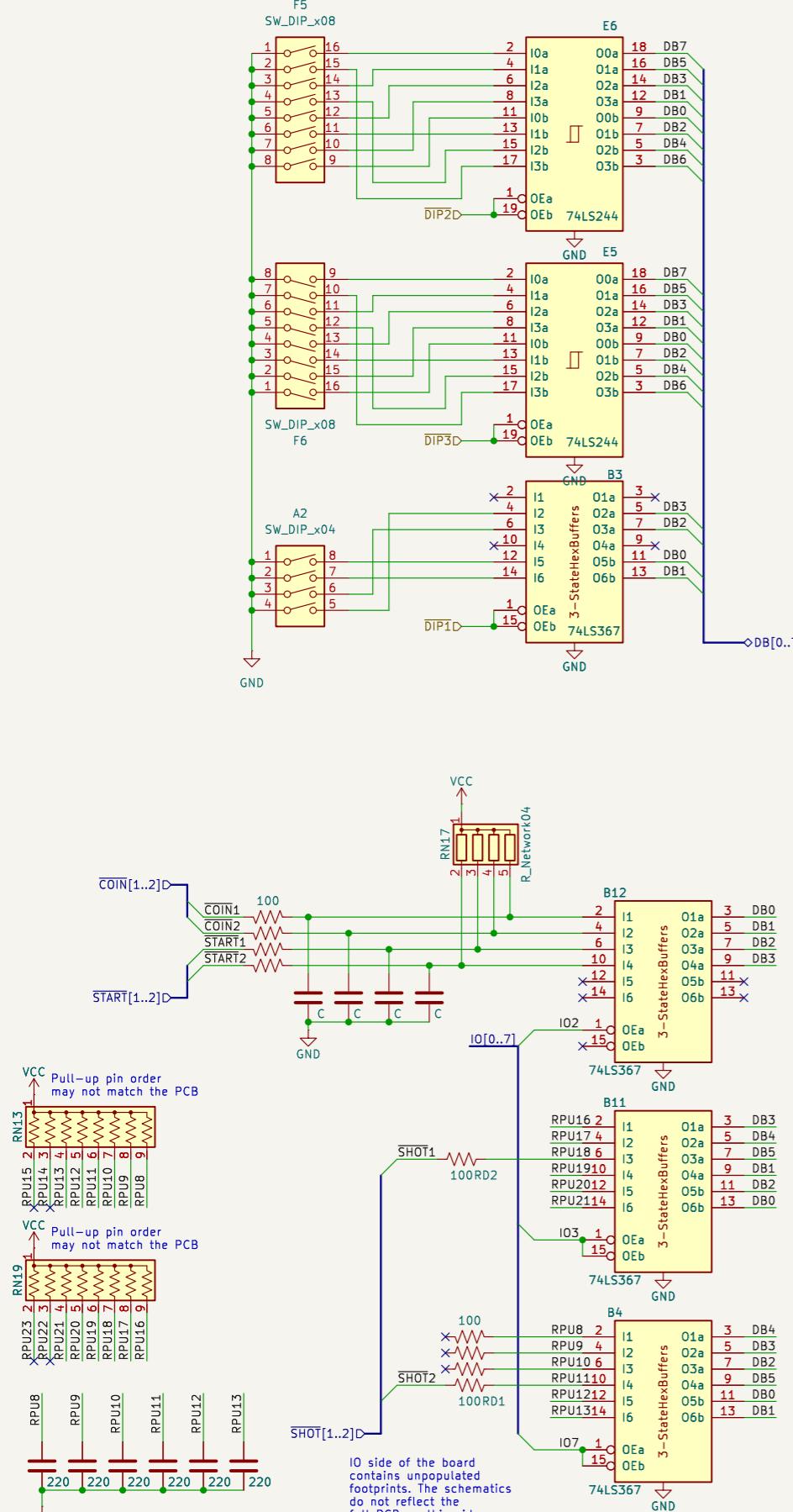
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

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

Title: Subordinate CPU

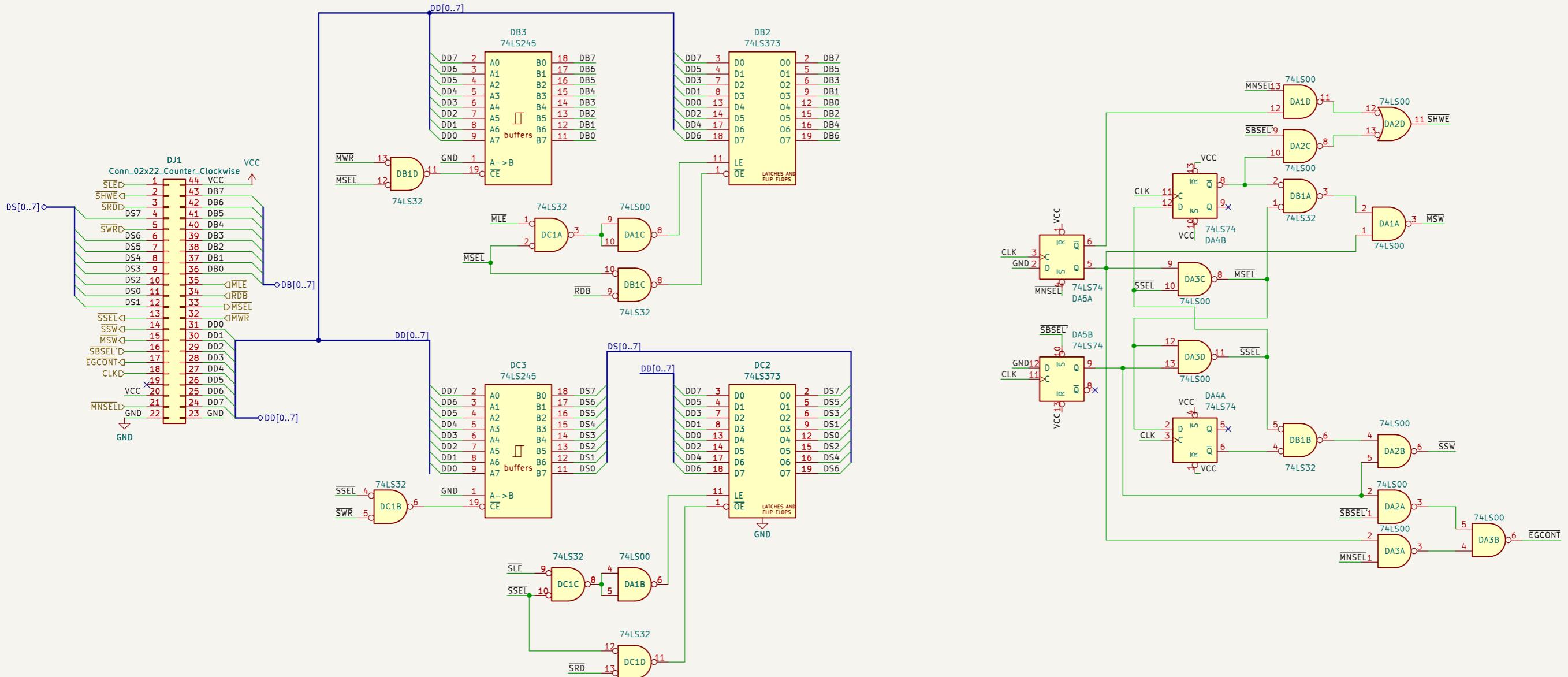
Size: A3 | Date: 2024-11-15
KiCad E.D.A. 8.0.9

Rev:
Id: 23/26



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

heet: /cpu board/IO/
ile: io.kicad_sch



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.

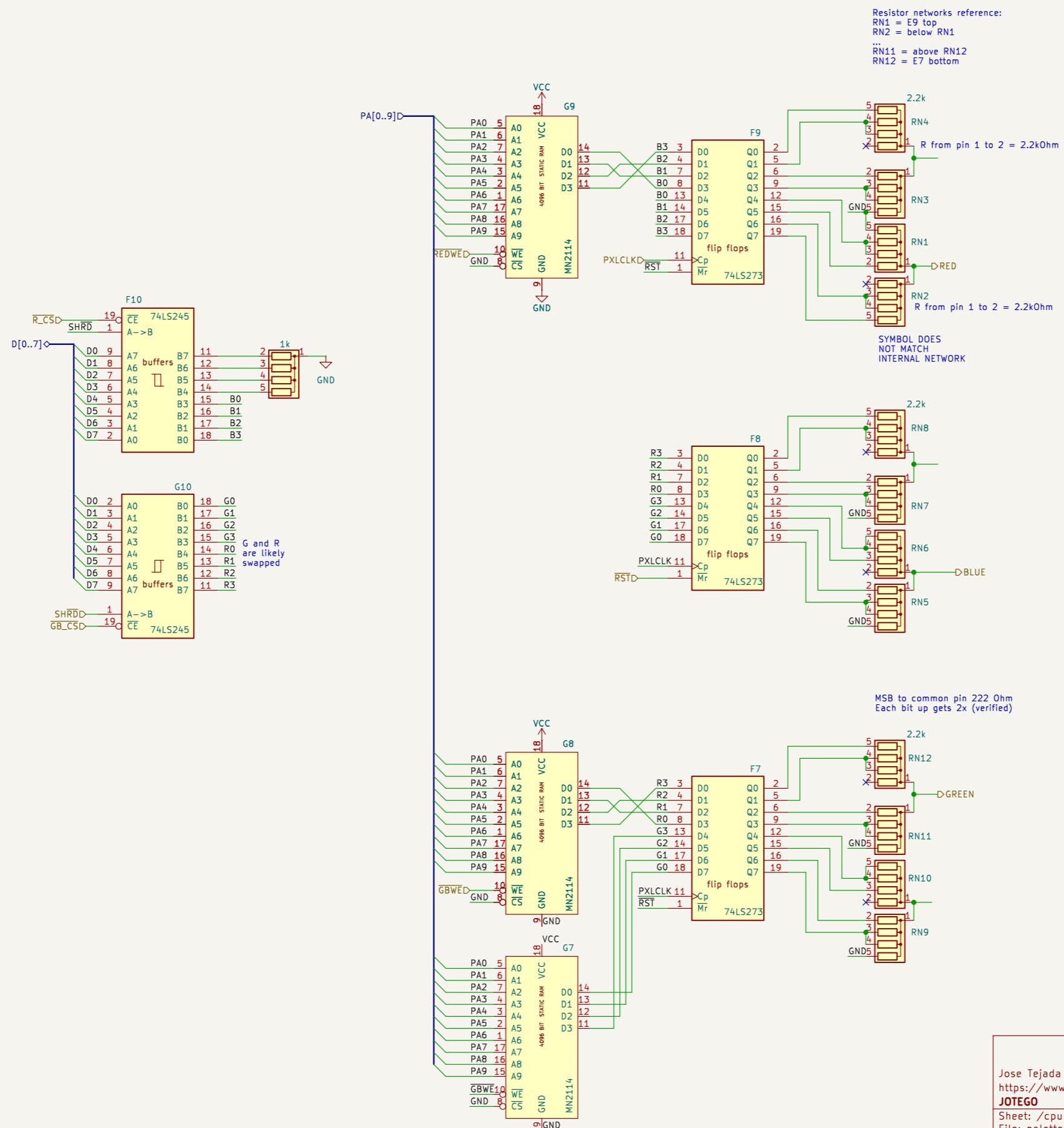
Jose Tejada
<https://www.patreon.com/jotego>
JOTEGO

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

7



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

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