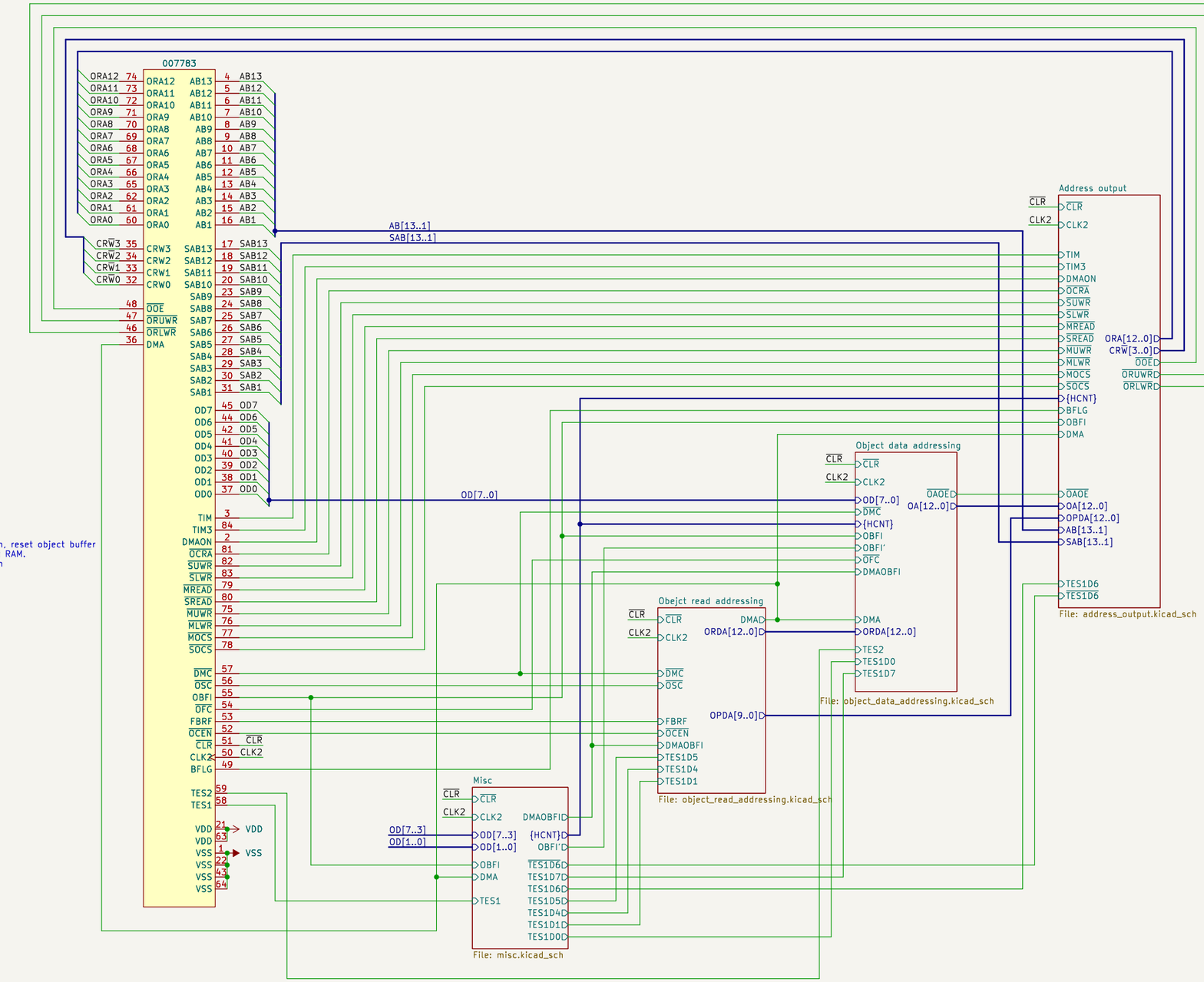
1. OBFI: (OBJBUFINIT) zeros are written to 1800h..1AFFh.
2. DMA: OA[12:0] active.
   a) 8 words are read from addresses 0000h..0007h, 0028h..002Fh,...,17E0h..17E7h
      by the sprite data parser 007784 and if the sprite is enabled with BEFLAG
      they are written to the buffer OBJBUF.

OBJRAM
0000h..17E7h Unprocessed data
1800h..1BFFh Processed data

WD0	WD1	WD2	WD3	WD4	WD5	WD6	WD7	WD0	WD1	WD2	WD3
0000	0001	0002	0003	0004	0005	0006	0007	BA1	BA2	BA3	BA4

OBJBUF, Buffer Address
BA1 : OA[12:0] = 1800h + OD''[7:0] << 2
BA2 : OA[12:0] = BA1 + 1
BA3 : OA[12:0] = BA1 + 2
BA4 : OA[12:0] = BA1 + 3

OBFI	H8	OA	OAOE	
1	X	{3'b110,OWRA[9:0]}	1	Writes to 1800h..1BFFh, reset object buffer
0	0	ORDA[12:0]	0	Read data from object RAM.
0	1	{3'b110,OD''[7:0],OWRA[2:1]}	1	Writes to 1800h..1BFFh



Ulf Skutnabba, twitter: @skutis77

Sheet: /
File: 007783.kicad_sch

Title: Konami 007783

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Object Buffer Write Address

OBFI = 1–> H8OBFI = 1, $\overline{H8OBFI}$ = 0, $\overline{OAOE}$ = 1, Only writes.
OBFI = 0 –> H8OBFI = H8, $\overline{H8OBFI}$ = H8, $\overline{OAOE}$ = H8

Sheet: /Object data addressing/		
File: object_data_addressing.kicad_sch		
Title: Konami 007783		
Size: A3	Date: 2023-10-10	**Rev:**
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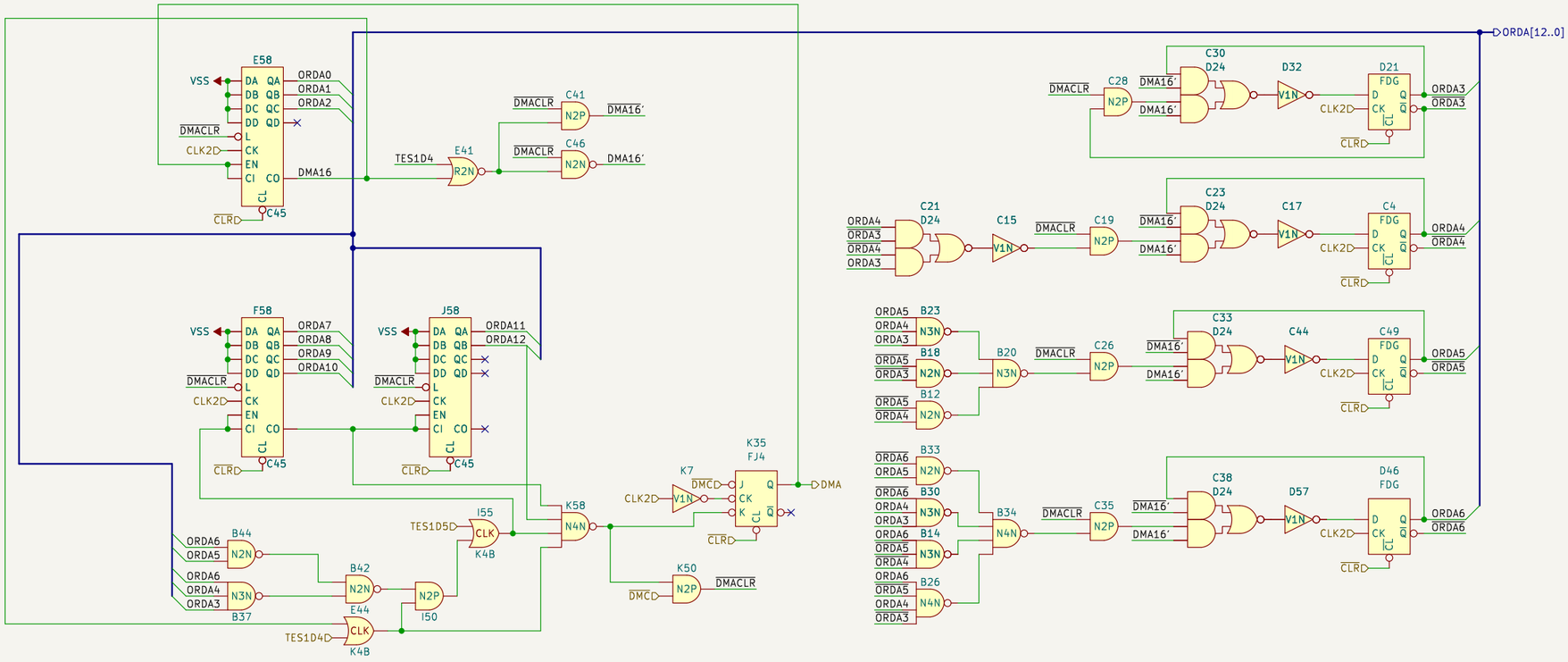
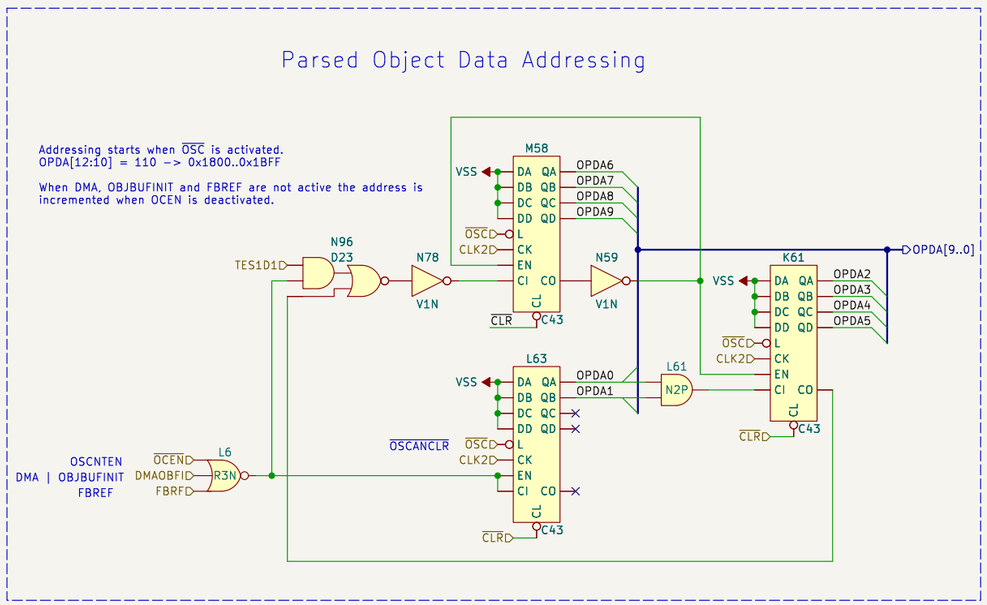
Object Read Addressing



Parsed Object Data Addressing



Sheet: /Obejct read addressing/		
File: object_read_addressing.kicad_sch		
Title: Konami 007783		
Size: A3	Date: 2023-10-10	**Rev:**
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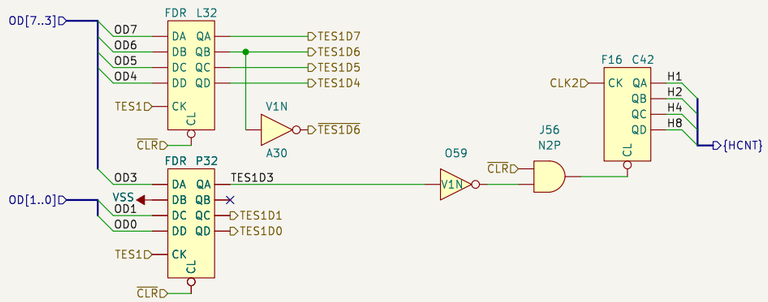
Test register 1



Sheet: /Misc/		
File: misc.kicad_sch		
Title: Konami 007783		
Size: A3	Date: 2023-10-10	**Rev:**
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OA[12..0]
OPDA[12..0]
AB[13..1]
SAB[13..1]

Four time slots available all the time for addressing.
0: – OBJBUFINIT high: Writing zeros to all data in the Object Data Buffer.
– DMA high: Data copying from Object RAM to Object Buffer RAM.
1: Parsed object data copy to the frame buffers.
2: Master CPU access
3: Slave CPU access

OBFI	DMA	OH2	$\overline{OH2}$	OH4	$\overline{OH4}$
1	X	0	1	0	1
X	1	0	1	0	1

OBFI
DMA
E30 R2N
H2
A25 N2B
TES1D6
A31 CLK K3B
$\overline{OH2}$
A35 N2P
A45 CLK K4B
V1N B9
OH2
$\overline{OH2'}$
H4
A38 N2B
A42 CLK K4B
$\overline{OH4}$
A22 N2P
A19 CLK K3B
E8 V1N
OH4
$\overline{OH4'}$
{HCNT}

C79 T34 F38 V1N ORA0
OA0 $\overline{OH4}$ $\overline{OH2}$
OPDA0 $\overline{OH4}$ OH2
AB1 $\overline{OH4}$ $\overline{OH2}$
SAB1 OH4 OH2

B70 T34 D72 V1N ORA1
OA1 $\overline{OH4}$ $\overline{OH2}$
OPDA1 $\overline{OH4}$ OH2
AB2 $\overline{OH4}$ $\overline{OH2}$
SAB2 OH4 OH2

C91 T34 E57 V1N ORA2
OA2 $\overline{OH4}$ $\overline{OH2}$
OPDA2 $\overline{OH4}$ OH2
AB3 $\overline{OH4}$ $\overline{OH2}$
SAB3 OH4 OH2

B58 T34 G19 V1N ORA3
OA3 $\overline{OH4}$ $\overline{OH2}$
OPDA3 $\overline{OH4}$ OH2
AB4 $\overline{OH4}$ $\overline{OH2}$
SAB4 OH4 OH2

B106 T34 C70 V1N ORA4
OA4 $\overline{OH4}$ $\overline{OH2}$
OPDA4 $\overline{OH4}$ OH2
AB5 $\overline{OH4}$ $\overline{OH2}$
SAB5 OH4 OH2

B97 T34 D94 V1N ORA5
OA5 $\overline{OH4}$ $\overline{OH2}$
OPDA5 $\overline{OH4}$ OH2
AB6 $\overline{OH4}$ $\overline{OH2}$
SAB6 OH4 OH2

B88 T34 C65 V1N ORA6
OA6 $\overline{OH4}$ $\overline{OH2}$
OPDA6 $\overline{OH4}$ OH2
AB7 $\overline{OH4}$ $\overline{OH2}$
SAB7 OH4 OH2

B79 T34 D81 V1N ORA7 ORA[12..0]
OA7 $\overline{OH4}$ $\overline{OH2}$
OPDA7 $\overline{OH4}$ OH2
AB8 $\overline{OH4}$ $\overline{OH2}$
SAB8 OH4 OH2

C105 T34 C62 V1N ORA8
OA8 $\overline{OH4}$ $\overline{OH2}$
OPDA8 $\overline{OH4}$ OH2
AB9 $\overline{OH4}$ $\overline{OH2}$
SAB9 OH4 OH2

A86 T34 A83 V1N ORA9
OA9 $\overline{OH4}$ $\overline{OH2}$
OPDA9 $\overline{OH4}$ OH2
AB10 $\overline{OH4}$ $\overline{OH2}$
SAB10 OH4 OH2

A106 T34 A14 V1N ORA10
OA10 $\overline{OH4}$ $\overline{OH2}$
VSS $\overline{OH4}$ OH2
AB11 $\overline{OH4}$ $\overline{OH2}$
SAB11 OH4 OH2

A96 T34 A8 V1N ORA11
OA11 $\overline{OH4}$ $\overline{OH2}$
VDD $\overline{OH4}$ OH2
AB12 $\overline{OH4}$ $\overline{OH2}$
SAB12 OH4 OH2

A70 T34 A55 V1N ORA12
OA12 $\overline{OH4}$ $\overline{OH2}$
VDD $\overline{OH4}$ OH2
AB13 $\overline{OH4}$ $\overline{OH2}$
SAB13 OH4 OH2

A58 T34 E55 V1N $\overline{OOE}$
$\overline{OAOE}$ $\overline{OH4}$ $\overline{OH2}$
VSS $\overline{OH4}$ OH2
MREAD $\overline{OH4}$ $\overline{OH2}$
SREAD OH4 OH2

CPU Read/Write logic

$\overline{SLWR}$ A50 V1N SLWR
$\overline{SUWR}$ A52 V1N SUWR
$\overline{MOCS}$ A11 V1N MOCS
$\overline{SOCS}$ A16 V1N SOCS

Object Character RAM Read/Write logic

SLWR SAB1 R87 R3B $\overline{CRW0}$
SUWR SAB1 R58 R3B $\overline{CRW1}$
A57 R2N
TIM3 $\overline{OCRA}$
SLWR Q80 R3B $\overline{CRW2}$
SUWR Q58 R3B $\overline{CRW3}$
$\overline{CRW}$[3..0]
SAB1 Q84 V1N

Object RAM Read/Write logic

SOCS SLWR OH4 OH2 B68 N4N
A6 $\overline{MLWR}$ V1N
MOCS OH4 $\overline{OH2'}$ B2 N4N
B55 N2N
B50 CLK K3B TIM
D40 R2N $\overline{ORLWR}$

BEFLAG & DMA & DMAON
BFLG H8 H2 E11 N8B
DMA $\overline{OH4'}$ $\overline{OH2'}$
E20 FDG
DMAON OBFI CLR
VDD
E3 N2N
D10 BD3 CLK2
D4 CLK K3B
OBFI $\overline{OH4'}$ $\overline{OH2'}$
E5 D24
OBFI & DMAON

SOCS SUWR OH4 OH2 A68 N4N
A3 $\overline{MUWR}$ V1N
MOCS OH4 $\overline{OH2'}$ B5 N4N
B57 N2N
B46 CLK K3B TIM
D36 R2N $\overline{ORUWR}$

Sheet: /Address output/
File: address_output.kicad_sch
Title: Konami 007783
Size: A3 | Date: 2023-10-10 | **Rev:**
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