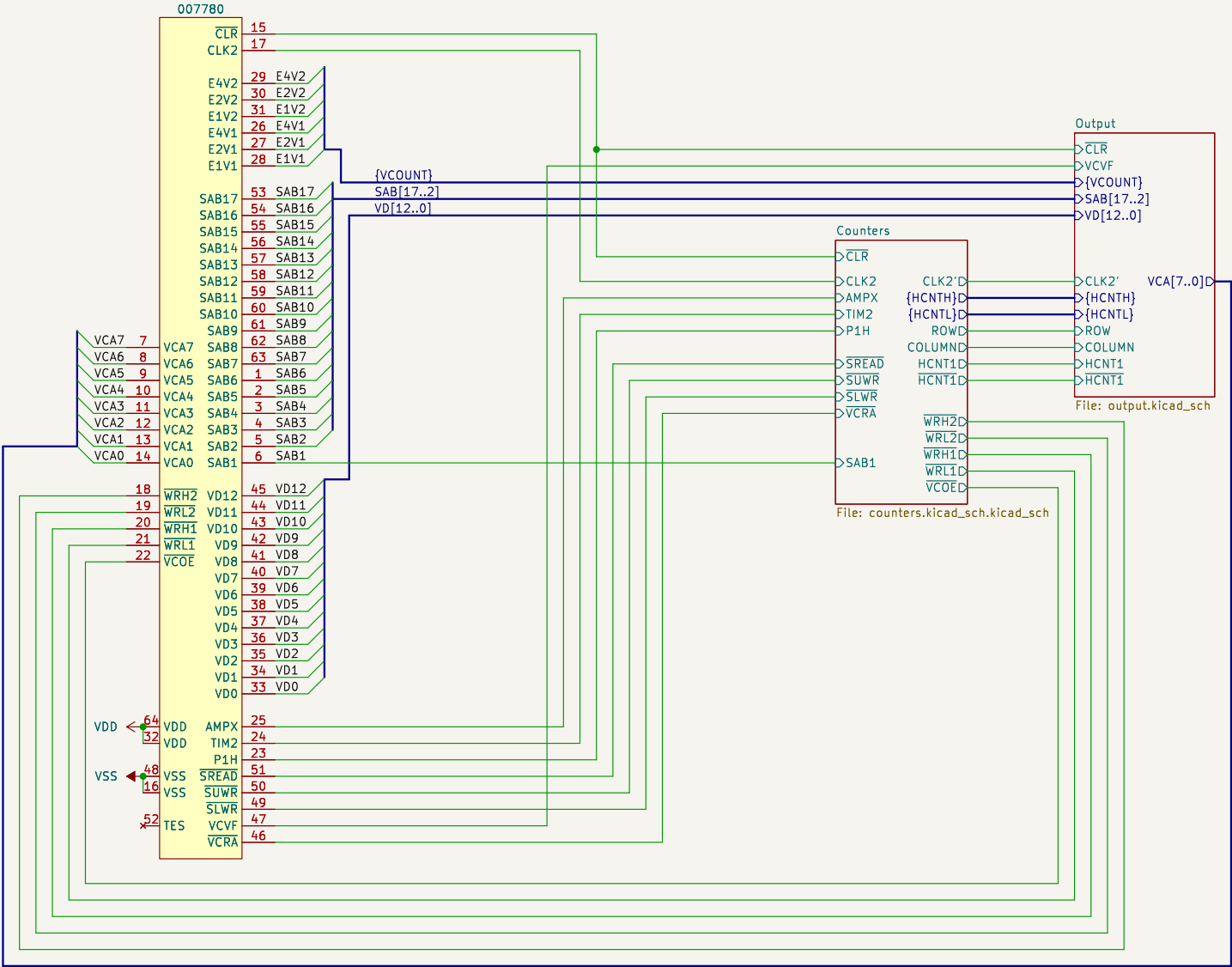


The Schematics have been analyzed from a die picture by InfosecDJ.  
The chip is identified as:

Fujitsu  
673174U  
C 1985

It is a C850AVB, MB673174 device from the AVB-CMOS series.  
- 852 Basic Cells  
- 12 Columns, 71 Rows

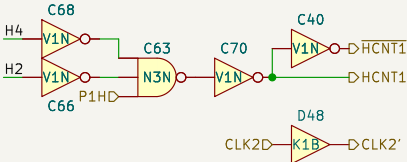
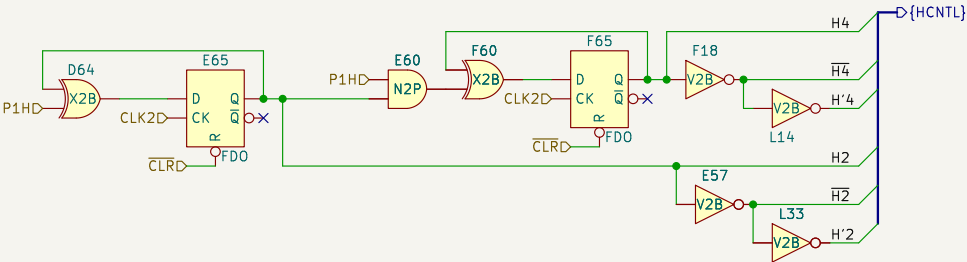
Note: compared to the other devices from the AVB series the VDD and VSS rails are flipped. When analysed the picture has been flipped and rotated to help identify cells.



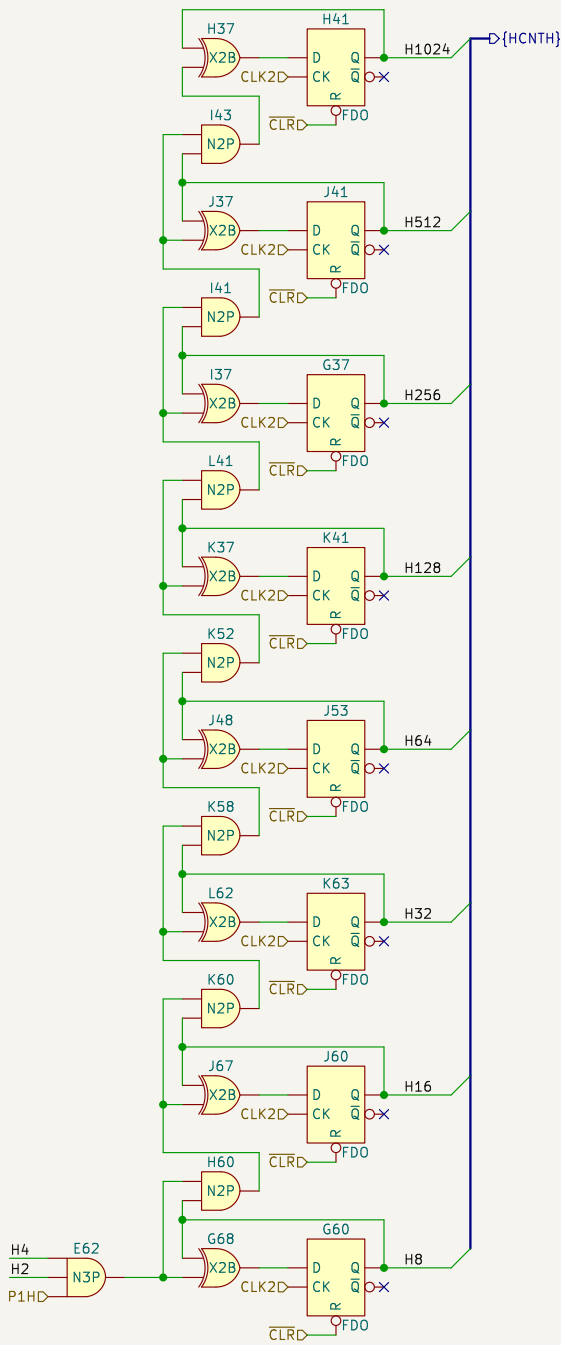
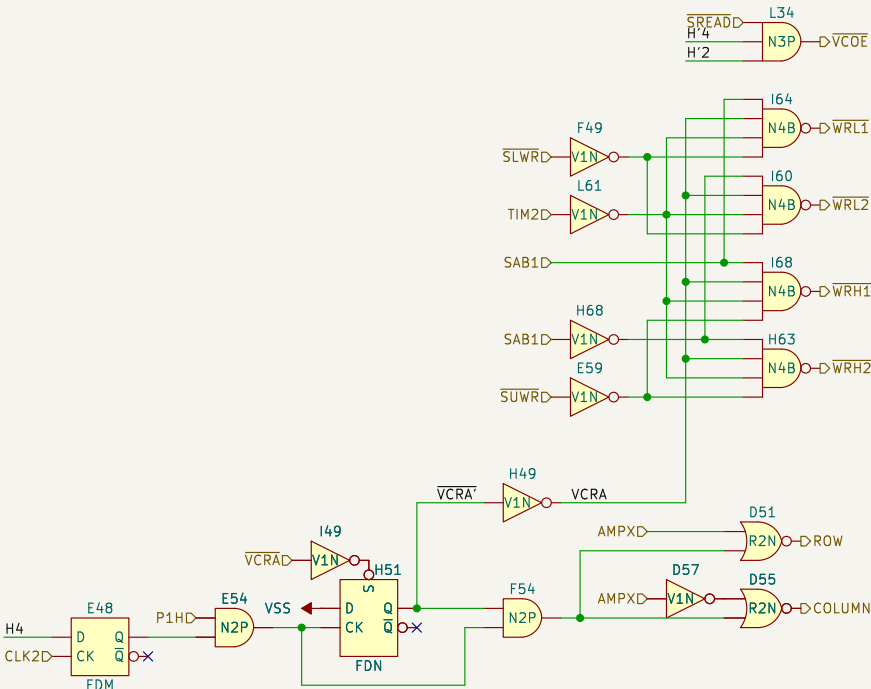
Horizontal clock P1H and  $\overline{\text{CLR}}$  initiates the timing of the 007780. H2 and H4 are also generated which creates a 3-bit counter, HCNT, which controls the timing of the device. There are  $2^3 = 8$  different counter values: 0..7.

HCNT 0,1 Render Tilemap 1  
HCNT 2,3 Render Tilemap 2  
HCNT 4,5 Idle, writing to page 0  
HCNT 6,7 CPU read/write cycle

TIM2 is active low during HCNT cycles 6 and 7.  
When HCNT is 4 or 5 then row address = 0. The column address is incremented by one for each HCNT cycle. Is this used to not wear out the DRAM modules?



### DRAM Control Signals



Sheet: /Counters/  
File: counters.kicad\_sch.kicad\_sch

**Title: Konami 007780**

Size: A3 Date: 2024-07-28

KiCad E.D.A. 8.0.6

Rev:

Id: 2/3

