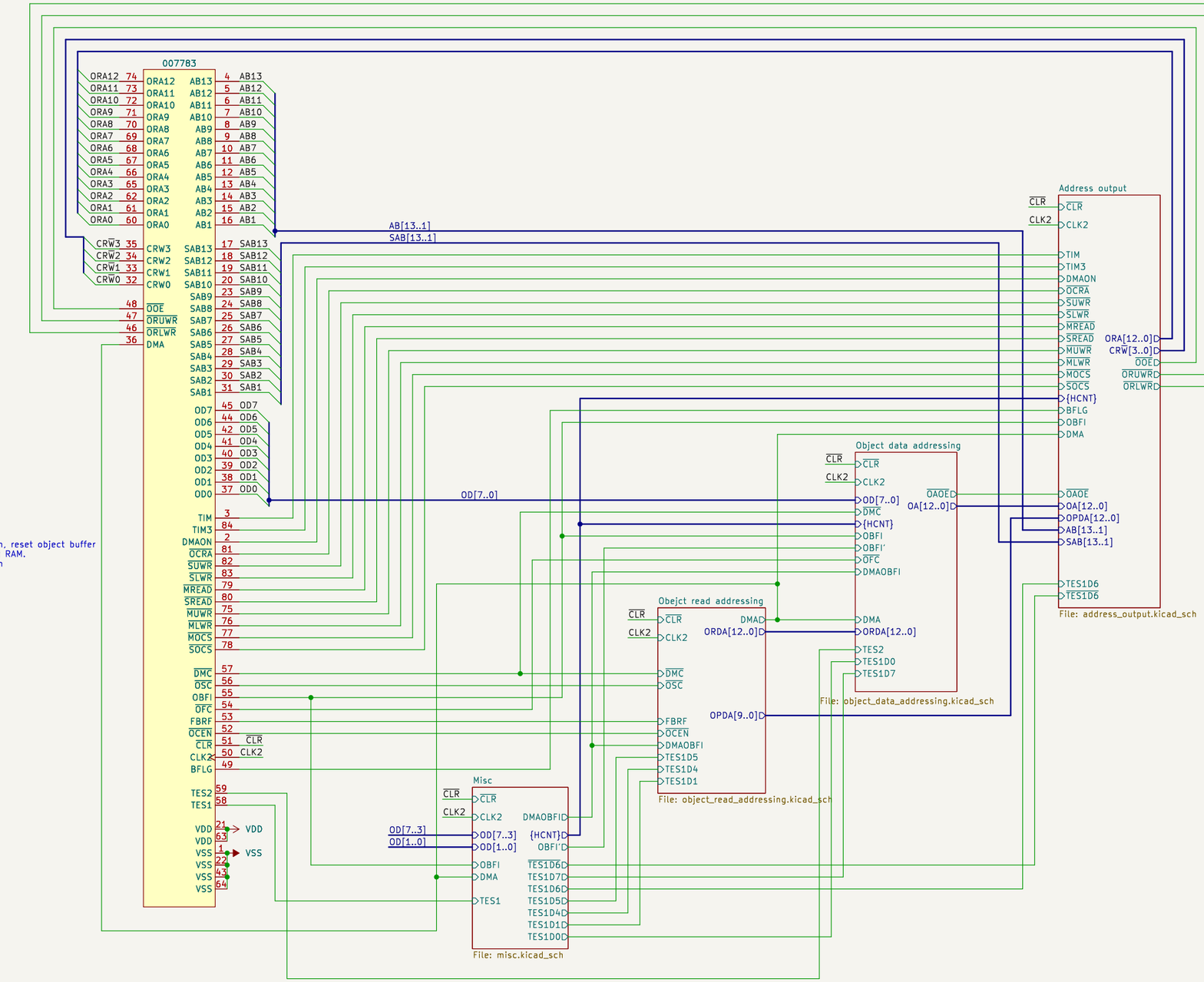
1. OBFI: (OBJBUFINIT) zeros are written to 1800h..1AFFh.
2. DMA: OA[12:0] active.
   a) 8 words are read from addresses 0000h..0007h, 0028h..002Fh,...,17E0h..17E7h
      by the sprite data parser 007784 and if the sprite is enabled with BEFLAG
      they are written to the buffer OBJBUF.

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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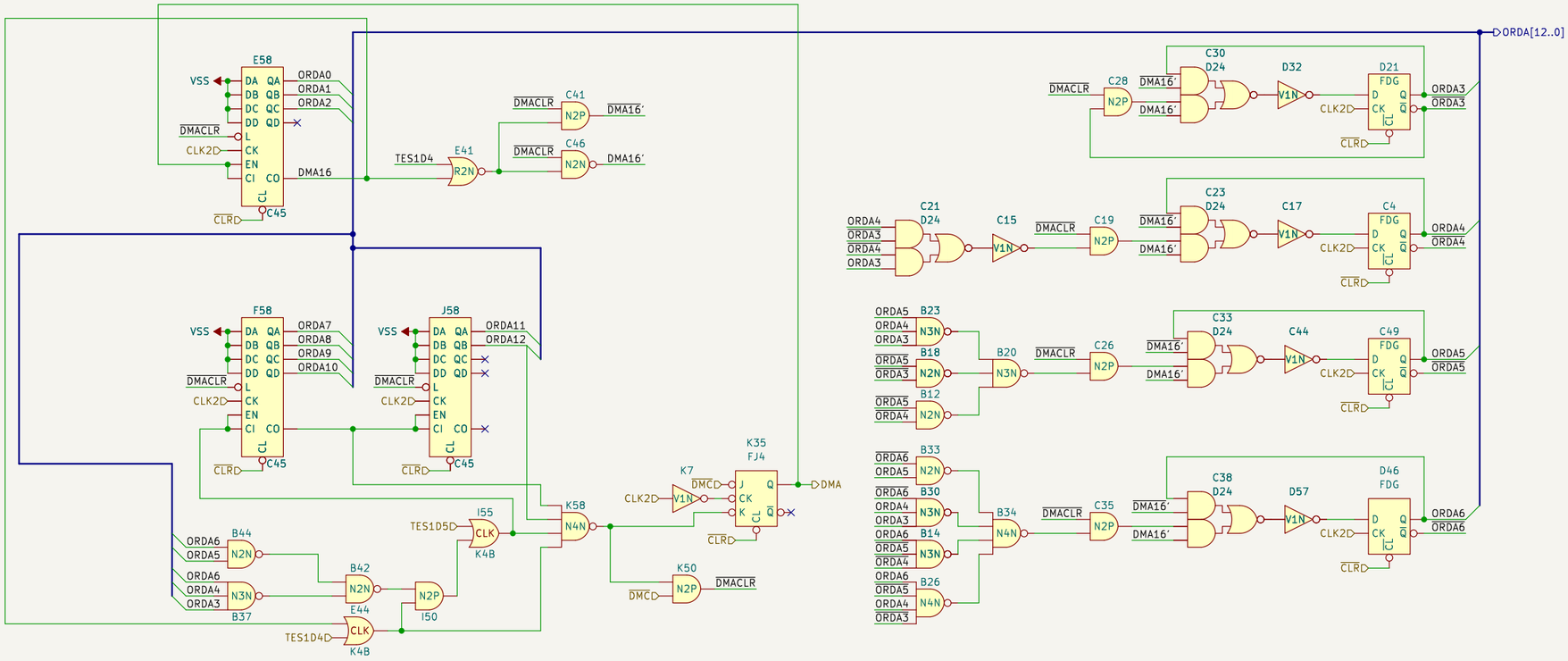
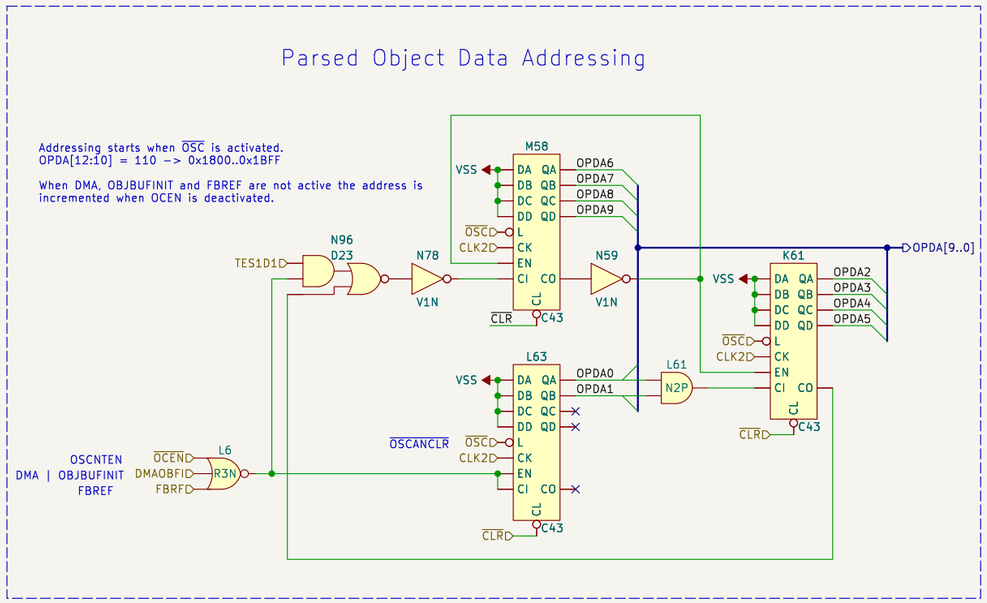
Object Read Addressing



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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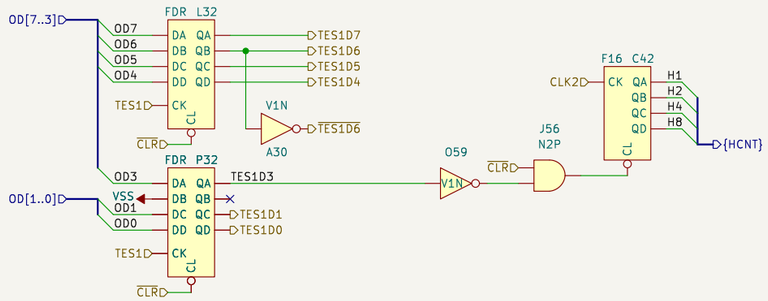
Test register 1



Sheet: /Misc/		
File: misc.kicad_sch		
Title: Konami 007783		
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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

OA[12..0]
OPDA[12..0]
AB[13..1]
SAB[13..1]
{HCNT}
ORA[12..0]

OBFI
DMA
E30 R2N
H2
A25 N2B
A31 CLK K3B
$\overline{TES1D6}$
$\overline{OH2}$
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
$\overline{OH4'}$

C79: OA0, OPDA0, AB1, SAB1 → T34 → F38 V1N → ORA0
B79: OA7, OPDA7, AB8, SAB8 → T34 → D81 V1N → ORA7
B70: OA1, OPDA1, AB2, SAB2 → T34 → D72 V1N → ORA1
C105: OA8, OPDA8, AB9, SAB9 → T34 → C62 V1N → ORA8
C91: OA2, OPDA2, AB3, SAB3 → T34 → E57 V1N → ORA2
A86: OA9, OPDA9, AB10, SAB10 → T34 → A83 V1N → ORA9
B58: OA3, OPDA3, AB4, SAB4 → T34 → G19 V1N → ORA3
A106: OA10, VSS, AB11, SAB11 → T34 → A14 V1N → ORA10
B106: OA4, OPDA4, AB5, SAB5 → T34 → C70 V1N → ORA4
A96: OA11, VDD, AB12, SAB12 → T34 → A8 V1N → ORA11
B97: OA5, OPDA5, AB6, SAB6 → T34 → D94 V1N → ORA5
A70: OA12, VDD, AB13, SAB13 → T34 → A55 V1N → ORA12
B88: OA6, OPDA6, AB7, SAB7 → T34 → C65 V1N → ORA6
A58: $\overline{OAOE}$, VSS, $\overline{MREAD}$, $\overline{SREAD}$ → T34 → E55 V1N → $\overline{OOE}$

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{CRW}$0
SUWR, SAB1 → R58 R3B → $\overline{CRW}$1
A57 R2N: TIM3, $\overline{OCRA}$
SLWR → Q80 R3B → $\overline{CRW}$2
SUWR → Q58 R3B → $\overline{CRW}$3
SAB1 → Q84 V1N
$\overline{CRW}$[3..0]

Object RAM Read/Write logic

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

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

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

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