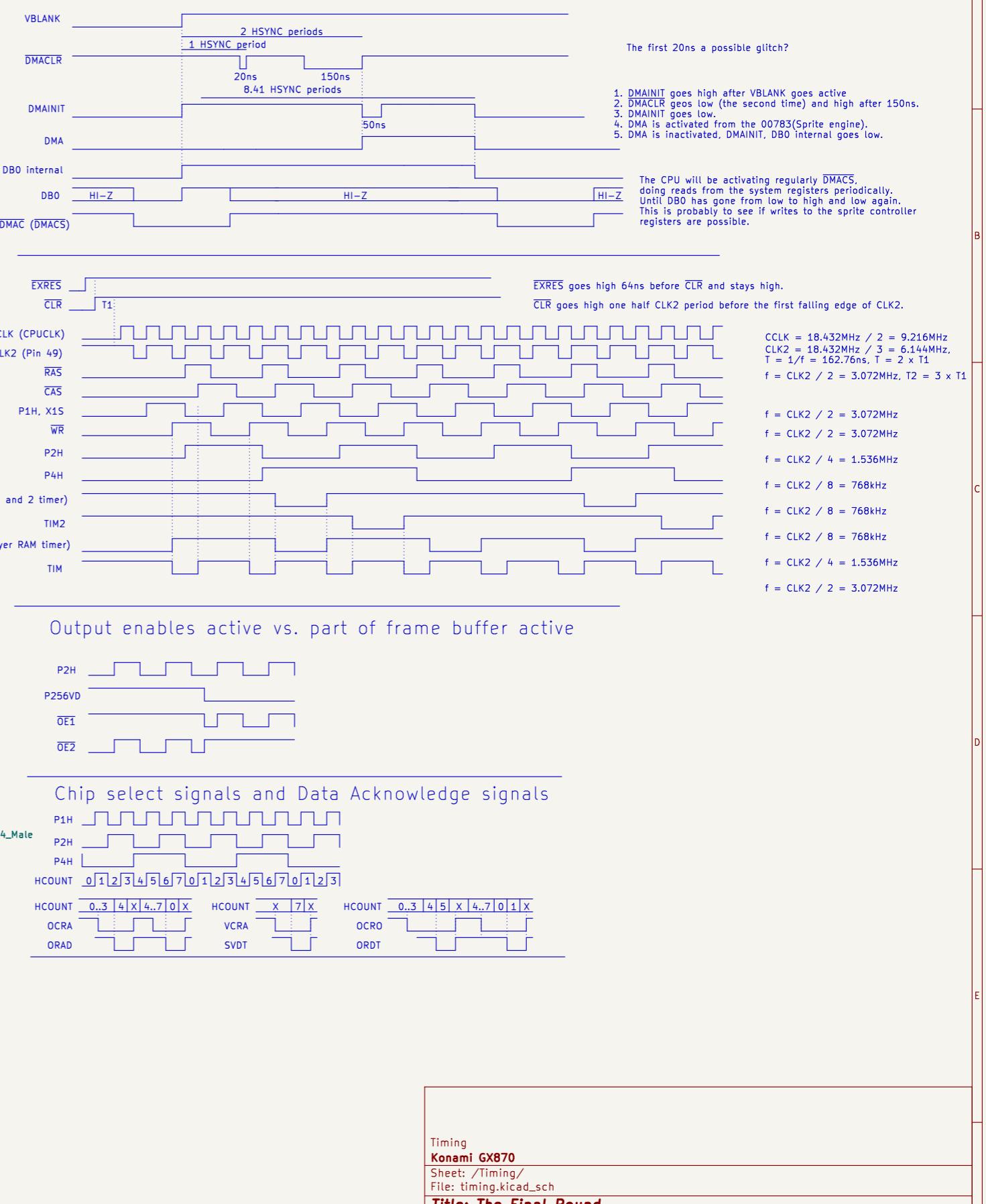
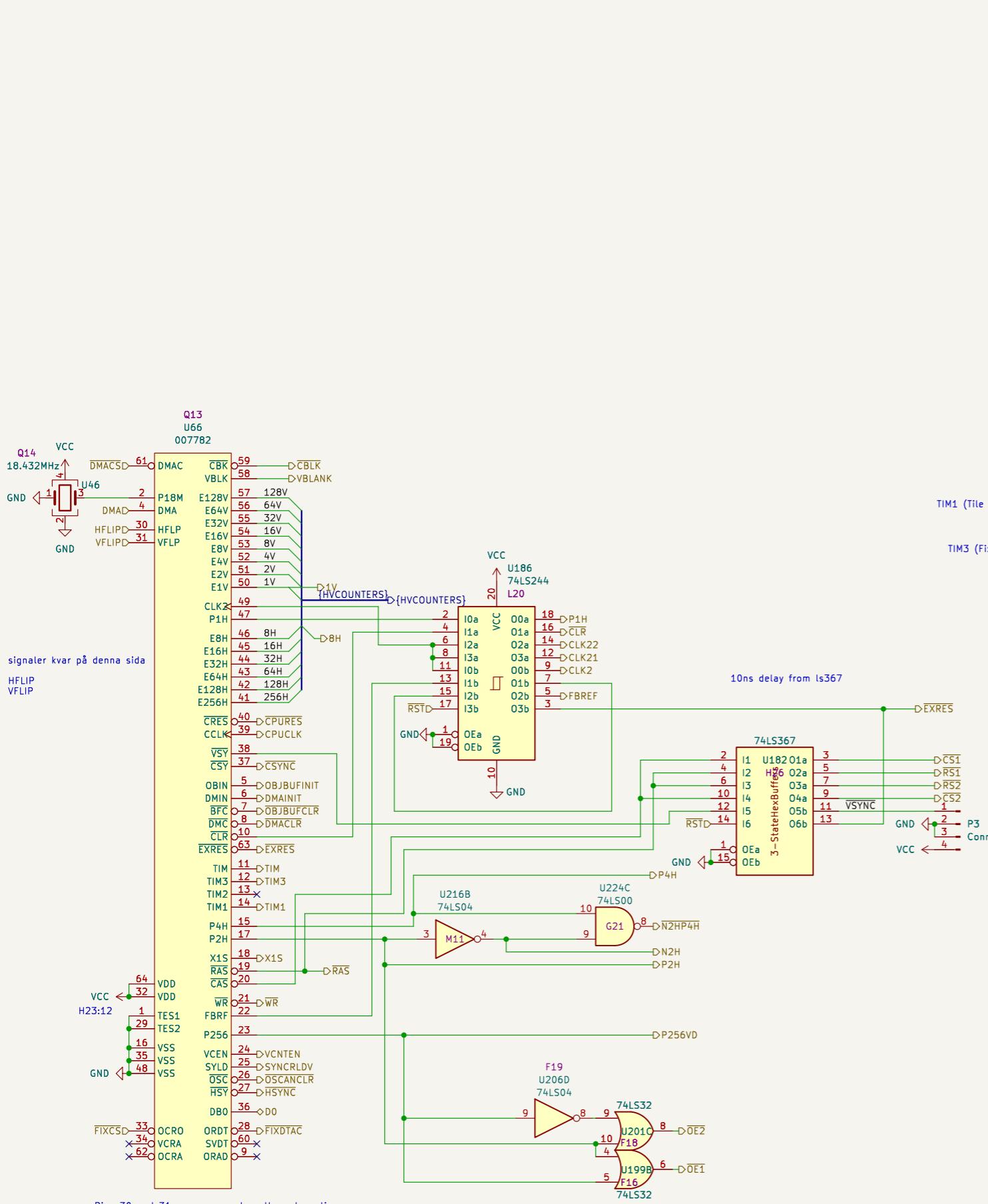
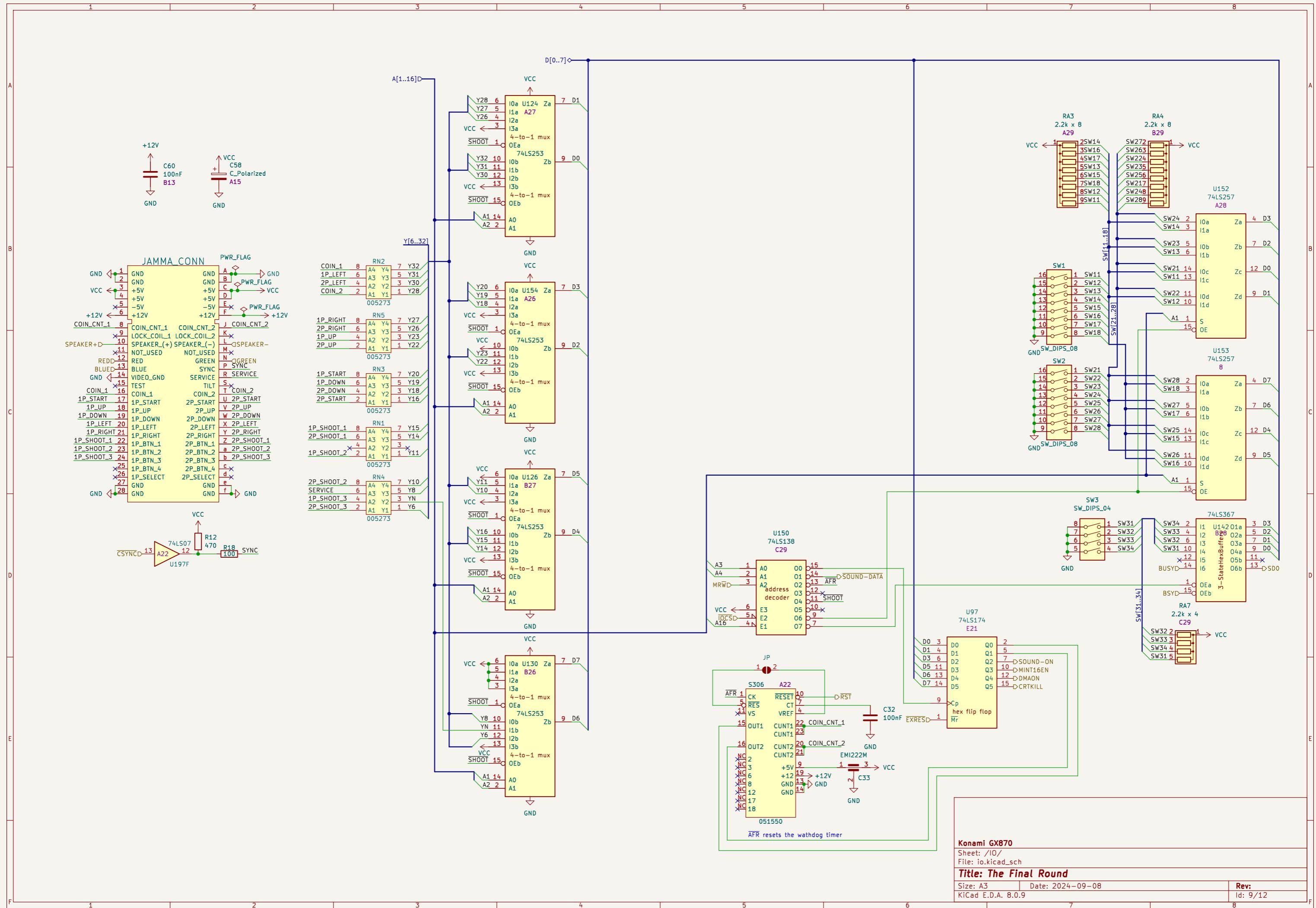
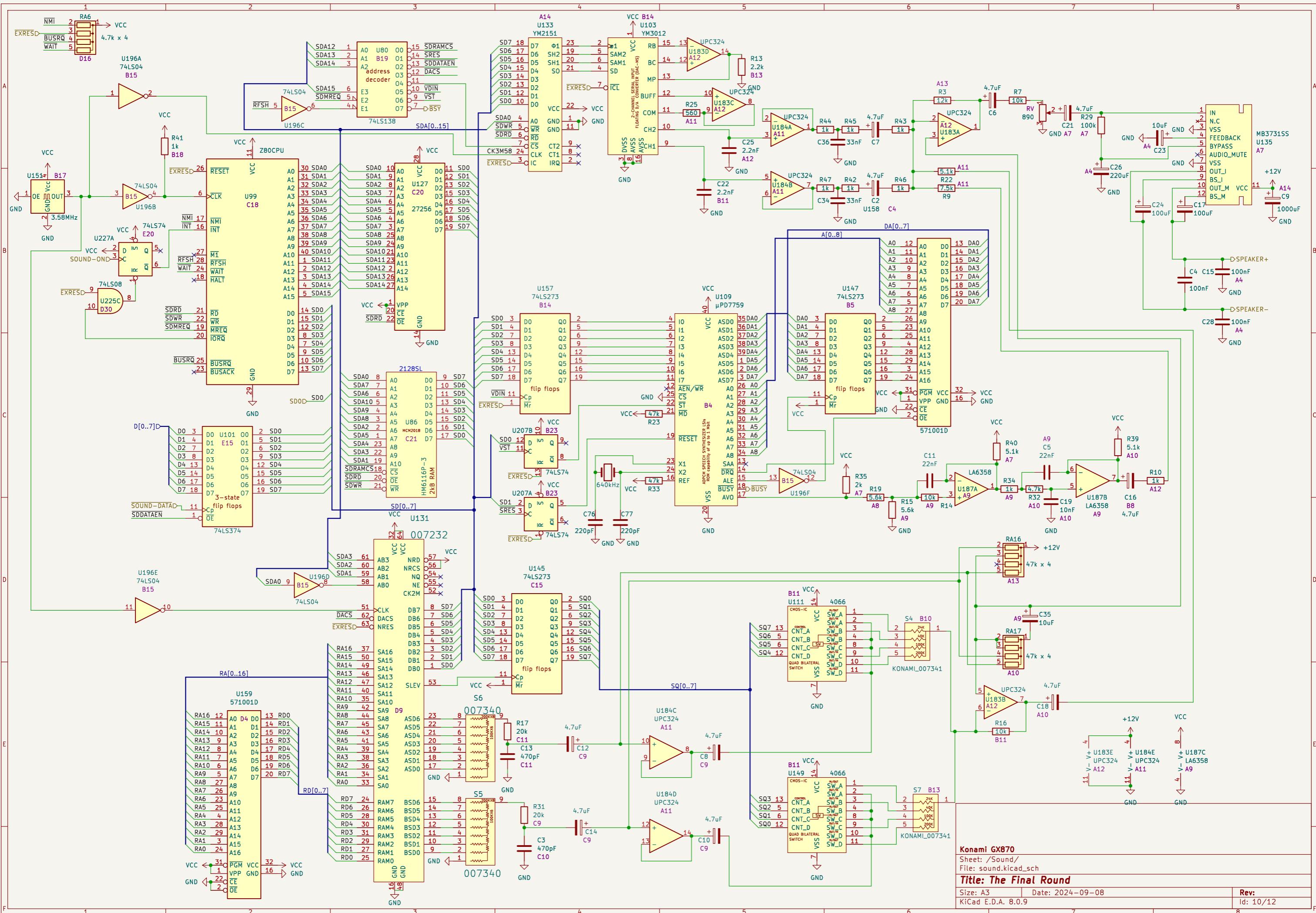


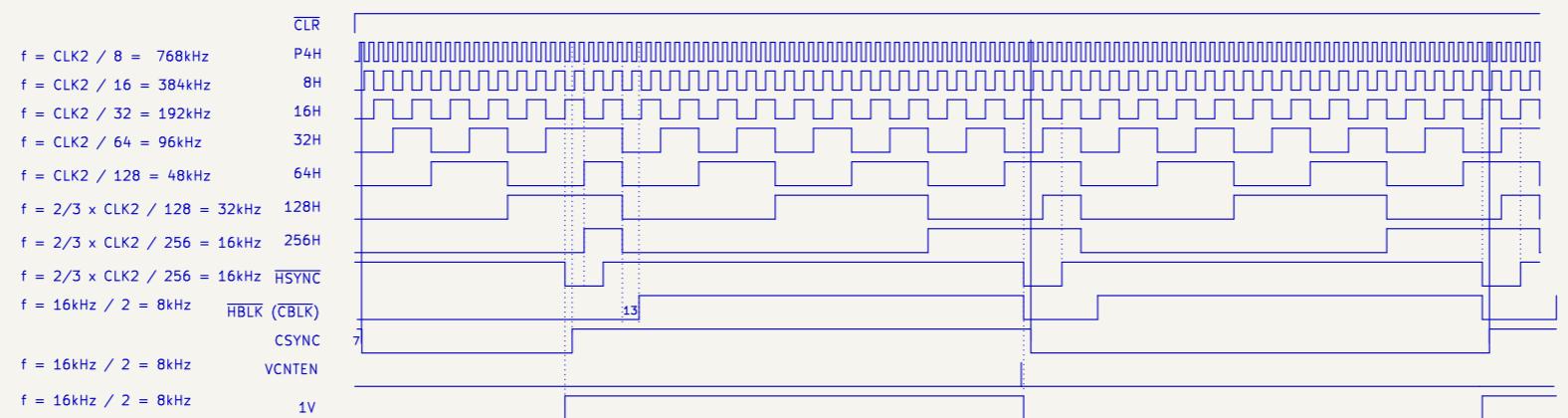
DMA Synchronization







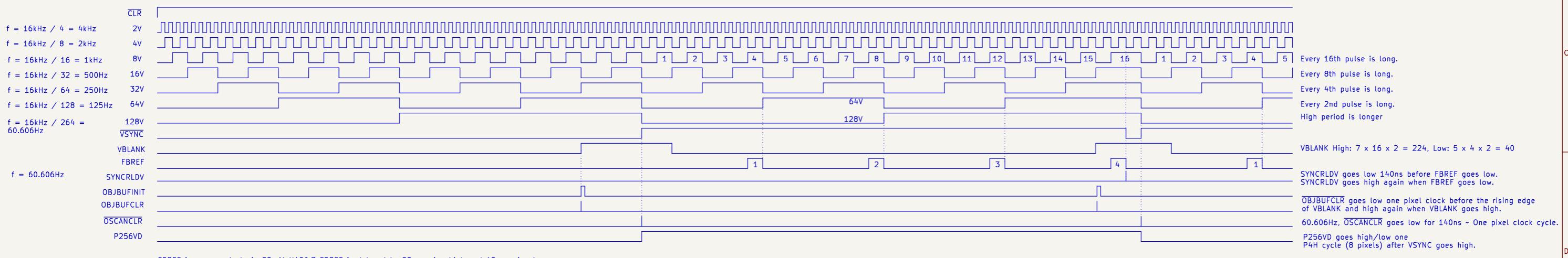
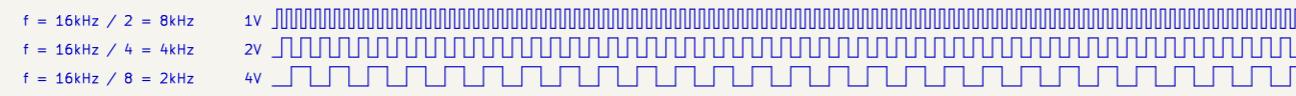
Horizontal signals



- The first VCNTEN is skipped after reset.
It goes low 140ns before HSYNC goes low,
and high again when HSYNC goes low.
VCNTEN is active right before every second falling edge of
HSYNC.

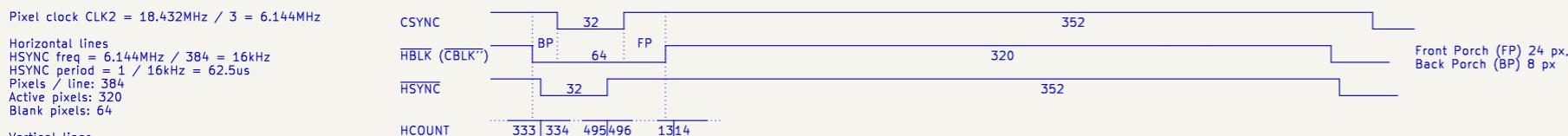
- CPURES goes high, and stays high, on the seventh falling edge
of HSYNC.

Vertical signals



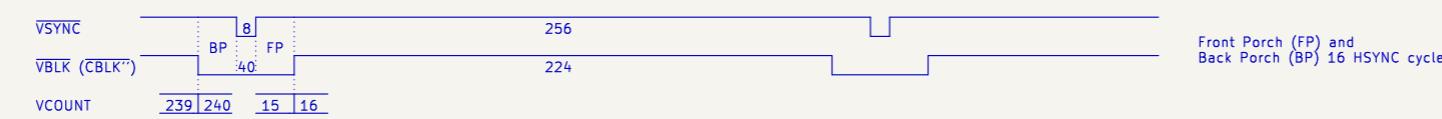
Horizontal and vertical synch timing diagrams

The numbers in the HSYNC and HBLK diagrams are HSYNC cycles.
All edges are synchronised to the rising edge of CLK2.



Front Porch (FP) 24 px,
Back Porch (BP) 8 px

The numbers in the VSYNC and VBLK diagrams are HSYNC cycles.
All edges are synchronised to the falling edge of HSYNC.



Front Porch (FP) and
Back Porch (BP) 16 HSYNC cycles.

HCOUNT is bits [256H, 128H, 64H, 32H, 16H, 8H, P4H, P2H, P1H]
VCOUNT is bits [128V, 64V, 32V, 16V, 8V, 4V, 2V, 1V]

CBLK^{''} is at the output of color mixer.

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Sheet: /Timing diagrams/
File: timing_diagrams.kicad_sch

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A

B

C

D

E

F

A

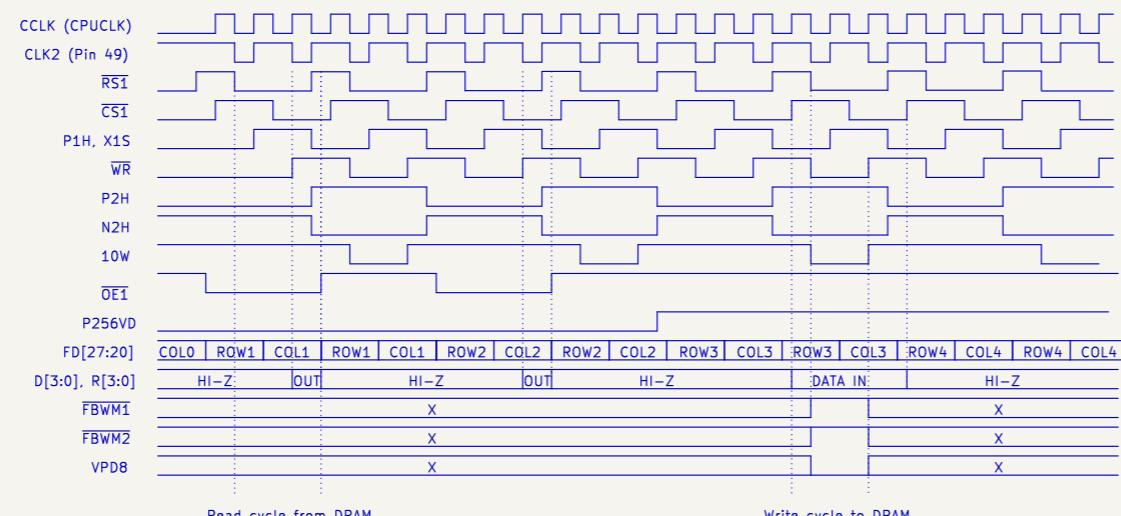
B

C

D

E

F



The same row and column addresses are repeated twice.
One for read cycle and the other for write cycles.

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Sheet: /Sprite timing diagrams/
File: sprite_timing_diagrams.kicad_sch

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