

A

B

C

D

E

A

B

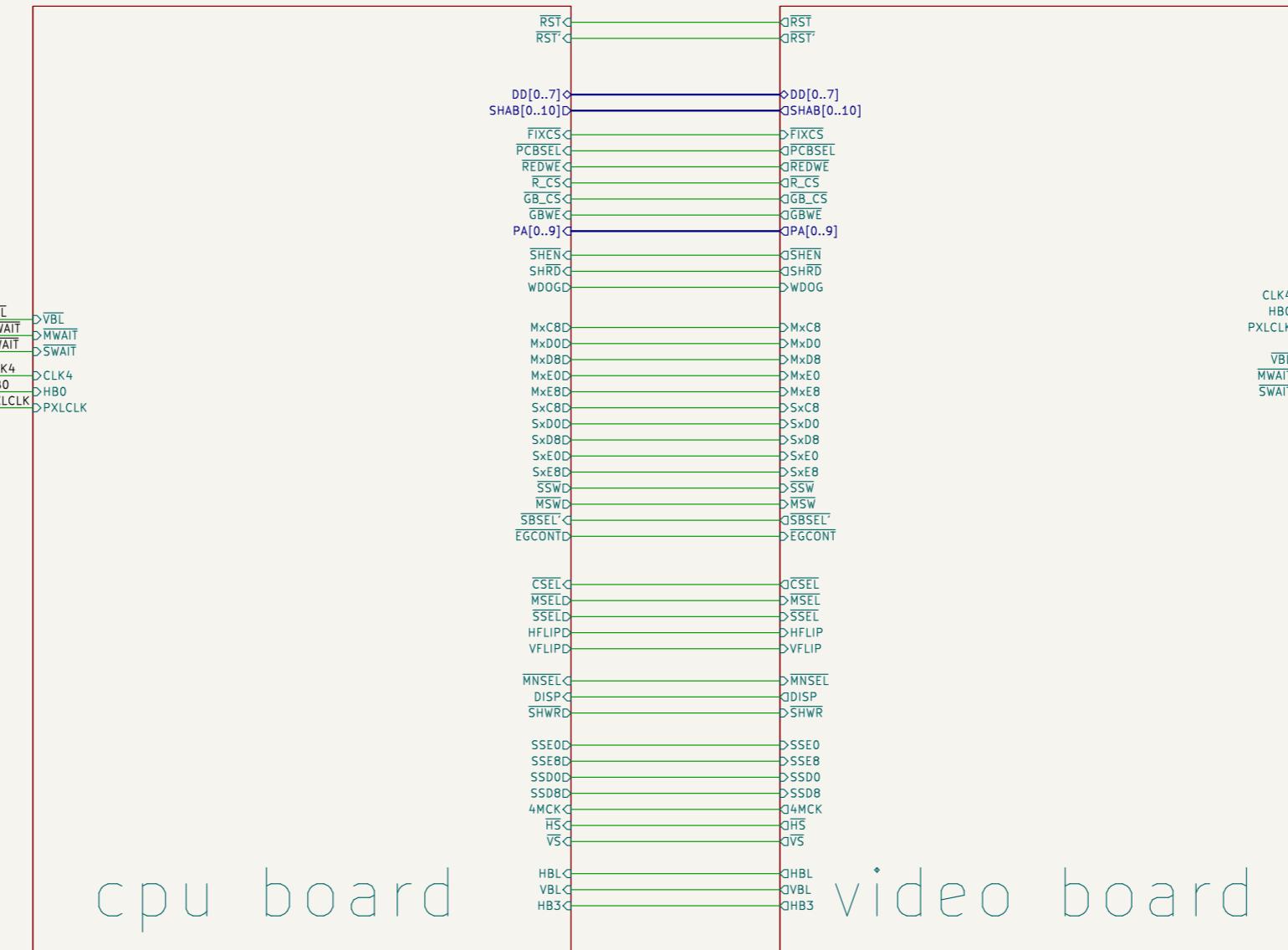
C

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**

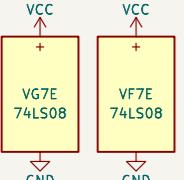
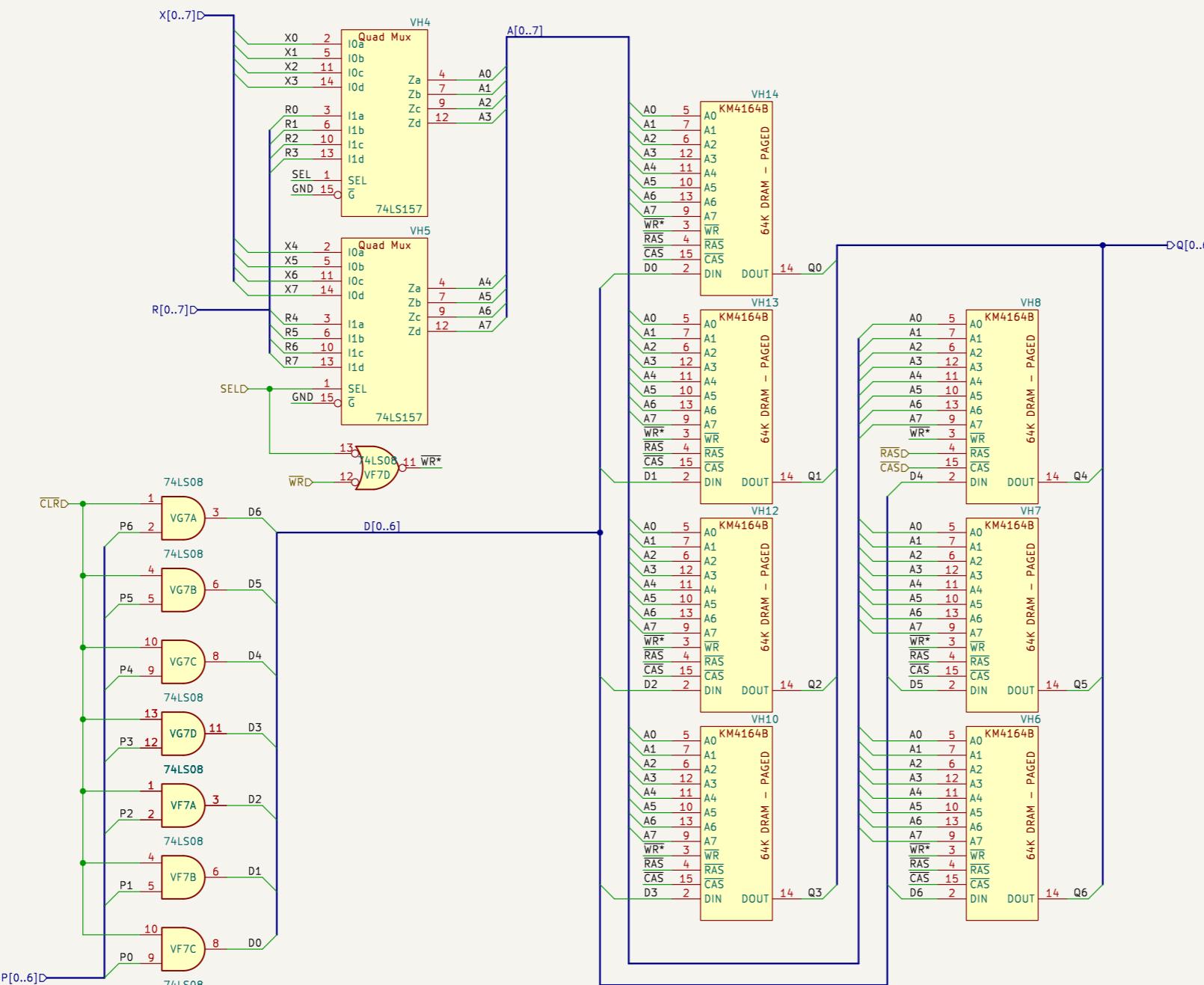
Sheet: /  
File: tehkanwch.kicad\_sch

**Title: TEHKAN WORLD CUP (tehkanwch bootleg)**

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



Rev:  
Id: 1/26



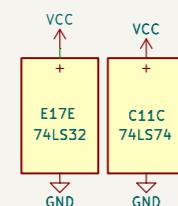
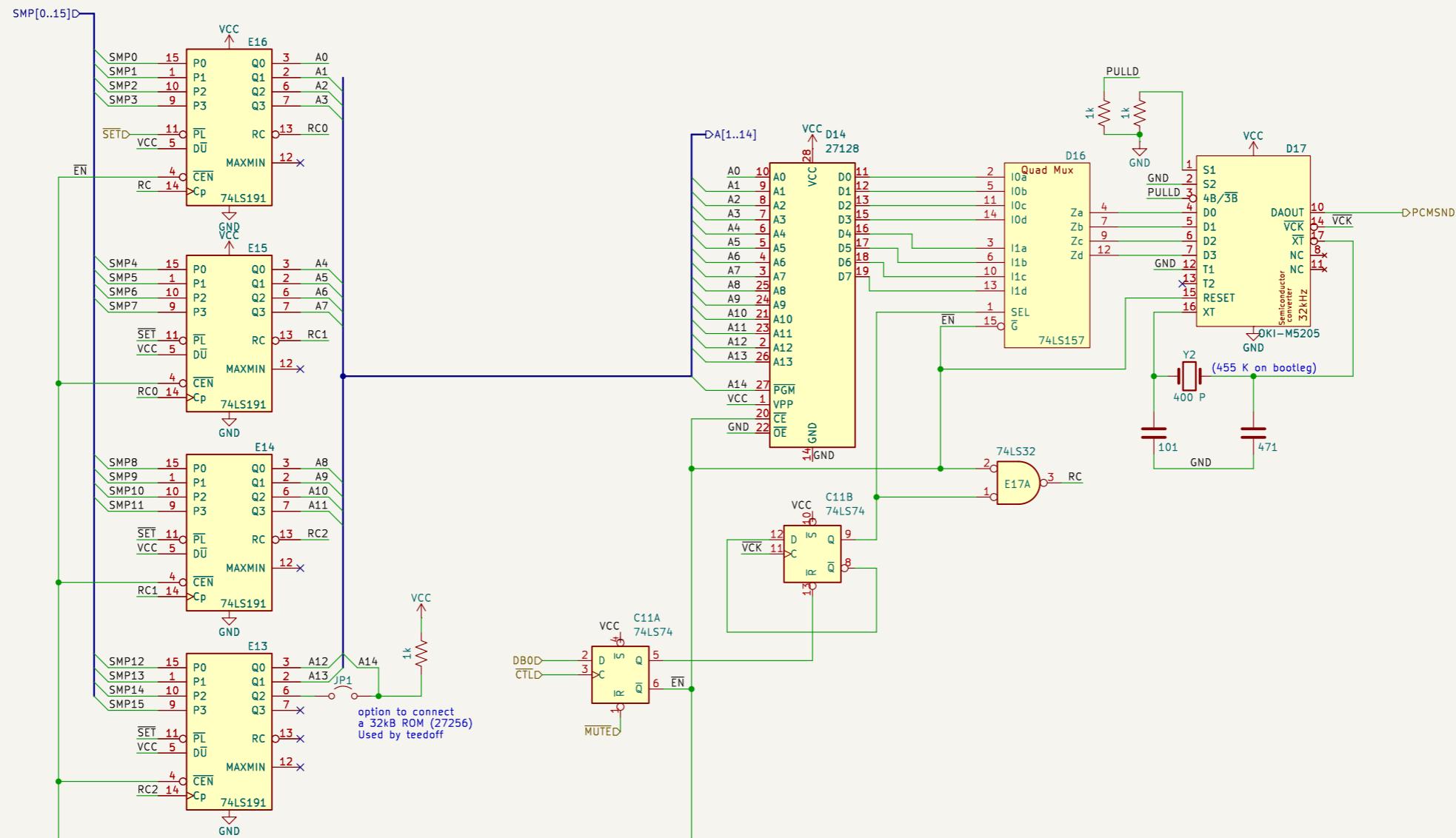
Jose Tejada  
<https://www.patreon.com/jotego>  
**JOTEGO**

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**

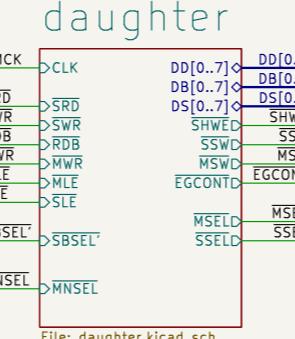
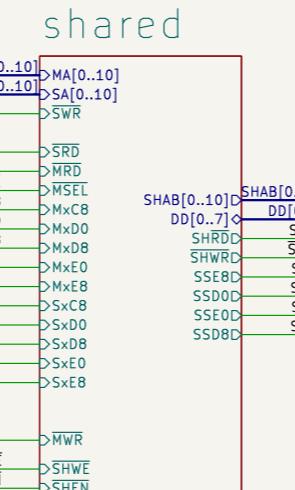
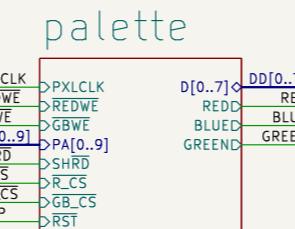
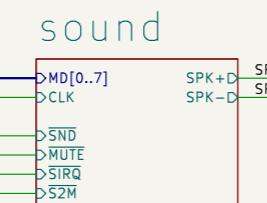
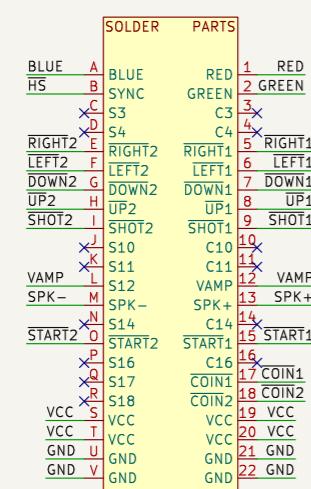
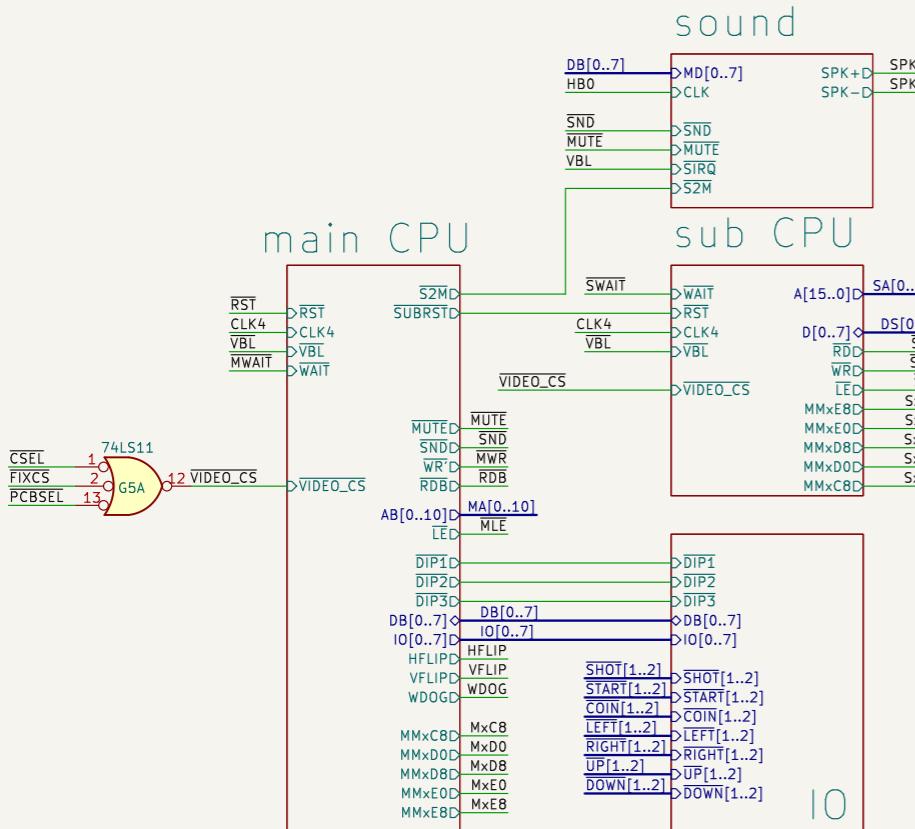
Sheet: /cpu\_board/sound/PCM/  
File: pcm.kicad\_sch

**Title: PCM**

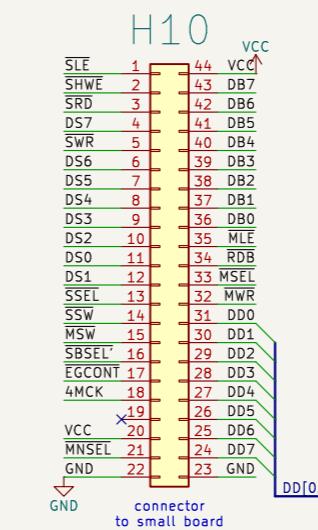
Size: A3 Date: 2024-11-15  
KiCad E.D.A. 8.0.9

Rev: Id: 5/26

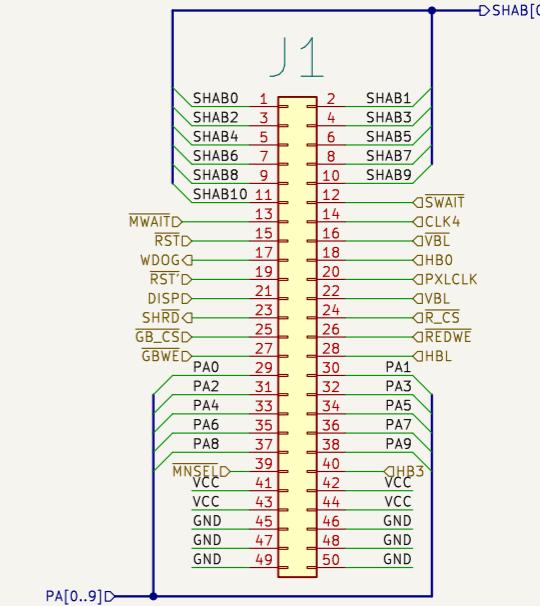
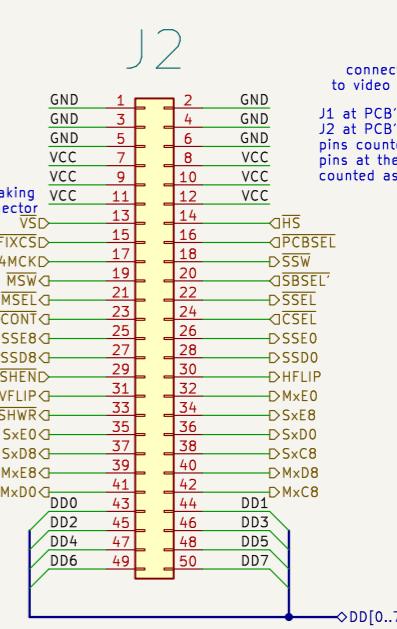
A



File: daughter.kicad\_sch



VS goes to a half routed path, not making it to the edge connector  
J1 at PCB's bottom right  
J2 at PCB's top right  
pins counted from board top down, pins at the top row of the connector counted as odd



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

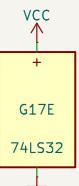
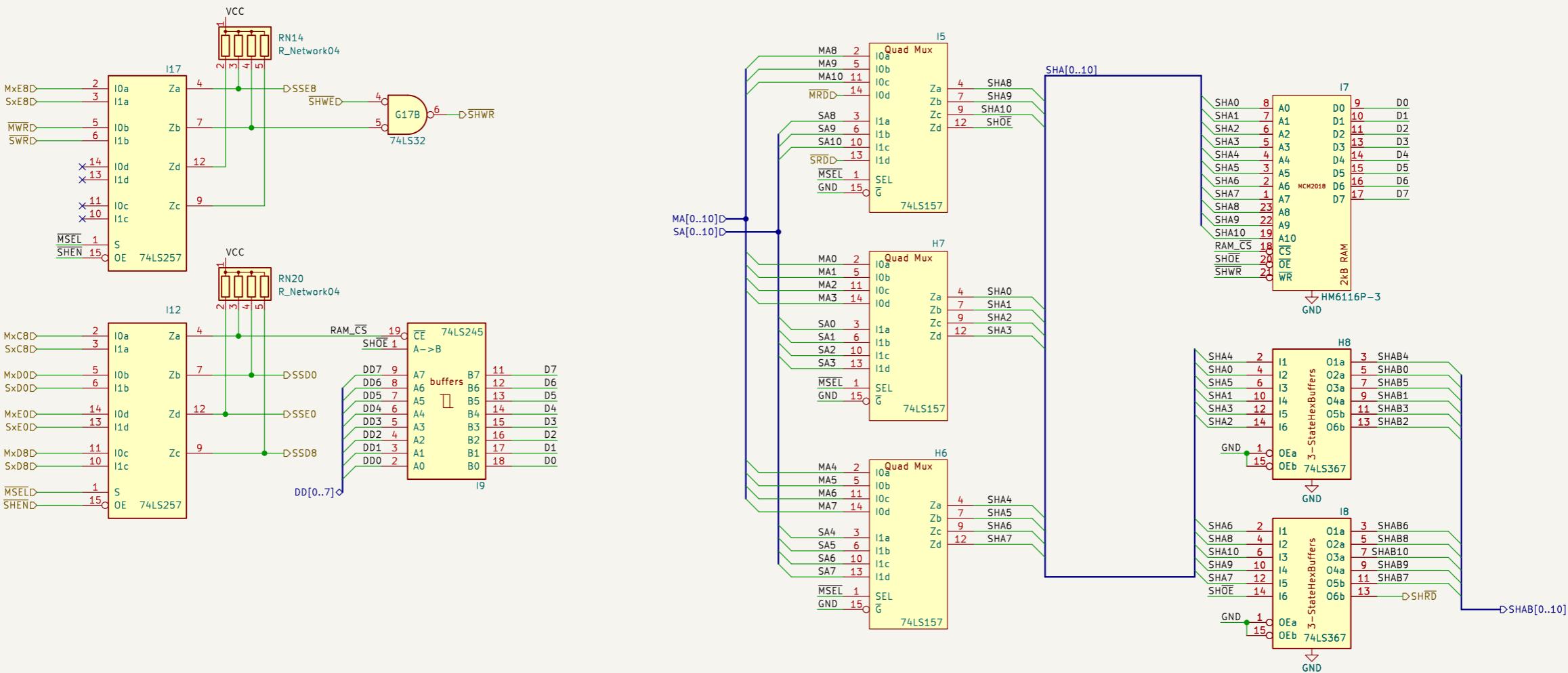
Sheet: /cpu board/  
File: cpu.kicad\_sch

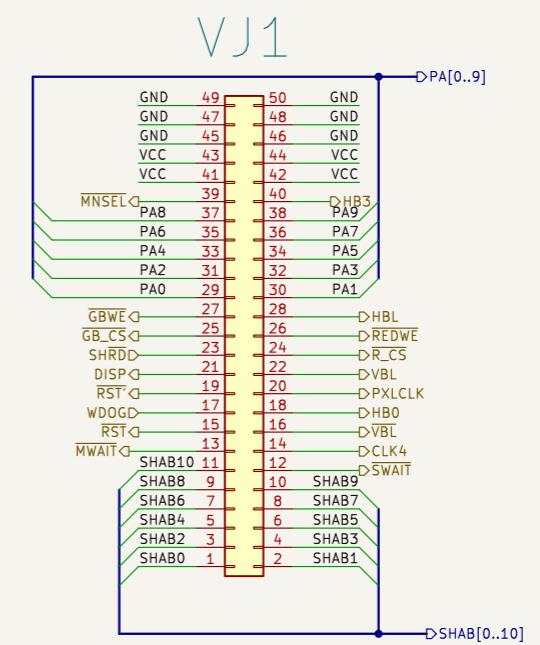
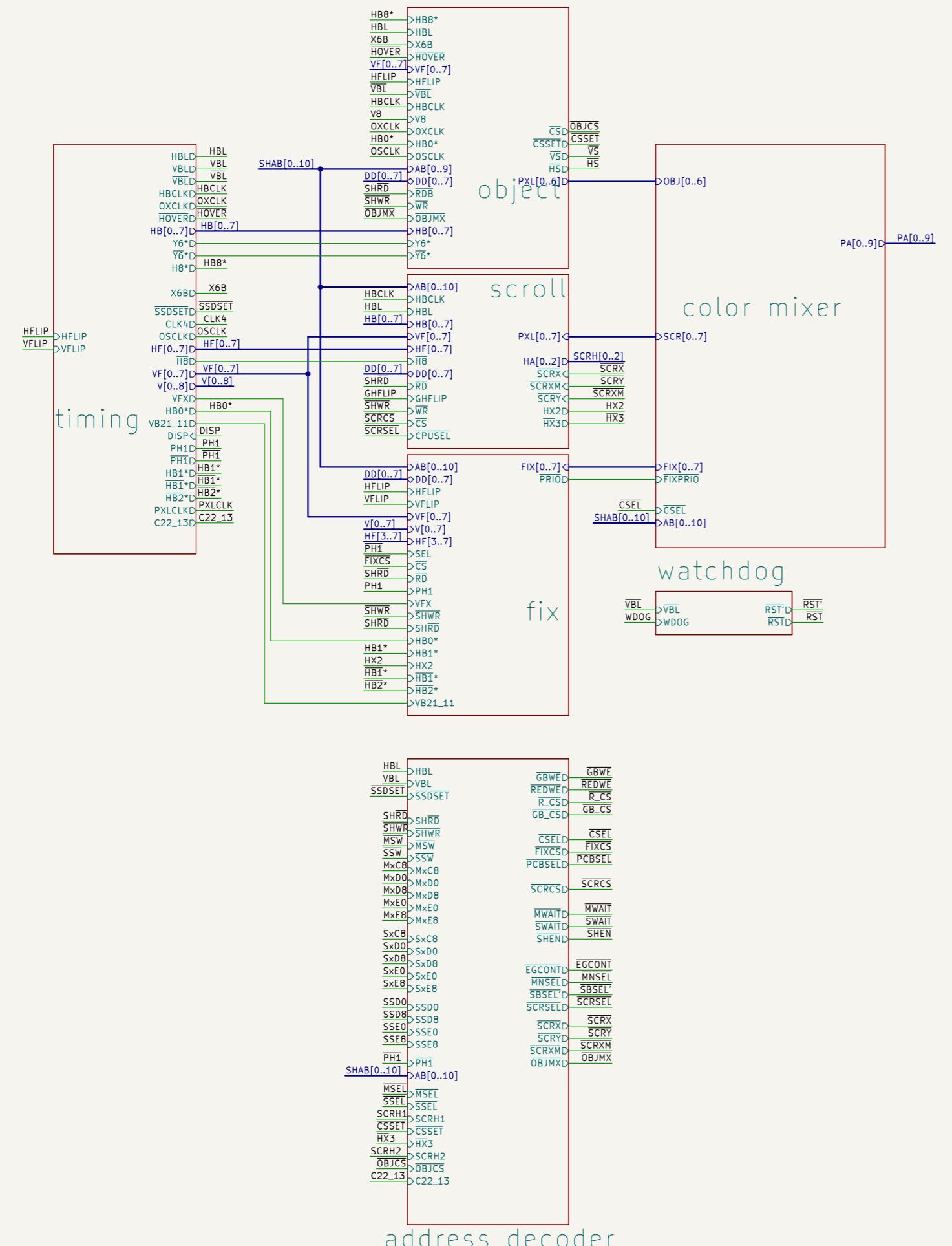
**Title: CPU board (top board)**

Size: A3 Date: 2024-11-15

KiCad E.D.A. 8.0.9

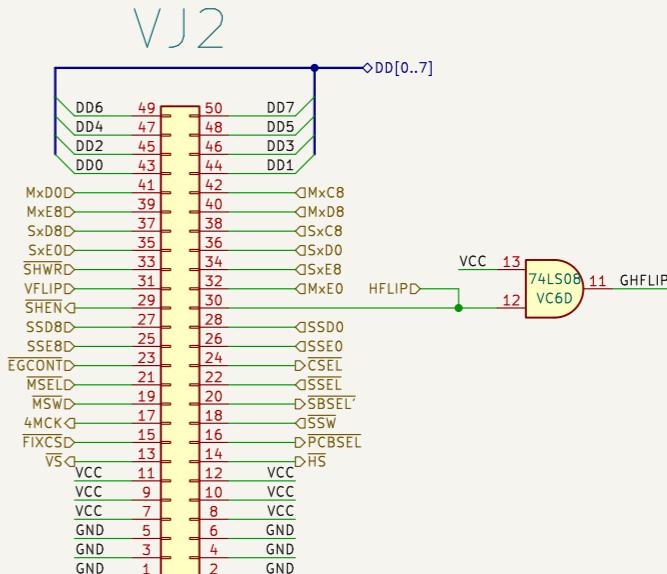
Rev: 9/26





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



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

JOTEGO

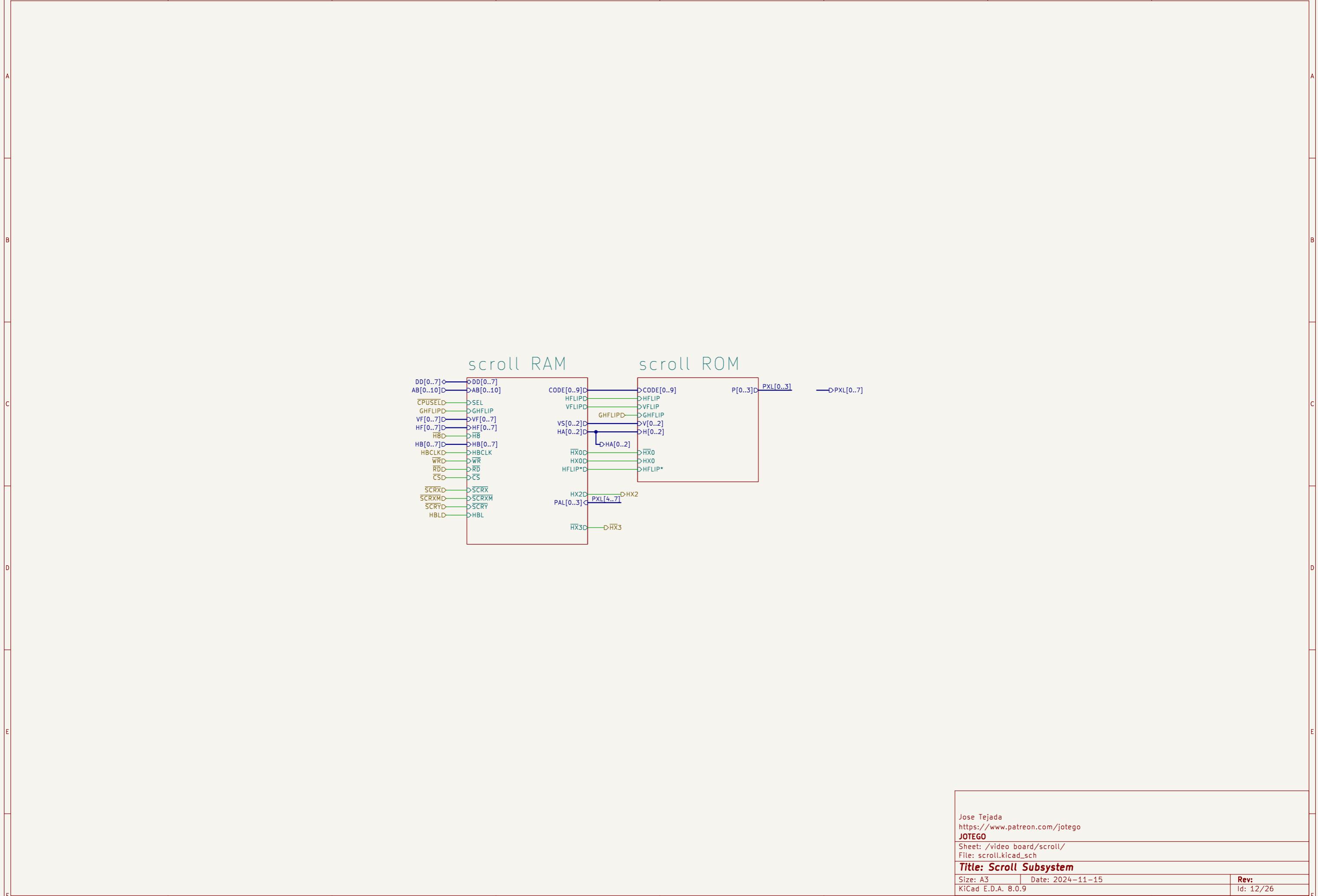
Title: Video board (bottom board)

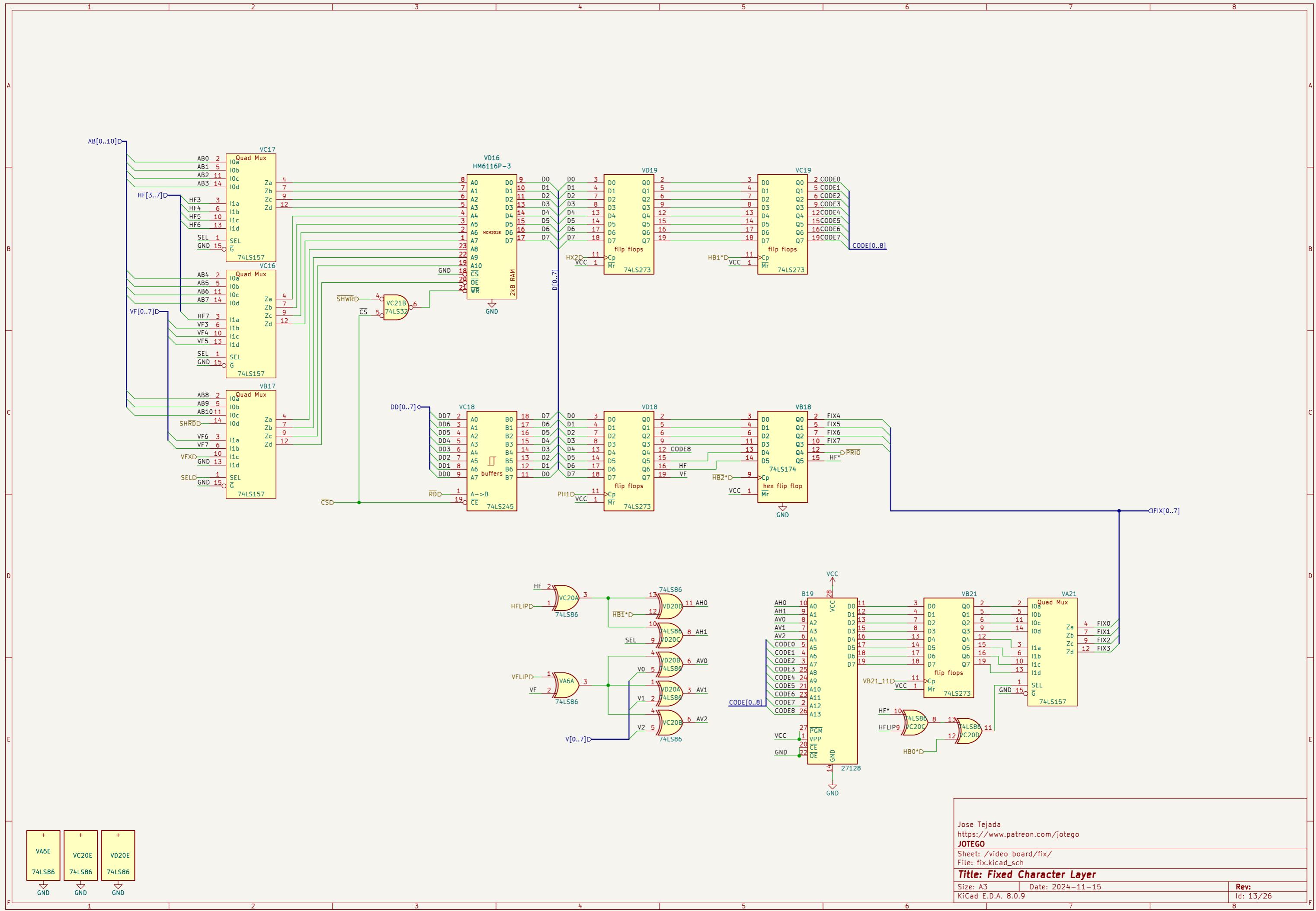
Size: A3 Date: 2024-11-15

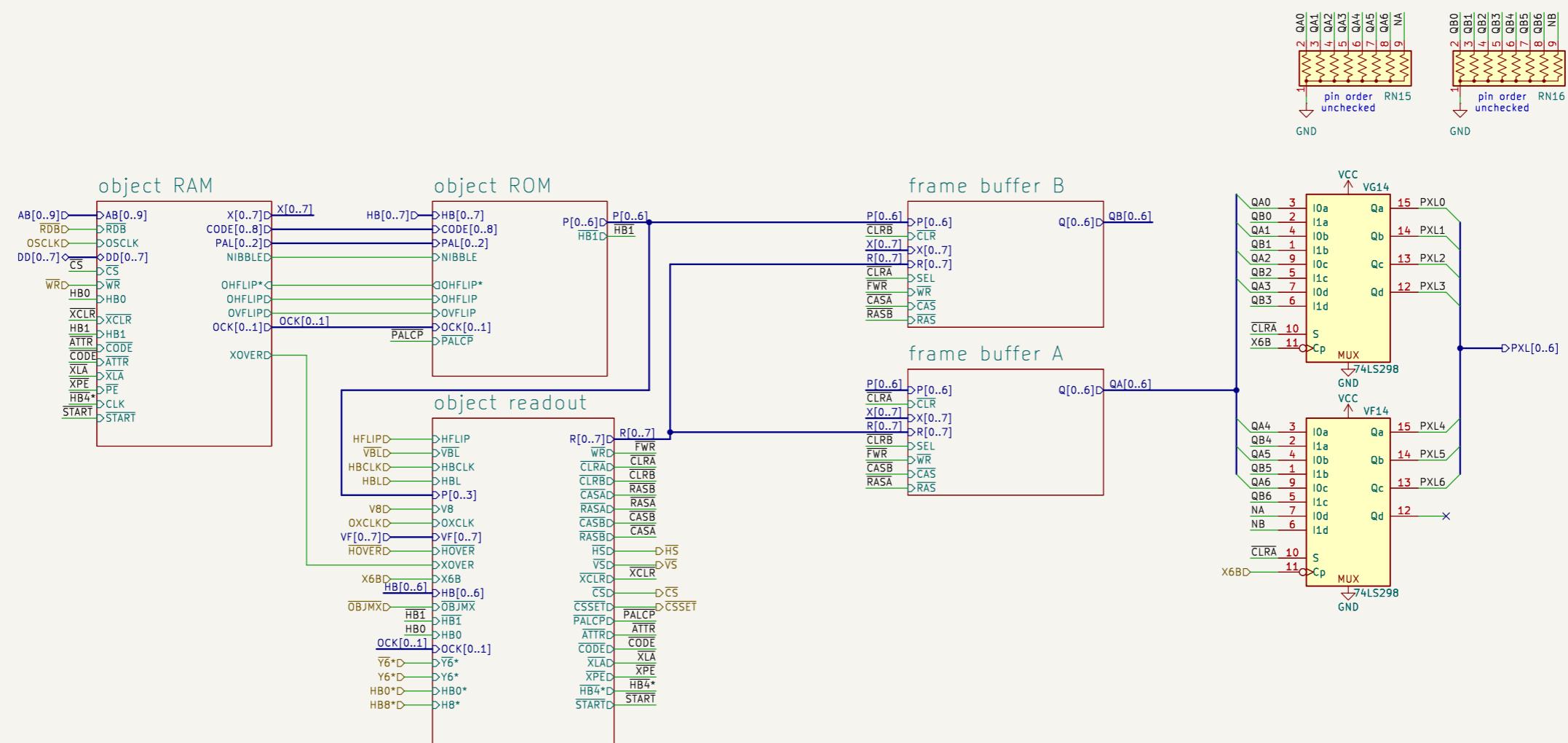
KiCad E.D.A. 8.0.9

7

Rev.  
Id: 11/26







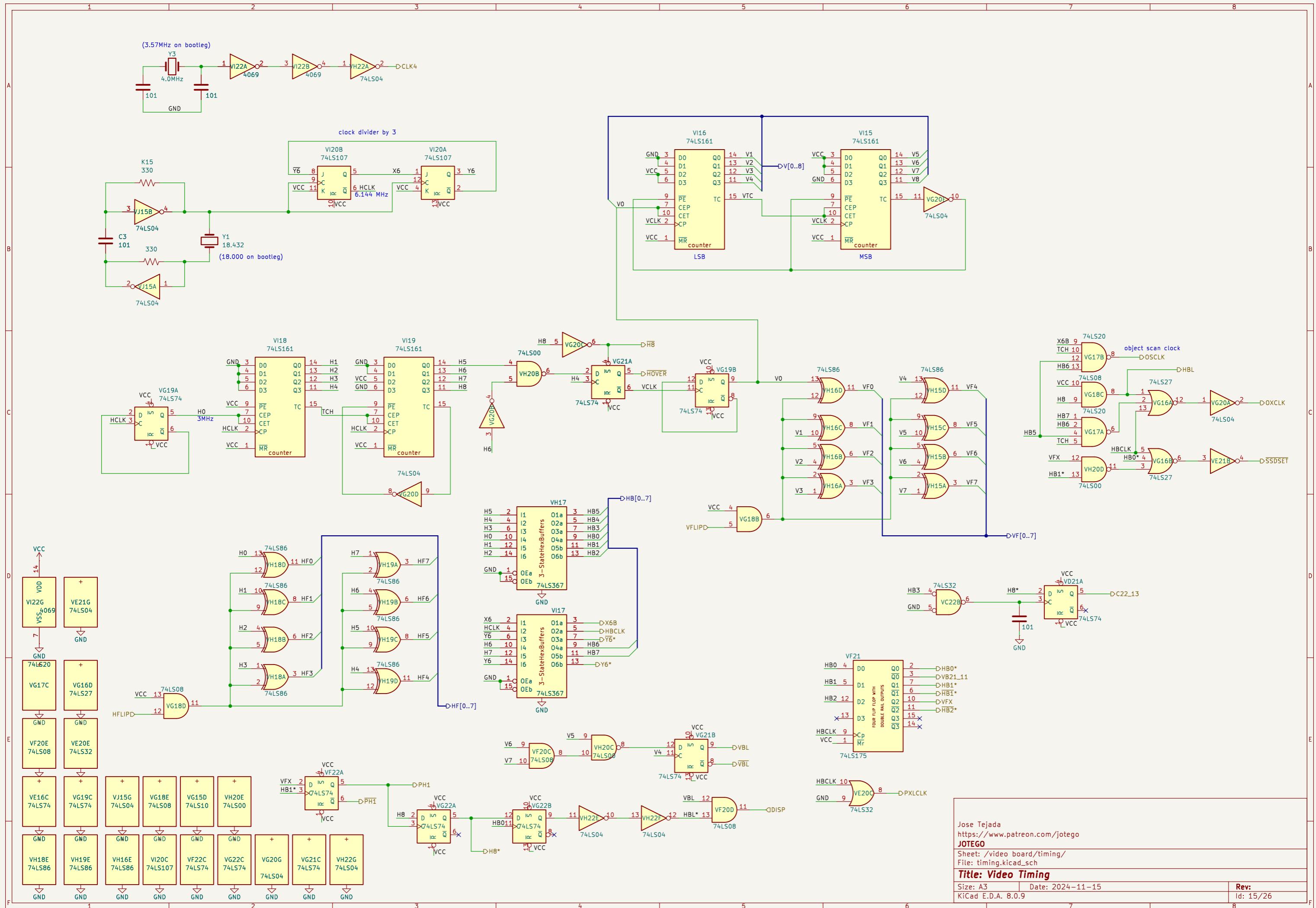
Jose Tejada  
<https://www.patreon.com/jotego>  
**JOTEGO**

Sheet: /video board/object/  
File: object.kicad\_sch

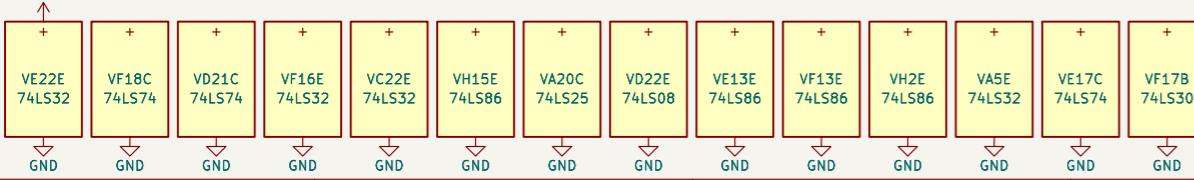
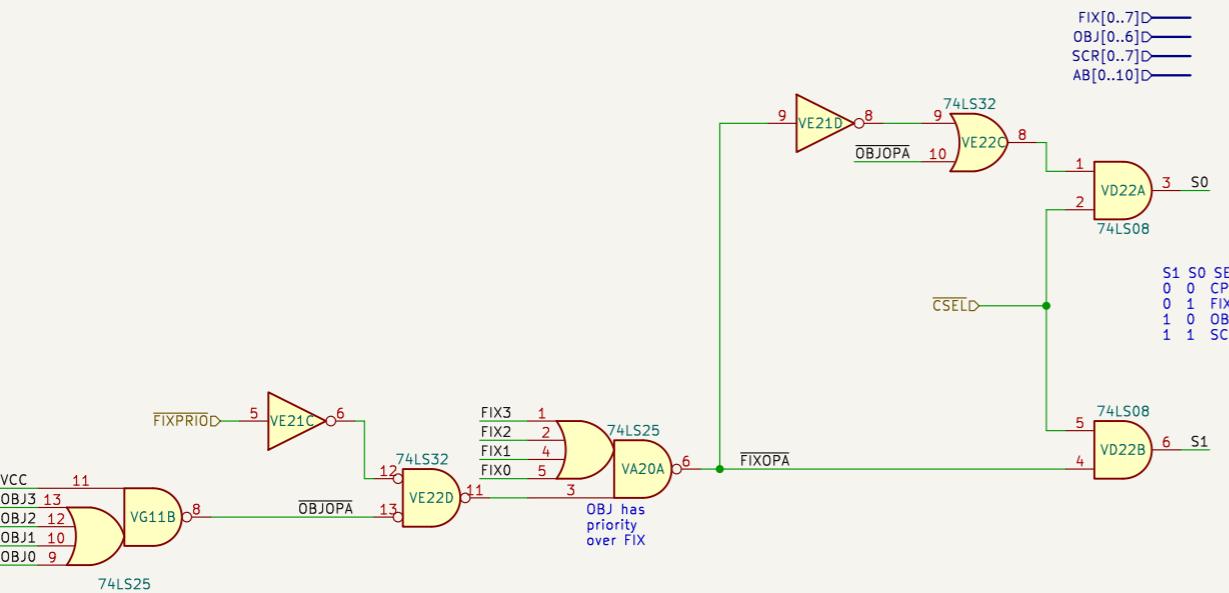
**Title: Object Subsystem**

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

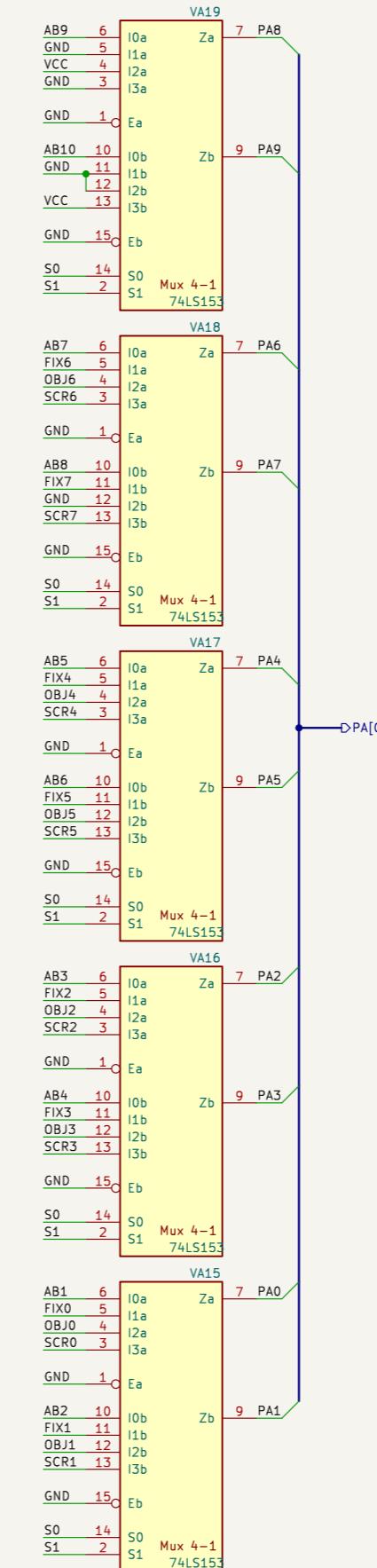
Rev:  
Id: 14/26



1 2 3 4 5 6 7 8



4



5

Jose Tejada  
<https://www.patreon.com/jotego>  
**JOTEGO**  
Sheet: /video board/color mixer/  
File: colmix.kicad\_sch

**Title: Color mixer**

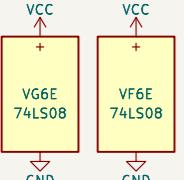
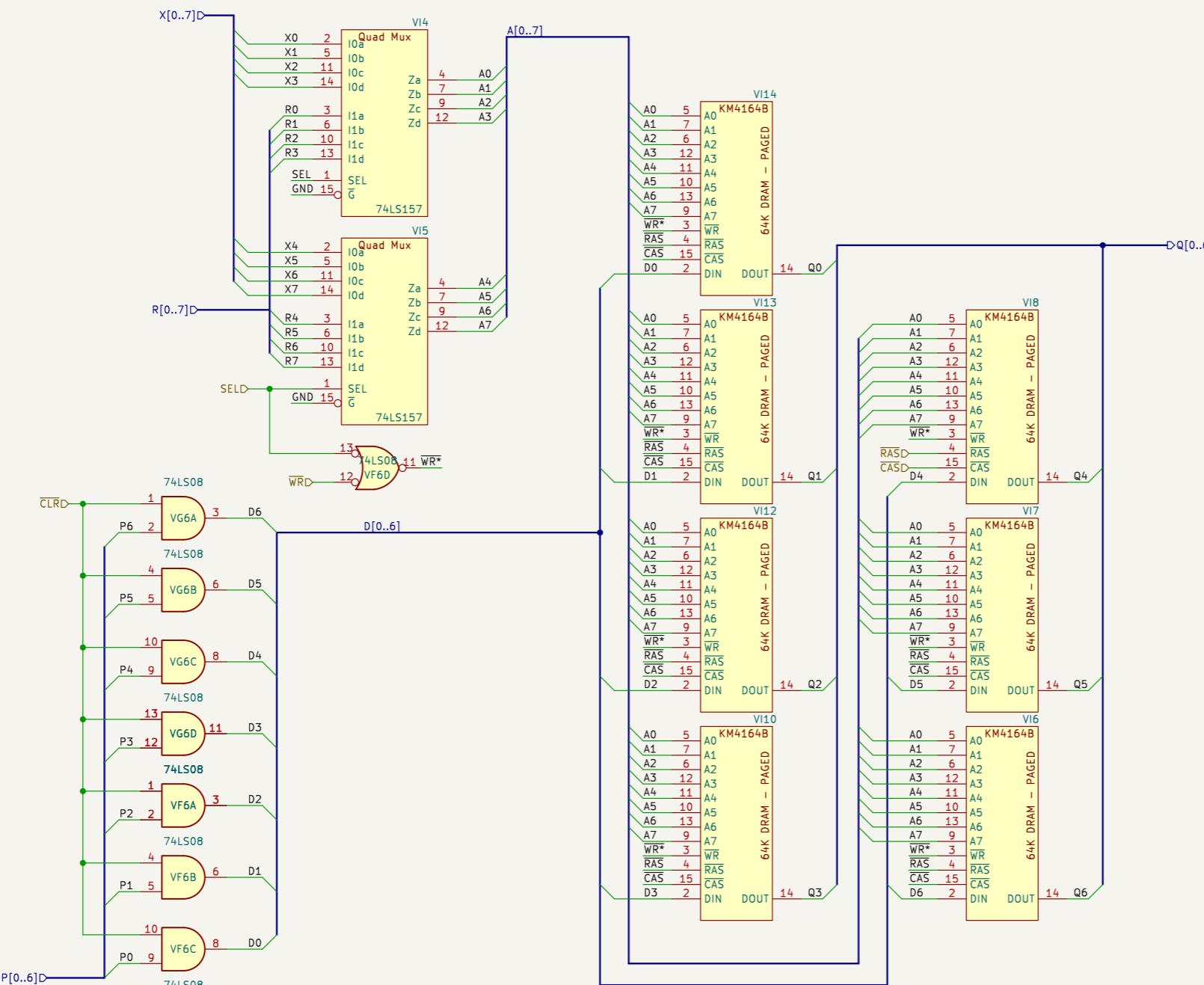
Size: A3 Date: 2024-11-15  
KiCad E.D.A. 8.0.9

Rev:  
Id: 16/26

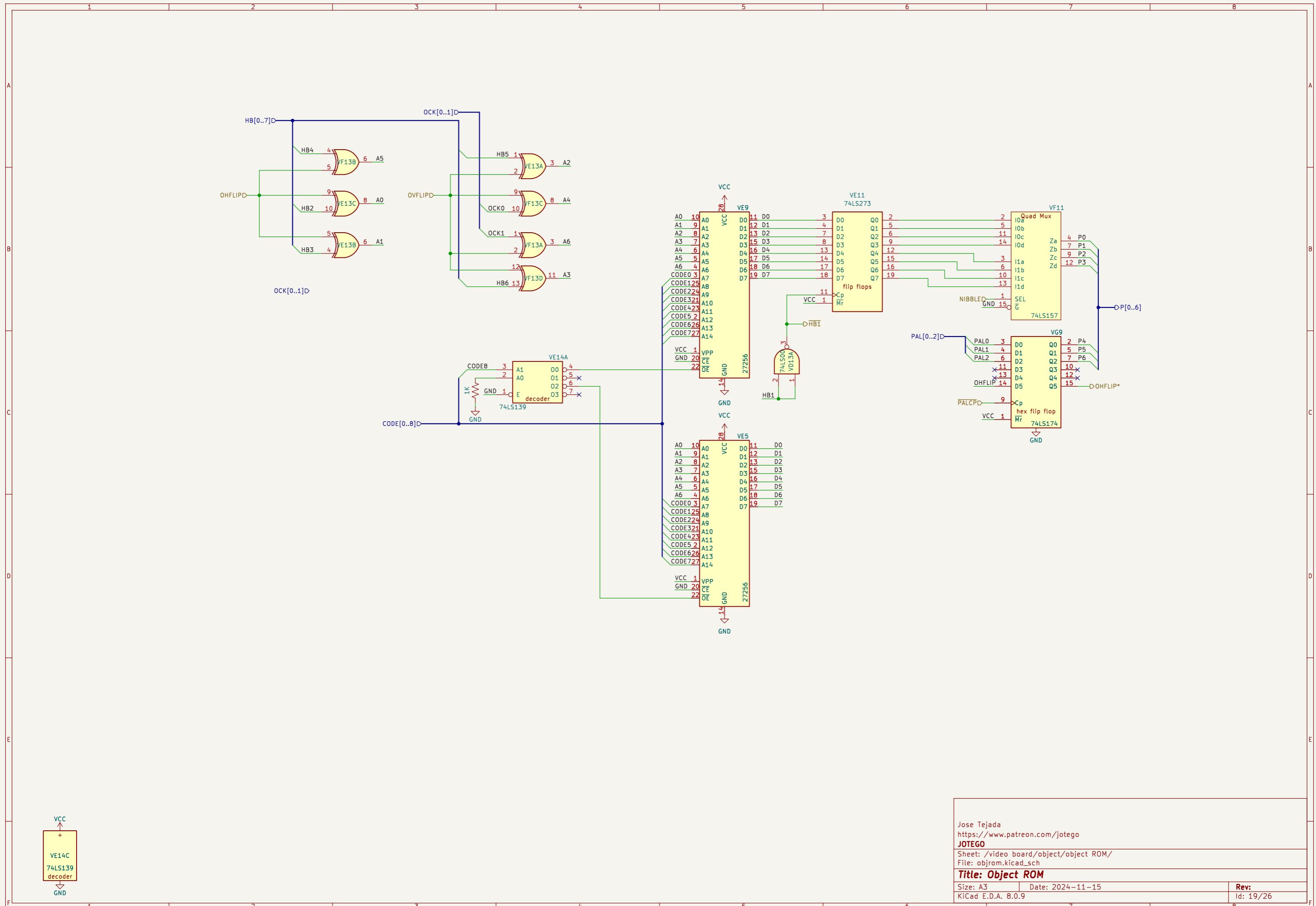
6

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:  
 Id: 17/26



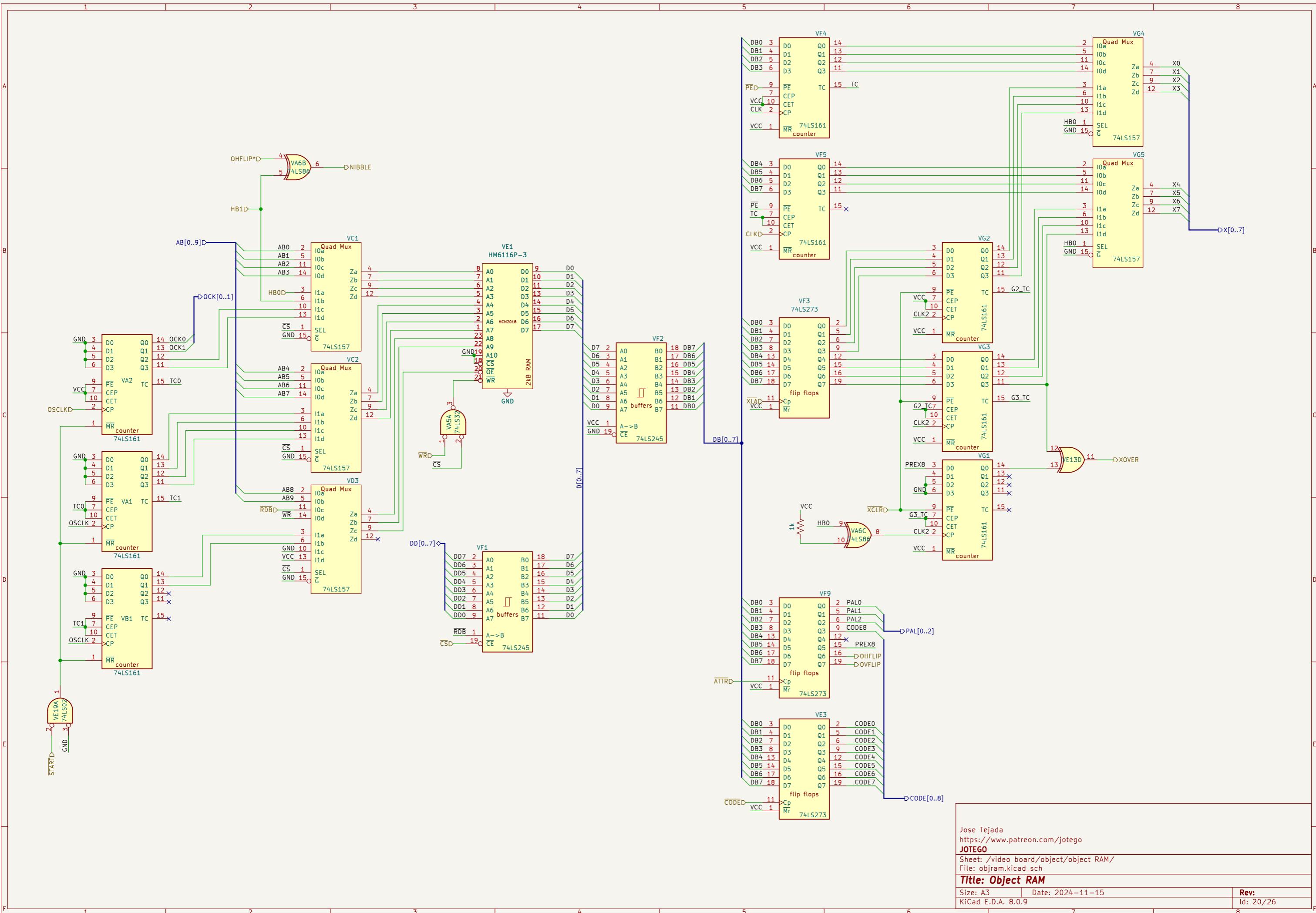
Jose Tejada  
<https://www.patreon.com/jotego>  
**JOTEGO**

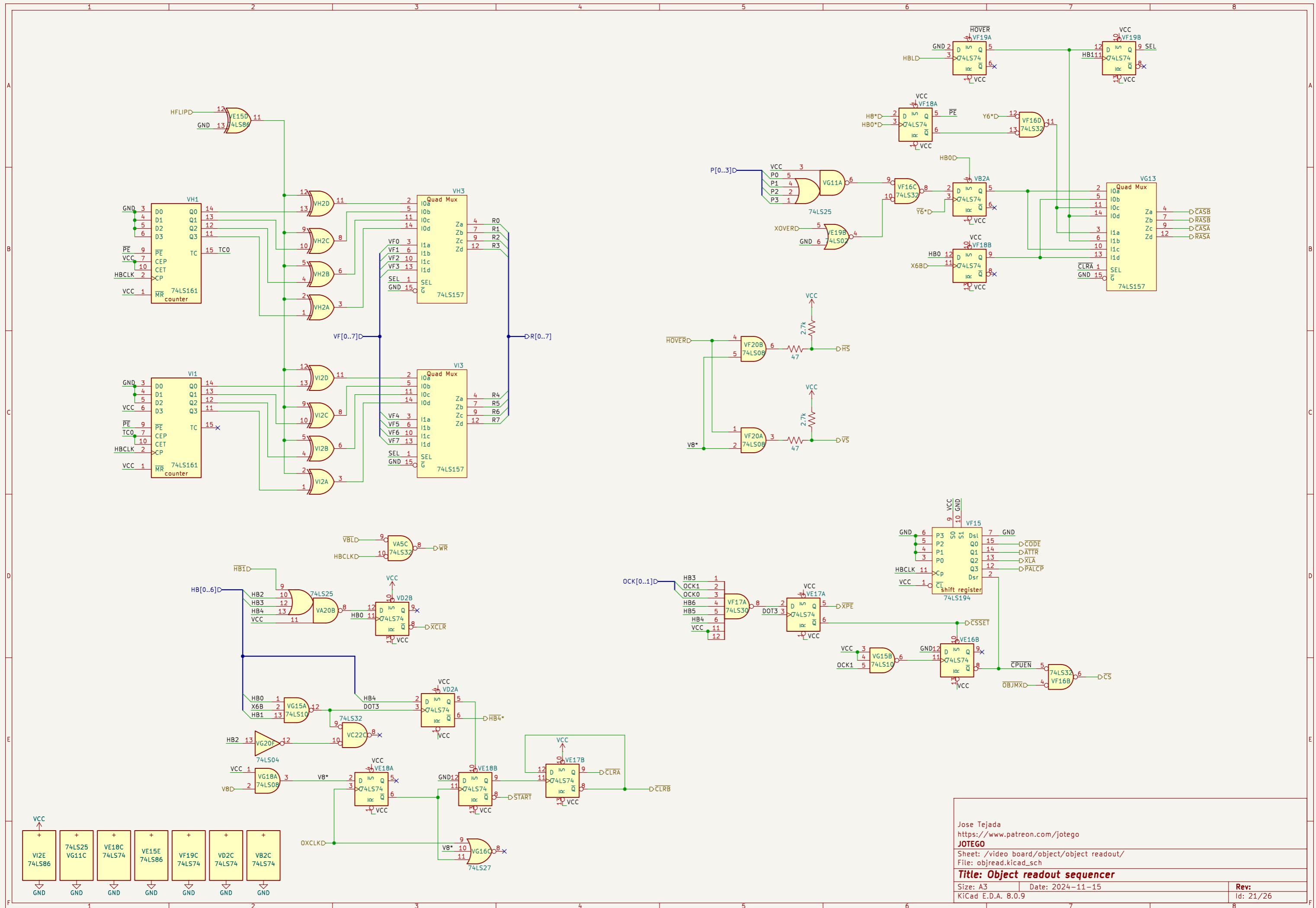
Sheet: /video board/object/object ROM/  
File: objrom.kicad\_sch

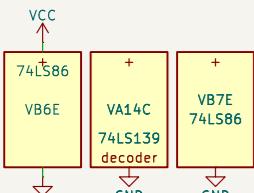
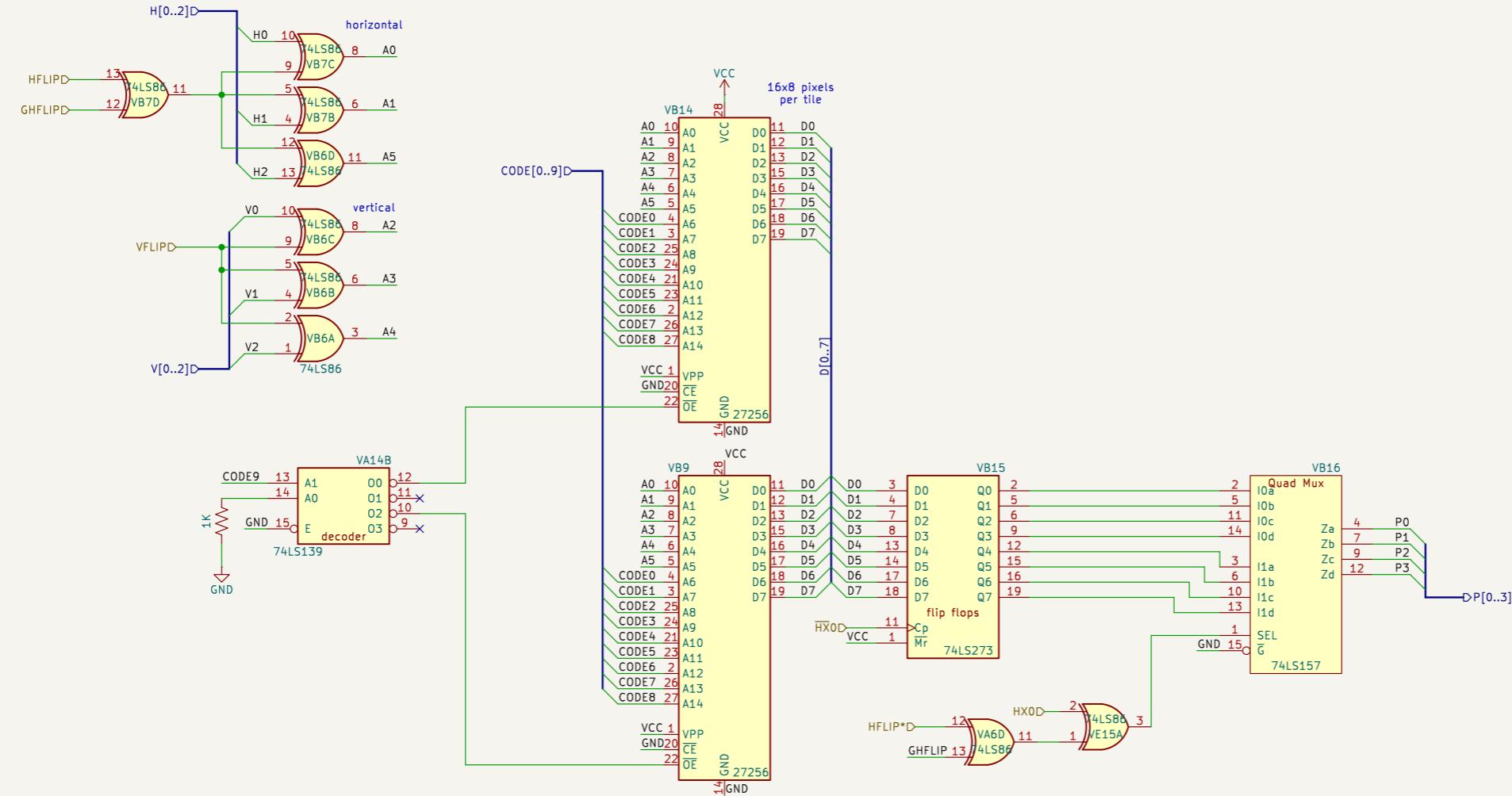
**Title: Object ROM**

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

Rev: 19/26







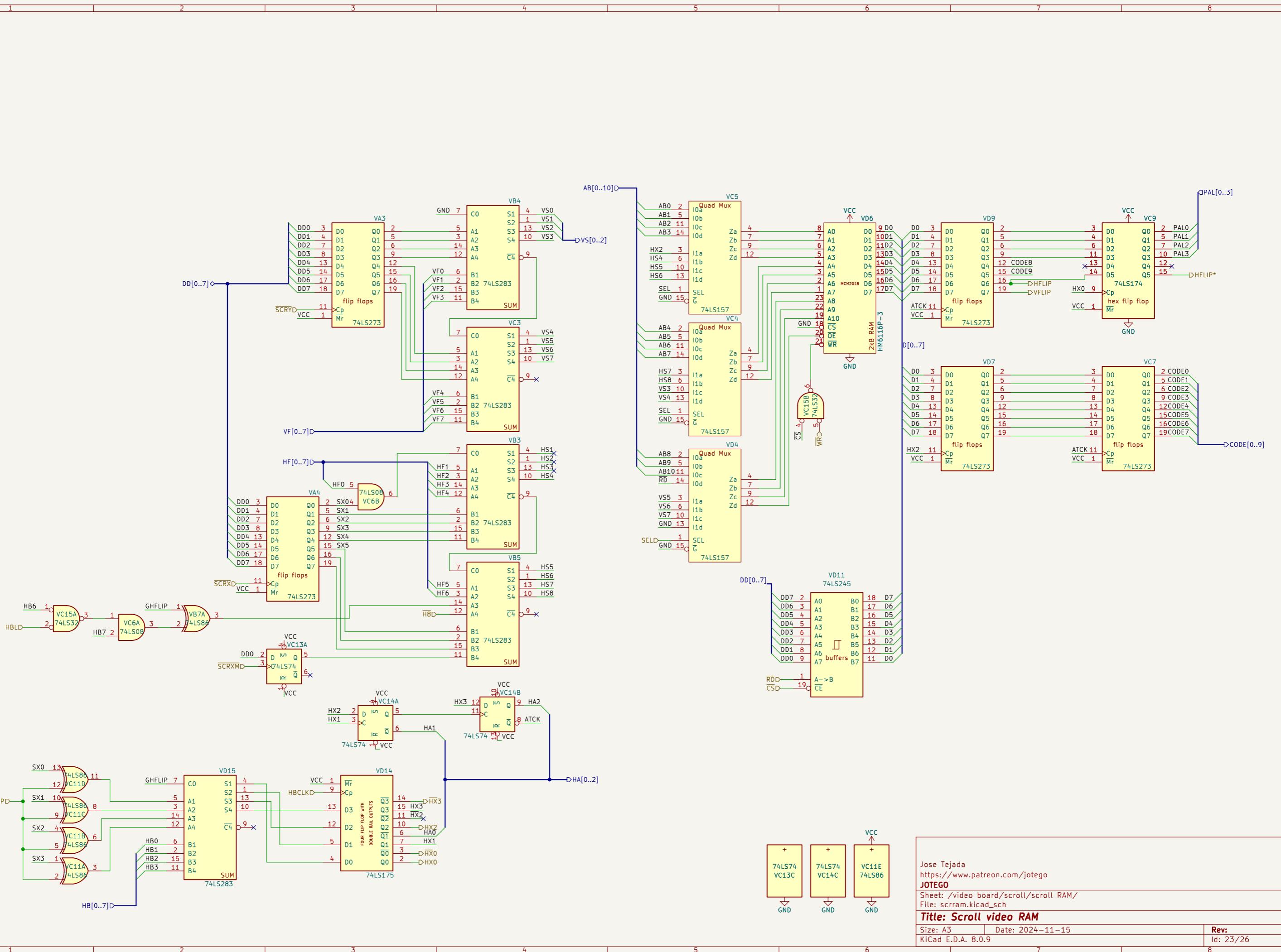
Jose Tejada  
<https://www.patreon.com/jotego>  
**JOTEGO**

Sheet: /video board/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>

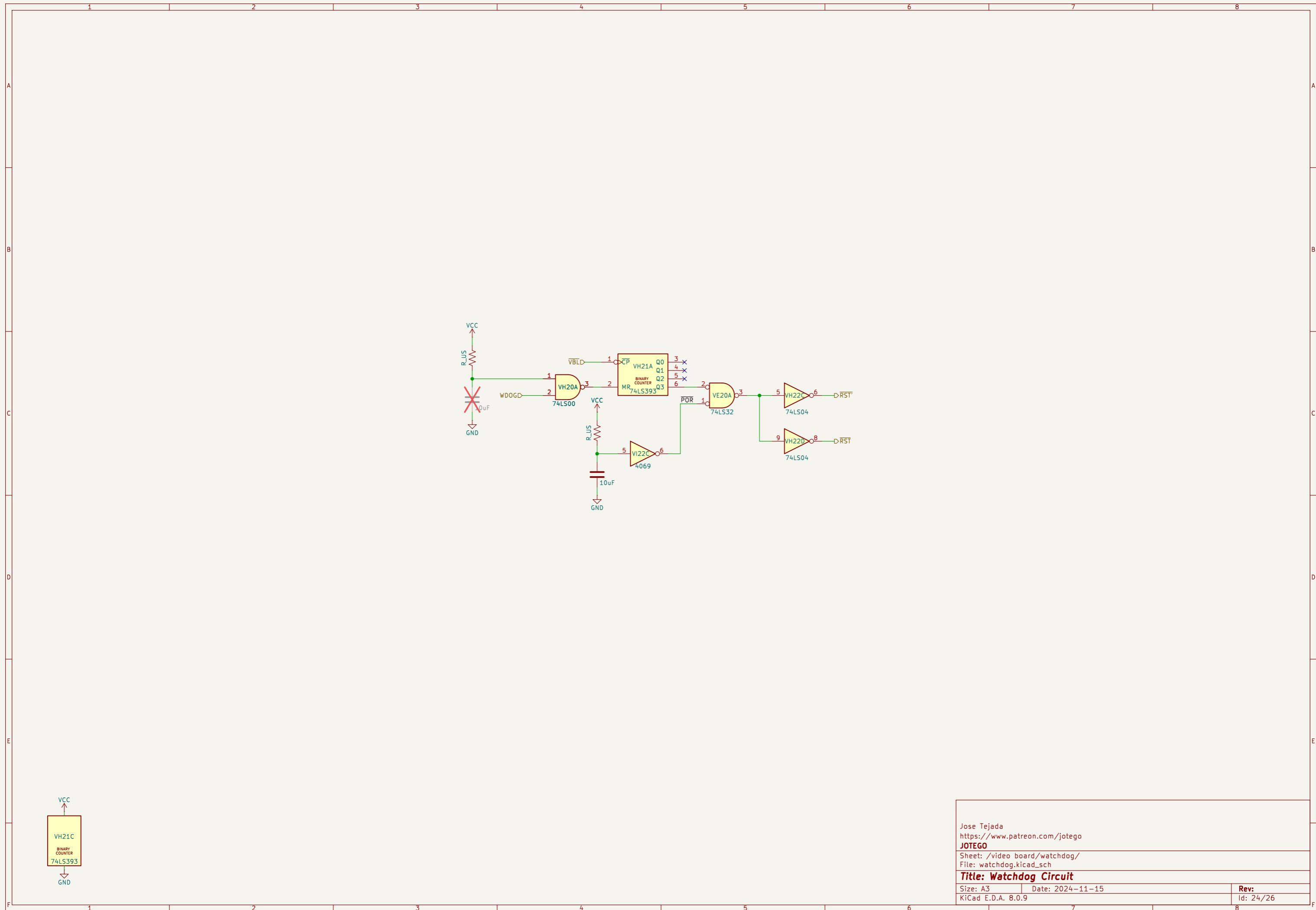
JOTEGO

Sheet: /video board/scroll/scroll RAM/  
File: scram.kicad\_sch

Title: Scroll video RAM

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

Rev: Id: 23/26



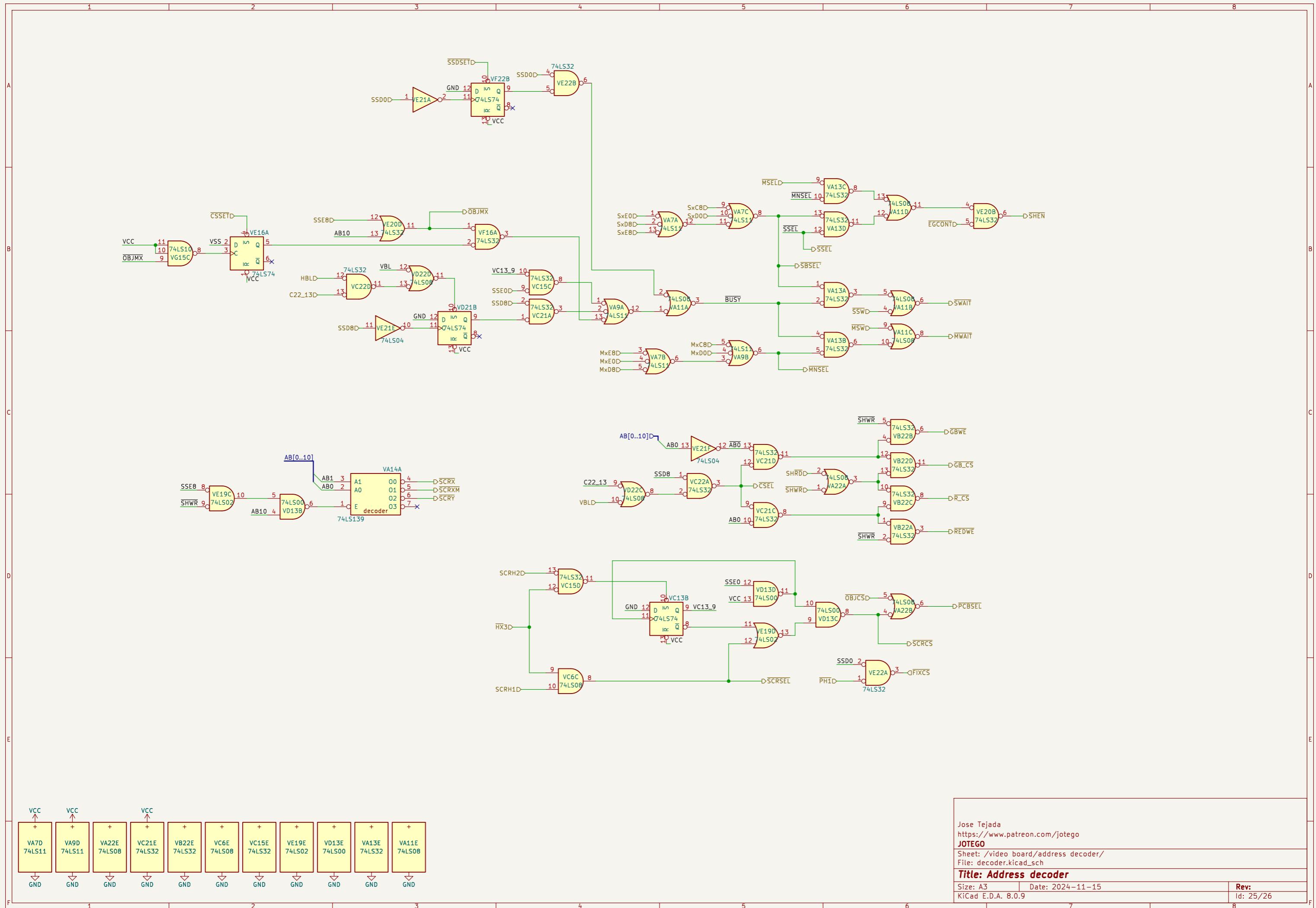
Jose Tejada  
<https://www.patreon.com/jotego>  
**JOTEGO**

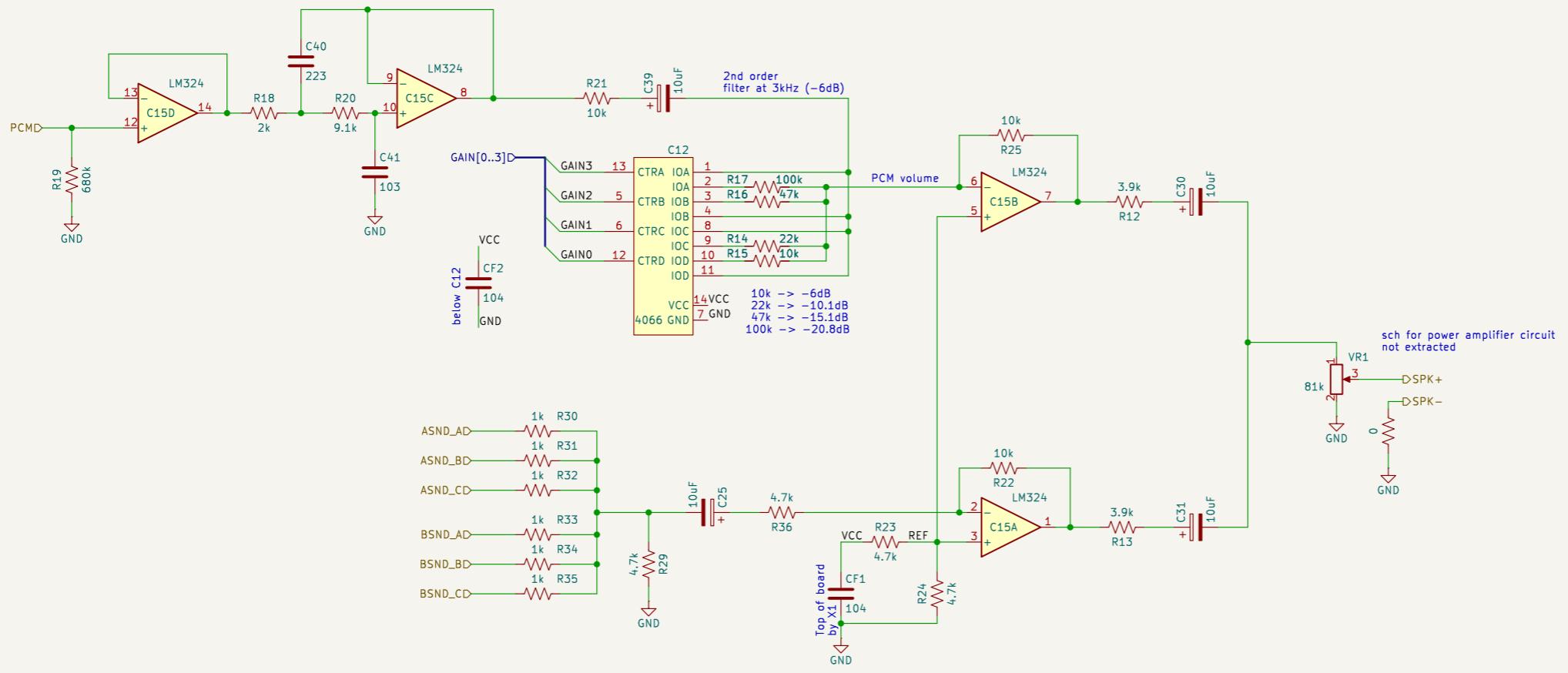
Sheet: /video board/watchdog/  
File: watchdog.kicad\_sch

**Title: Watchdog Circuit**

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

Rev: | Id: 24/26



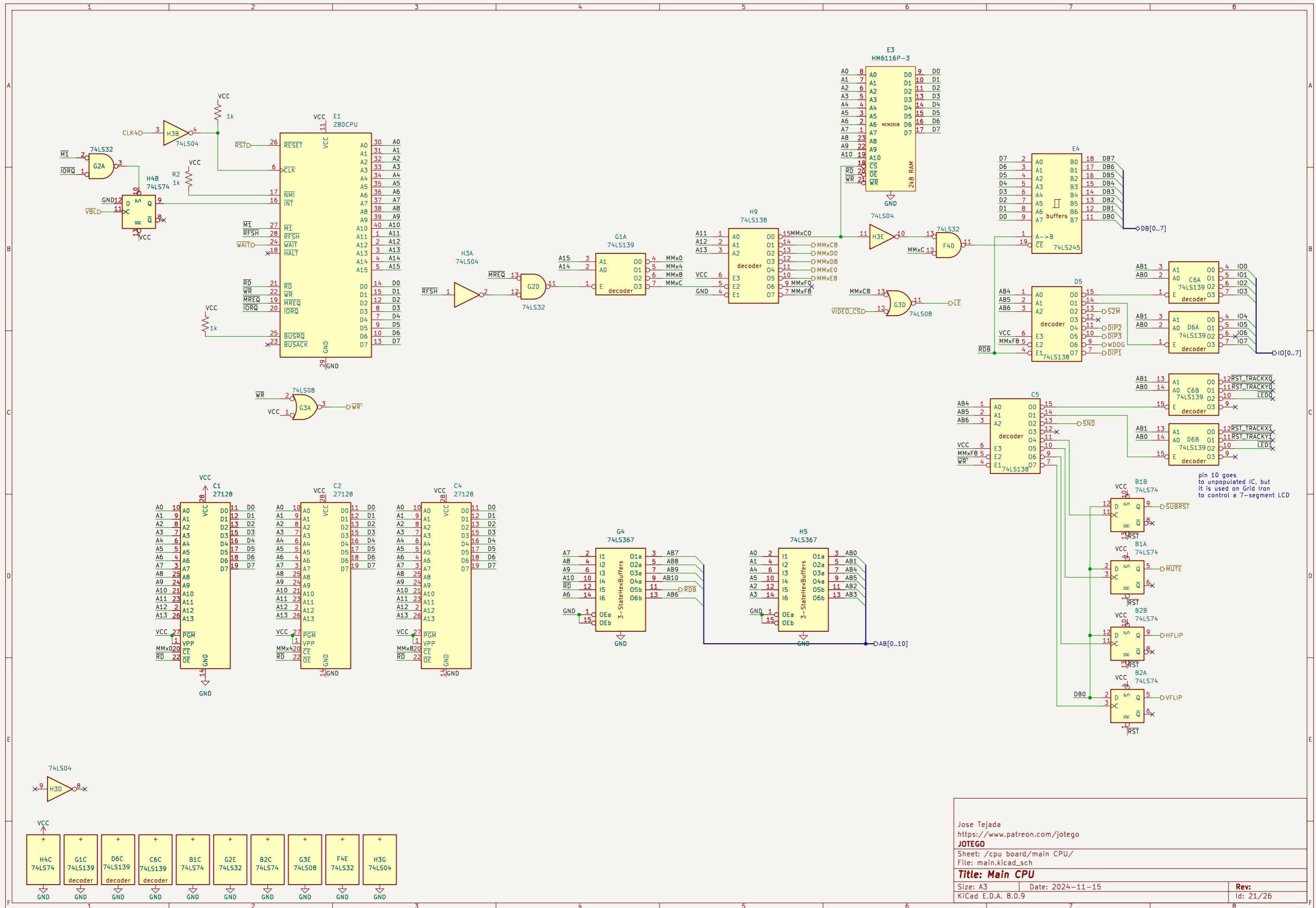


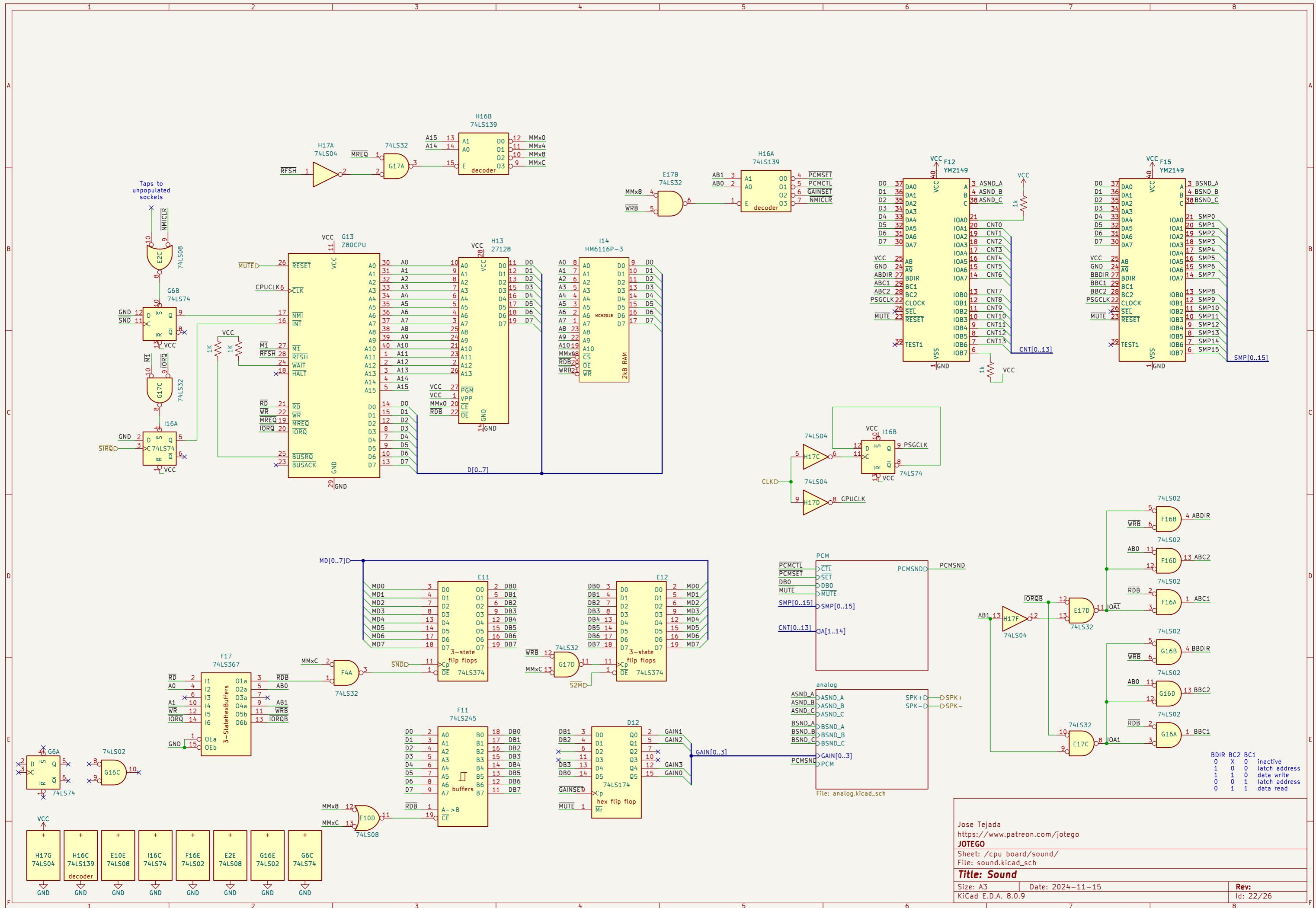
Passive component references  
when shown, come from original PCB.  
The bootleg did not have  
references for passives.

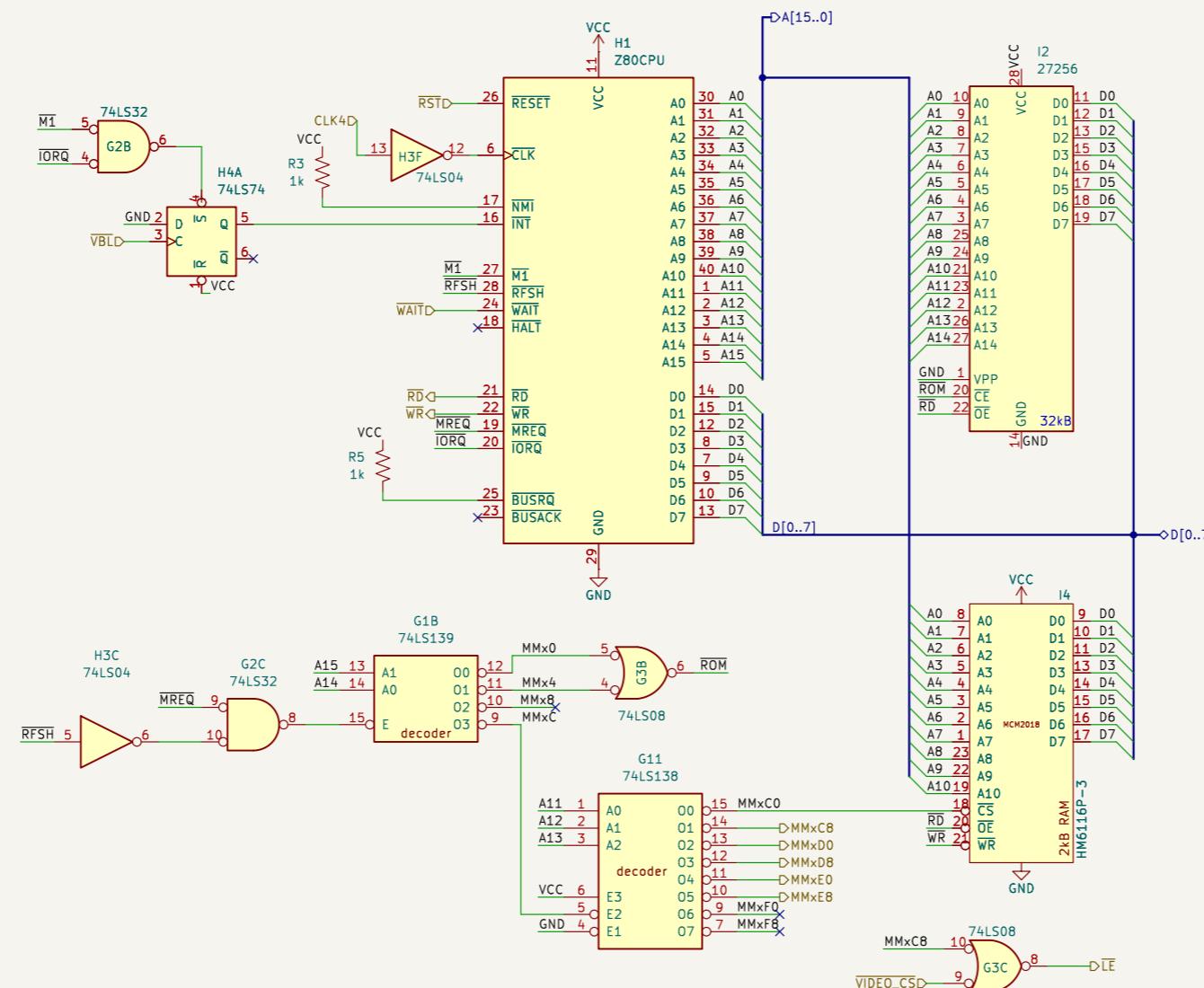
Device components follow bootleg references.  
The bootleg counts letters from left to right and numbers from bottom to top.  
The original counts numbers left to right and letters bottom to top.



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:  
Id: 26/26







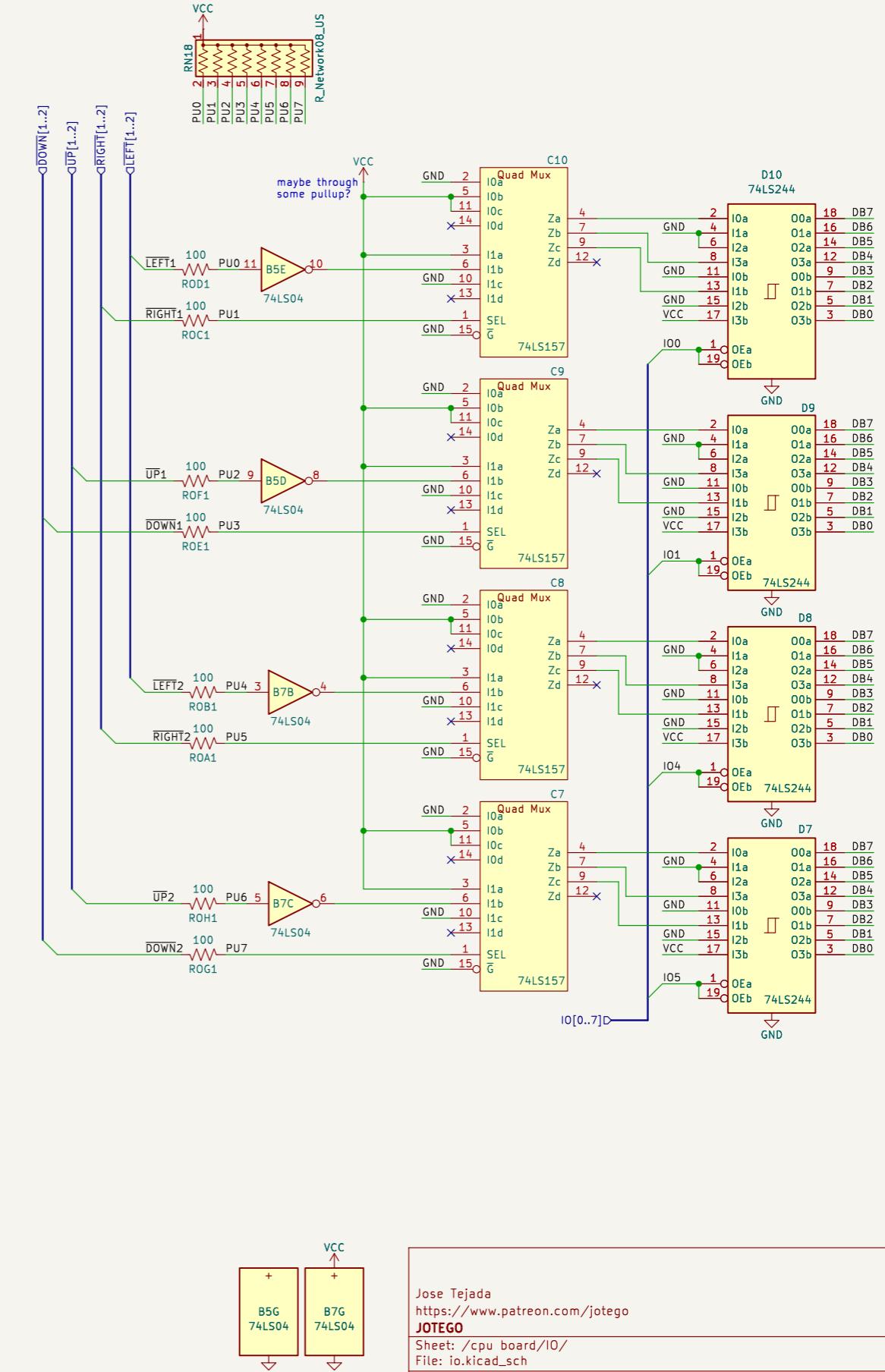
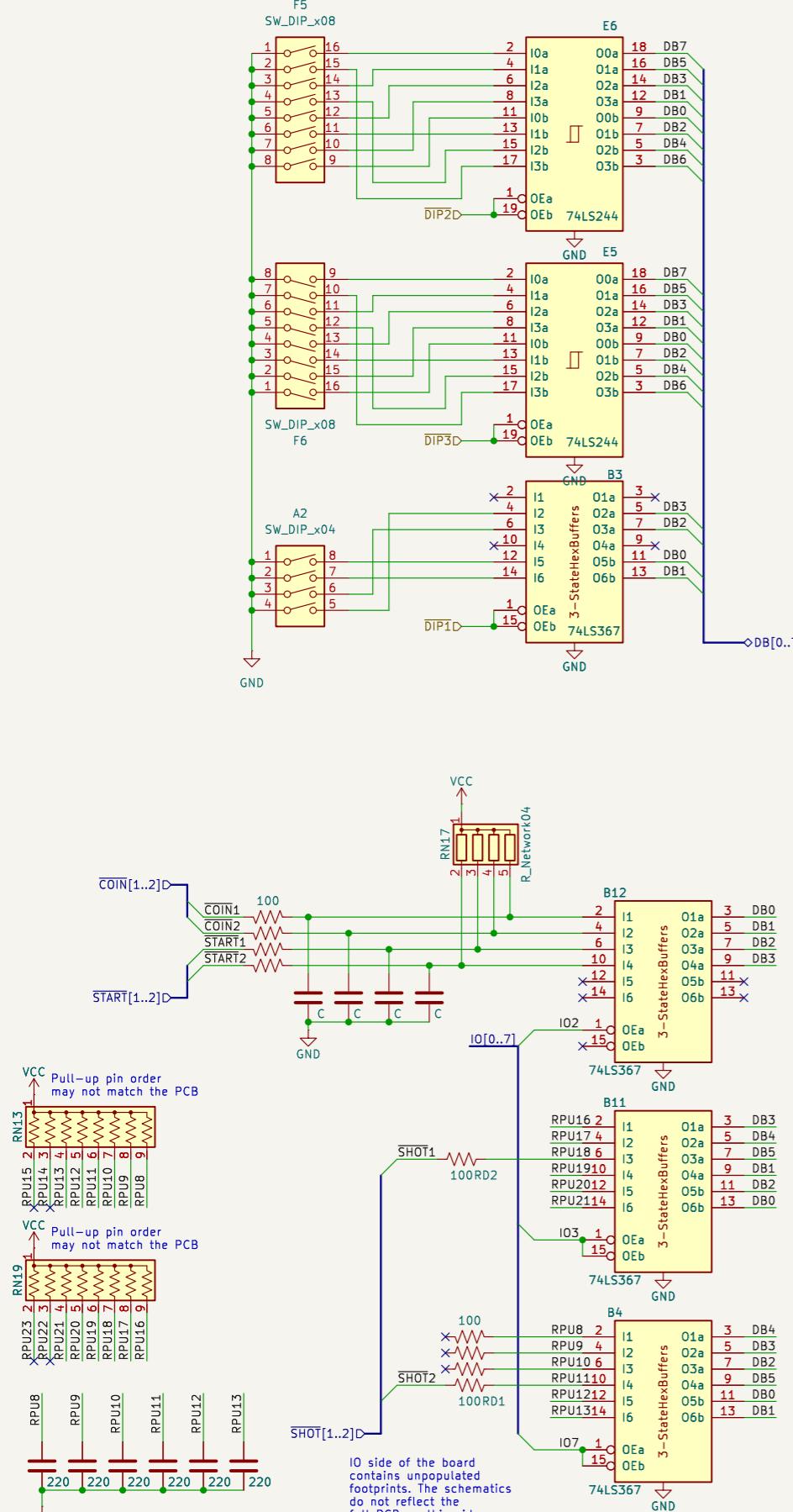
Jose Tejada  
<https://www.patreon.com/jotego>  
**JOTEGO**

Sheet: /cpu board/sub CPU/  
File: subcpu.kicad\_sch

**Title: Subordinate CPU**

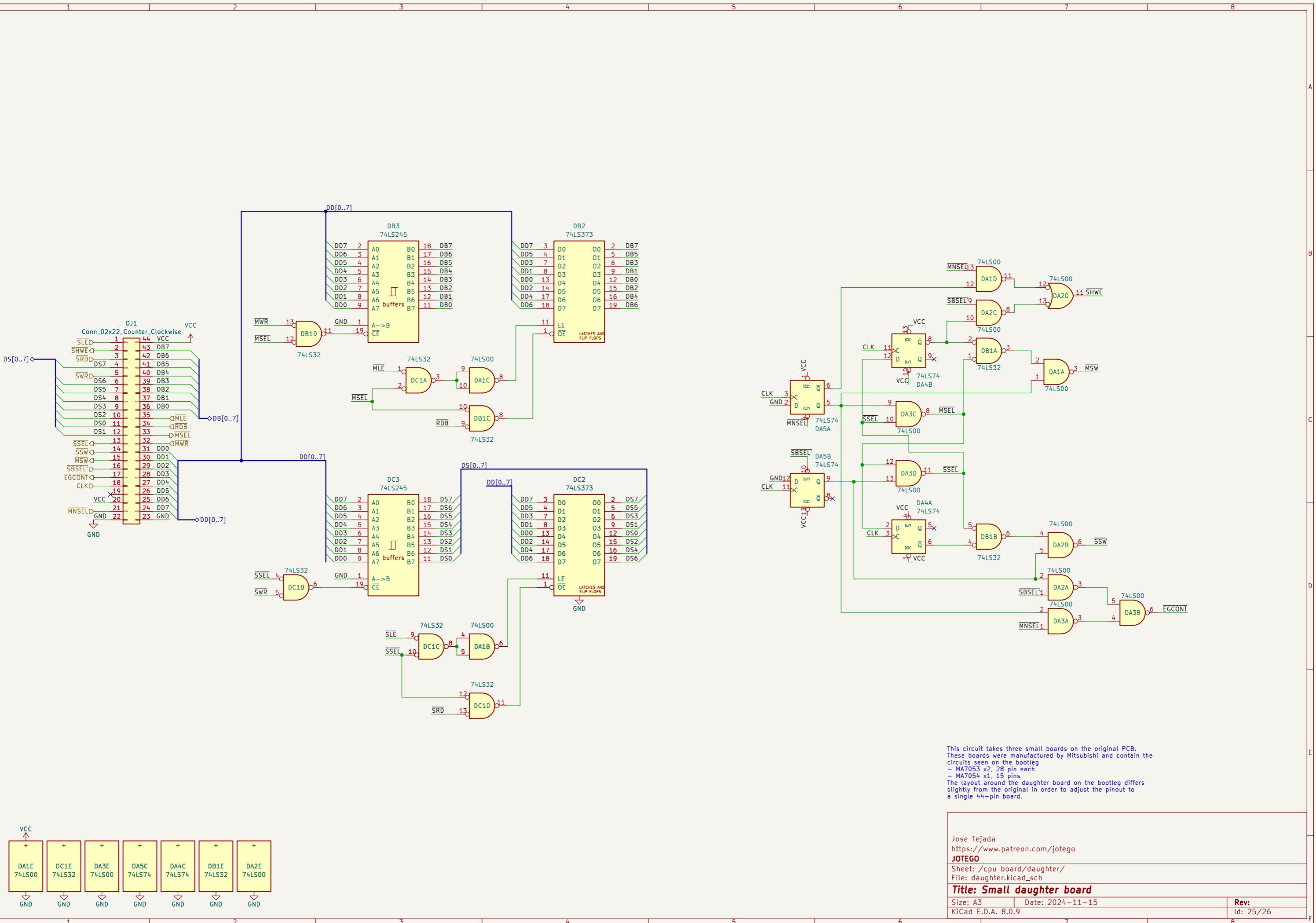
Size: A3 | Date: 2024-11-15  
KiCad E.D.A. 8.0.9

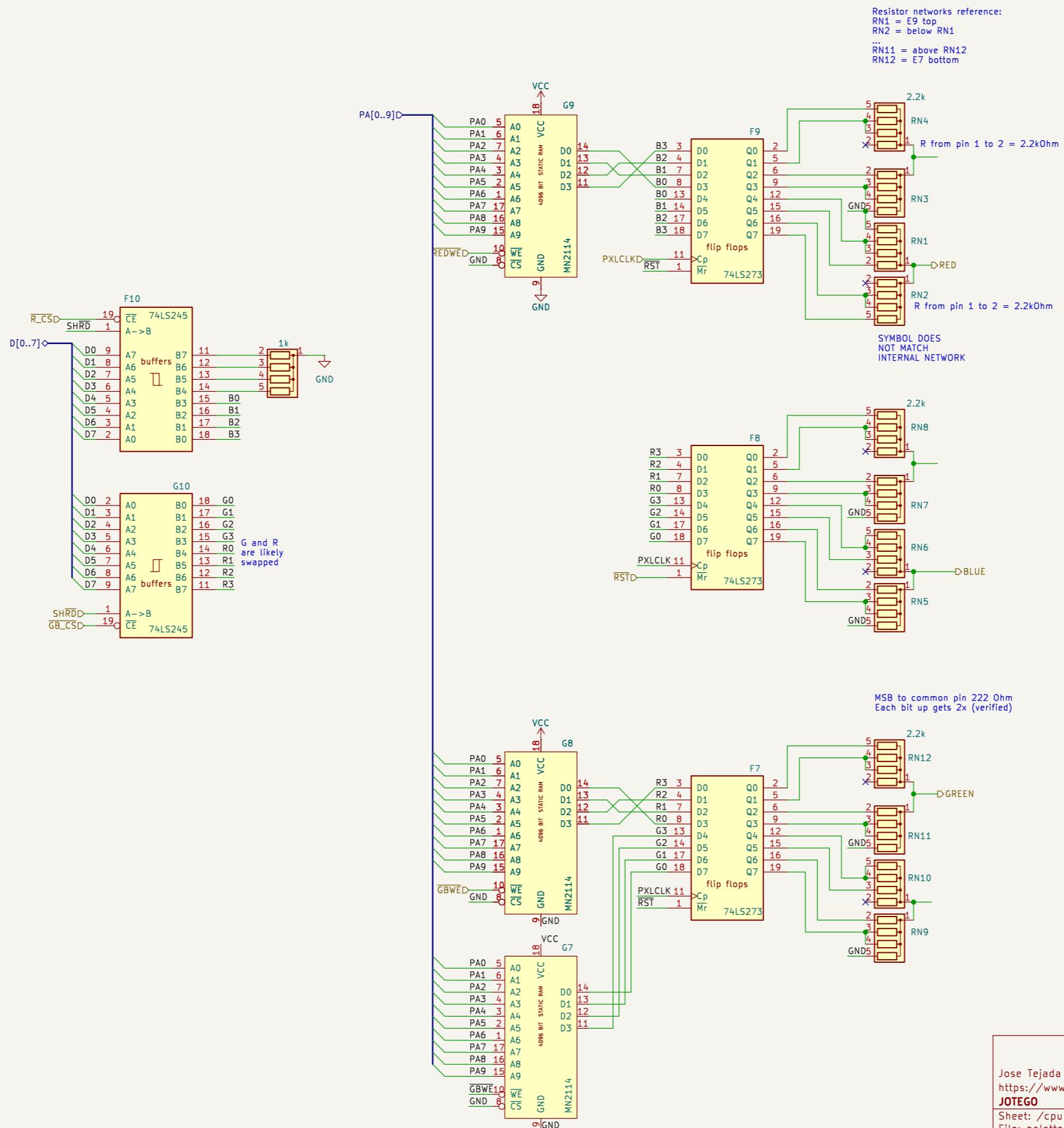
Rev:  
Id: 23/26



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

Sheet: /cpu\_board/10/  
File: io.kicad\_sch





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

R from pin 1 to 2 = 2.2kΩ

SYMBOL DOES  
NOT MATCH  
INTERNAL NETWORK

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

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:  
Id: #/26