

12345678

A

bus

power

buffers

B

File: bus.kicad\_sch  
TMS9995CPU

File: power.kicad\_sch  
GALS

File: buffers.kicad\_sch  
bus sharing

IO

C

D

E

12345678

Sheet: /  
File: processor.tms9995.kicad\_sch

Title: **Duodyne TMS9995 CPU board**

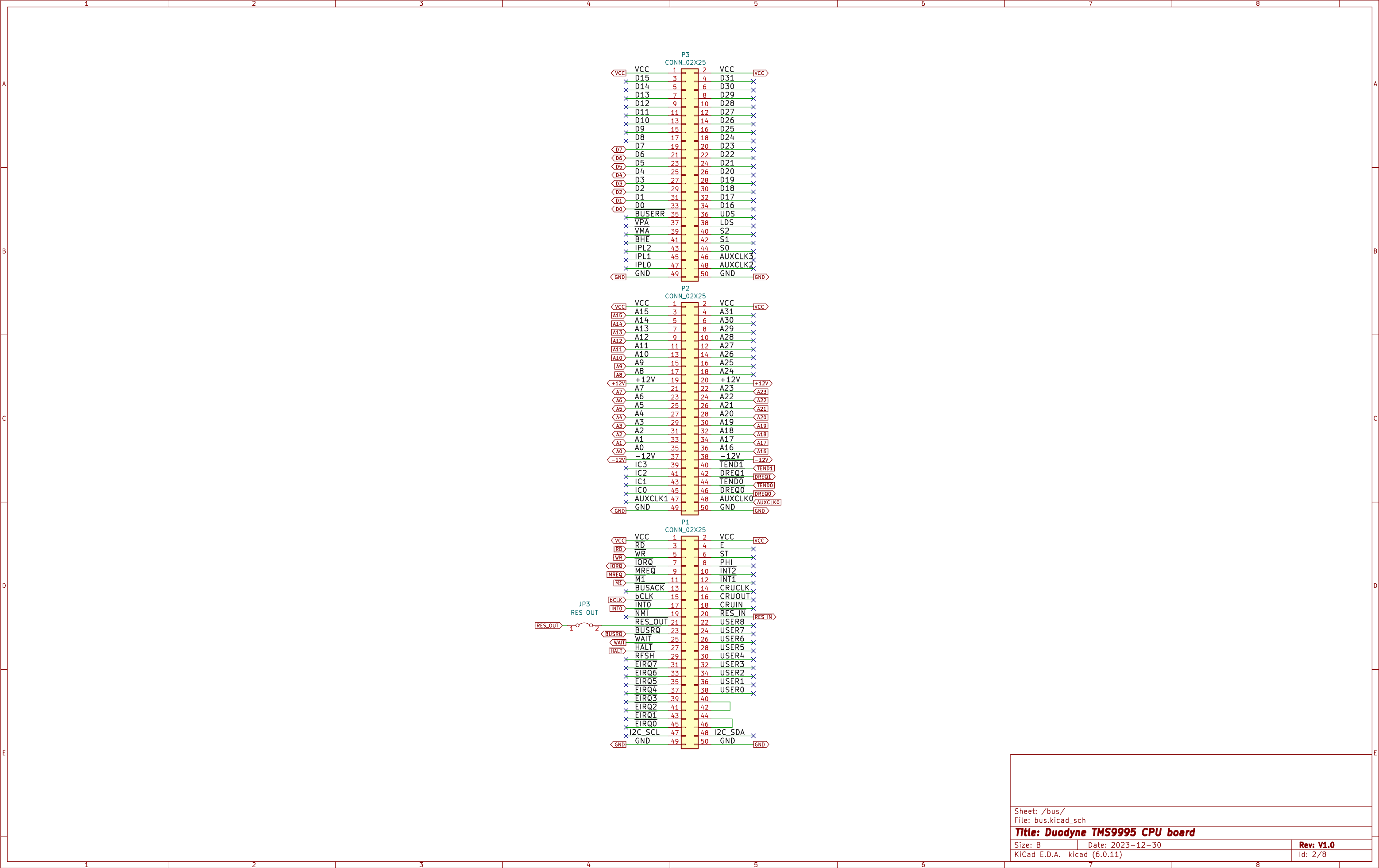
Size: B

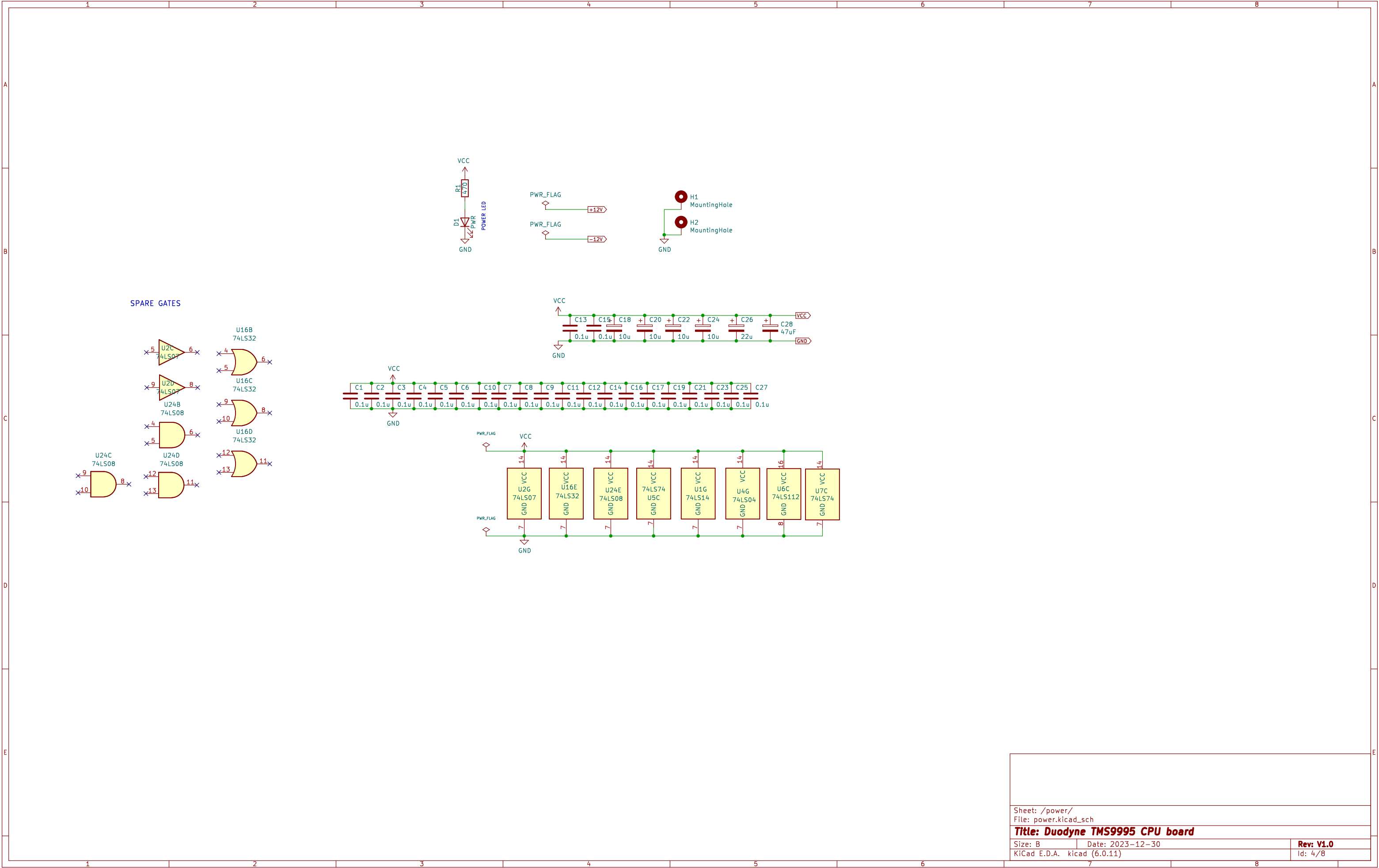
Date: 2023-12-30

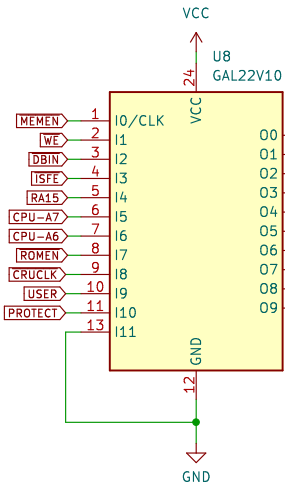
Rev: **V1.0**

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$$\begin{aligned} &= \text{MEMEN} + \text{ROMEN} + \text{RA15} \\ &= \text{MEMEN} + (!\text{ROMEN} * !\text{RA15} * \text{WE}) + (!\text{ISFE} * \text{RA15}) \\ &= \text{MEMEN} + \text{ISFE} + !\text{RA15} + \text{CPU-A7} + \text{CPU-A6} + \text{USER} \\ &= \text{MEMEN} + \text{ISFE} + !\text{RA15} + \text{CPU-A7} + !\text{CPU-A6} + \text{USER} \\ &= \text{WE} + (\text{PROTECT} * \text{USER}) \\ &= !\text{MEMEN} + \text{ISFE} + \text{RA15} + \text{CPU-A7} + \text{CPU-A6} + \text{USER} \\ &= !\text{ROMSEL} + !\text{CFSEL} \\ &= \text{CRUCLK} + \text{ISFE} + \text{RA15} + \text{CPU-A7} + !\text{CPU-A6} \\ &= \text{MEMEN} + \text{ISFE} + !\text{CFSEL} + !\text{MAPEL} + !\text{I9902SEL} + \text{USER} + !\text{RA15} \\ &= (!\text{ISFE} * \text{RA15}) + \text{OFFBOARD\_MEM} \end{aligned}$$

Equation ('+' is 'OR', '\*' is 'AND')

The memory map is shown in the table below.

| Memory Address | Mapped To  |
|----------------|--|
| >0000 - >7FFF  | ROM when enabled, otherwise RAM  |
| >8000 - >EFFF  | RAM  |
| >F000 - >F0FB  | TMS 9995 internal RAM  |
| >F0FC - >F0FF  | RAM  |
| >FE00 - >FE3F  | CF card ATA registers (FIX INCOMPLETE DECODING WITH NEXT REVISION)   |
| >FE40 - >FE7F  | Memory mapper registers 0-15 (>FE40 - >FE4F, repeats at >FE50 etc. . . FIX INCOMPLETE DECODING WITH NEXT REVISION) |
| >FE80 - >FEBF  | Offboard IO (ports \$80-\$FF)  |
| >FFF0 - >FFF9  | RAM  |
| >FFFA - >FFFF  | TMS 9995 internal RAM  |

CRU Address Mapped To  
>0000 - >003F TMS 9902 registers  
>0040 - >007F Control signal latch (further details here)  
(Plus processor internal CRU bits)

Sheet: /GALS/  
File: GALS.kicad\_sch

Title: Duodyne TMS9995 CPU board

|                             |                  |           |
|-----------------------------|------------------|-----------|
| Size: B                     | Date: 2023-12-30 | Rev: V1.0 |
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