

Ulf Skutnabba, twitter: @skutis77

Konami GX945

Sheet: /Shared RAM/

File: shram.kicad_sch

Title: Gradius 3

Size: A3 Date: 2024-04-11

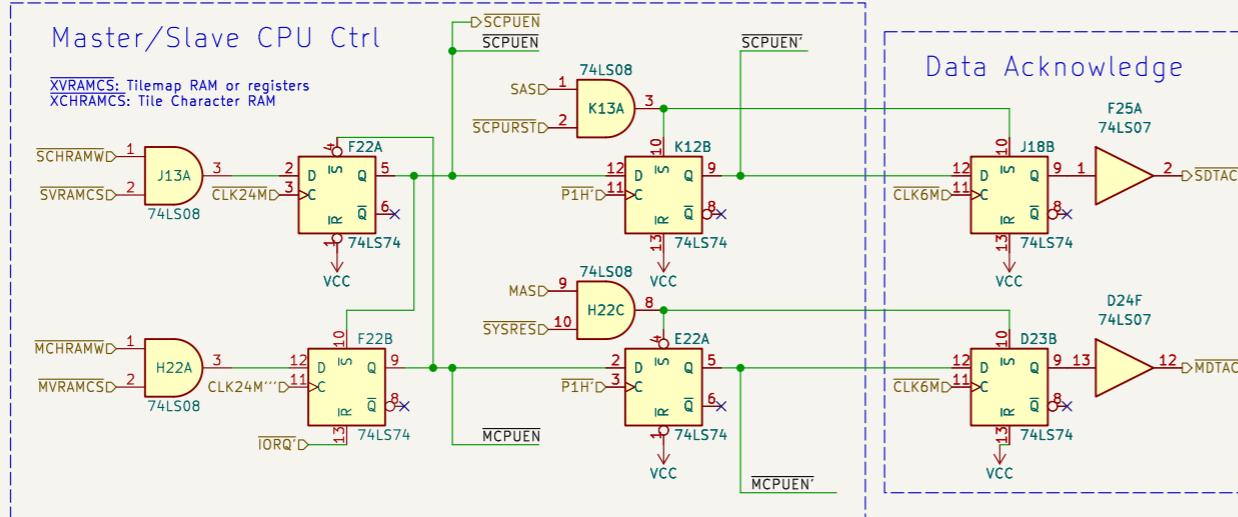
KiCad E.D.A. 8.0.5

Rev:

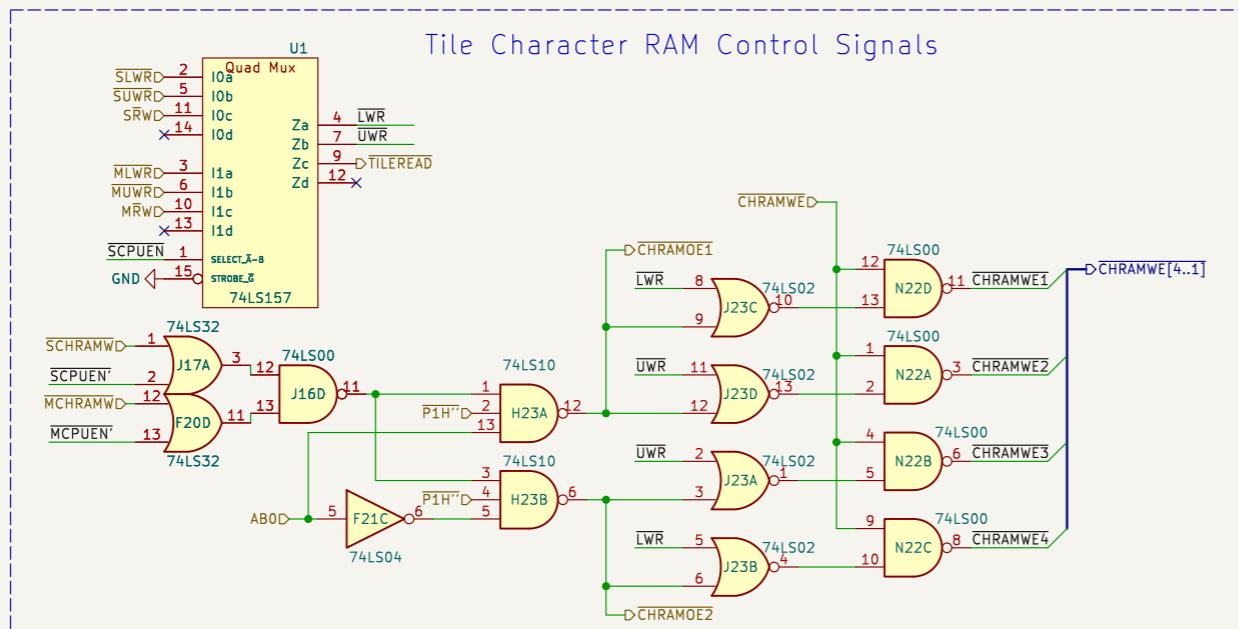
Id: 4/12

1 2 3 4 5 6 7 8

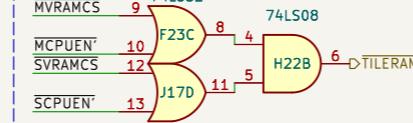
A



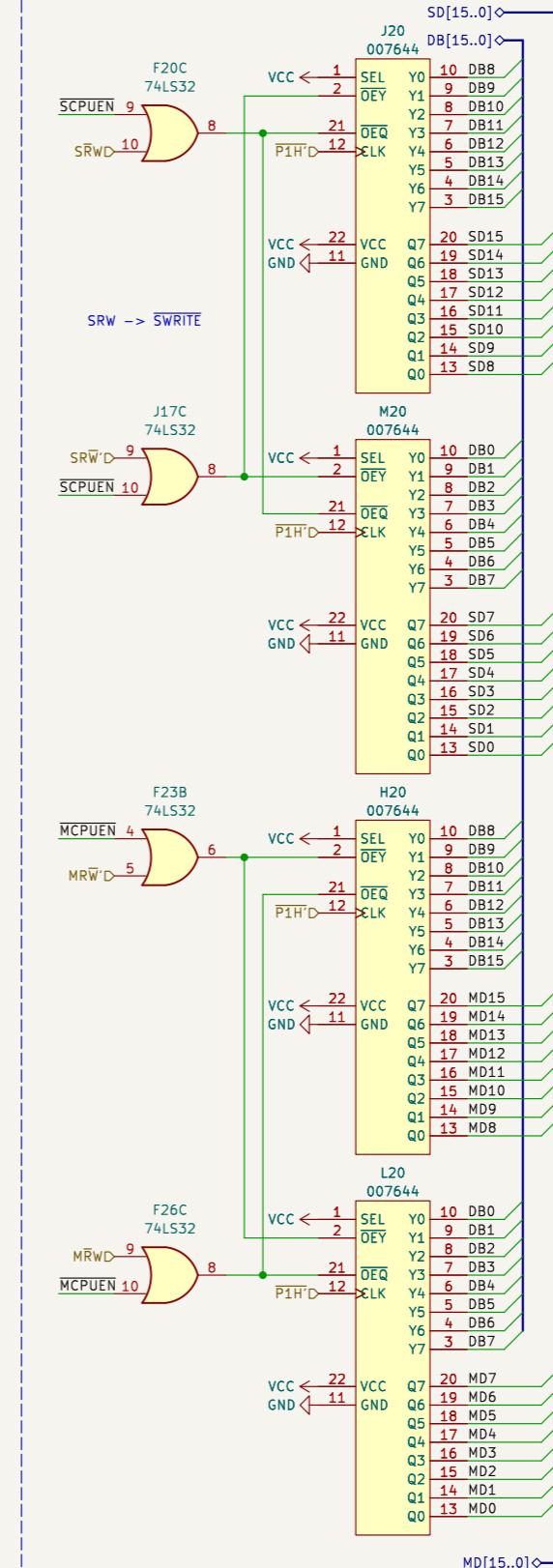
Data Acknowledge



Tile RAM and Registers



Tile Layers – Shared Data Bus



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Sheet: /Tile Logic/

File: tile_logic.kicad_sch

Title: Gradius 3

Size: A3 Date: 2024-04-11

KiCad E.D.A. 8.0.5

Rev:

Id: 5/12

B

B

C

C

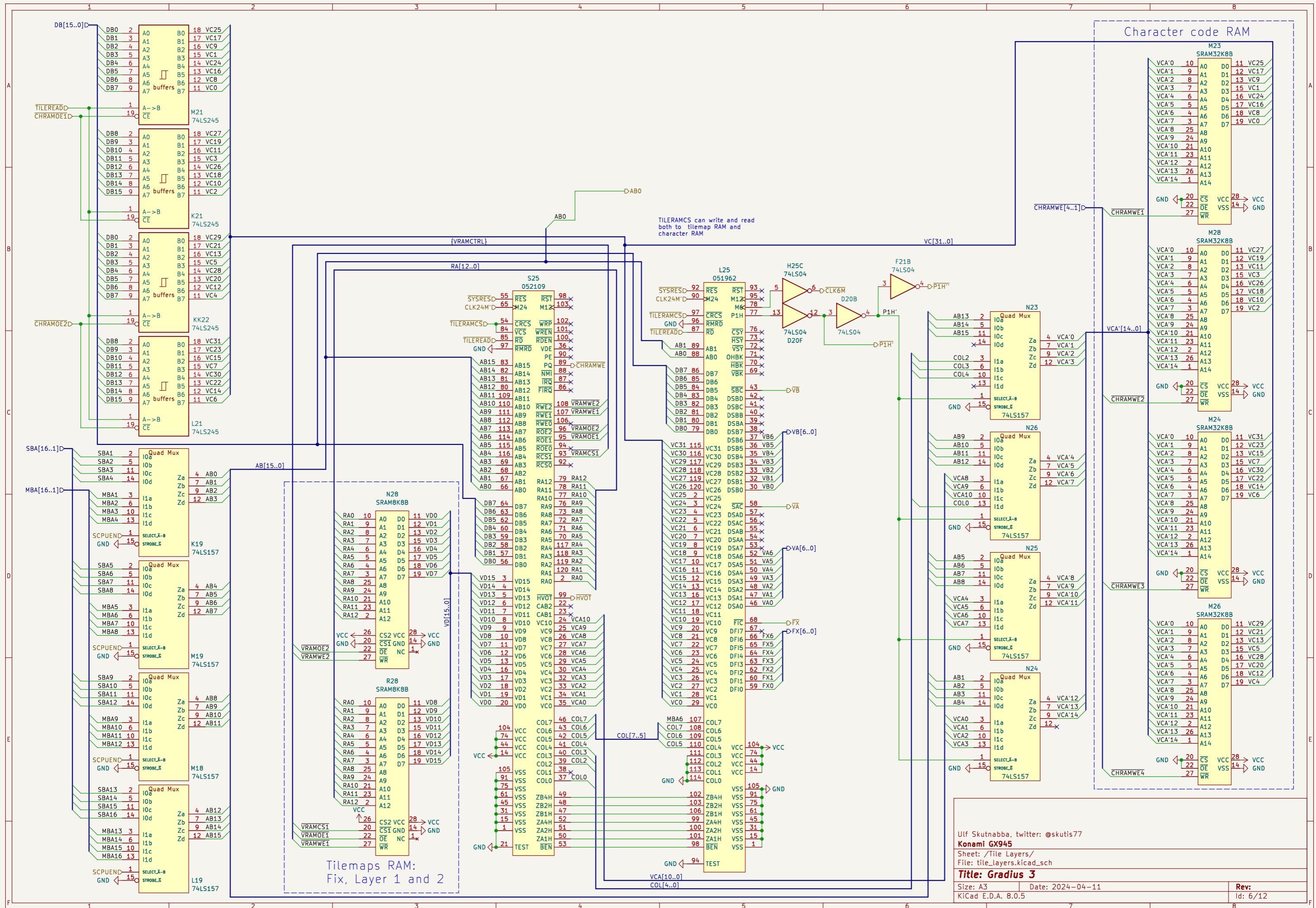
D

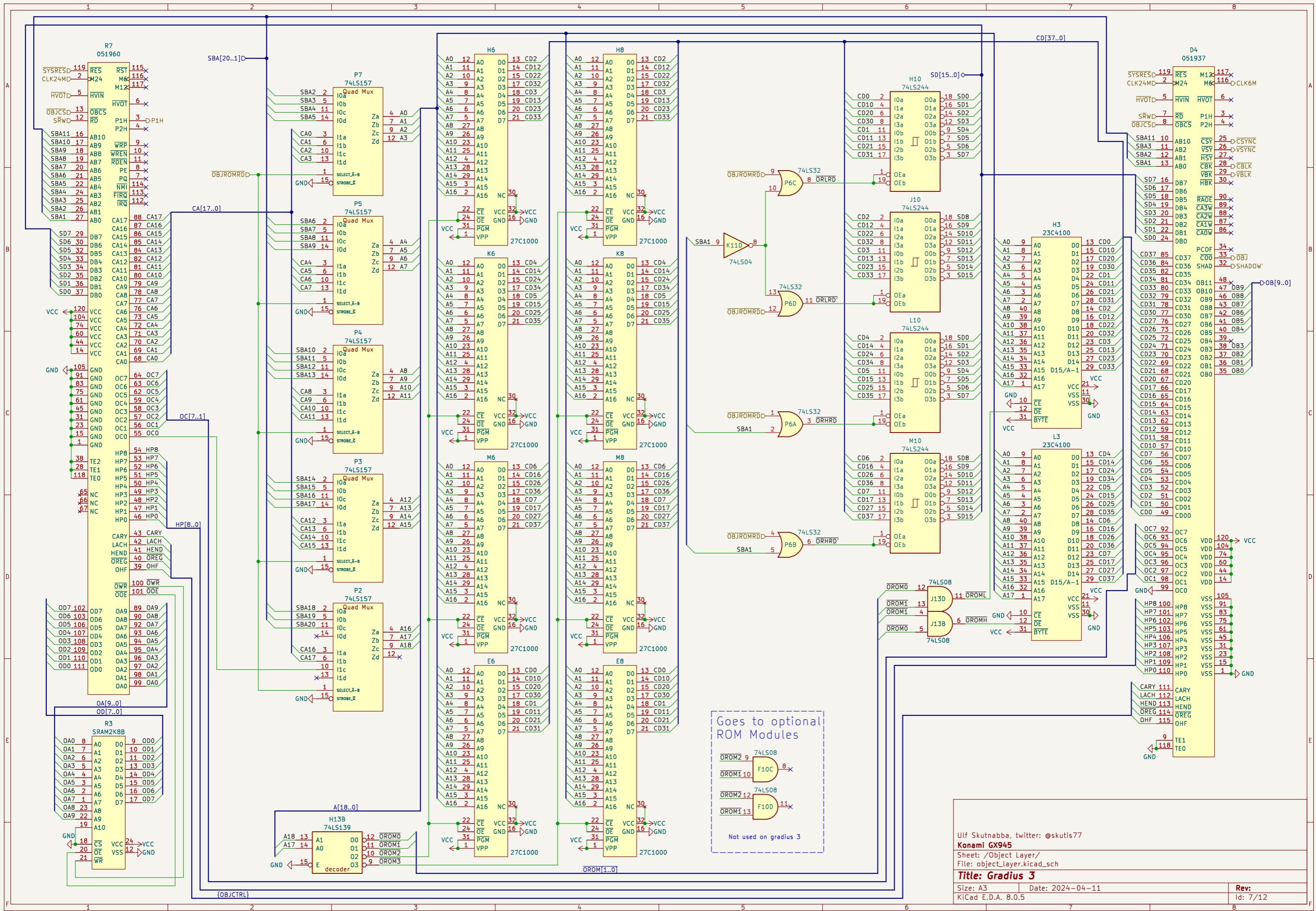
D

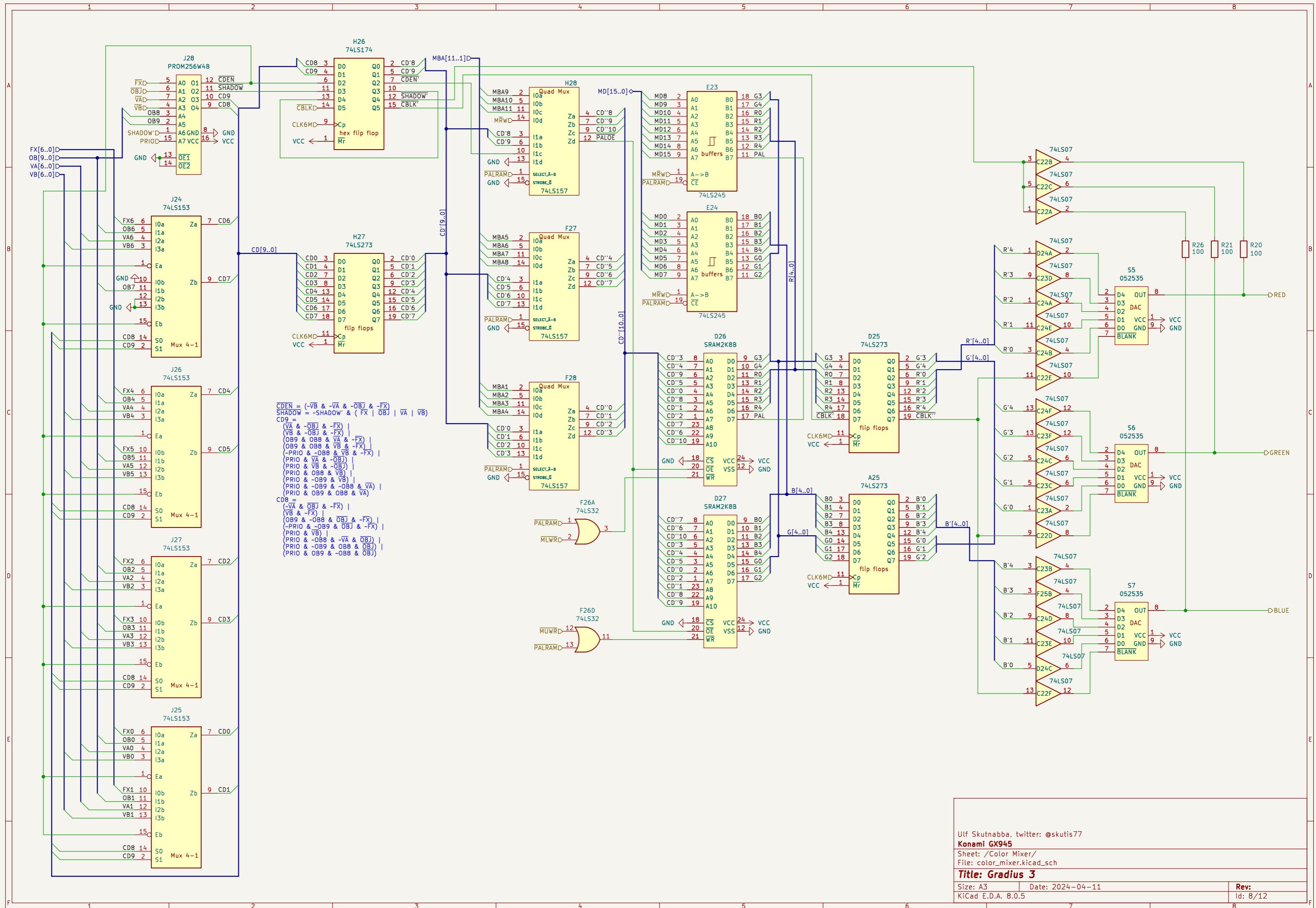
E

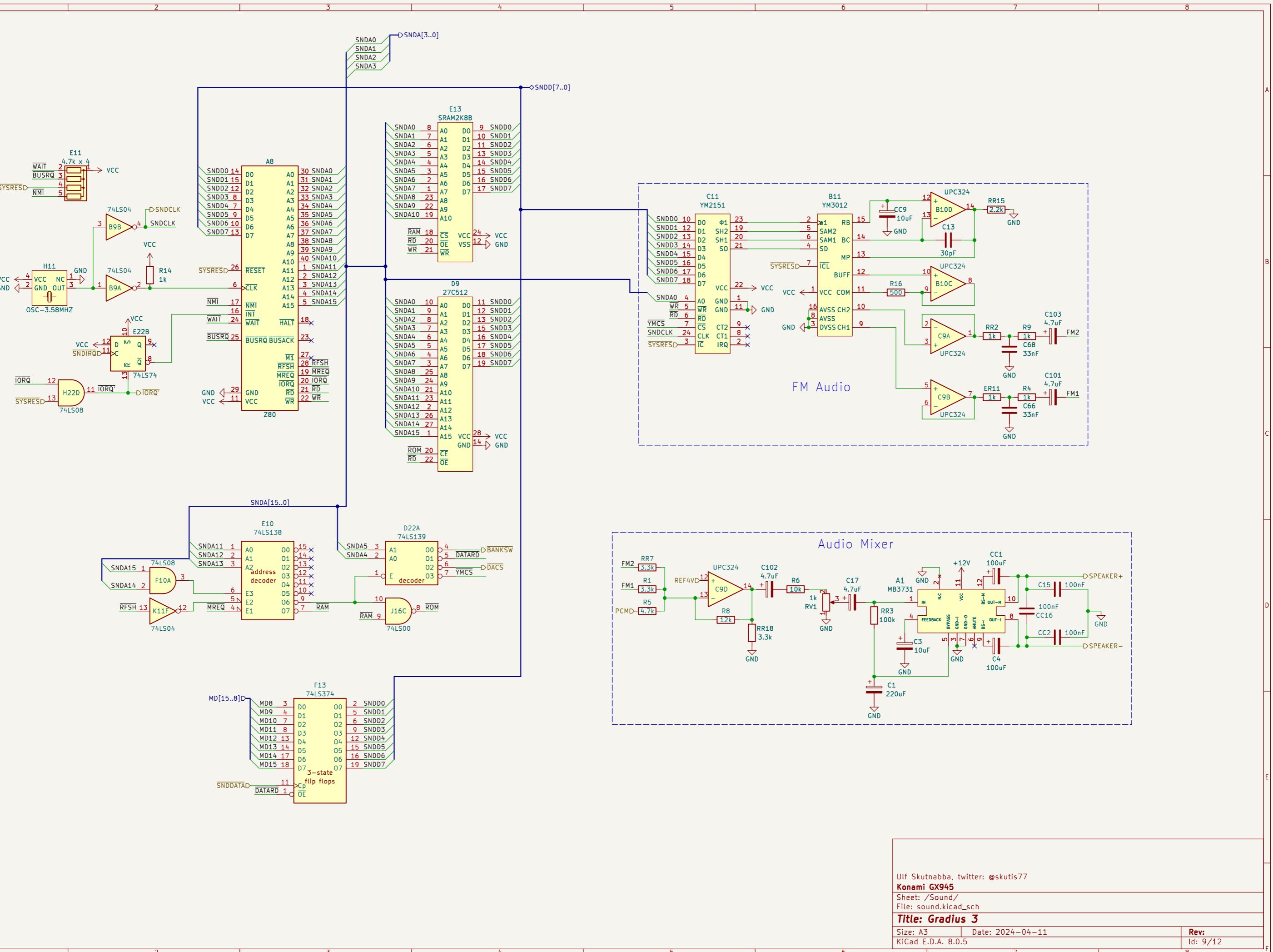
E

1 2 3 4 5 6 7 8

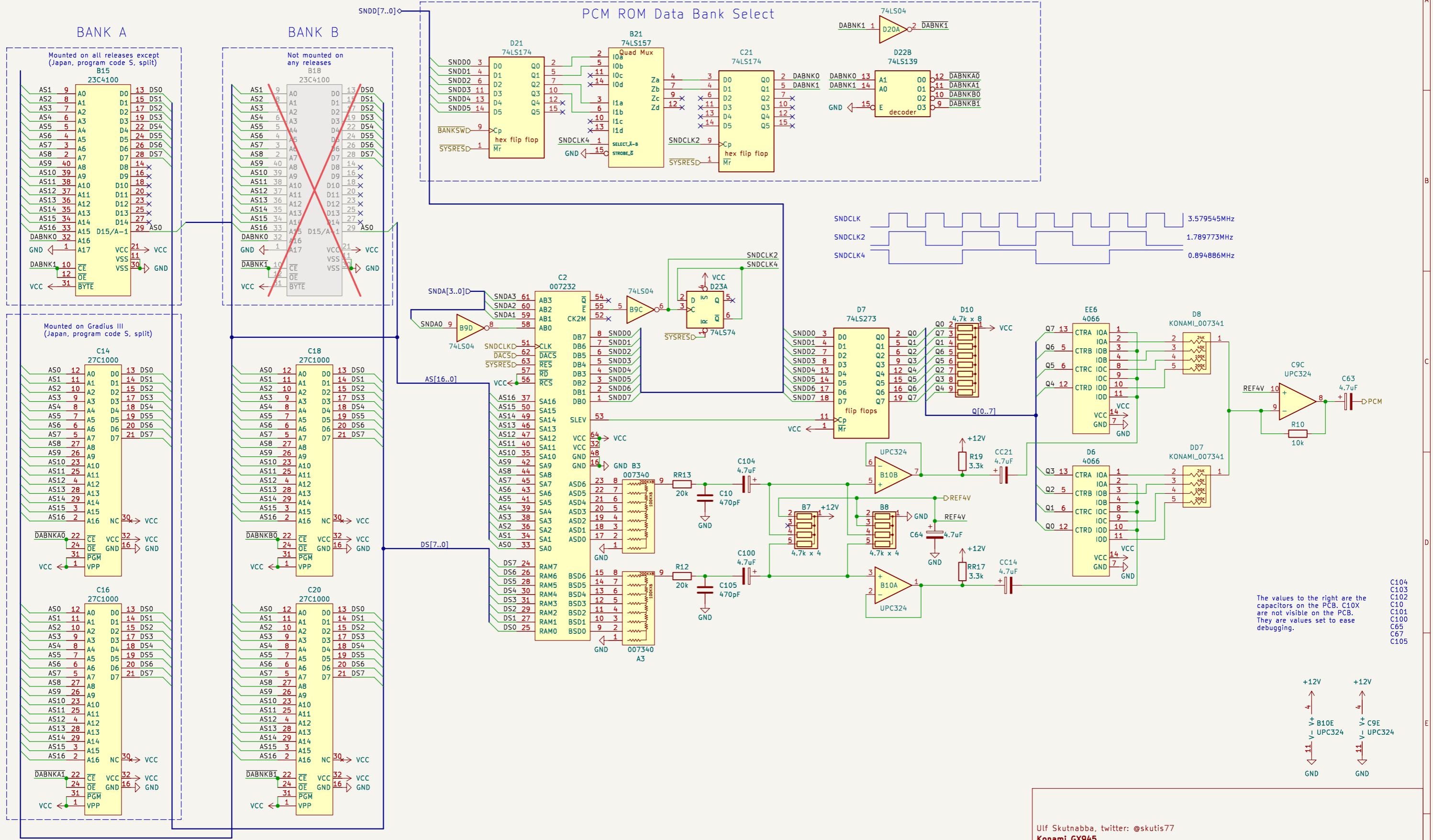








B15 and B18 do not follow the standard Mask ROM behaviour. The BYTE mode select must be selected from factory and pin 31 is probably not connected.



The values to the right are the capacitors on the PCB. C10X are not visible on the PCB. They are values set to ease debugging.

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Sheet: /PCM/
File: pcm.kicad_sch

Title: pcm:rcedd_sch

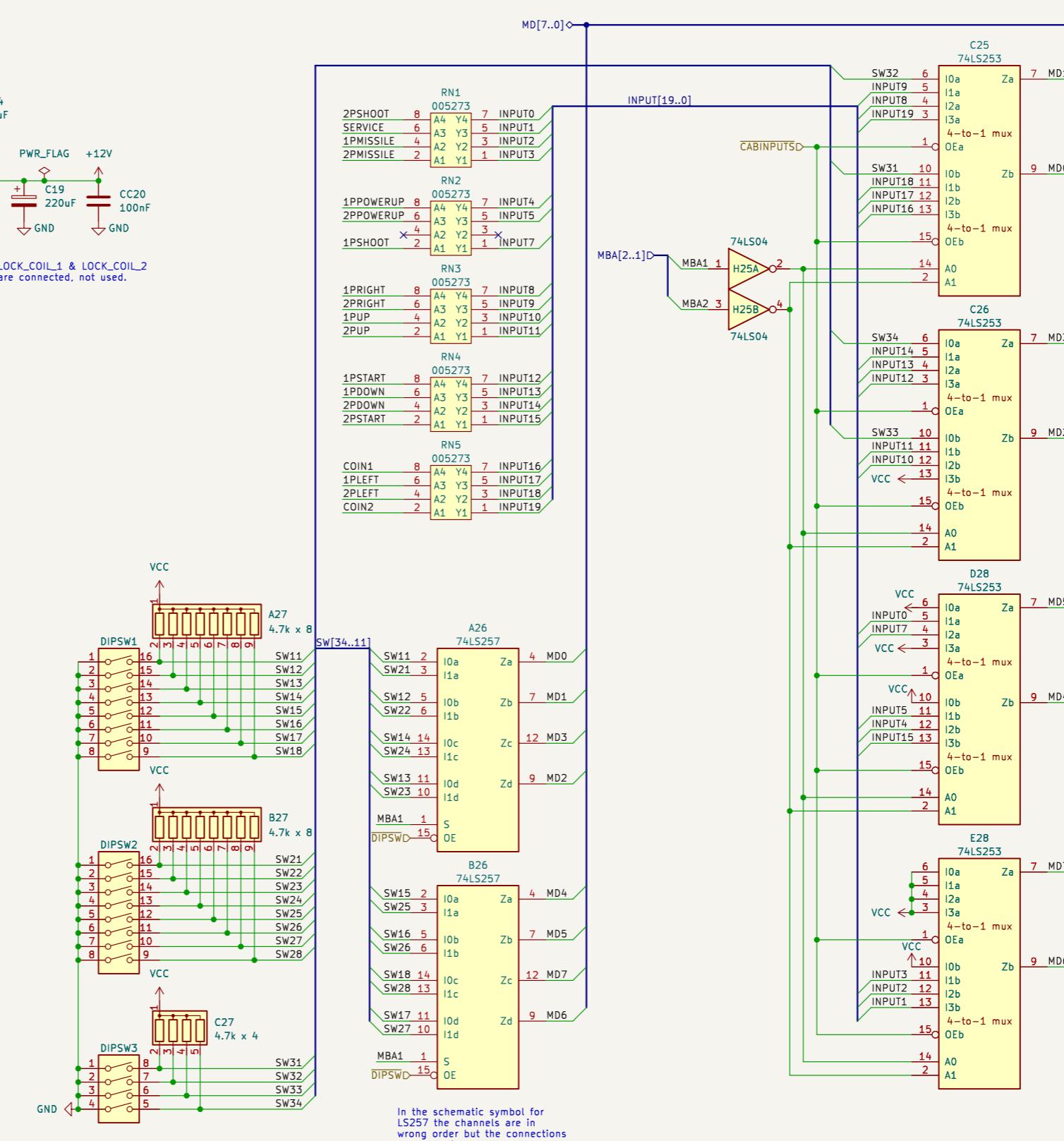
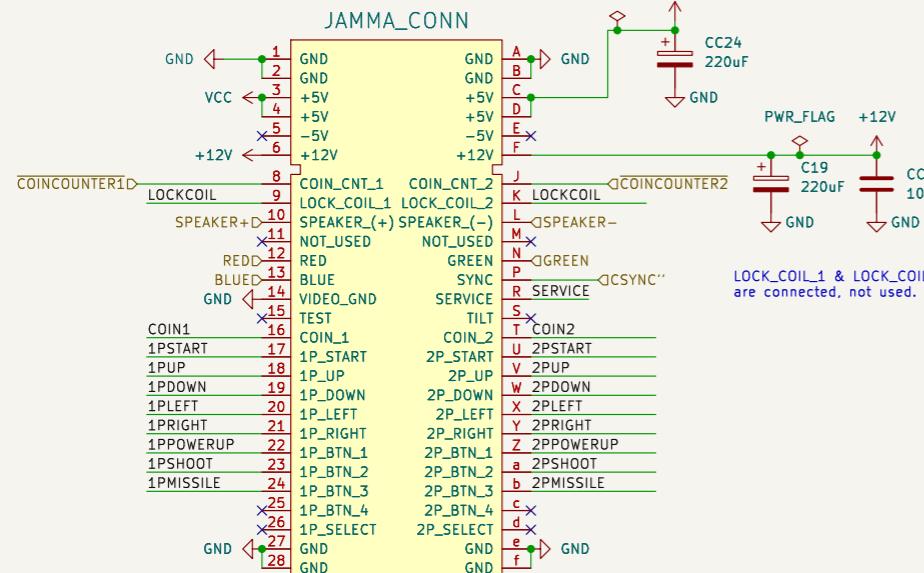
Size: A3 Date:

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7

3

A



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Sheet: /10/

File: io.kicad_sch

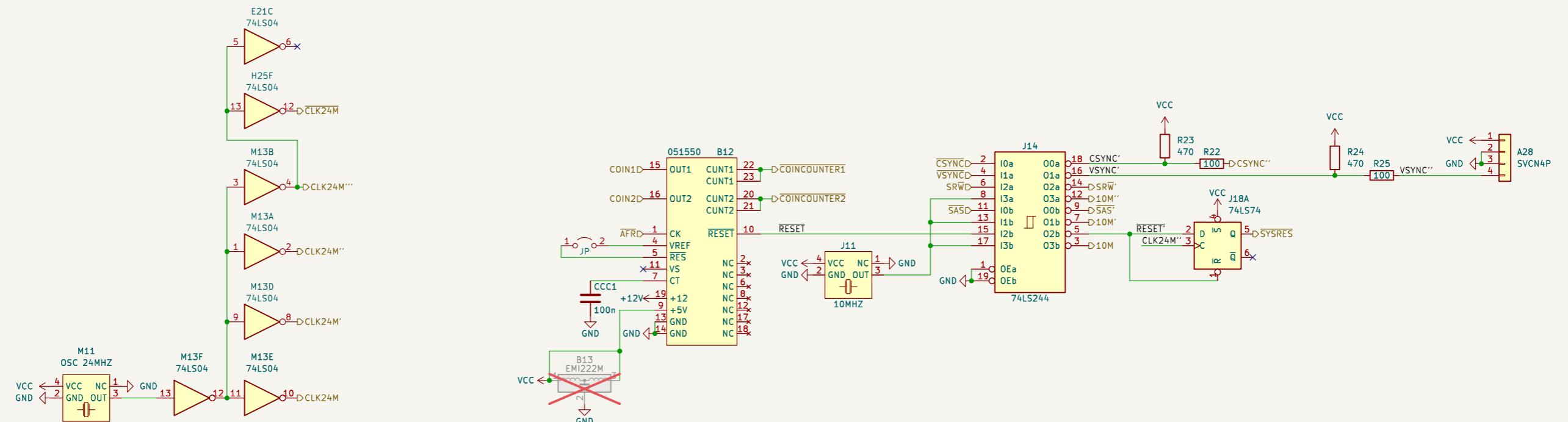
Title: Gradius 3

Size: A3 Date: 2024-04-11

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Rev:

Id: 11/12



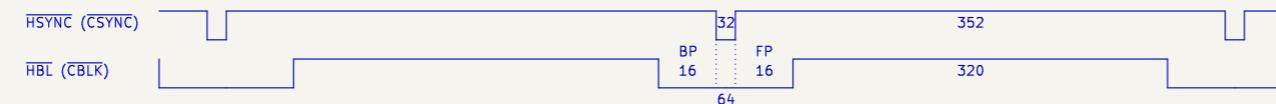
Horizontal and vertical synch timing diagrams

The pixel clock is derived from the 24MHz oscillator.
Pixel clock OVCK: $f = 24\text{MHz} / 4 = 6\text{MHz}$

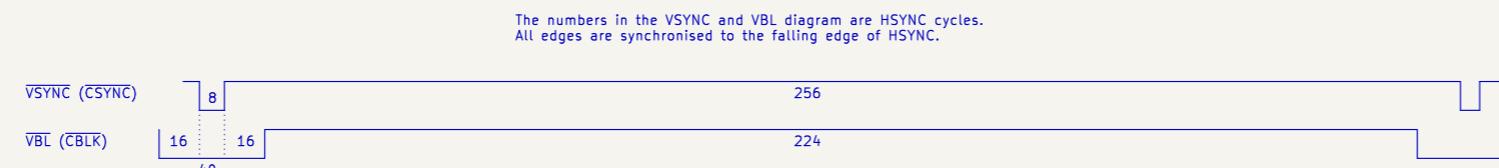
The numbers in the HSYNC and HBL diagram are pixel clock cycles.
All edges are synchronised to the rising edge of the pixel clock.

The signals have been measured at the output of the
graphic chips.

If horizontal blanking is measured at the RGB DACs, the blanking
is delayed 2 pixel clocks relative to composite sync. This
gives BP = 14 and FP = 18.



HSYNC and HBL
Frequency $f = 6\text{MHz} / 384 = 15.625\text{kHz}$.
Period $T = 1/f = 64\text{us}$.



VSYNC and VBL:
Frequency $f = 15.625\text{kHz} / 264 = 59.1856\text{Hz}$
Period $T = 1/f = 1 / 59.1856\text{Hz} = 16.896\text{ms}$

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Sheet: /Misc/

File: misc.kicad_sch

Title: Gradius 3

Size: A3 Date: 2024-04-11

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Rev:

Id: 12/12