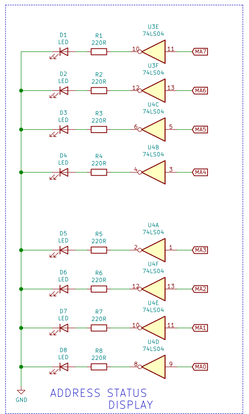

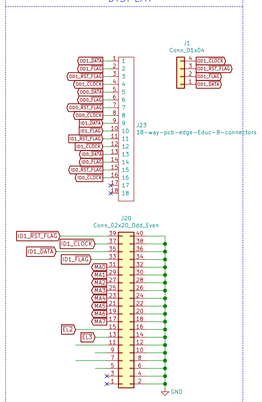

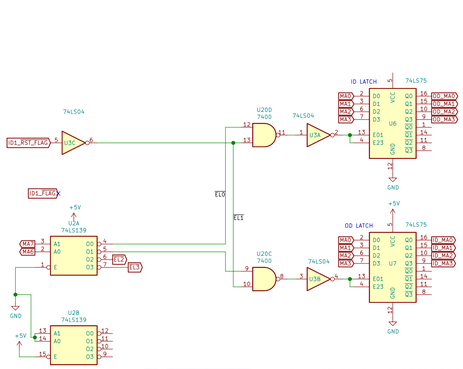

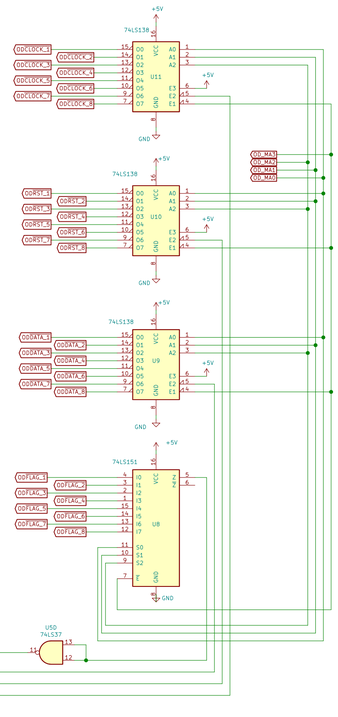

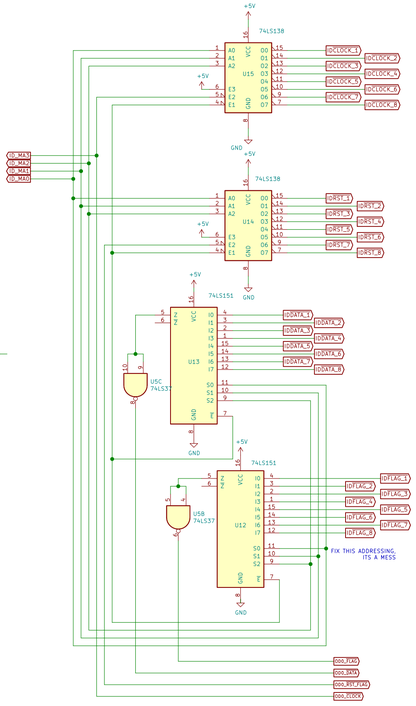

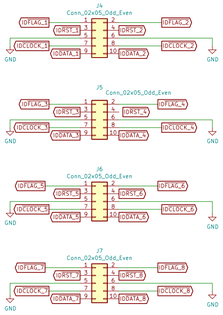

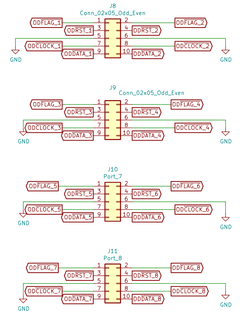

G'day Gwyllym,

>Please find attached the images for the relay driver which was originally
>designed by Jim Rowe...

Is this for the paper tape punch?

For the multiplexer, I realised that an SR FF with two NAND gates could be used. We have for an SR FF

Q := inv(Q_*S_)
Q_ := inv(Q*R_*MR_)

where S_ is an active low set, R_ is an active low reset, and MR_ is an active low master reset. which we represent this by the function

Q := SR(S_,R_,MR_)

Thus, for the Q and P flip flops, we have

Q := SR(inv(inv(OD1_RESET_)*MA7*MA6),inv(EXECUTE*T22.5),MR_)
P := SR(inv(FETCH*T22.5*inv(MB7)*MB4),inv(EXECUTE*T22.5),MR_)

where EXECUTE, T22.5, inv(FETCH*T22.5), MB4 and MB7 are from the Decoder Board and MR_ is from the Timer board. Note that

FETCH*T23*(AND+TAD+ISZ+DCA)*I = P14*inv(MB7)*MB4

won't work, as MB4 and MB7 get written over during an indirect address during T23. Also, I forgot to invert P14. If using MB4 and MB7, then the input needs to be

FETCH*T22.5*inv(MB7)*MB4

For Page Zero operation, using inv(P14) = inv(F*T23*inv(OPR+IOT)) is OK to use with MB4 to MB7, since the 7495 register is loaded only on a high to low transition of MCP.

1) Each SR FF requires a 2-input NAND and a 3-input NAND.
2) inv(EXECUTE*T22.5) uses a 2-input NAND.
3) inv(inv(OD1_RESET_)*MA7*MA6) uses and 3-input NAND, with inv(OD1_RESET_) already available.
4) inv(FETCH*T22.5*inv(MB7)*MB4) uses and 3-input NAND, an inverter for inv(FETCH*T22.5) and an inverter for MB7
5) EL = T0.5*inv(JMP_*JMS_)*Q uses and 3-input NAND and an inverter, with inv(JMP_*JMS_) already available.
6) SIF = inv(EXECUTE*P) uses a 2-input NAND.

Total count is

	NAND2	NAND3	INV
1)	2	2	0
2)	1	0	0
3)	0	1	0
4)	0	1	2
5)	0	1	1
6)	1	0	0
	4	5	3

All the best, Steven.

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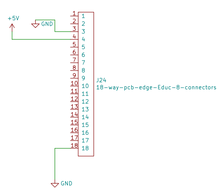
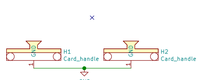
email: steven@sworld.com.au http://www.sworld.com.au/





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