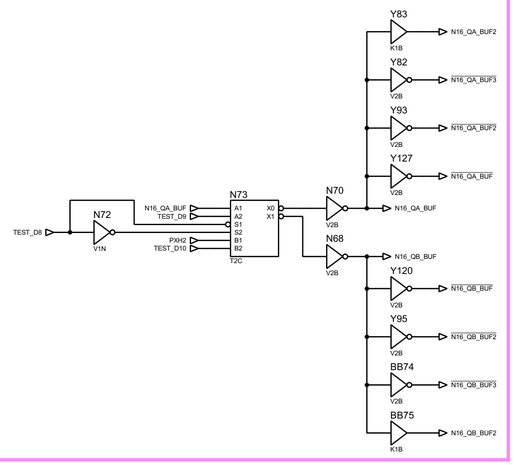
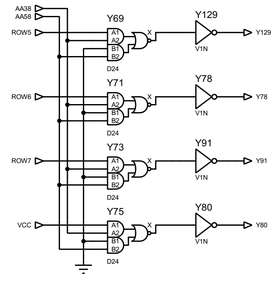
```
VRAM address (1 word per address)
FEDC BA98 7654 3210
0000 00xx xxxx xxxx Layer FIX tilemap
0000 01xx xxxx xxxx Layer A tilemap
0000 10xx xxxx xxxx Layer B tilemap
0000 1100 xxxx xxxx A Y scroll
0000 1101 xxxx xxxx A X scroll
0001 00xx xxxx xxxx Layer FIX codes
0001 01xx xxxx xxxx Layer A codes
0001 10xx xxxx xxxx Layer B codes
0001 1100 xxxx xxxx B Y scroll
0001 1101 xxxx xxxx B X scroll
            x xxxx x Tilemaps X
          xx xxx     Tilemaps Y
```

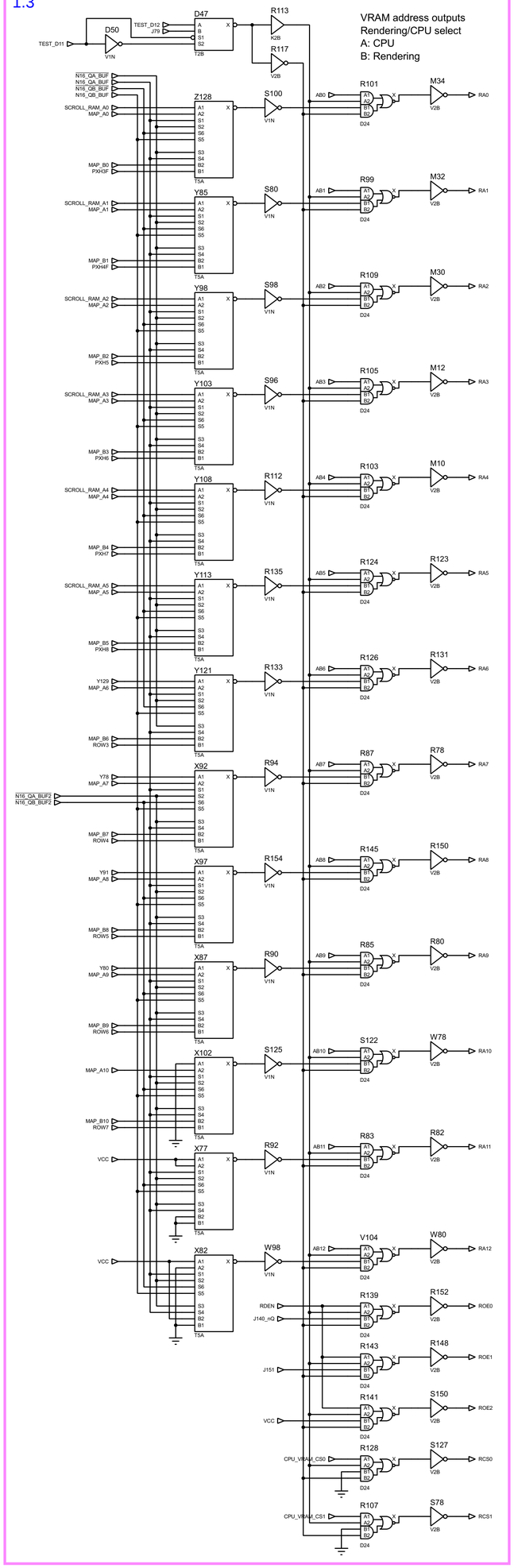
1.1



1.2



1.3



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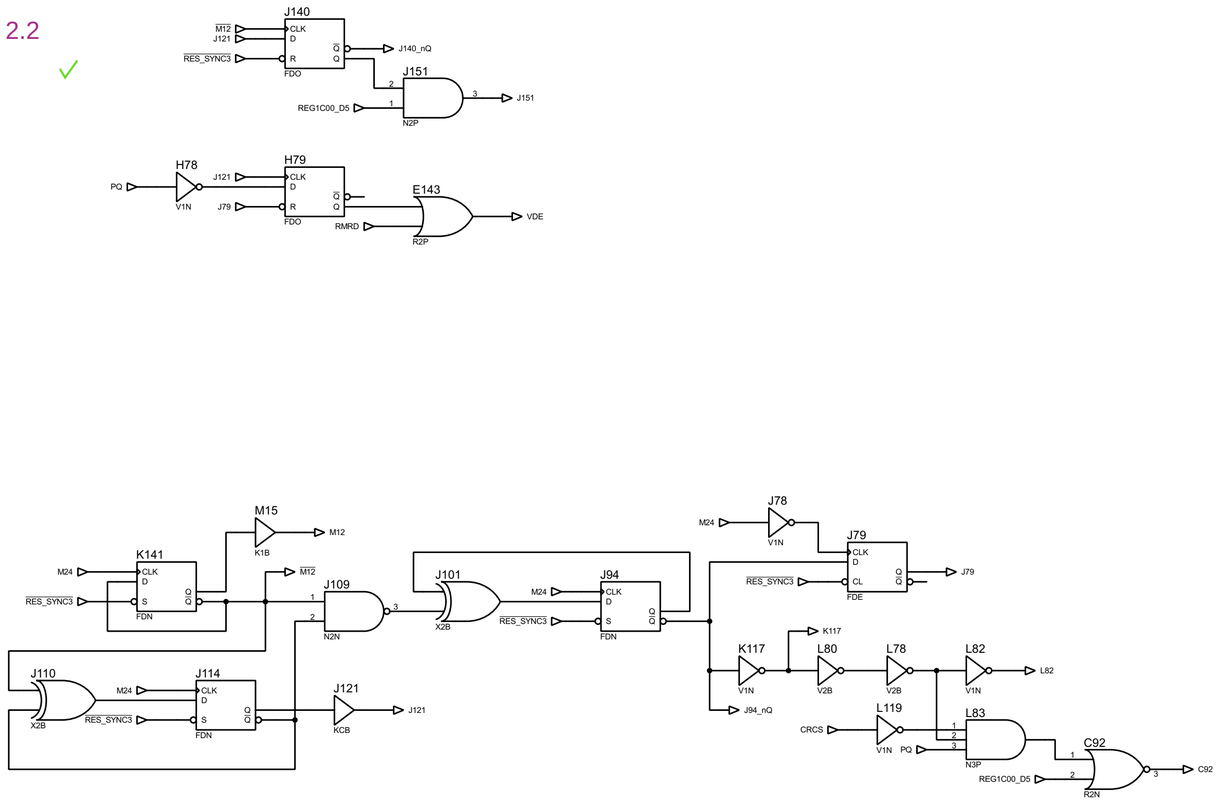
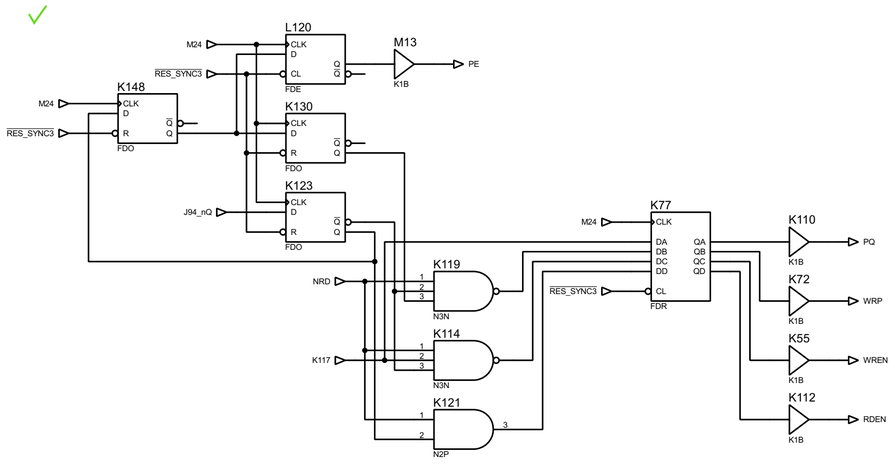
DESIGN TITLE: **Konami 052109** VRAM ADDRESS		PAGE: **1 of 8**
BY: **Sean Gonsalves**	REV: **A**	

2.2 ✓



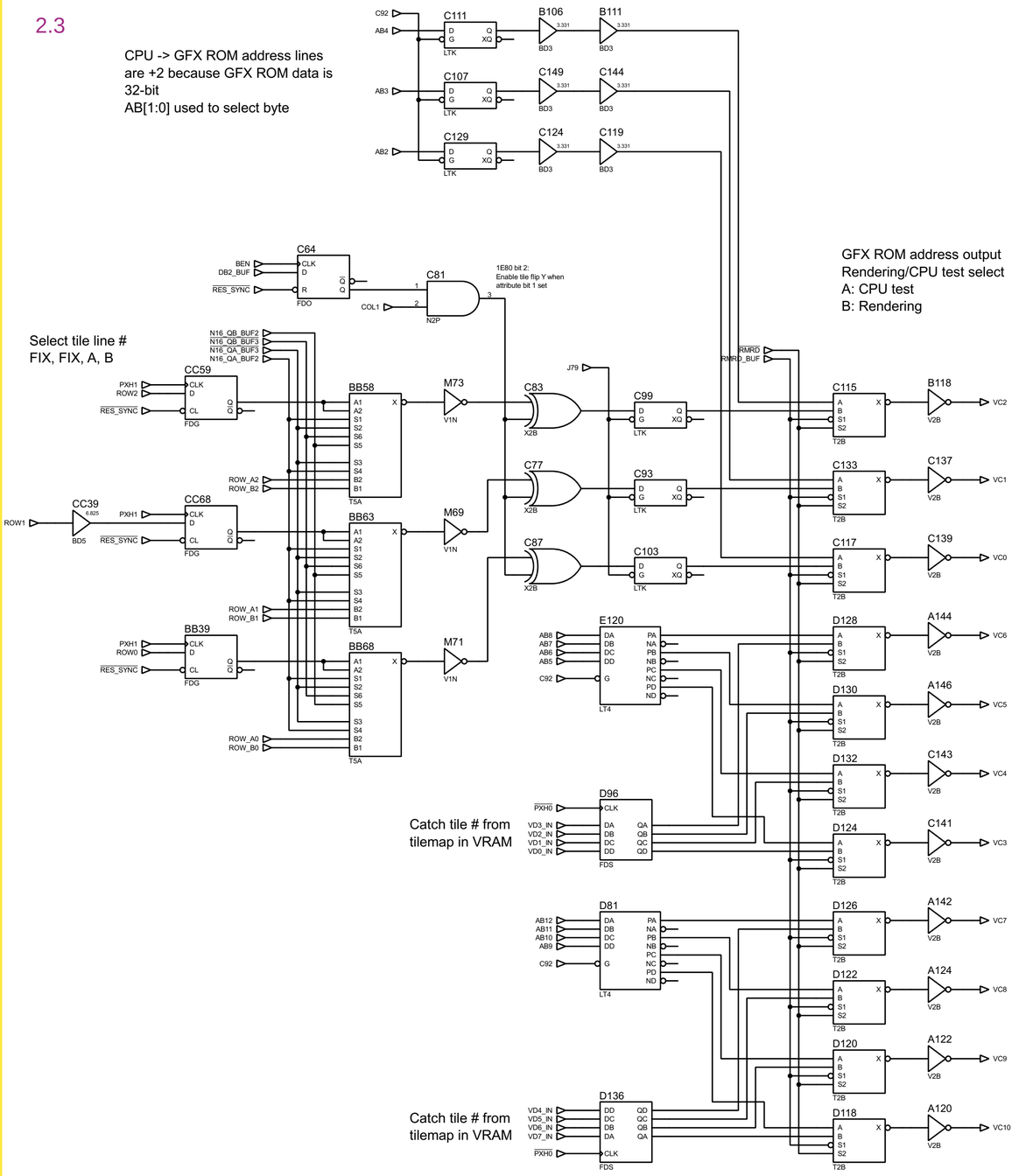
2.1 ✓



TIMING SIGNALS

2.3

CPU -> GFX ROM address lines
are +2 because GFX ROM data is
32-bit
AB[1:0] used to select byte



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DESIGN TITLE: Konami 052109 GFX ROM ADDRESS		PAGE: 2 of 8
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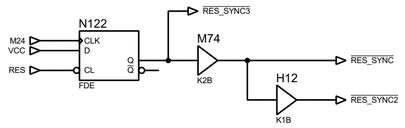
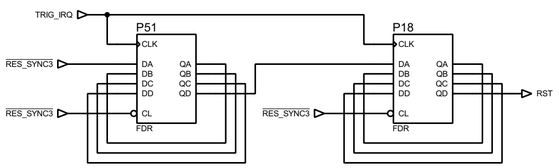
RES_SYNC signals generator

3.1 ✓

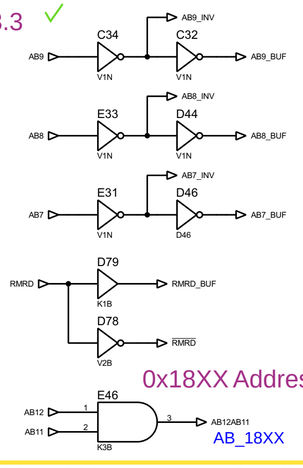


3.2 ✓

8-frame delay for
RES -> RST
Same in k051962 ?



3.3 ✓

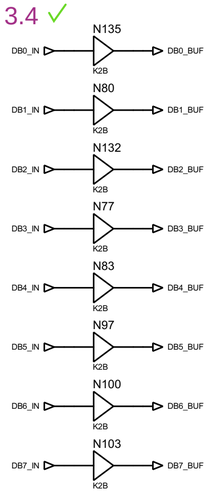


0x18XX Address

AB_18XX

180c-1833: Layer A Y Scroll

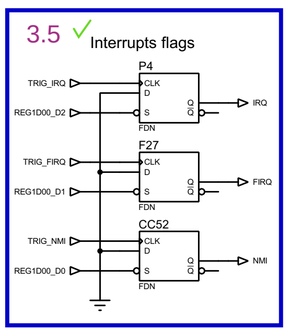
3.4 ✓



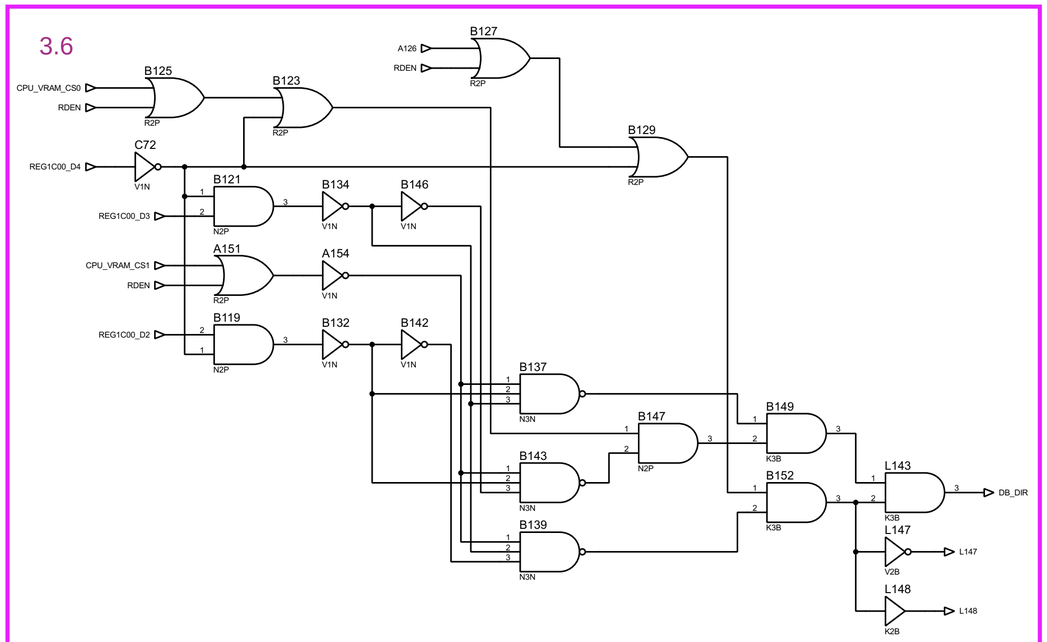
wire [7:0] DB_IN

wire [7:0] DB_BUF

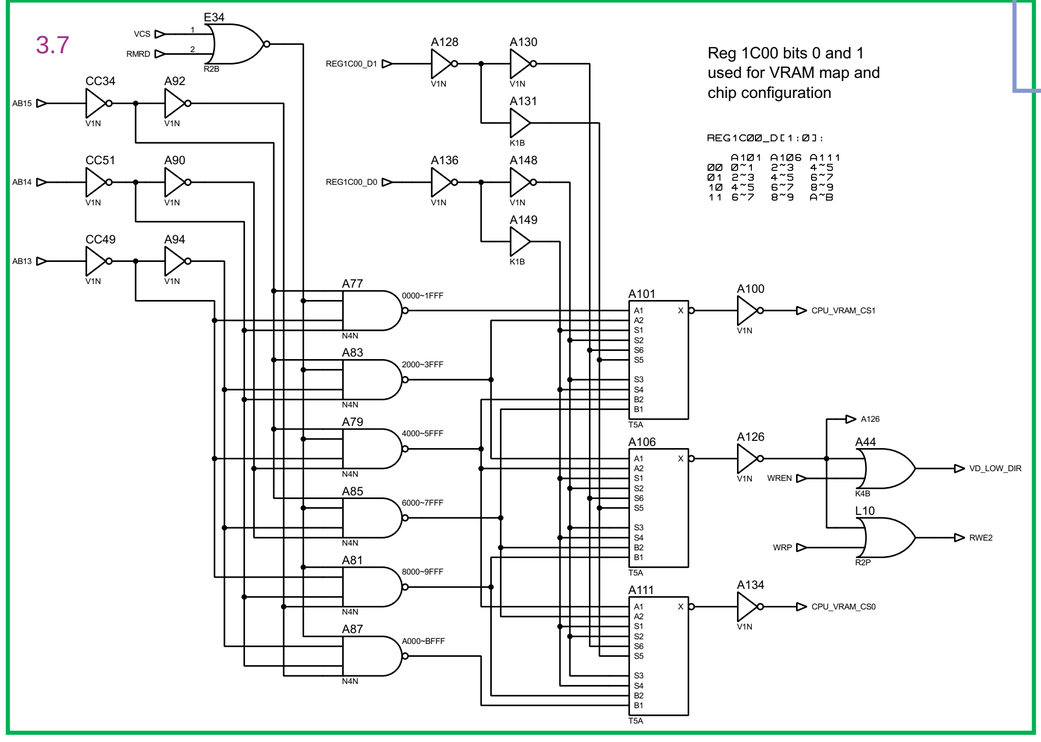
3.5 ✓ Interrupts flags



3.6



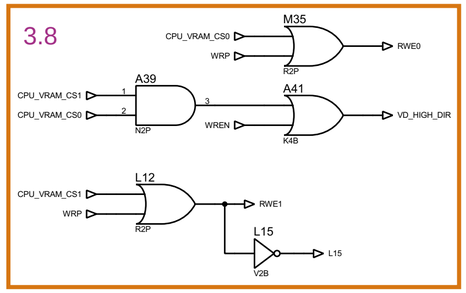
3.7



Reg 1C00 bits 0 and 1
used for VRAM map and
chip configuration

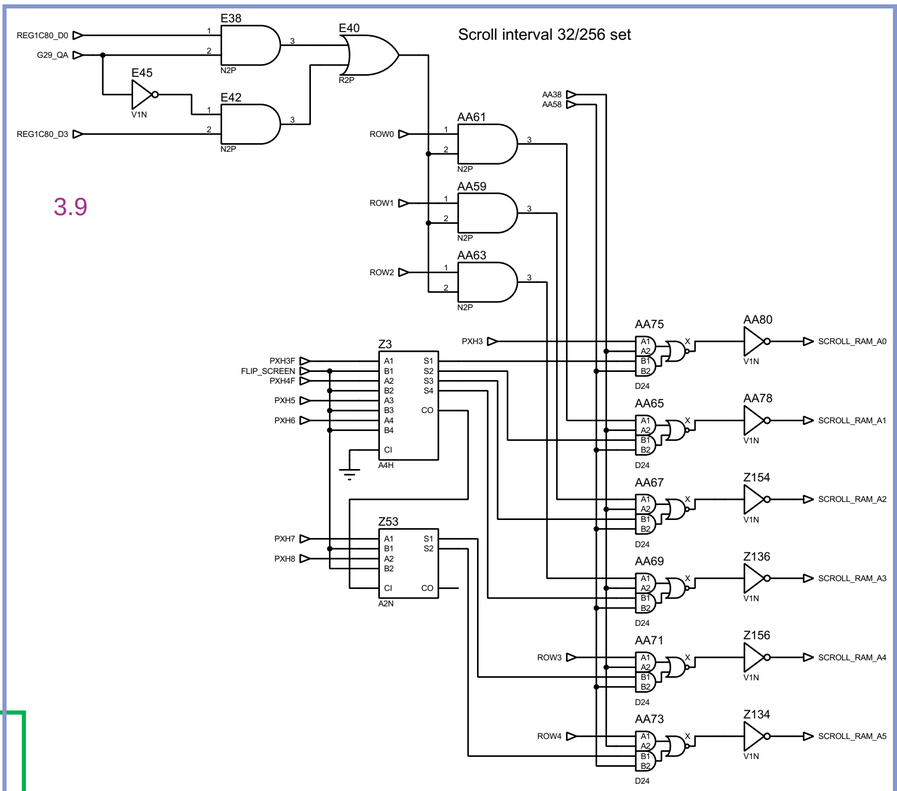
```
REG1C00_D[1:0]:
      A101 A106 A111
00  0~1  2~3  4~5
01  2~3  4~5  6~7
10  4~5  6~7  8~9
11  6~7  8~9  A~B
```

3.8



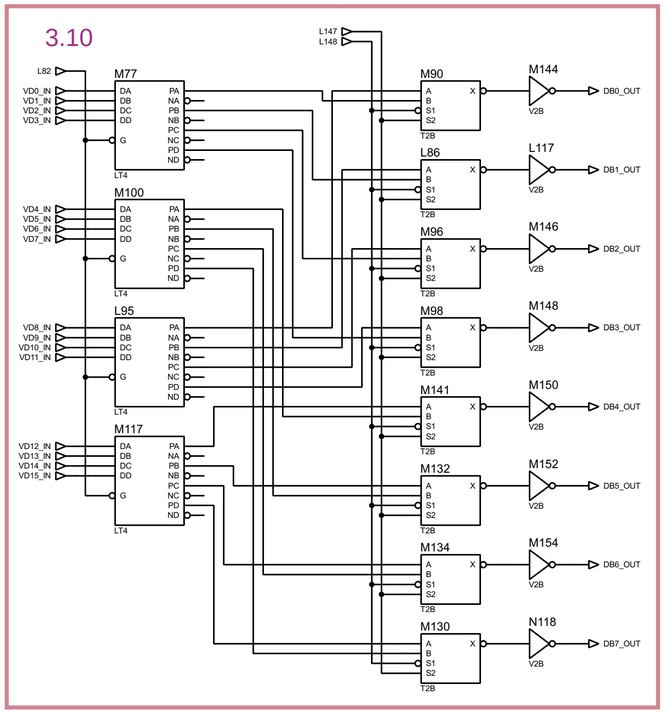
3.9

Scroll interval 32/256 set



VRAM read by CPU

3.10



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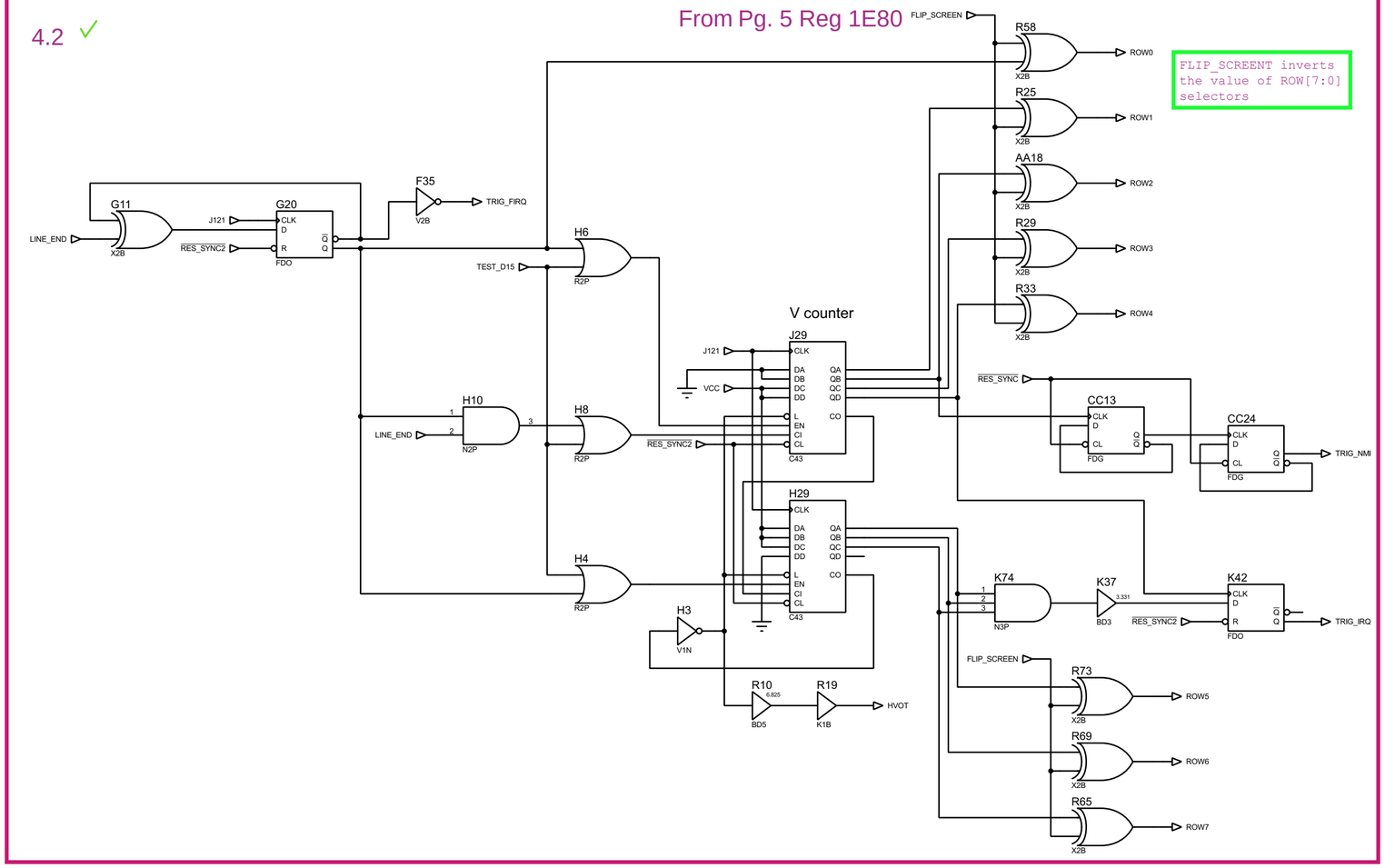
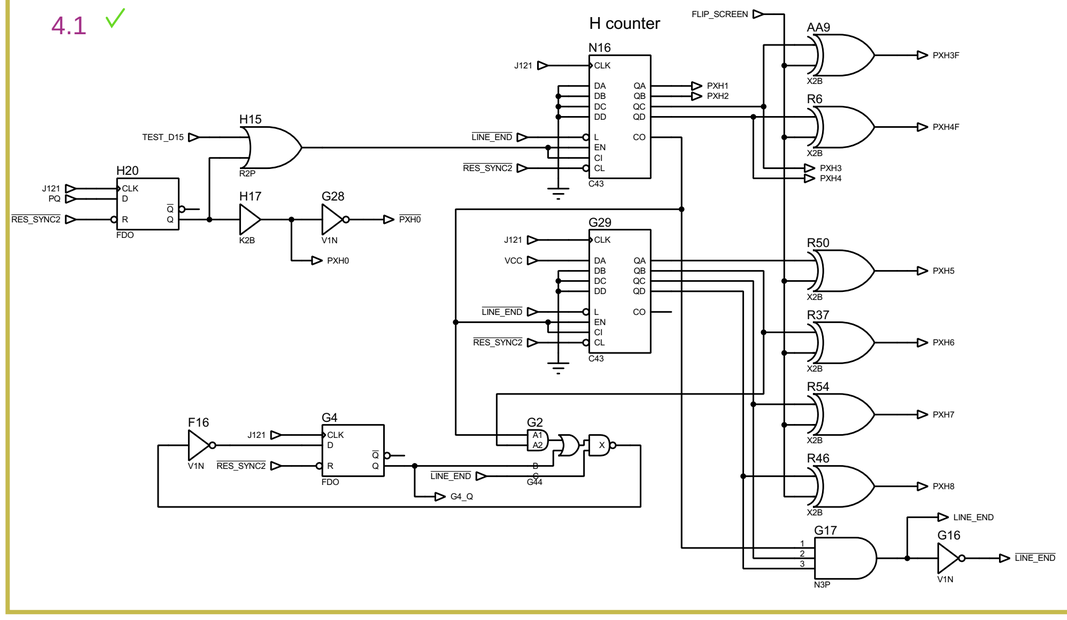
BY: Sean Gonsalves REV: A	

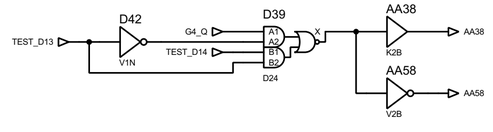
4.2 ✓



4.1 ✓



4.3 ✓



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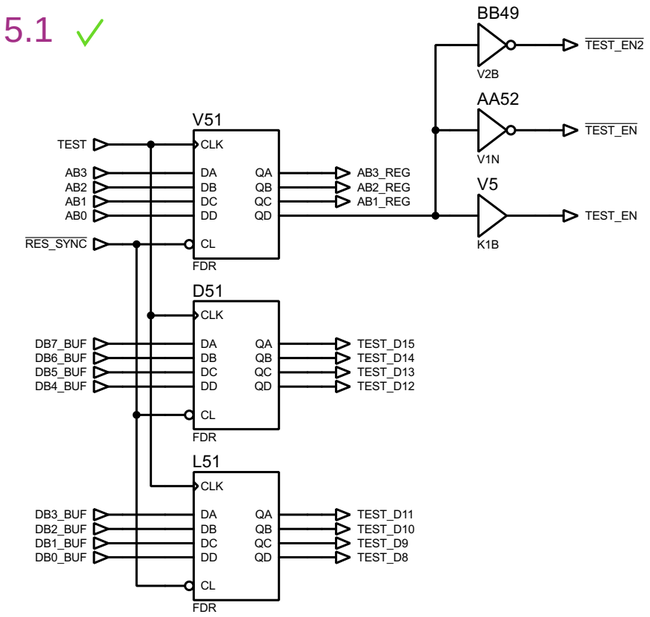
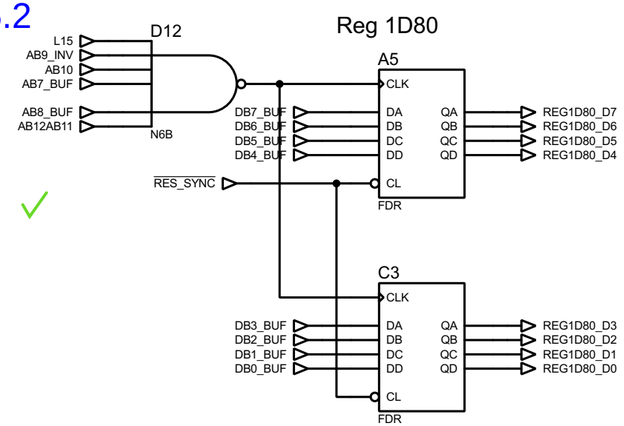
DESIGN TITLE: Konami 052109 H/V COUNTERS			PAGE: 4 of 8
BY: Sean Gonsalves	REV: A		

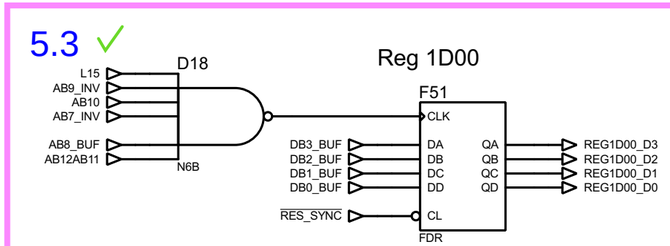
5.1 ✓



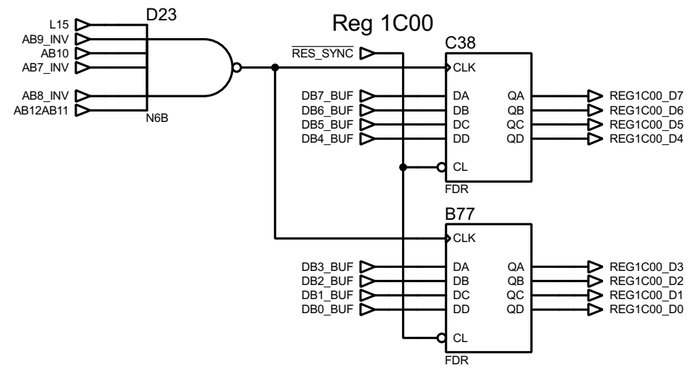
5.2



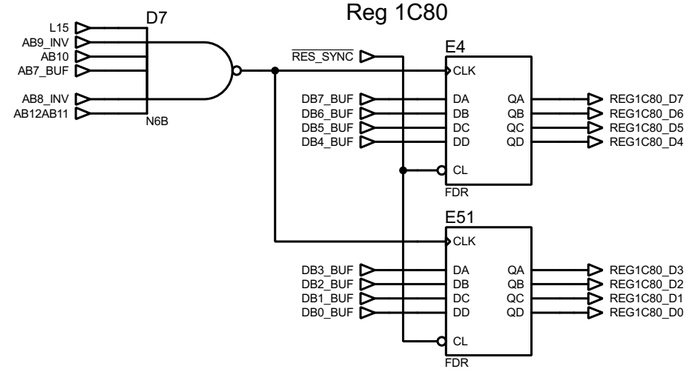
5.3 ✓



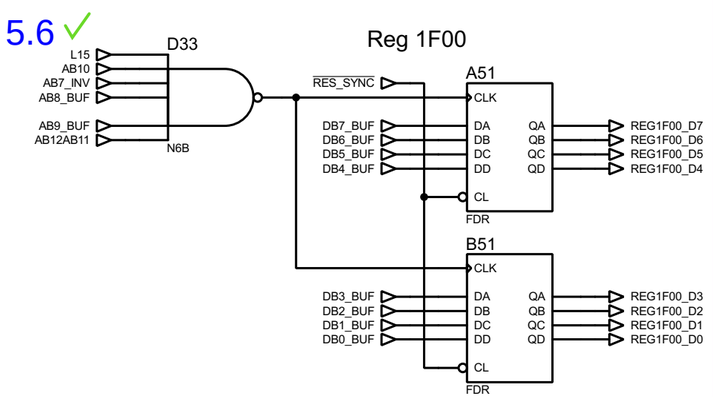
5.4 ✓



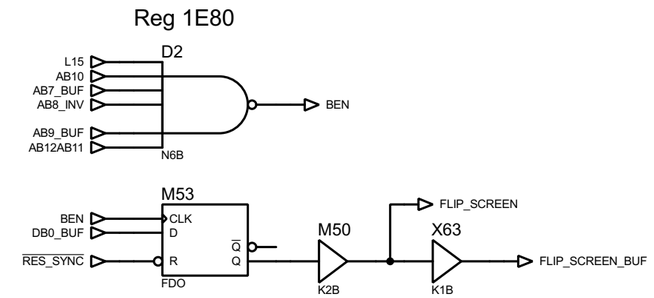
5.5 ✓



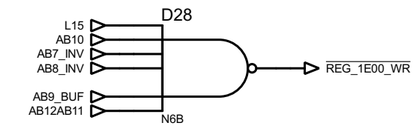
5.6 ✓



5.7 ✓



5.8 ✓



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DESIGN TITLE: **Konami 052109** REGISTERS		PAGE: 5 of 8
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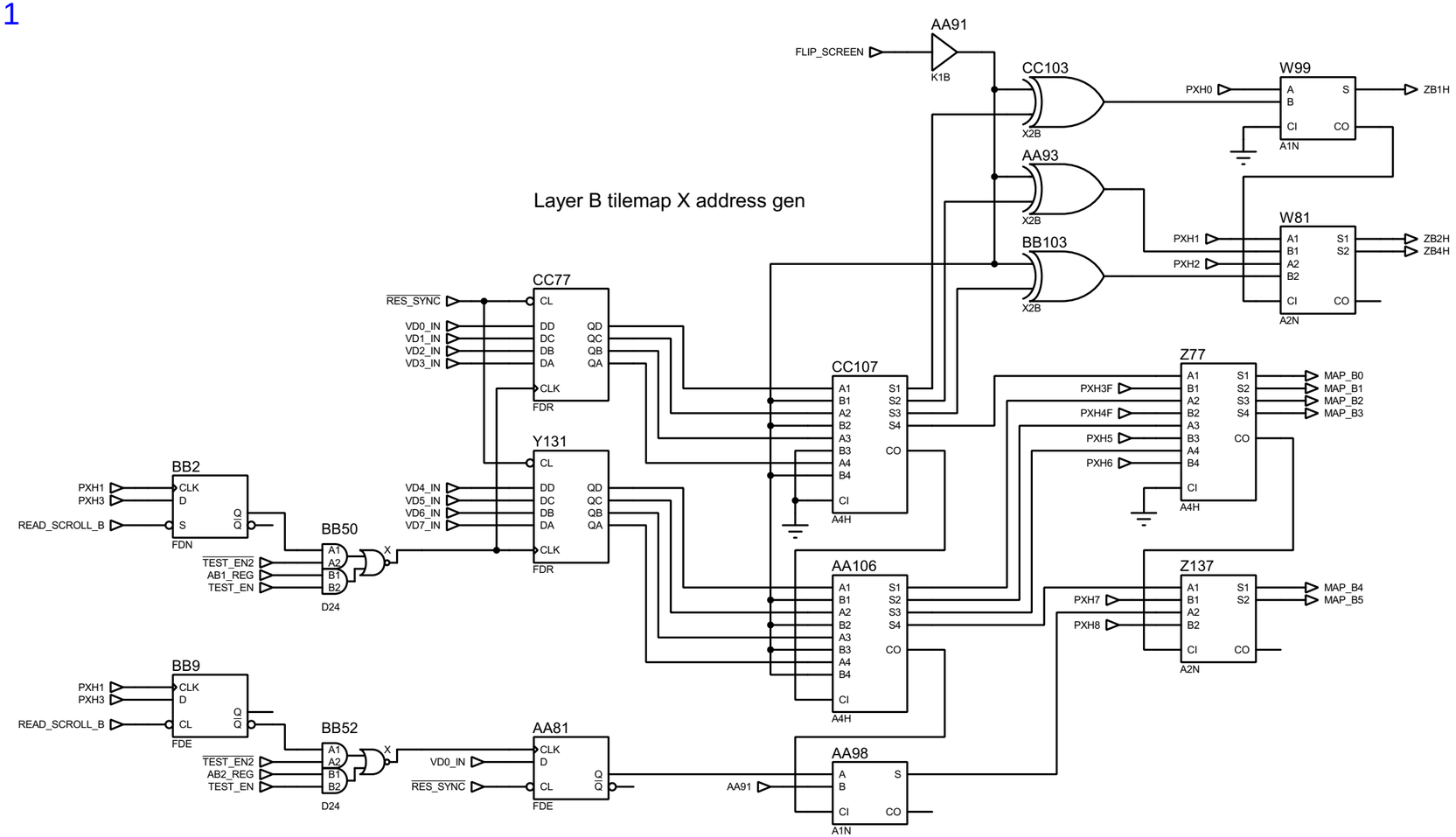
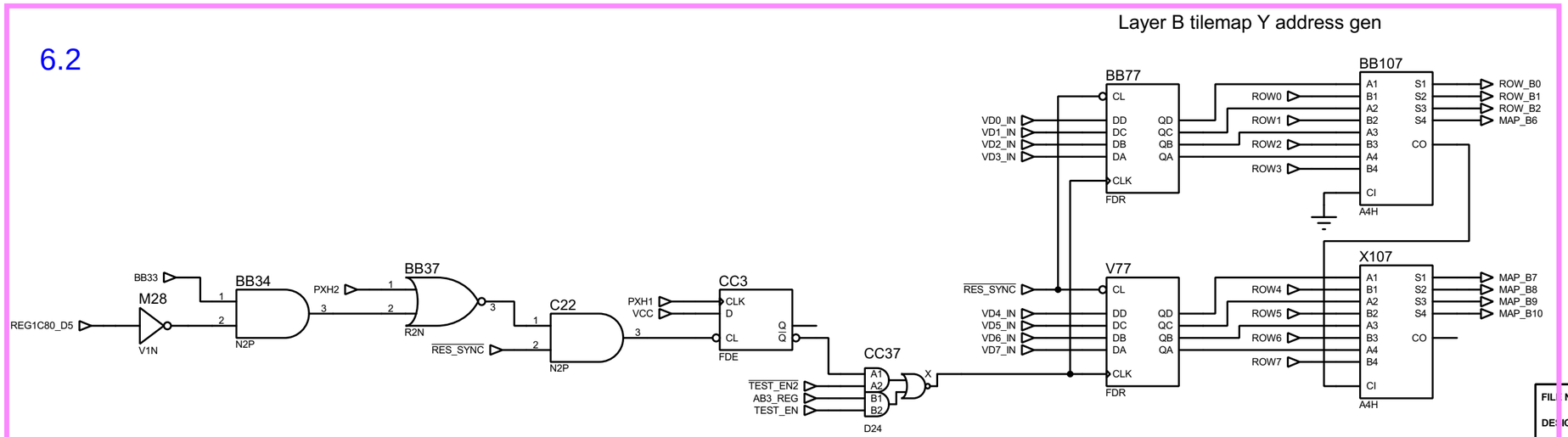
6.1



6.2



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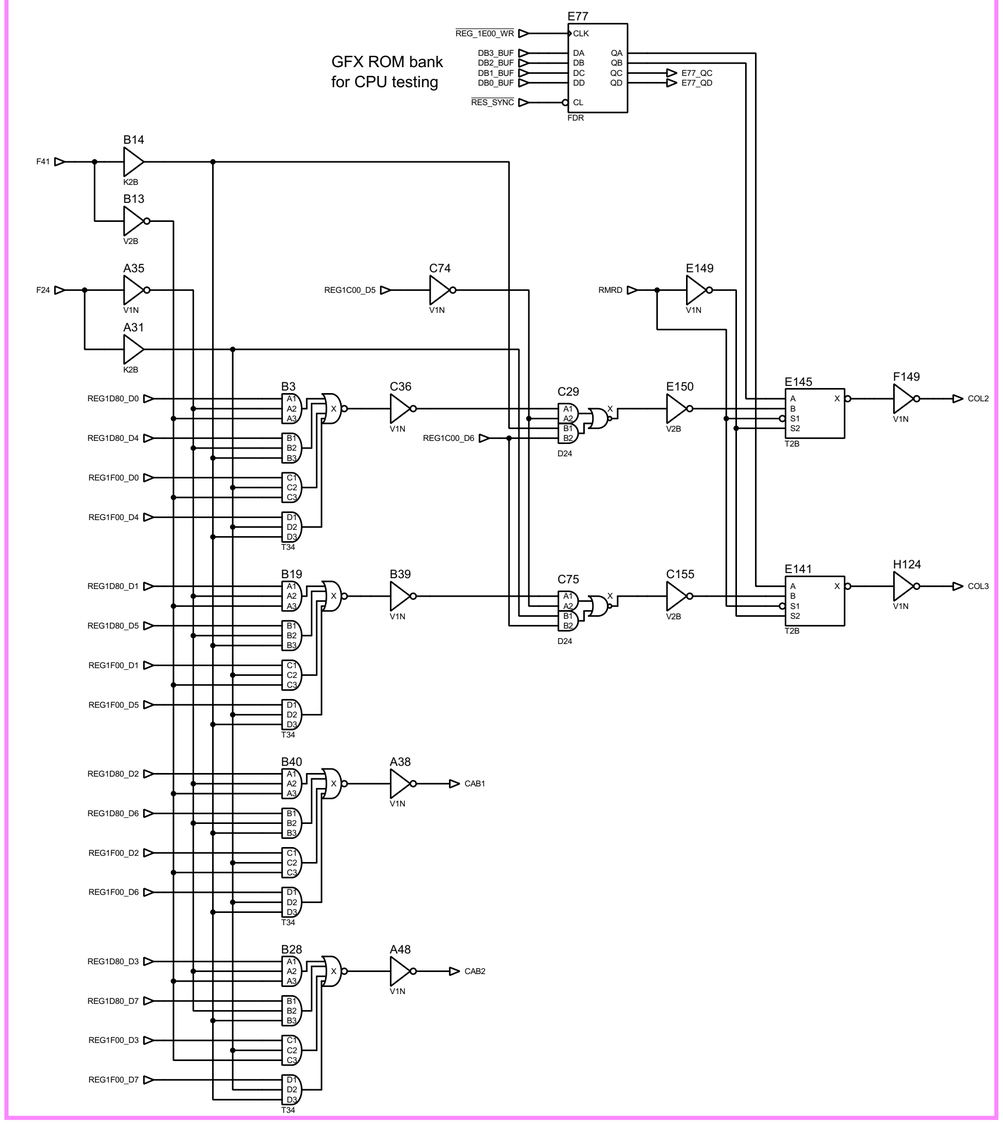
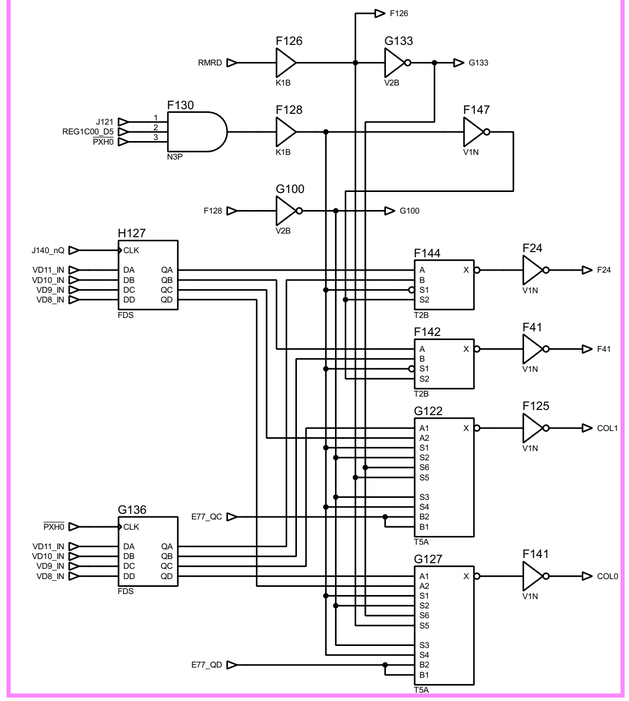
DESIGN TITLE: **Konami 052109** LAYER B SCROLL	PAGE: **6 of 8**
BY: **Sean Gonsalves** REV: **A**	

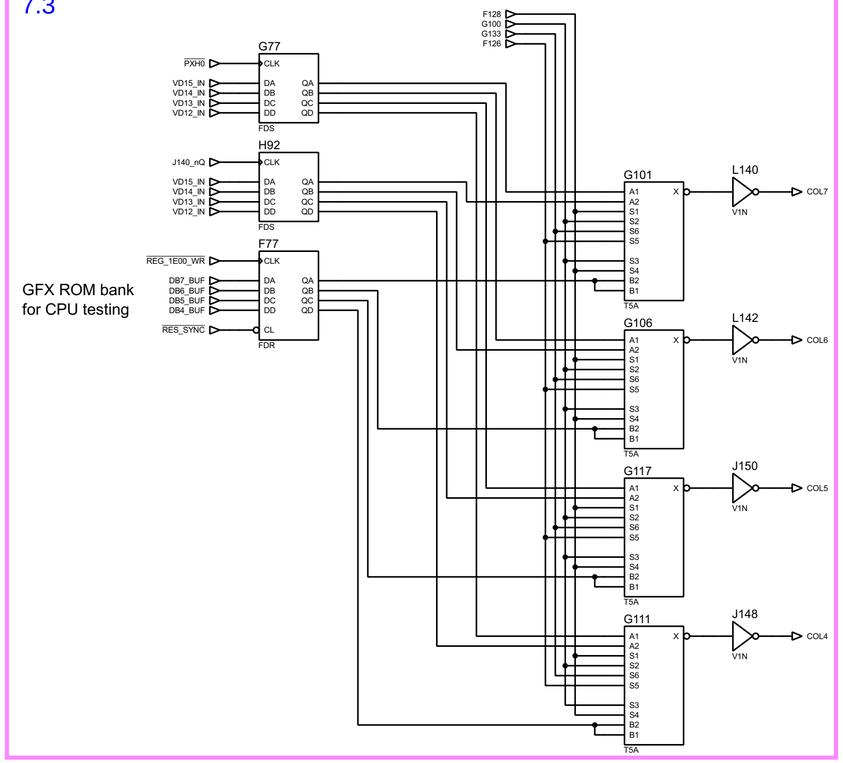
7.1



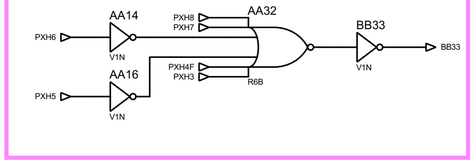
7.2



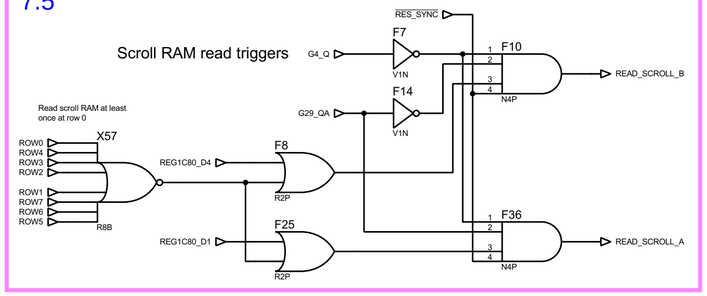
7.3



7.4



7.5



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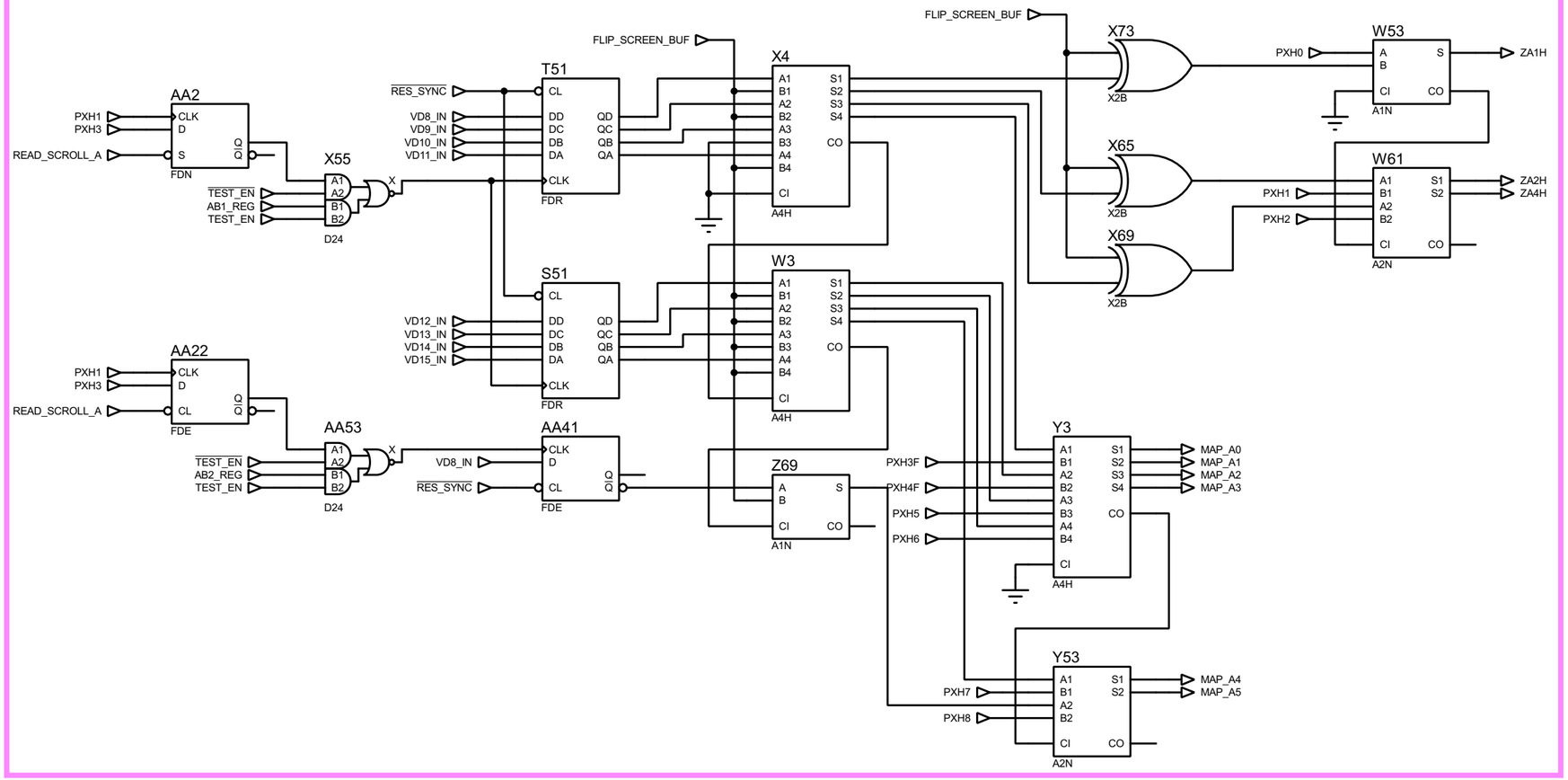
DESIGN TITLE: Konami 052109 COL OUTPUTS		PAGE: 7 of 8
BY: Sean Gonsalves	REV: A	

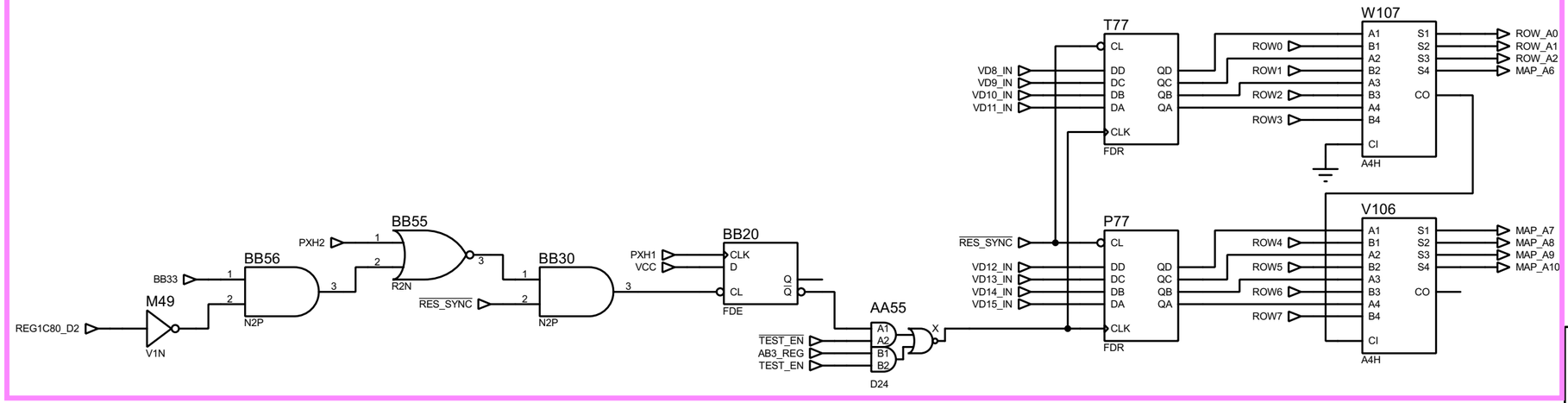
8.1

Layer A tilemap X address gen



8.2

Layer A tilemap Y address gen



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DESIGN TITLE: **Konami 052109** LAYER A SCROLL			PAGE: **8 of 8**
BY: **Sean Gonsalves**	REV: **A**		