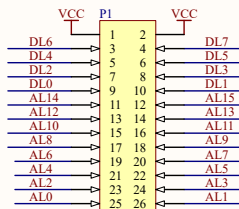


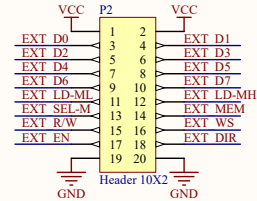
DAVIAC2

DAVIAC-2 TTL computer is functionally identical to the DAVIAC-1 Relay Computer.

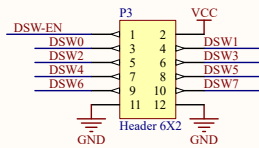
Signals are active LO, DATA in Positive



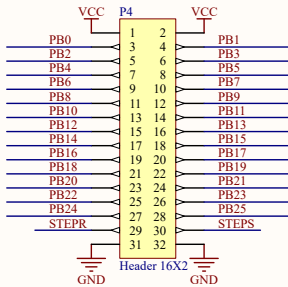
Bus LED connector



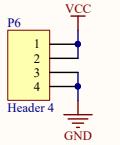
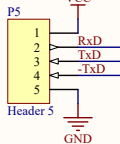
DMR Interface
Signals are TTL



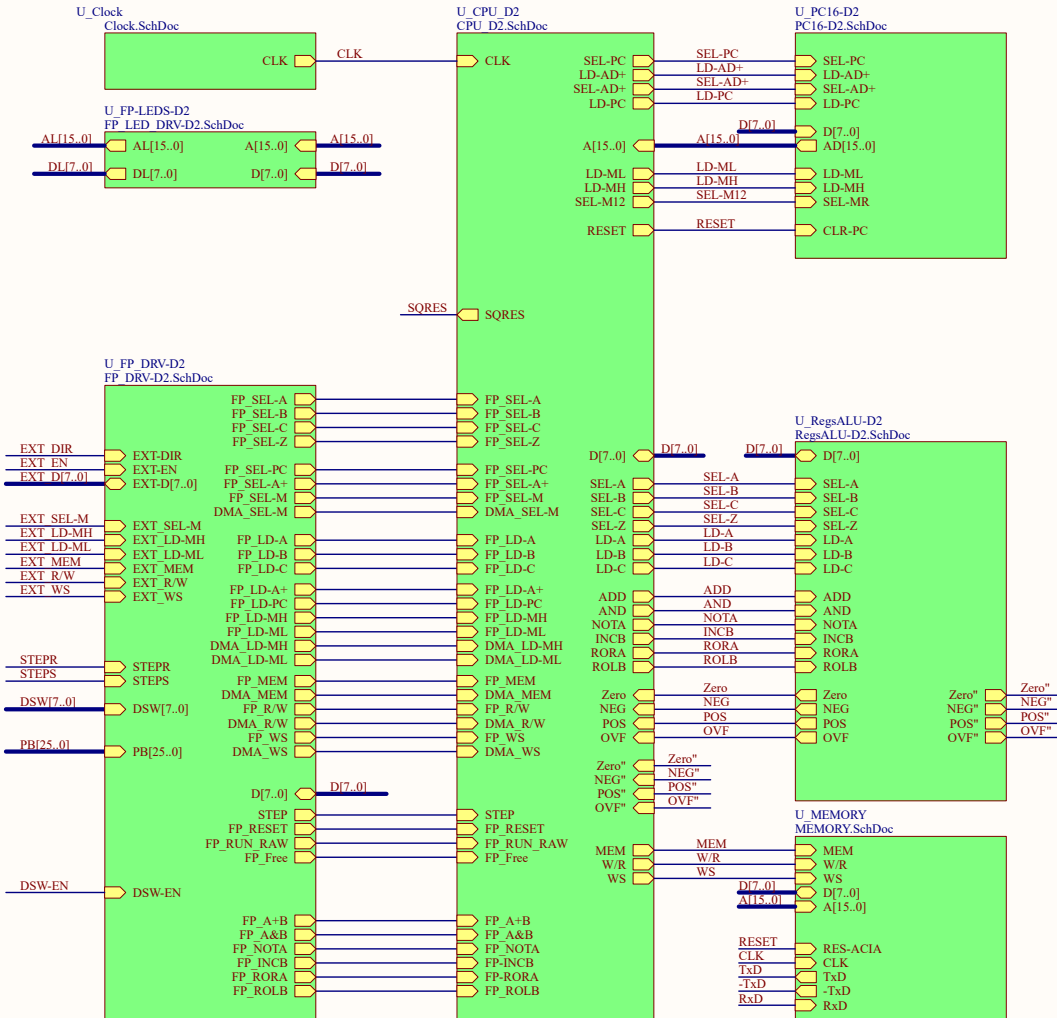
FP Data SW Input
Data is Hi logic DS-EN active Lo



FP Controls connector

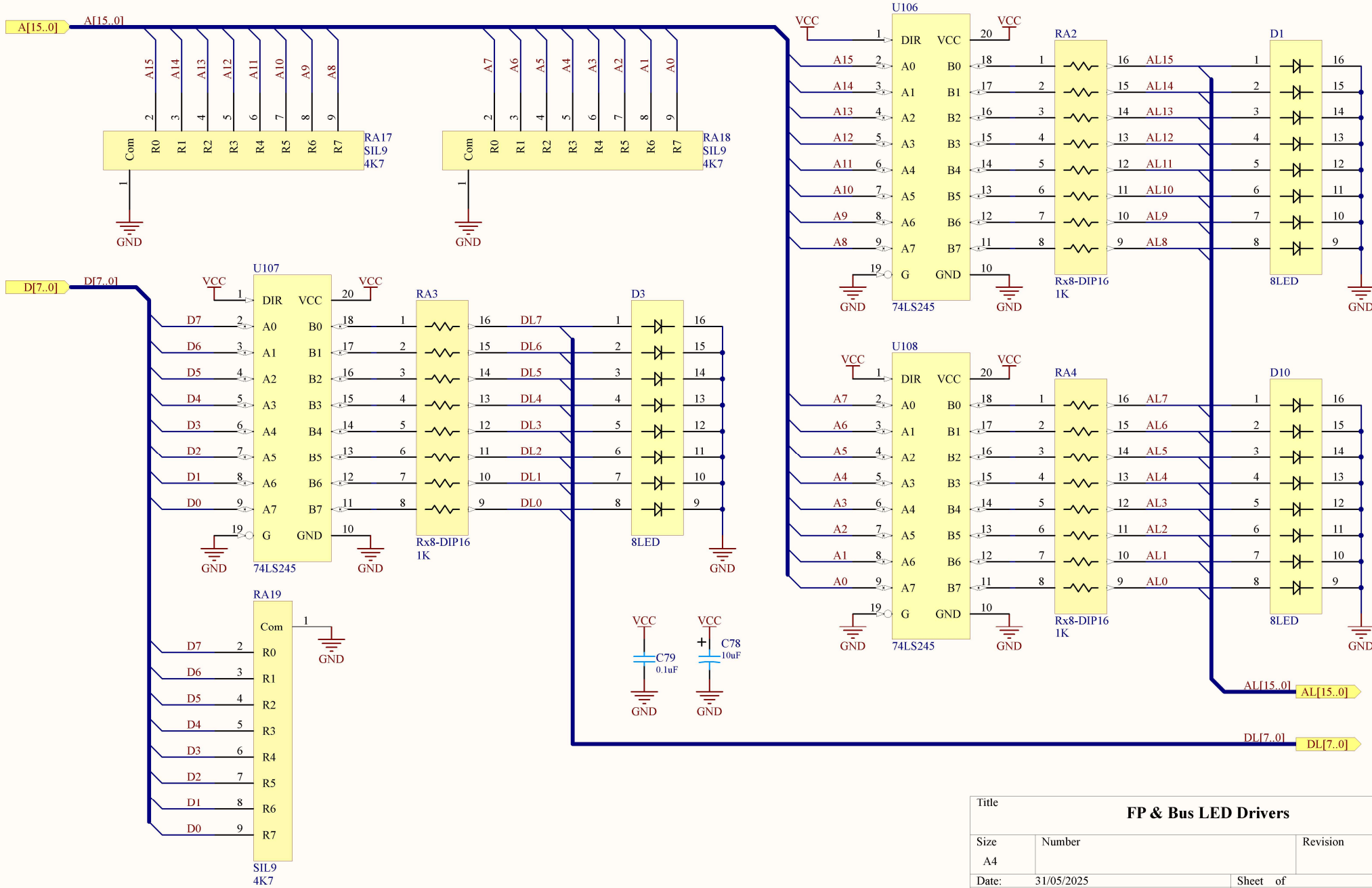


Push Button Map	
0	ADD
1	AND
2	NOTA
3	INCB
4	RORA
5	ROLB
6	SEL-A
7	LD-A
8	SEL-B
9	LD-B
10	SEL-C
11	LD-C
12	SEL-Z
13	LD-MH
14	LD-ML
15	SEL-M
16	LD-A+
17	SEL-A+
18	LD-PC
19	SEL-PC
20	MEM
21	R/W
22	WS
23	RESET
24	FREE
25	RUN



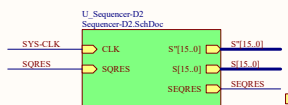
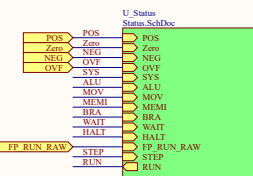
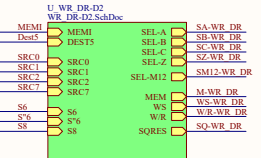
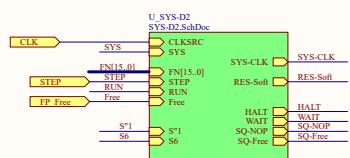
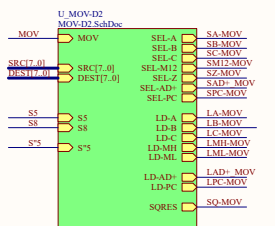
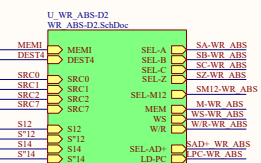
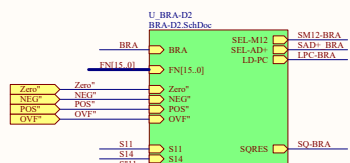
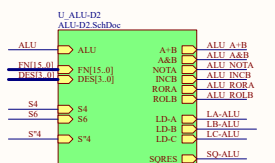
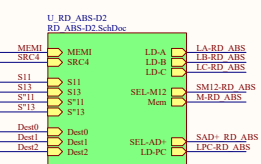
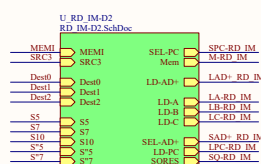
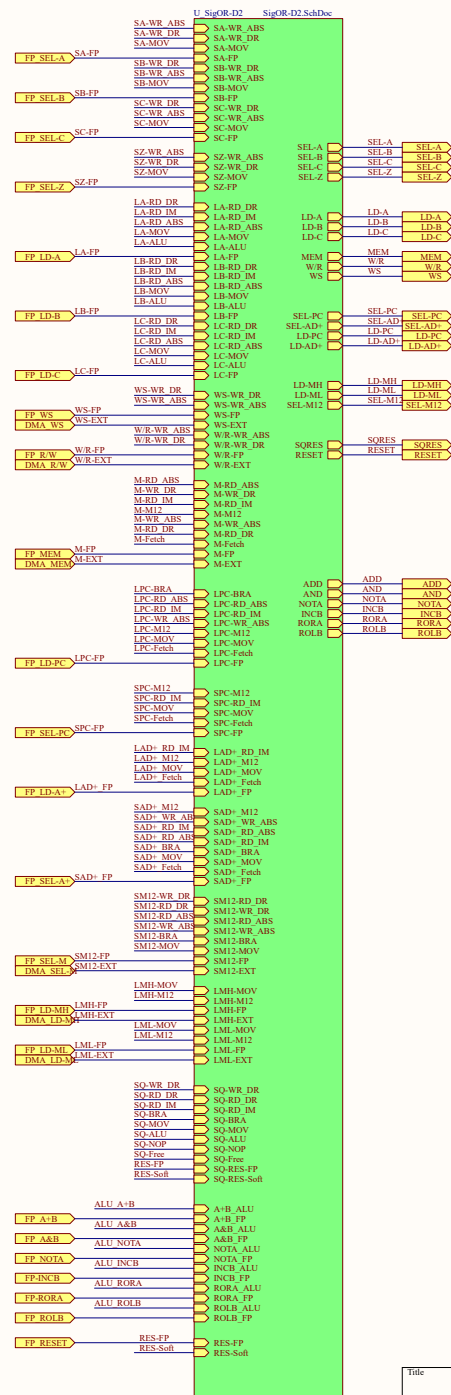
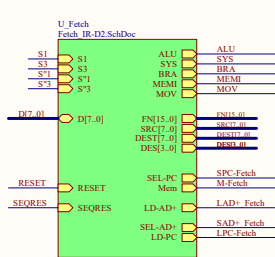
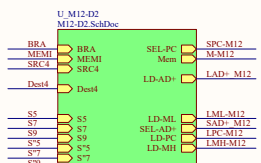
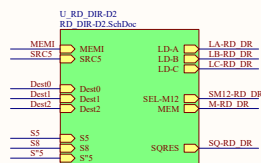
Title		
DAVIAC2		
Size	Number	Revision
A3		
Date:	31/05/2025	Sheet of
File:	C:\Users\...DAVIAC2.03.SchDoc	Drawn By: David Warren

DAVIAC2



Title		
FP & Bus LED Drivers		
Size	Number	Revision
A4		
Date:	31/05/2025	Sheet of
File:	C:\Users\A\FP_LED_DRV-D2.SchDoc	Drawn By:

DAVIAC2



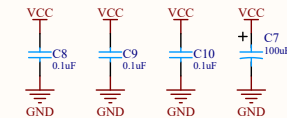
	SQ	PC	IR
RES-FP	x	x	x
RES-SOFT	x	x	x
SQ-NOP	x		
SQ-Free	x		

DAVIAC-2 , Signals are active LO, DATA in Positive

A



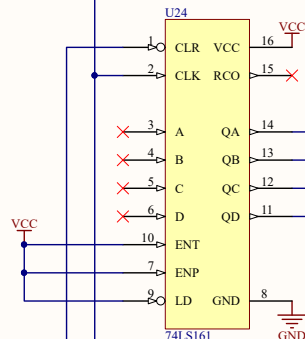
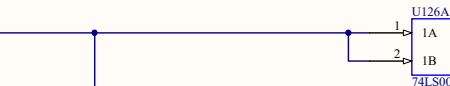
C



Title		
Fetch IR Decode		
Size A3	Number	Revision
Date:	31/05/2025	Sheet of
File:	C:\Users\ Fetch IR.D2 SchDoc	Drawn By:

DAVIAC2

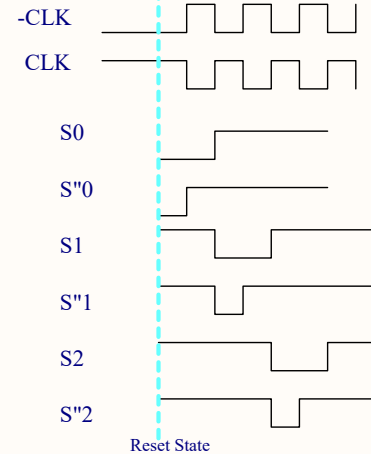
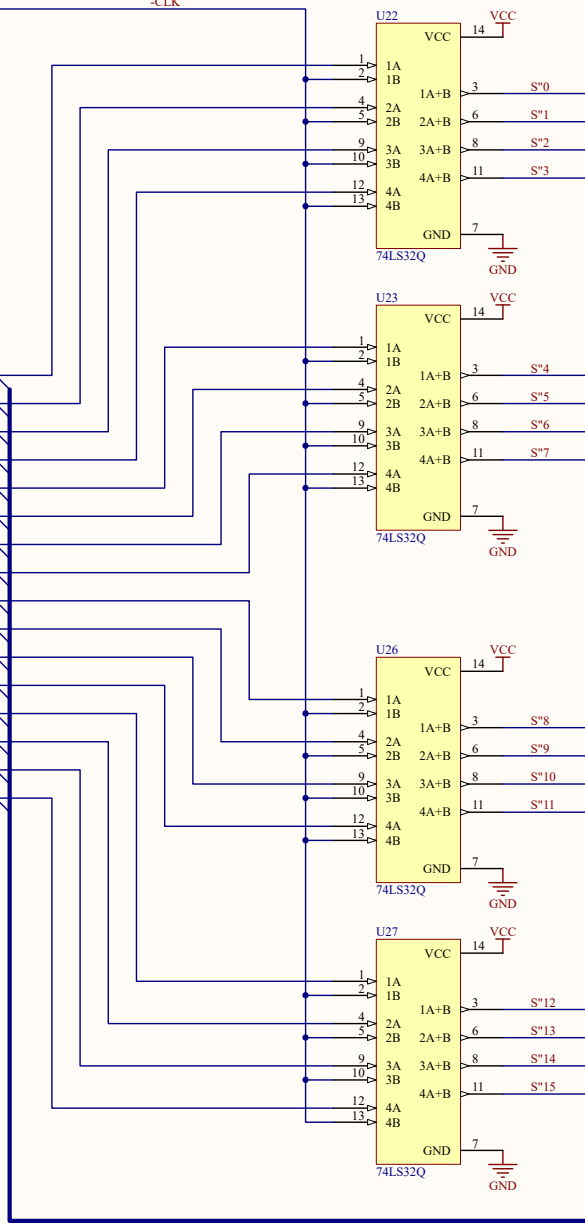
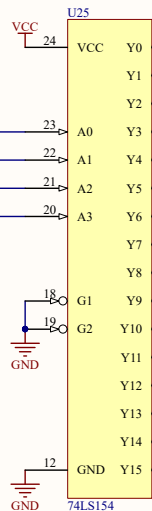
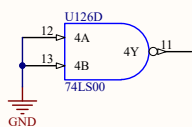
CLK
Signals are active Lo



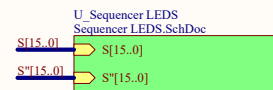
To Instruction Reg CLR

SQRES

SQRES is transitory, Latched c CLK clear.

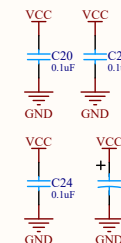


Signals are active Lo

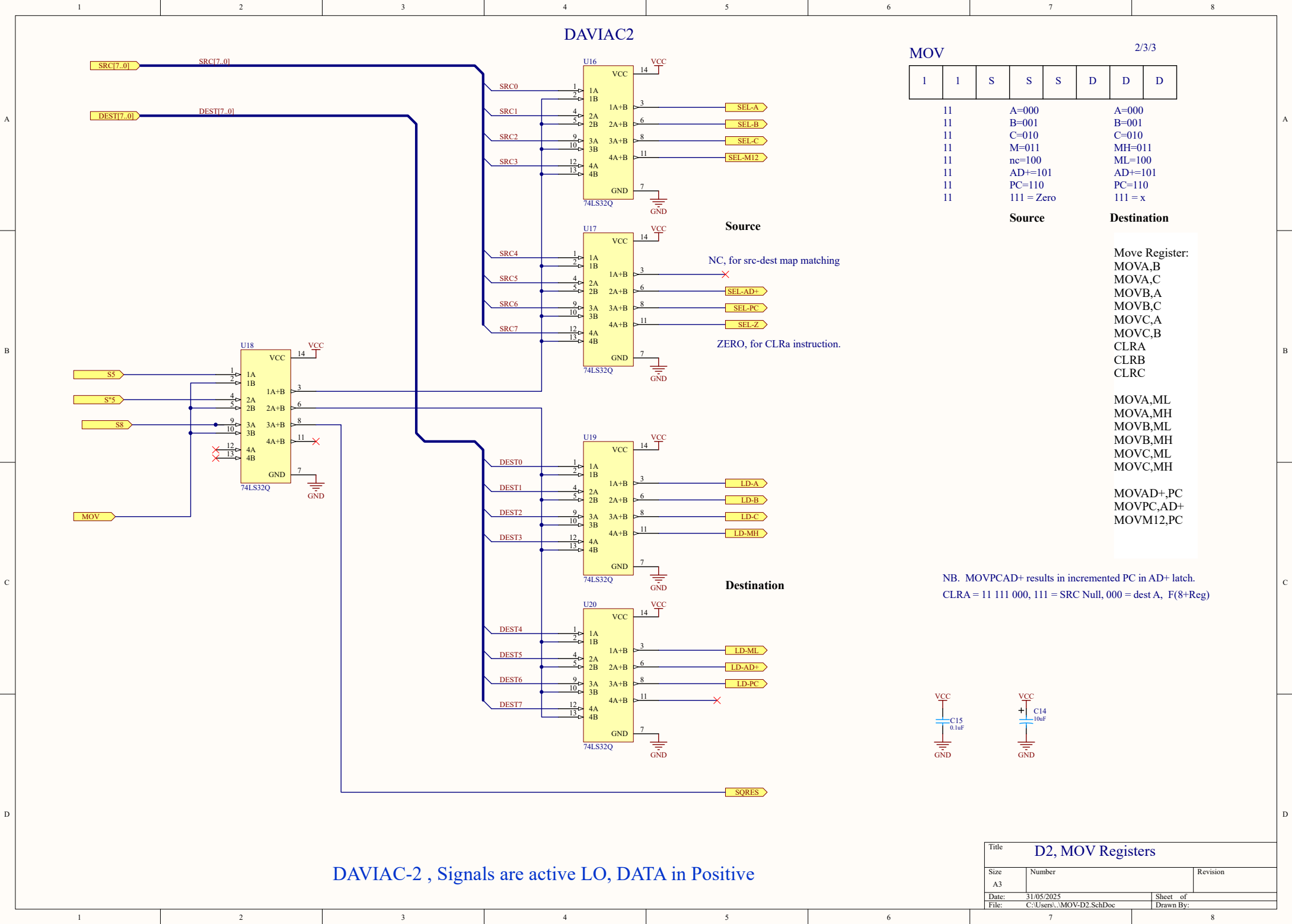


Signals are active Lo

DAVIAC-2 , Signals are active LO, DATA in Positive



Title		
Size	Number	Revision
A3		
Date:	31/05/2025	Sheet of
File:	C:\Users\...\Sequencer-D2.SchDoc	Drawn By:



MOV

2/3/3

1	1	S	S	S	D	D	D
11		A=000			A=000		
11		B=001			B=001		
11		C=010			C=010		
11		M=011			MH=011		
11		nc=100			ML=100		
11		AD+=101			AD+=101		
11		PC=110			PC=110		
11		111 = Zero			111 = x		

Source

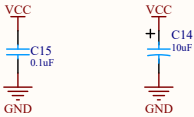
Destination

Move Register:
MOVA,B
MOVA,C
MOVB,A
MOVB,C
MOVC,A
MOVC,B
CLRA
CLRB
CLRC

MOVA,ML
MOVA,MH
MOVB,ML
MOVB,MH
MOVC,ML
MOVC,MH

MOVAD+,PC
MOVPC,AD+
MOVMI2,PC

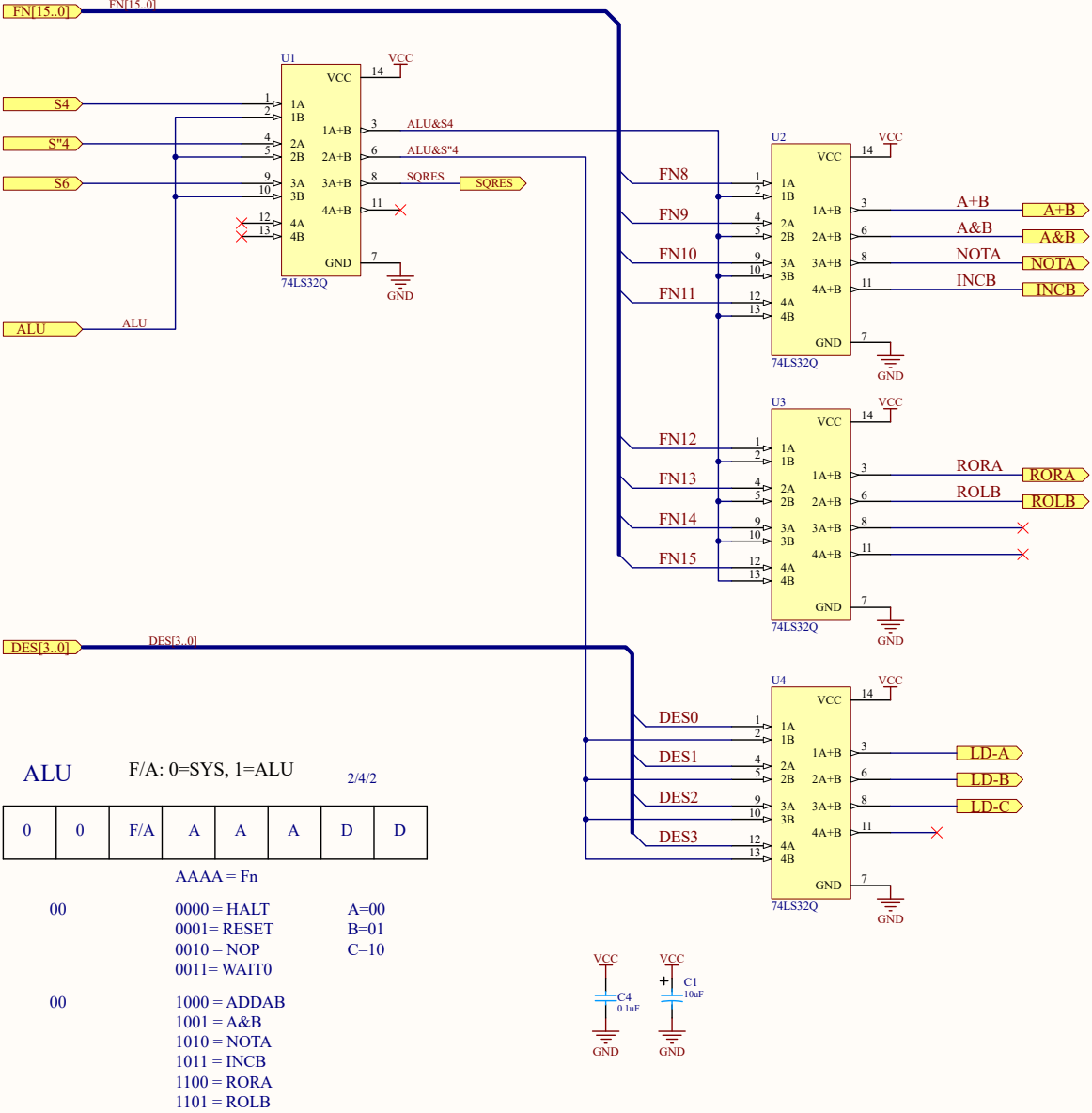
NB. MOVPCAD+ results in incremented PC in AD+ latch.
CLRA = 11 111 000, 111 = SRC Null, 000 = dest A, F(8+Reg)



Title			D2, MOV Registers	
Size	Number	Revision		
A3				
Date:	31/05/2025	Sheet of		
File:	C:\Users\...\MOV-D2.SchDoc	Drawn By:		

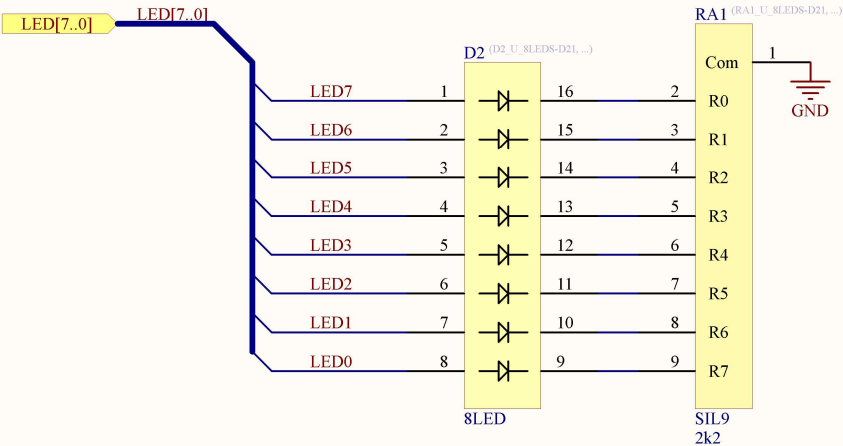
DAVIAC-2 , Signals are active LO

DAVIAC-2 , ALU



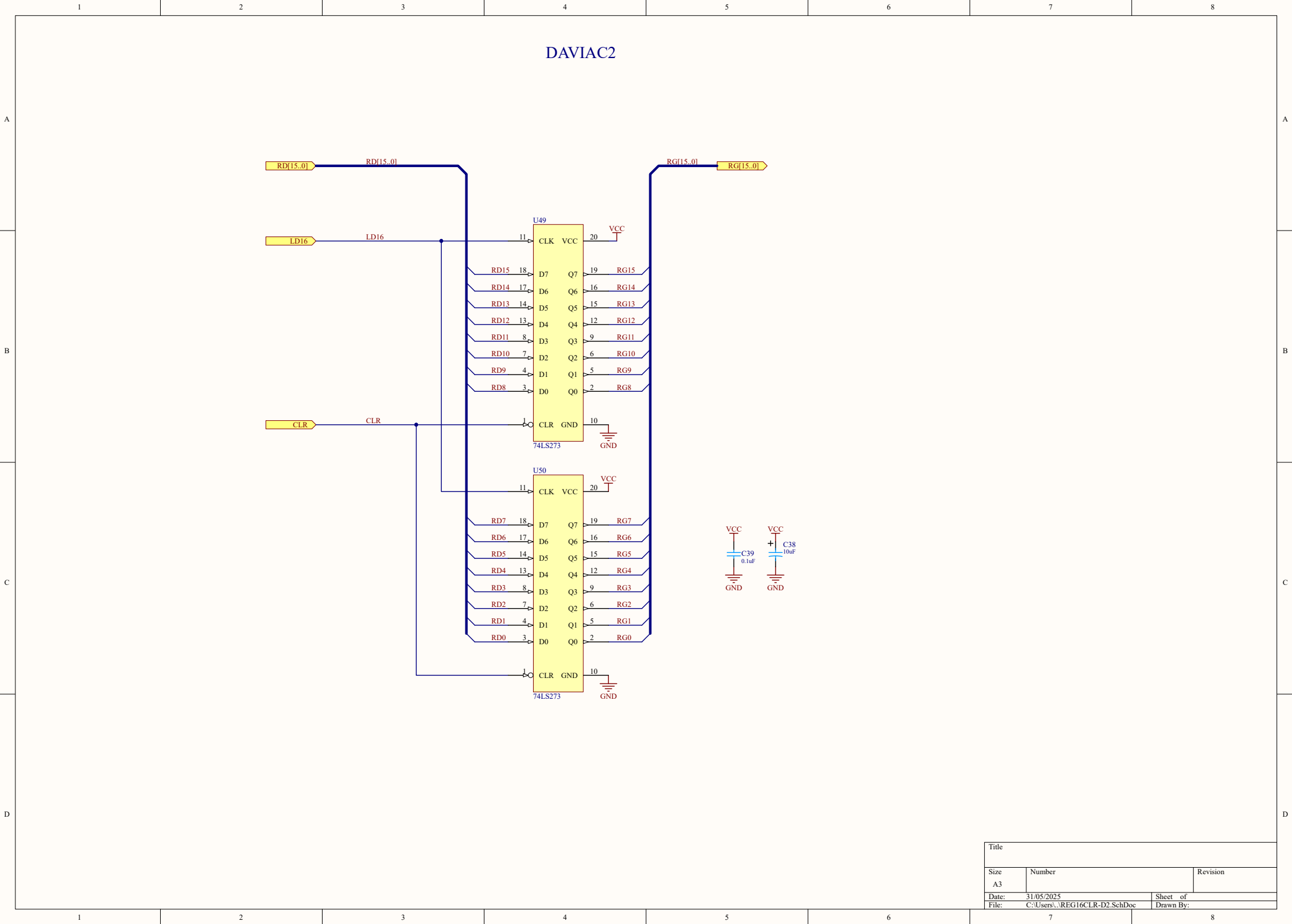
DAVIAC-2 , Signals are active LO, DATA in Positive

DAVIAC2



The '273 does not drive hi well

Title		
Size	Number	Revision
A4		
Date:	31/05/2025	Sheet of
File:	C:\Users\A\8LEDS-D2.SchDoc	Drawn By:



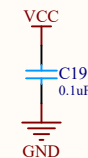
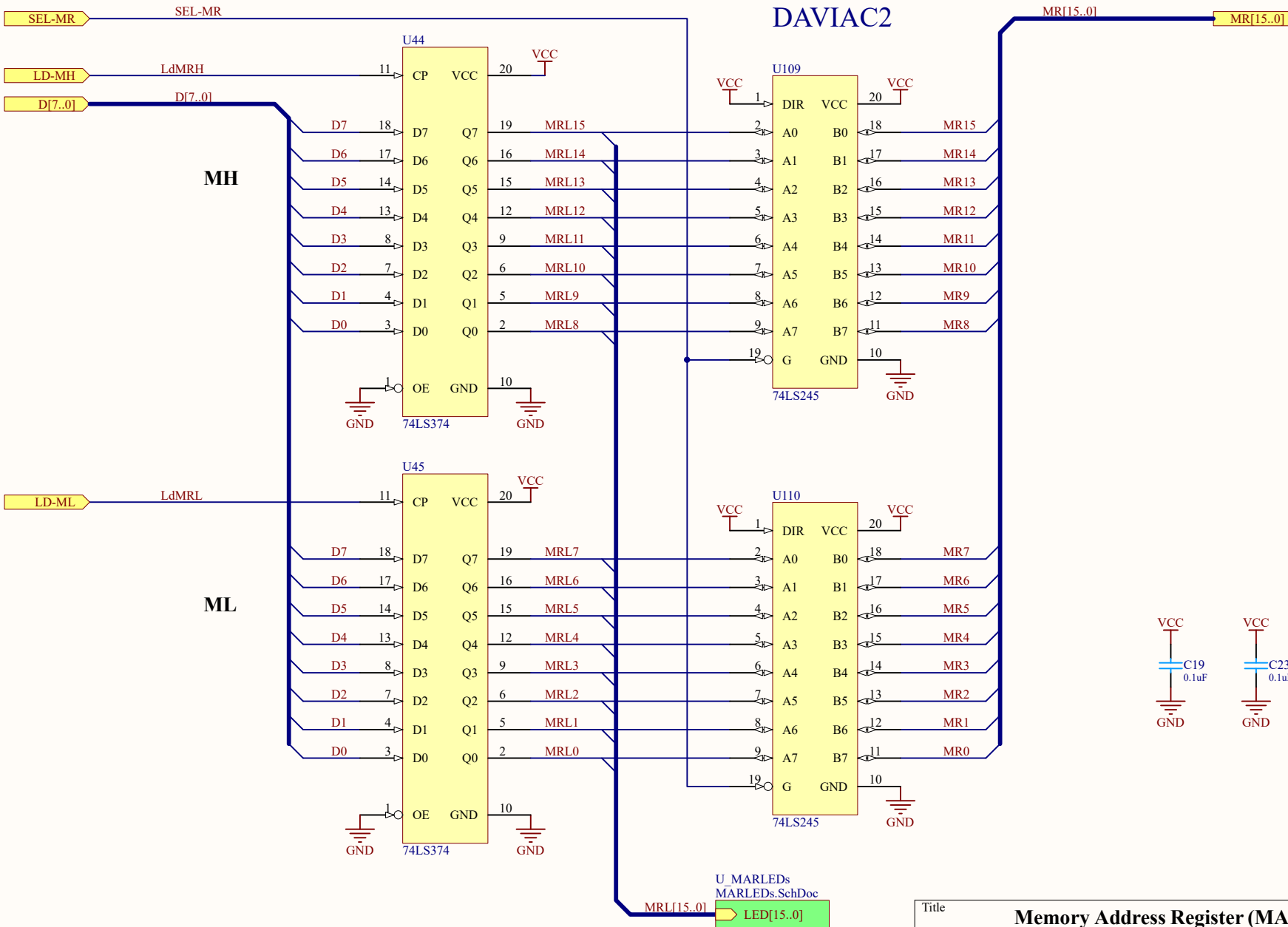
Title		
Size	Number	Revision
A3		
Date:	31/05/2025	Sheet of
File:	C:\Users\REG16CLR-D2\SchDoc	Drawn By:

1

2

3

4



Title		
Memory Address Register (MAR)		
Size	Number	Revision
A4		
Date:	31/05/2025	Sheet of
File:	C:\Users\...\MAR16-D2.SchDoc	Drawn By:

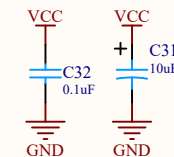
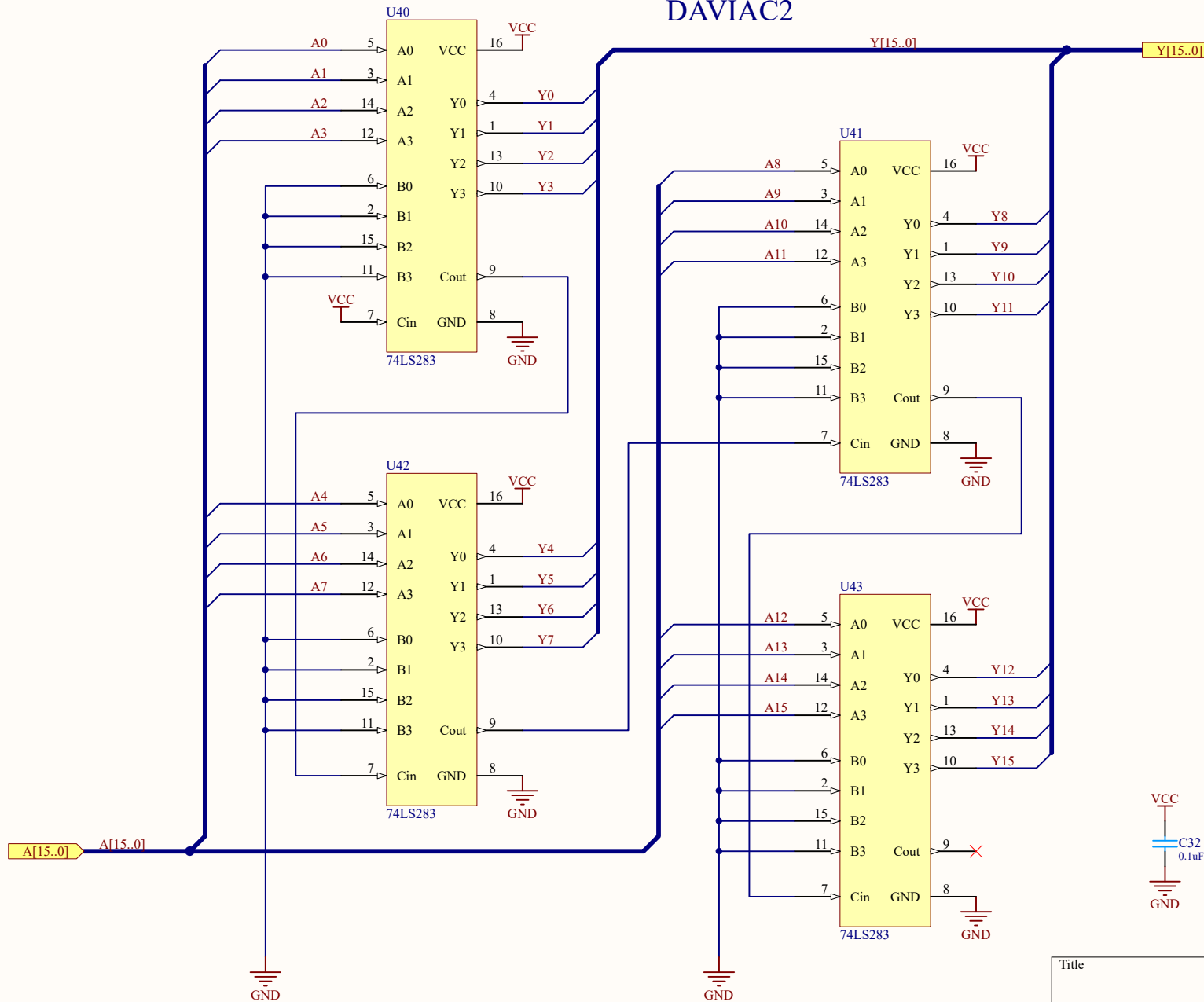
1

2

3

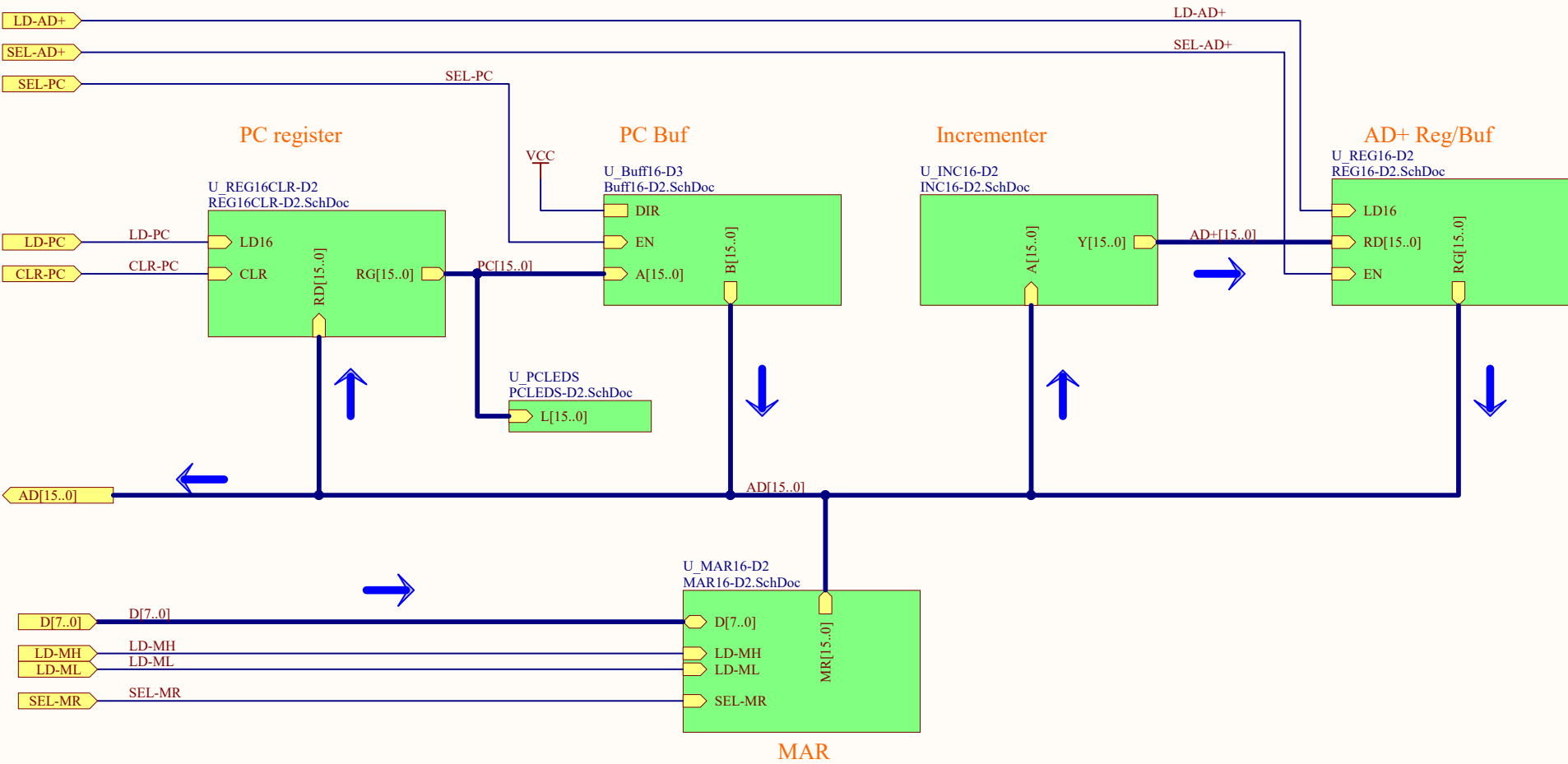
4

DAVIAC2



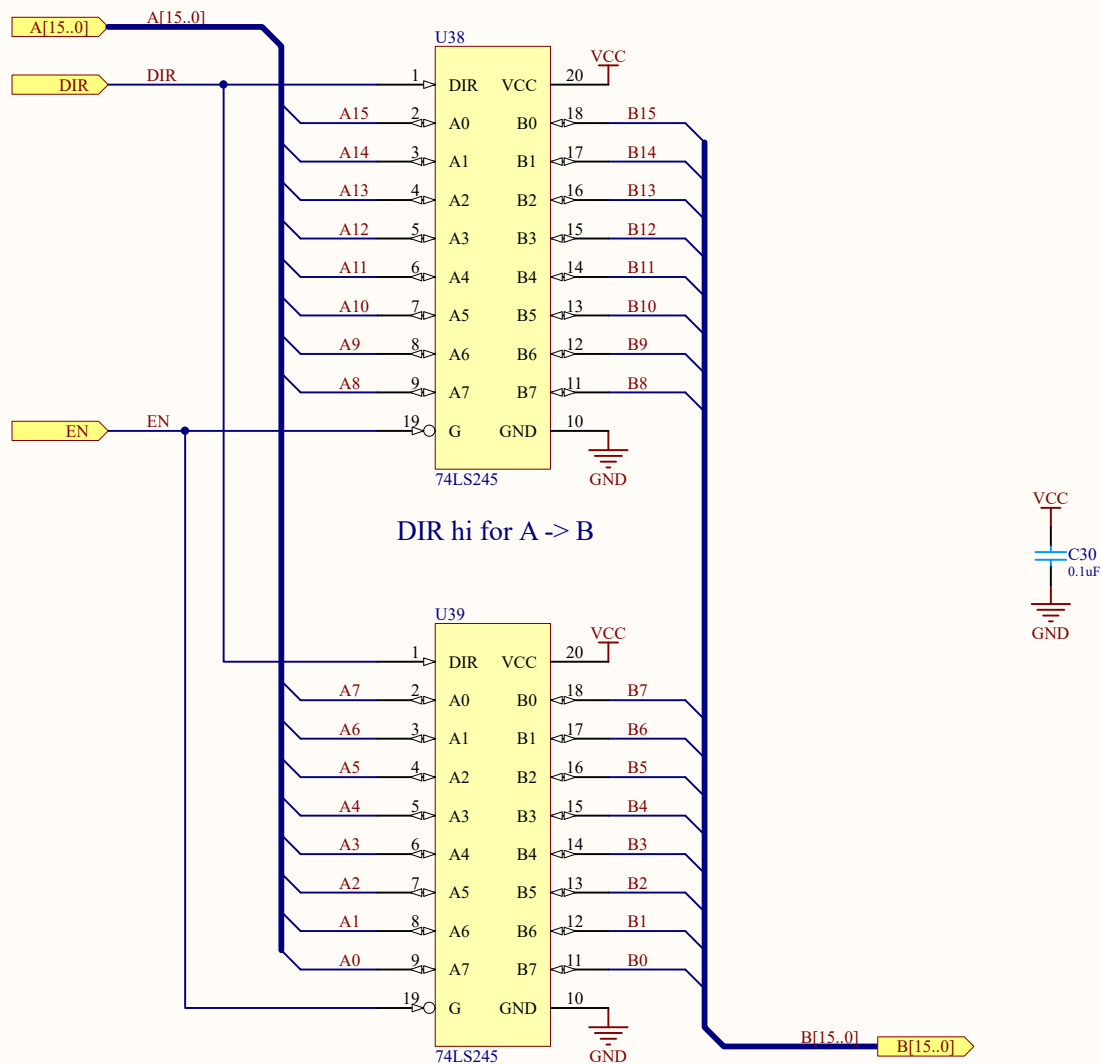
Title		
Size A4	Number	Revision
Date:	31/05/2025	Sheet of
File:	C:\Users\...\INC16-D2.SchDoc	Drawn By:

DAVIAC2



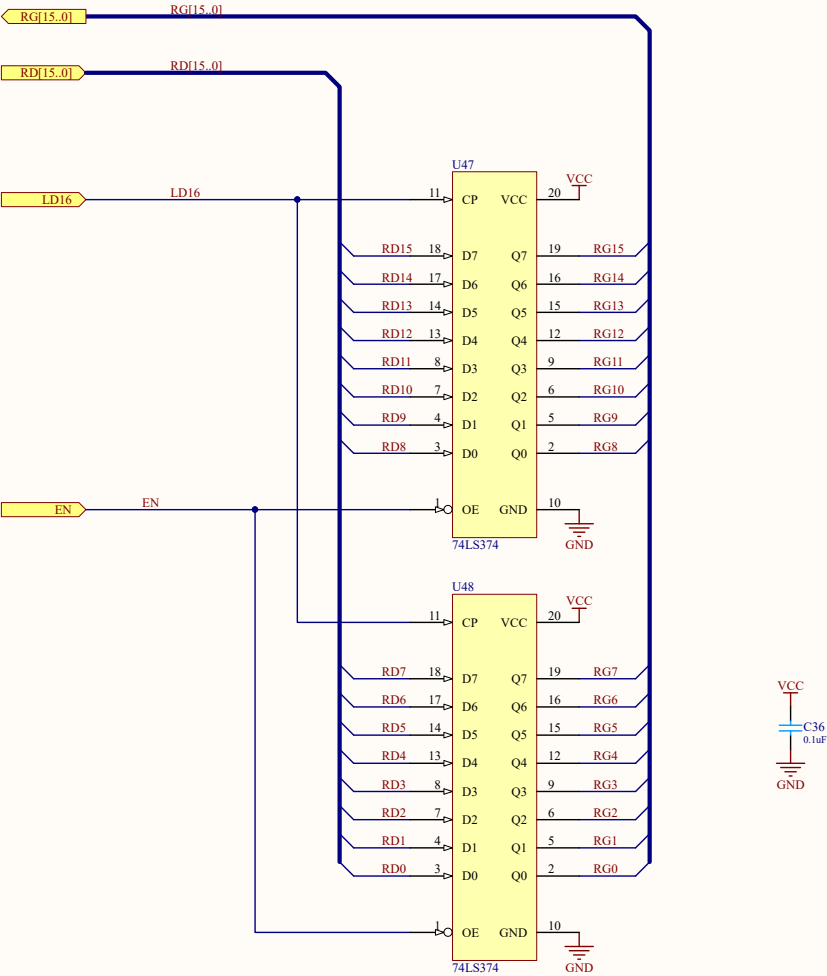
Title			Program Counter - PC16-D2
Size	Number		Revision
A4			
Date:	31/05/2025		Sheet of
File:	C:\Users\...\PC16-D2.SchDoc		Drawn By:

DAVIAC2



Title		
Size A4	Number	Revision
Date:	31/05/2025	Sheet of
File:	C:\Users\...\Buff16-D2.SchDoc	Drawn By:

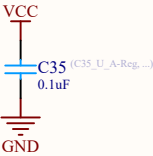
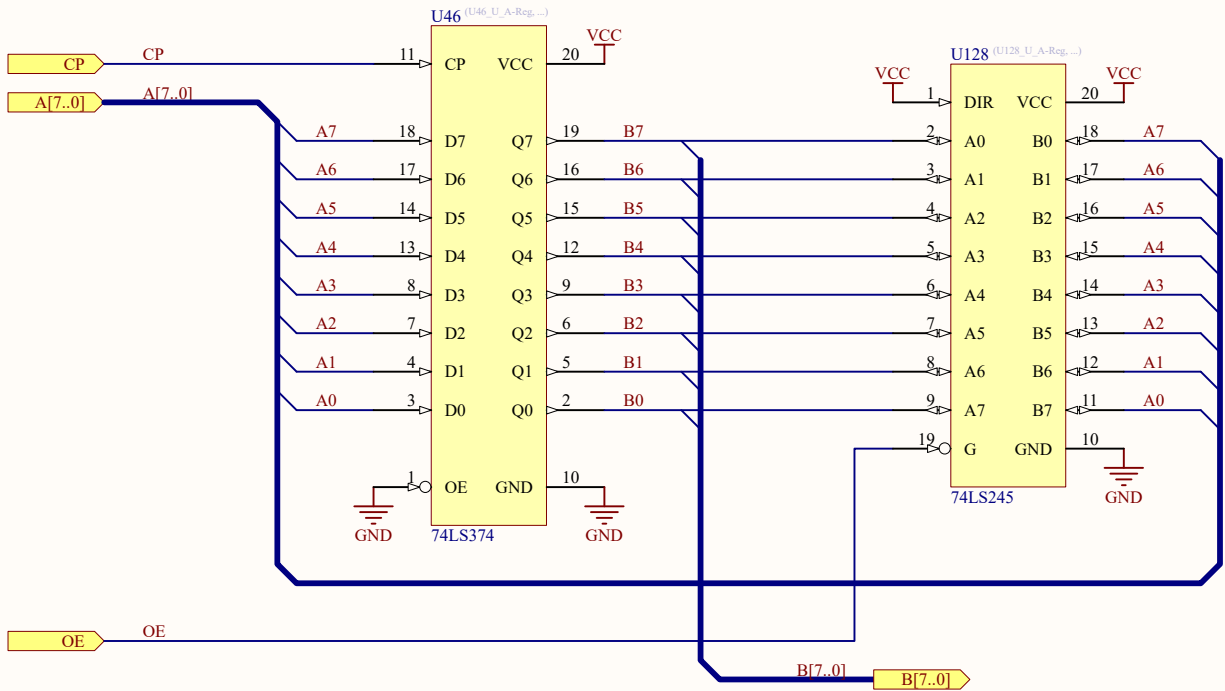
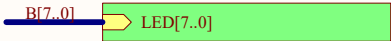
DAVIAC2



Title		
Size	Number	Revision
A3		
Date:	31/05/2025	Sheet of
File:	C:\Users\...\REG16-D2.SchDoc	Drawn By:

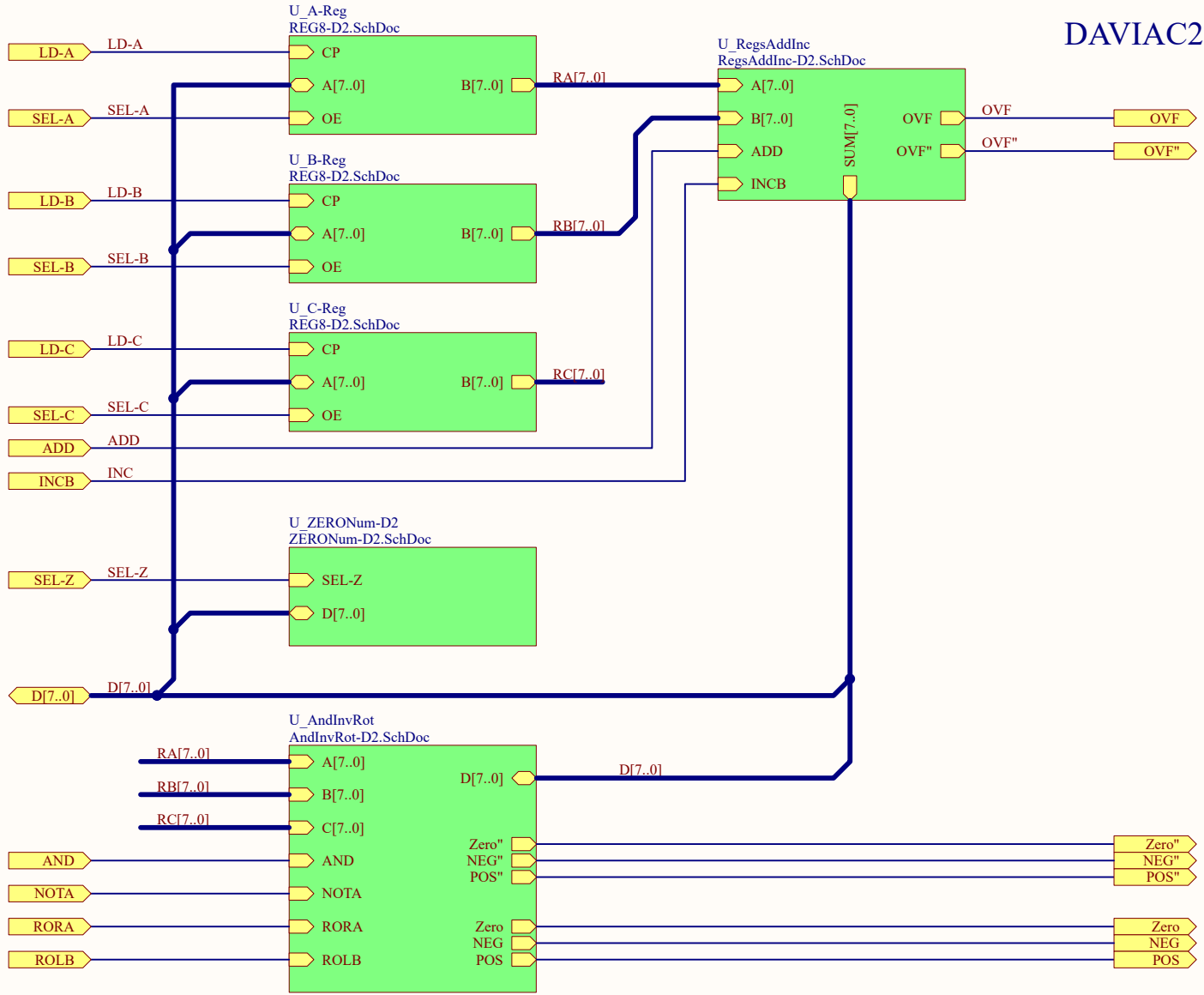
DAVIAC2

U_8LEDS-D2
8LEDS-D2.SchDoc



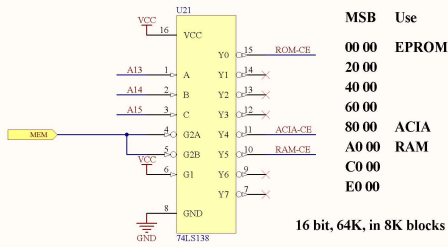
Title		
Size A4	Number	Revision
Date:	31/05/2025	Sheet of
File:	C:\Users\...\REG8-D2.SchDoc	Drawn By:

DAVIAC2

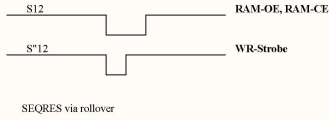
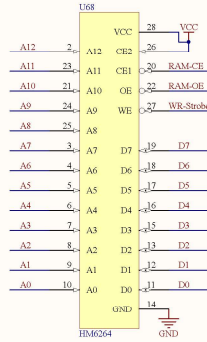
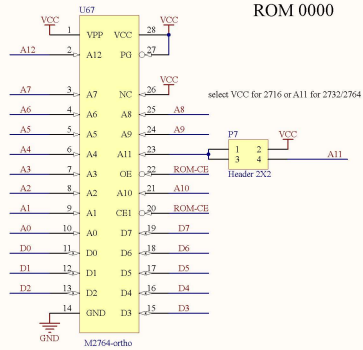


REGS/ALU

Title			REGS/ALU
Size	Number		Revision
A4			
Date:	31/05/2025		Sheet of
File:	C:\Users\...\RegsALU-D2.SchDoc		Drawn By:

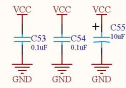
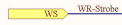


MSB	Use
00 00	EPROM
20 00	
40 00	
60 00	
80 00	ACIA
A0 00	RAM
C0 00	
E0 00	



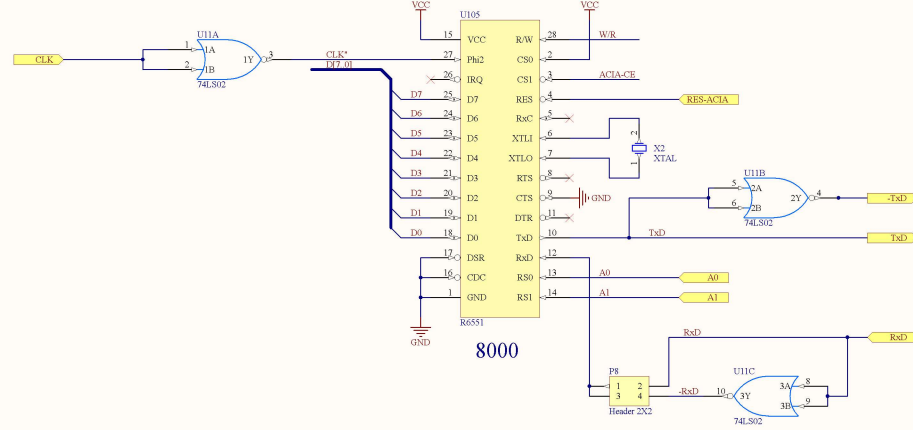
RAM A000

Memory addresses are in 8K blocks



DAVIAC2

ACIA



Credit to:
<http://retro.hansotten.nl/6502-abc/lee-davison-web-site/acia-6551/>

Software
To use the 6551 as a polled device the software is fairly simple. First the 6551 must be reset and the baud rate, character length and parity must be set.

; set the 6551 register addresses

A_rsd = \$F000 ; ACIA receive data port
A_tsd = \$F001 ; ACIA transmit data port
A_sta = \$F002 ; ACIA status port
A_res = \$F003 ; ACIA reset port
A_cmd = \$F004 ; ACIA command port
A_ctl = \$F005 ; ACIA control port

; initialise 6551 ACIA

STAA A_res ; soft reset (value not important)
LDA A_#0B ; set specific modes and functions
; no parity, no echo, no Tx interrupt
; no Rx interrupt, enable Tx/Rx
STAA A_cmd ; save to command register
; all the following 8-N-1 with the baud rate
; generator selected, uncomment the line with
; the required baud rate
; LDA A_#1A ; 8-N-1, 2400 baud
; LDA A_#1C ; 8-N-1, 4800 baud
; LDA A_#1E ; 8-N-1, 9600 baud
; LDA A_#1F ; 8-N-1, 19200 baud
STAA A_ctl ; set control register

To send a character all we need do is wait for the Tx buffer to empty then write the byte.

; wait for ACIA and Tx byte

PHA ; save A
LAB_WAIT_Tx
LDA A_sta ; get status byte
AND A_#10 ; mask transmit buffer status flag
BEQ LAB_WAIT_Tx ; loop if tx buffer full

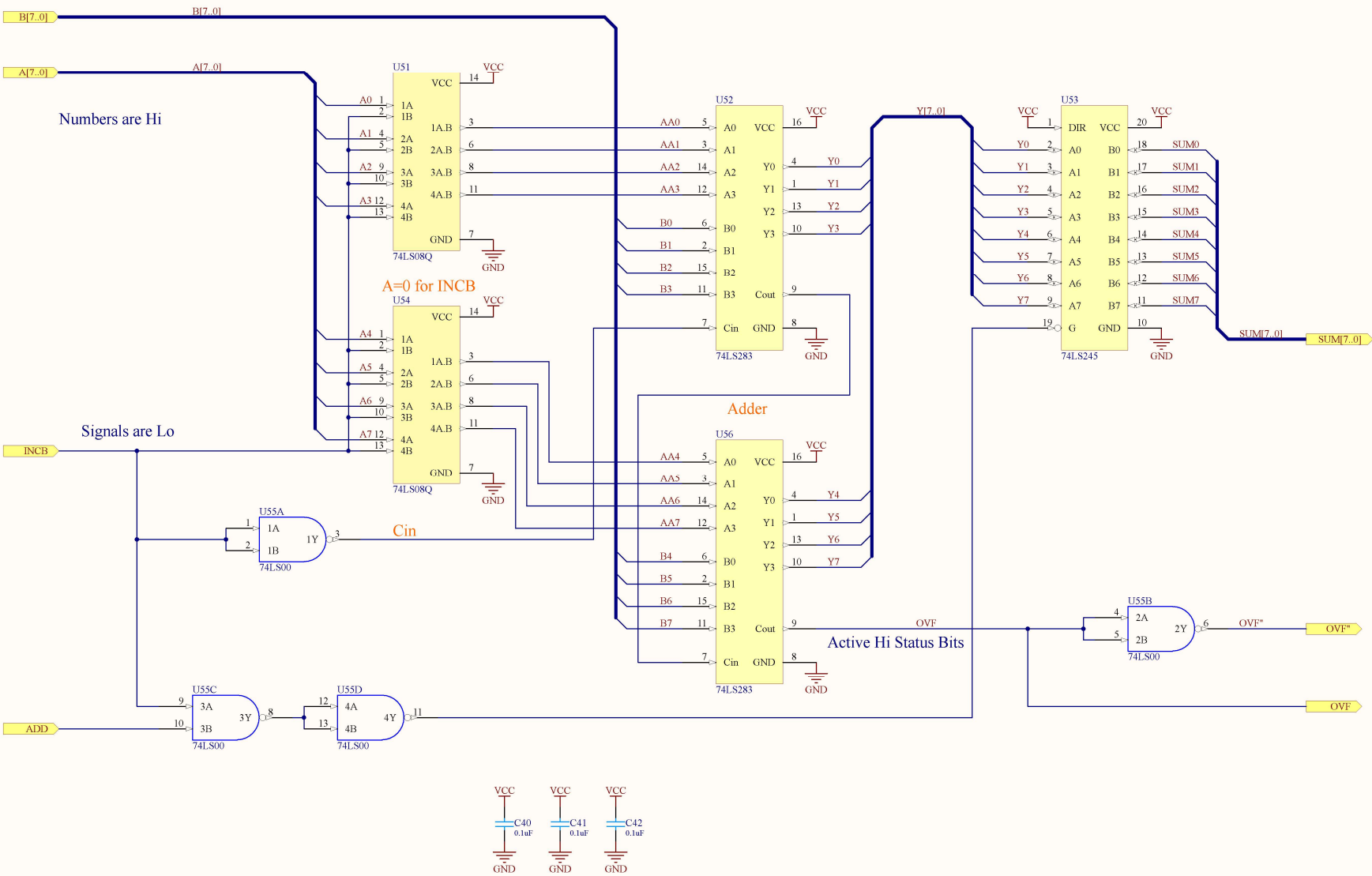
PLA ; restore A
STAA A_tsd ; save byte to ACIA data port
To receive a character we need to wait for the Rx buffer to fill then read the byte.

; wait for ACIA and Rx byte

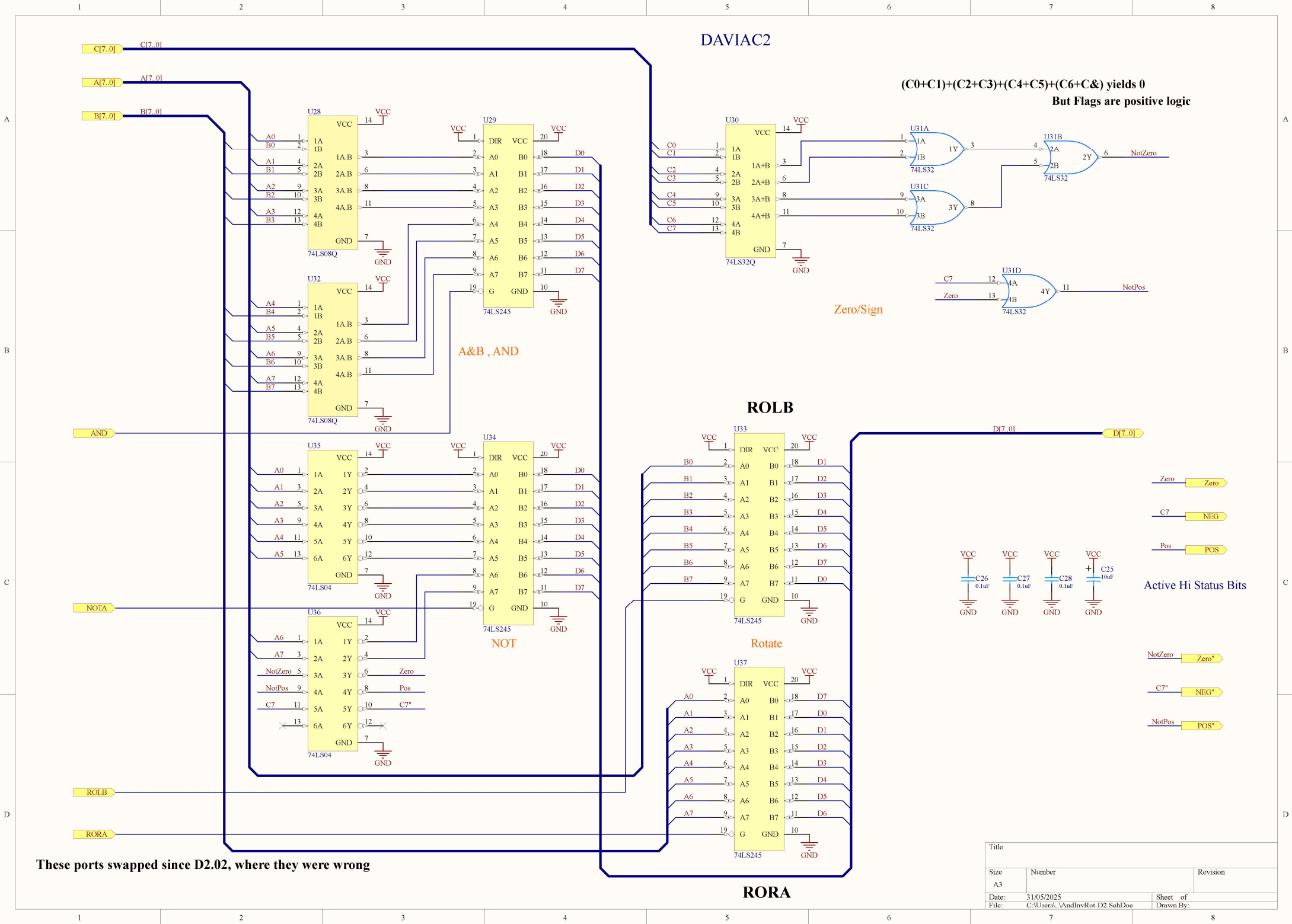
LDA A_rsd ; get ACIA status
AND A_#08 ; mask rx buffer status flag
BEQ LAB_WAIT_Rx ; loop if rx buffer empty
LDA A_rsd ; get byte from ACIA data port

Title		
Memory		
Size	Number	Revision
A2		
Date	31/05/2025	Sheet of
File	C:\Users\J\Documents\MEMORY SchDoc	Drawn By:

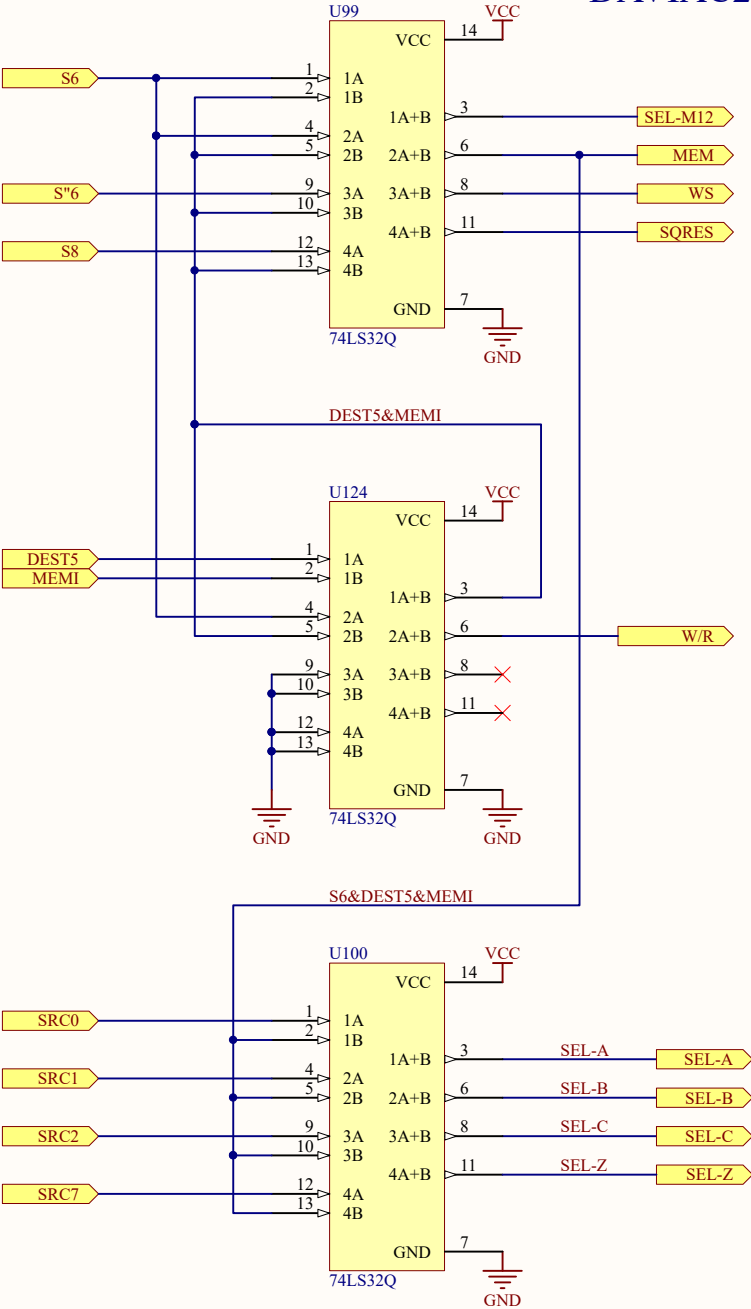
DAVIAC2



Title			
ADD/INC			
Size	Number		Revision
A3			
Date:	31/05/2025		Sheet of
File:	C:\Users\A\RegisAddInc-D2.SchDoc		Drawn By:

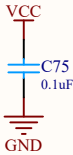
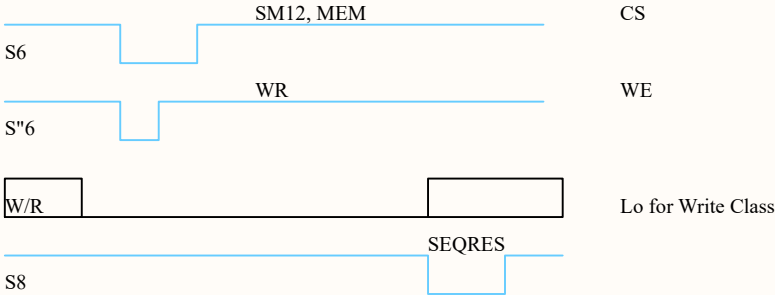


STD<REG>



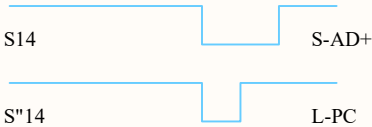
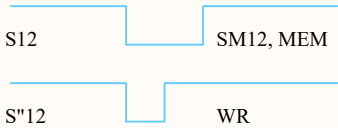
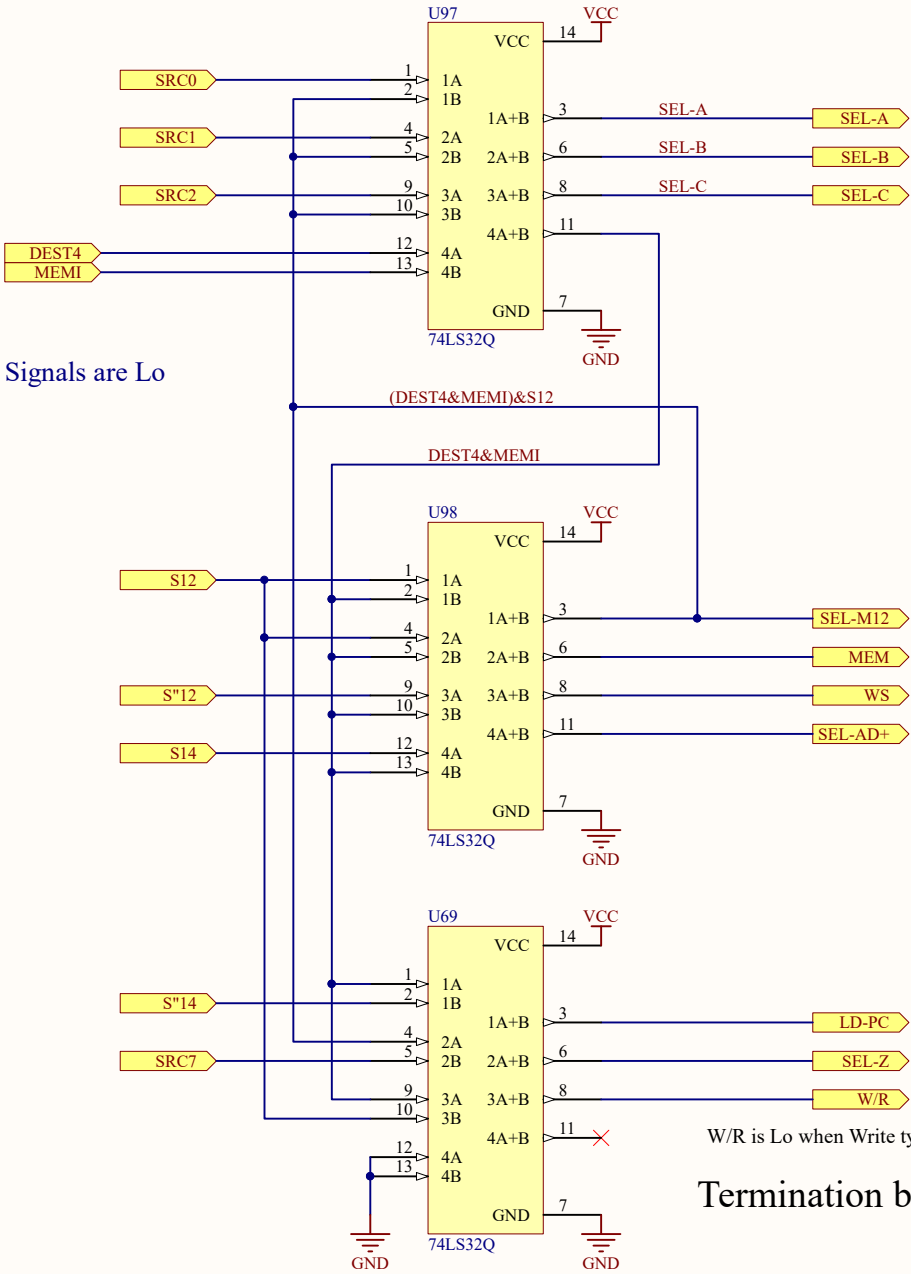
WRITE-(in)Direct with addr in M12

MEM								2/3/3	
1	0	S	S	S	D	D	D		
SRC				DEST					
000 = A				000 = A					
001 = B				001 = B					
010 = C				010 = C					
011 = MEM-IMM				011 = nul					
100 = MEM-ABS				100 = MEM-ABS					
101 = MEM-DIR				101 = MEM-DIR					
110 = nul				110 = nul					
111 = ZERO				111 = x					



Title		
Write(in)Direct D2		
Size	Number	Revision
A4		
Date:	31/05/2025	Sheet of
File:	C:\Users\...\WR DR-D2.SchDoc	Drawn By:

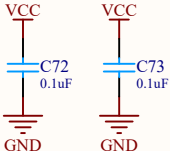
STA<REG> WRITE-ABS DAVIAC2



MEM 2/3/3

1	0	S	S	S	D	D	D
---	---	---	---	---	---	---	---

SRC	DEST
000 = A	000 = A
001 = B	001 = B
010 = C	010 = C
011 = MEM-IMM	011 = nul
100 = MEM-ABS	100 = MEM-ABS
101 = nul	
111 = ZERO	



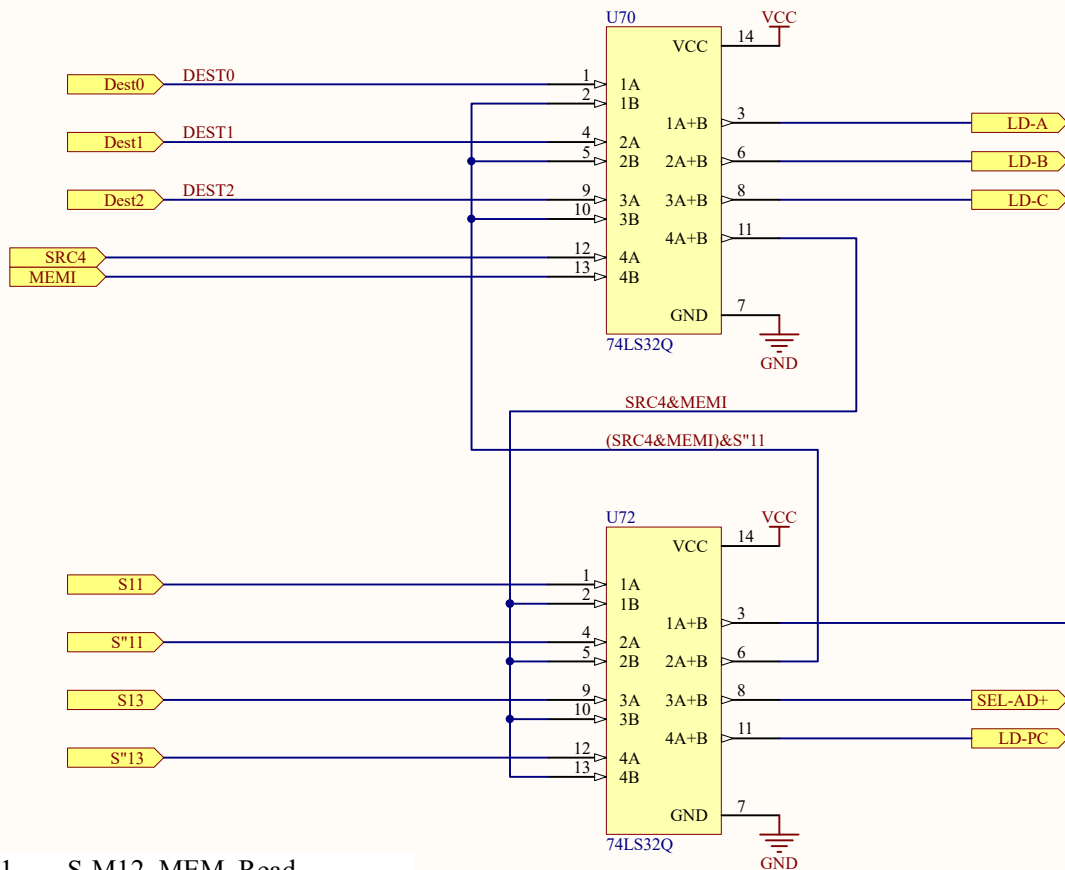
Title		
WRITE-ABS		STA<REG>
Size	Number	Revision
A4		
Date:	31/05/2025	Sheet of
File:	C:\Users\WR ABS-D2.SchDoc	Drawn By:

LDA<REG>

DAVIAC2

MEM

2/3/3

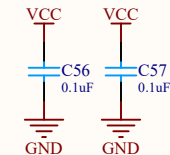


1	0	S	S	S	D	D	D
---	---	---	---	---	---	---	---

MEM	SRC	DEST
10	000 = A	000 = A
10	001 = B	001 = B
10	010 = C	010 = C
10	011 = MEM-IMM	011 = nul
10	100 = MEM-ABS	100 = MEM-ABS
10	101 = nul	

S11 S-M12, MEM, Read
S"11 LD-<Dest>
S12 nil
S"12 nil
S13 S-AD+
S"13 L-PC
S14 nil
S"14 nil
S15 nil
S"15 nil
Sequence Rollover

Termination by Sequence Rollover



Title			LDA<REG> Read ABS
Size	Number	Revision	
A4			
Date:	31/05/2025	Sheet of	
File:	C:\Users\A\RD ABS-D2.SchDoc	Drawn By:	

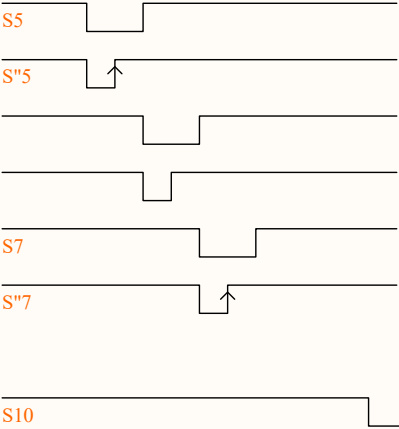
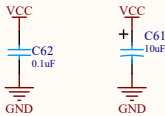
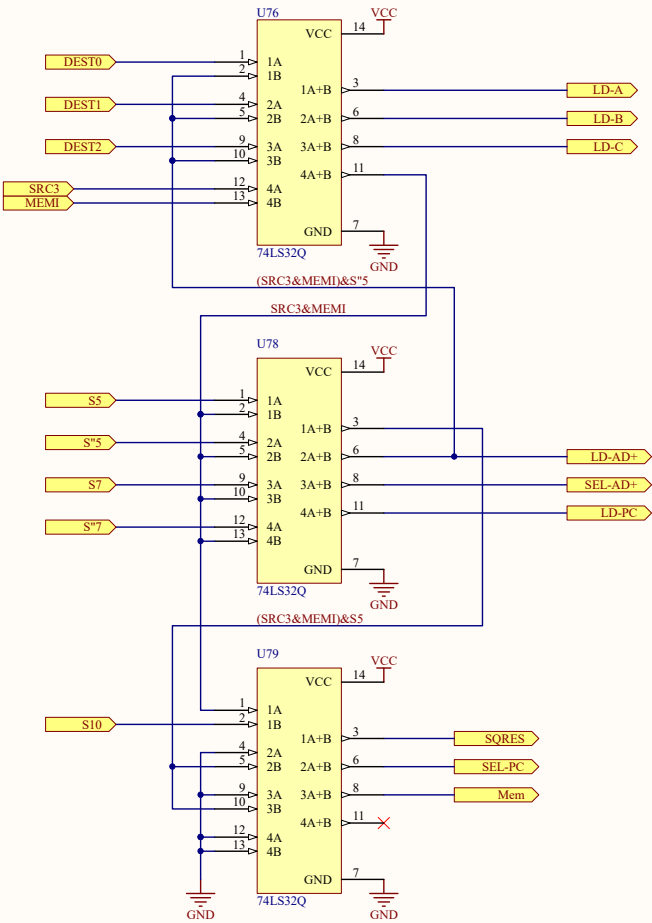
READ IMMEDIATE
LOAD REG commands, eg LDIA

DAVIAC2

IFF is MEMI & SRC3

S5 S-PC, MEM, Read
S"5 LD<REG>,
LD-AD+
S7 S-AD+
S"7 LD-PC
S10 SQRES

MEM	SRC	DEST
10	000 = A	000 = A
	001 = B	001 = B
	010 = C	010 = C
	011 = MEM-IMM	011 = nul
	100 = MEM-ABS	100 = MEM-ABS
	101 = nul	



MEM 2/3

1	0	S	S	S	D	D	D
---	---	---	---	---	---	---	---

quit from Immediate
Sequencer Counter reset is asynchronous

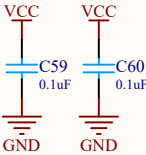
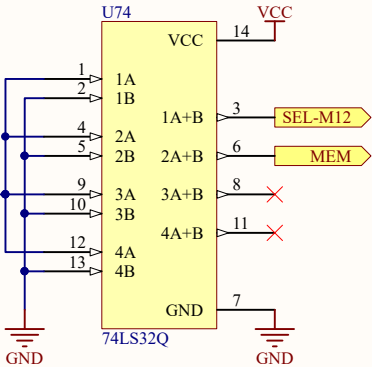
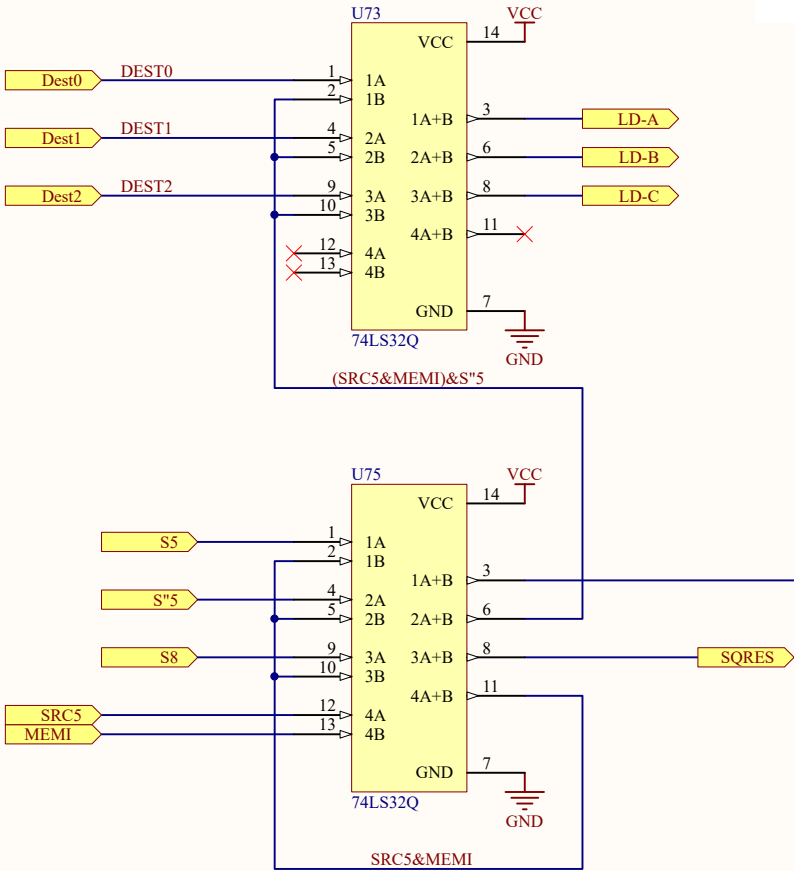
Title READ IMMEDIATE		
Size A3	Number	Revision
Date: 31/05/2025	Sheet of	
File: C:\Users\...RD IM-D2.SchDoc	Drawn By:	

LDD<reg>
READ (in)DIRECT (Read from Mem via MR12)

DAVIAC2

S5	S-M12, MEM, Read
S"5	LD-<Dest>
S6	nil
S"6	nil
S7	nil
S"7	nil
S8	SEQRES

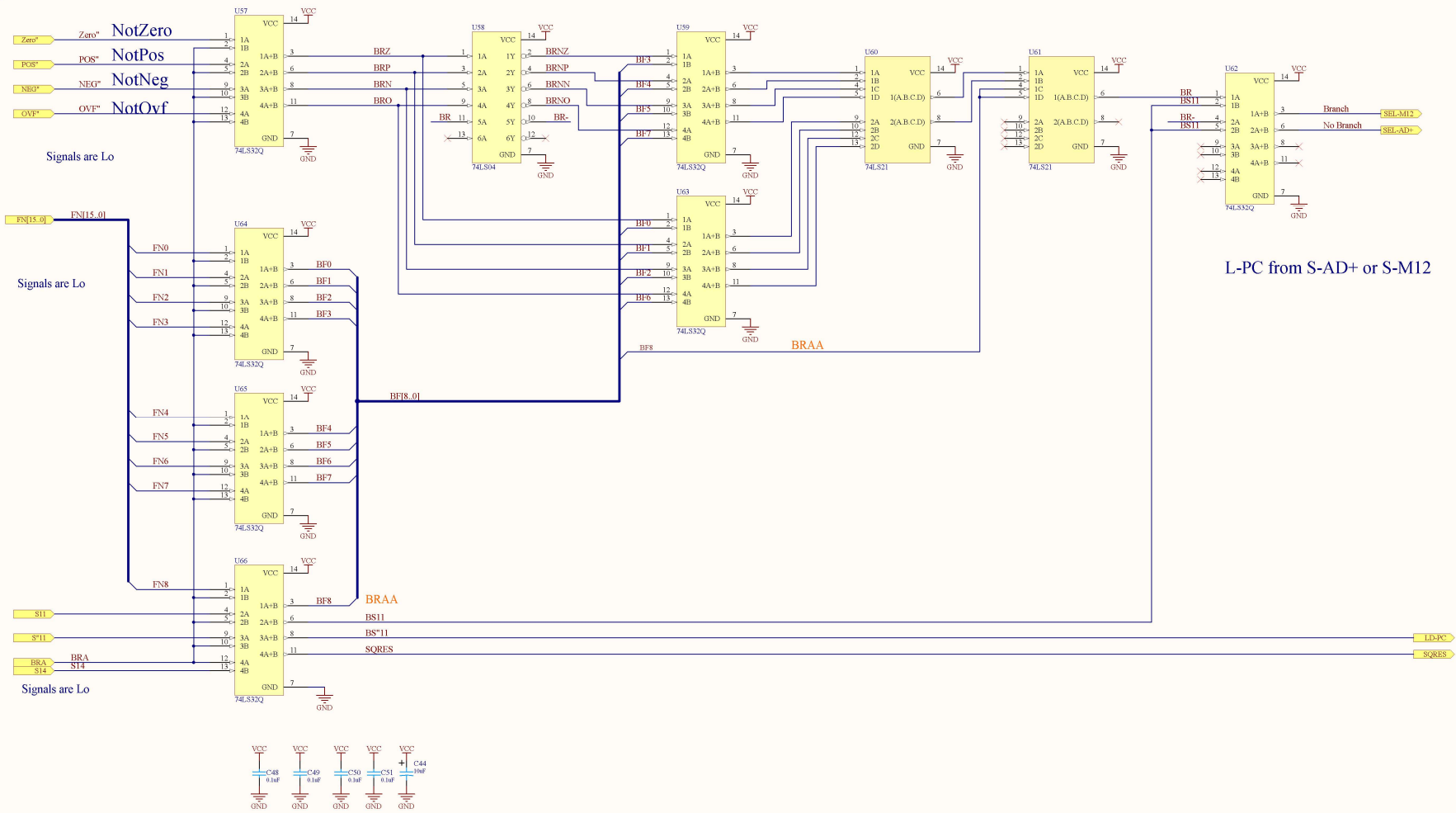
SRC	DEST
000 = A	000 = A
001 = B	001 = B
010 = C	010 = C
011 = MEM-IMM	011 = nul
100 = MEM-ABS	100 = MEM-ABS
101 = MEM-Dir	101 = MEM-Dir



Title READ (in)DIRECT LDD<reg>		
Size A4	Number	Revision
Date:	31/05/2025	Sheet of
File:	C:\Users\A\RD DIR-D2.SchDoc	Drawn By:

DAVIAC2
BRANCH

Signal are Lo but Status bits are Hi.



L-PC from S-AD+ or S-M12

Title		
BRANCH		
Size	Number	Revision
A2		
Date	31/05/2025	Sheet of
File	C:\Users\...BRA-D2.SchDoc	Drawn By:

DAVIAC2

A

A

B

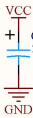
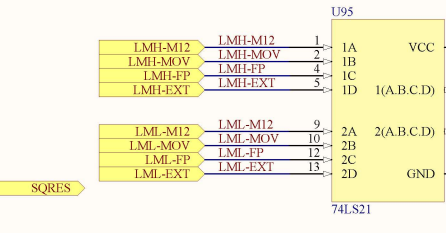
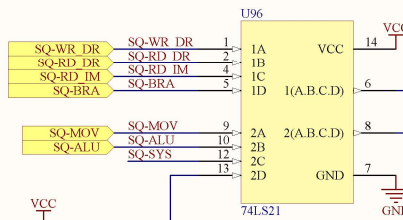
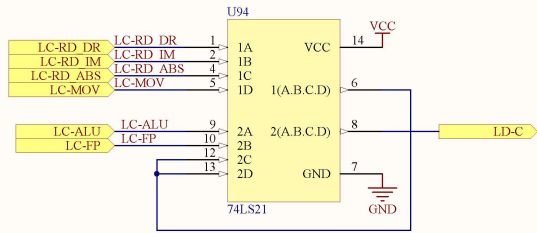
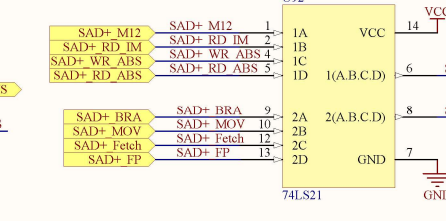
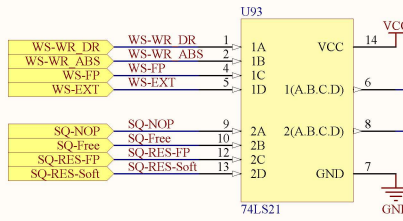
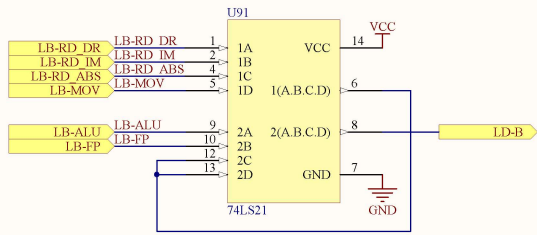
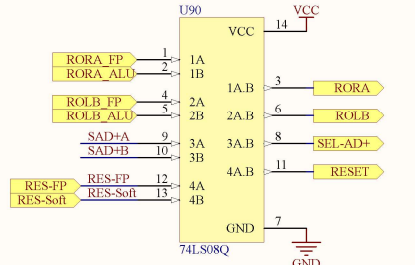
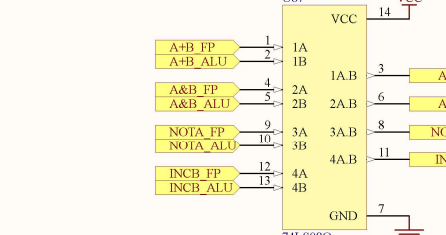
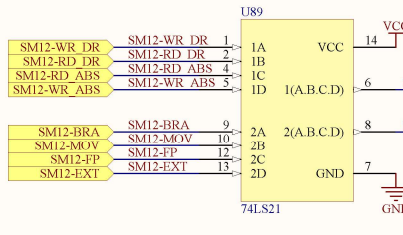
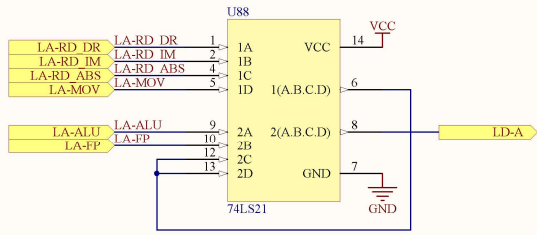
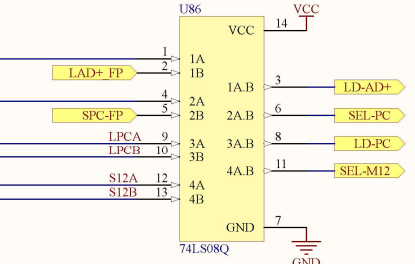
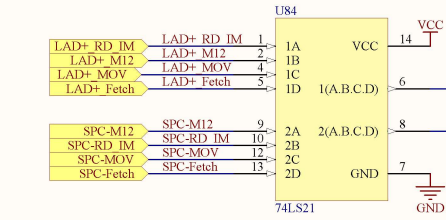
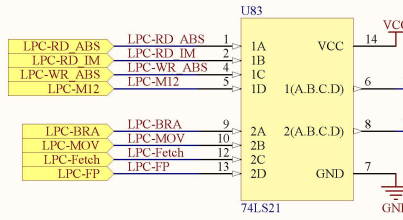
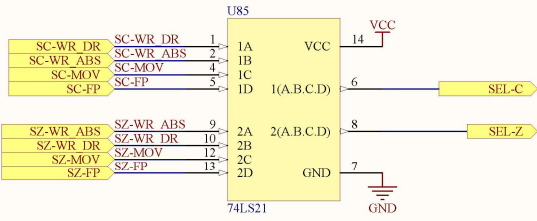
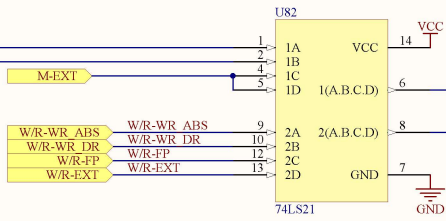
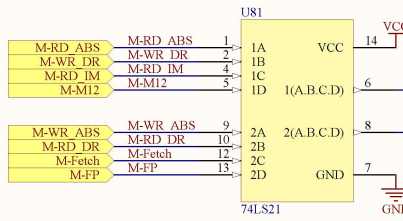
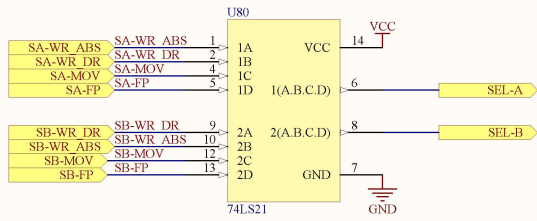
B

C

C

D

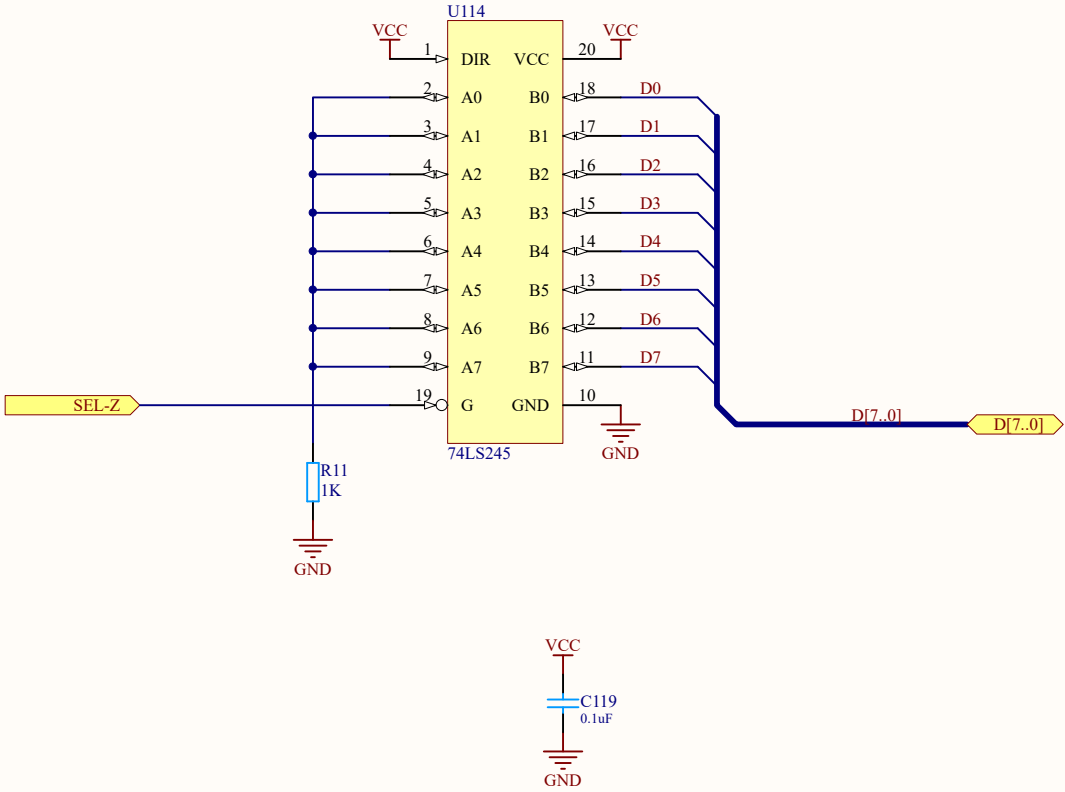
D



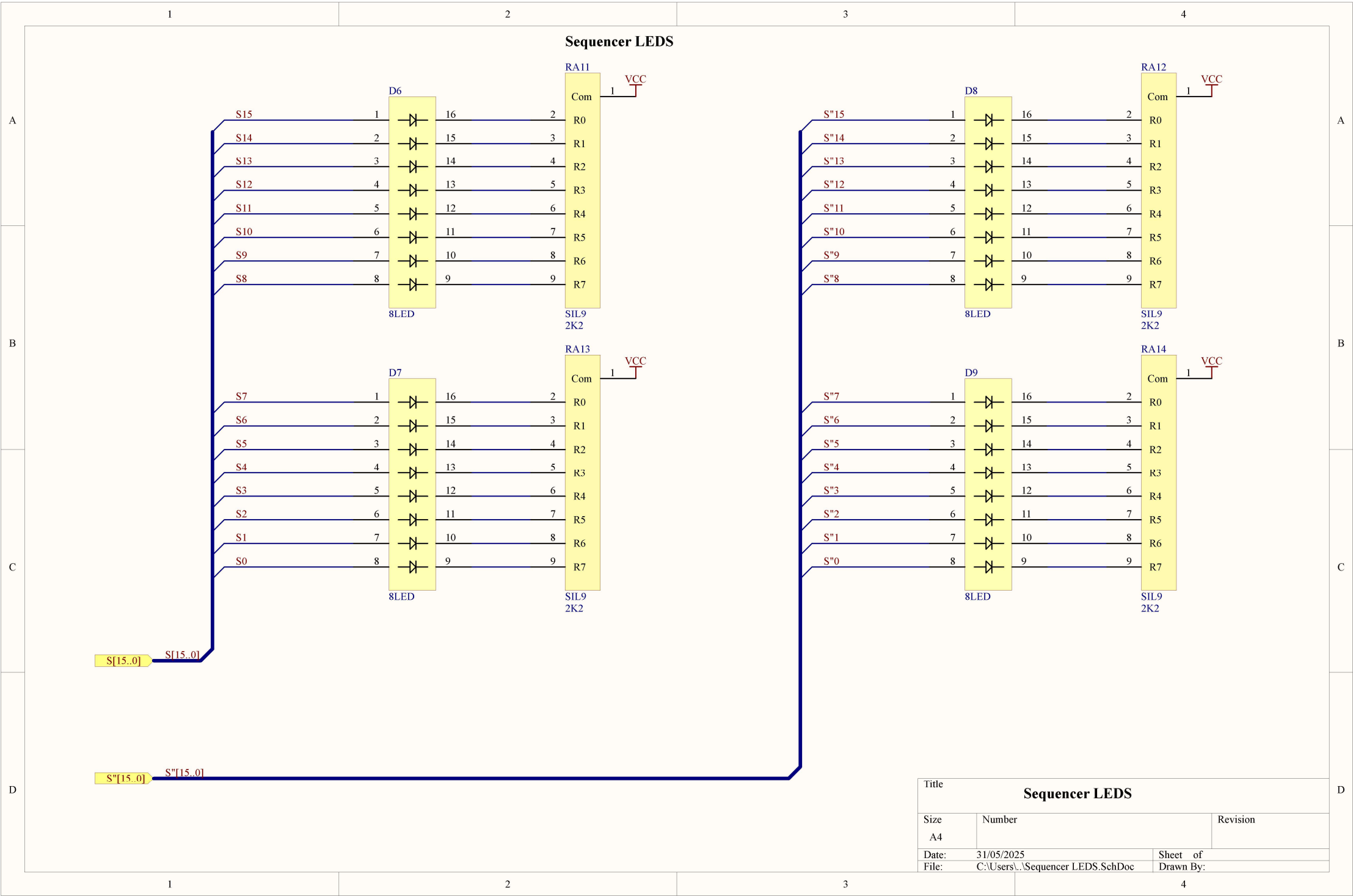
Title		
Master Signal OR		
Size	Number	Revision
A3		
Date:	31/05/2025	Sheet of
File:	C:\Users\A\SigOR-D2_SchDoc	Drawn By:

DAVIAC2

DIR hi for A -> B



Title		
Size A4	Number	Revision
Date:	31/05/2025	Sheet of
File:	C:\Users\...\ZERONum-D2.SchDoc	Drawn By:



S15

1

S14

2

S13

3

S12

4

S11

5

S10

6

S9

7

S8

8

S7

1

S6

2

S5

3

S4

4

S3

5

S2

6

S1

7

S0

8

S[15..0]

S[15..0]

S"[15..0]

S"[15..0]

D6

8LED

D7

8LED

D8

8LED

D9

8LED

Title

Sequencer LEDS

Size

A4

Number

Revision

Date:

31/05/2025

Sheet of

File:

C:\Users\...\Sequencer LEDS.SchDoc

Drawn By:

1

2

3

4

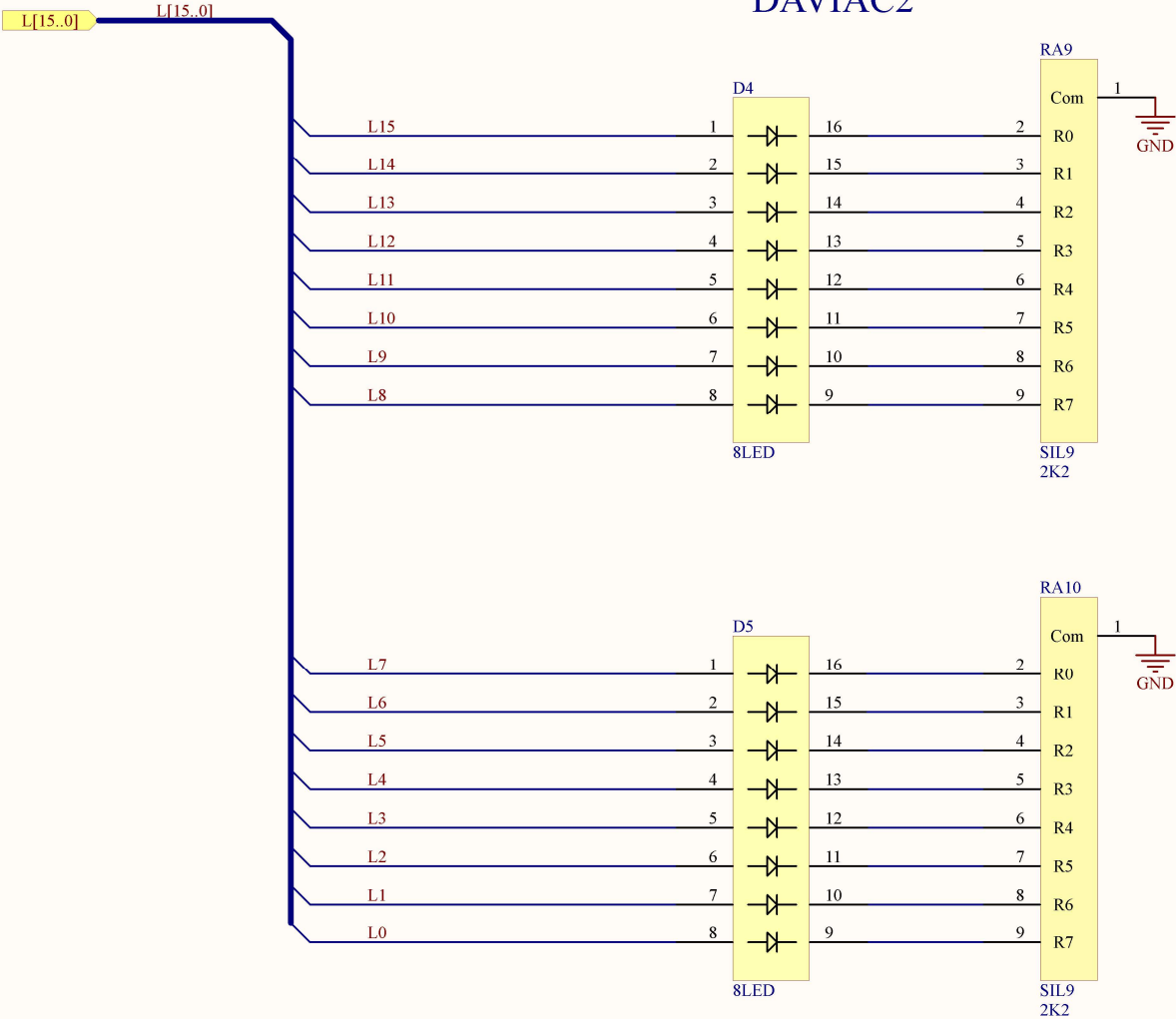
A

B

C

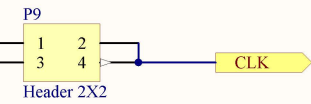
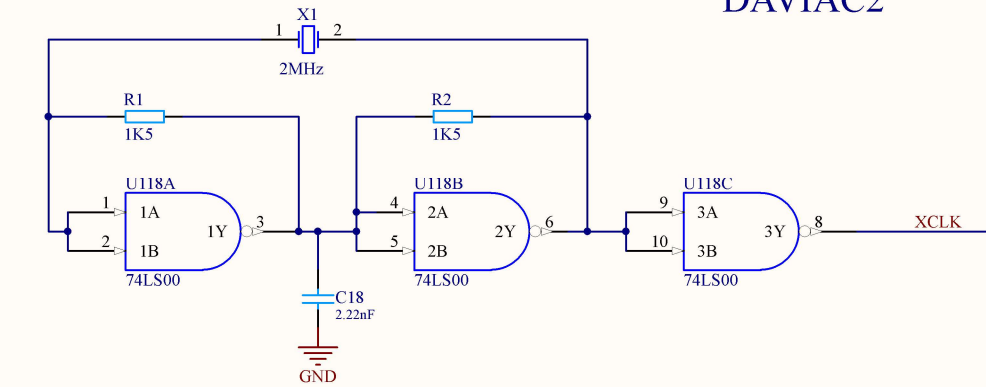
D

DAVIAC2

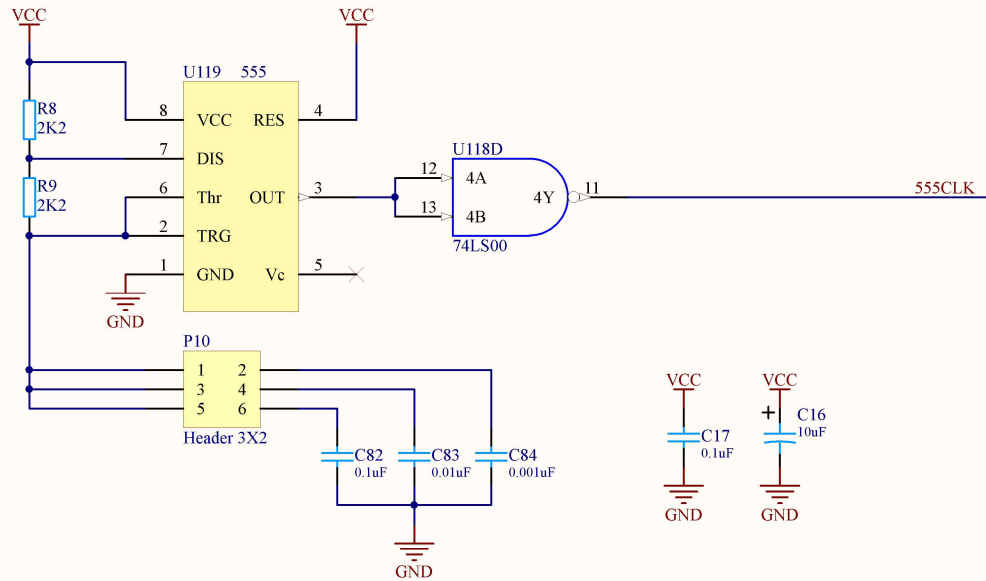


Title		
Size A4	Number	Revision
Date:	31/05/2025	Sheet of
File:	C:\Users\A\PCLEDS-D2.SchDoc	Drawn By:

DAVIAC2

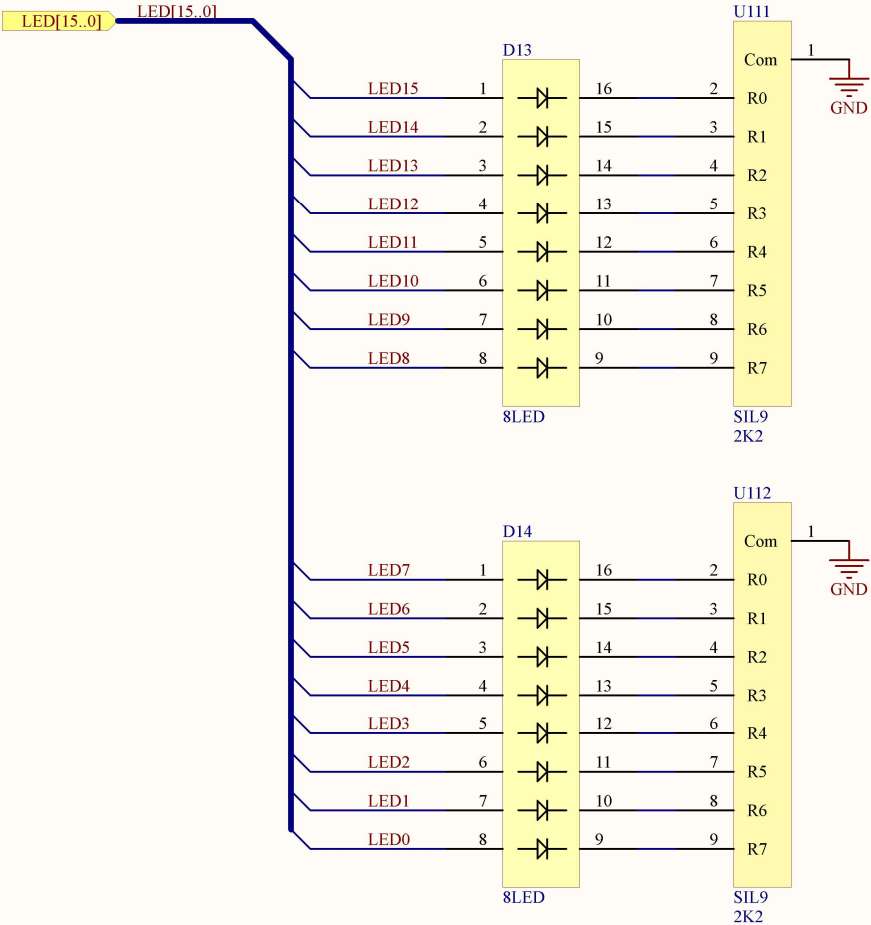


Select CLK source with jumper



Title		
CLOCK Source		
Size	Number	Revision
A4		
Date:	31/05/2025	Sheet of
File:	C:\Users\...\Clock.SchDoc	Drawn By:

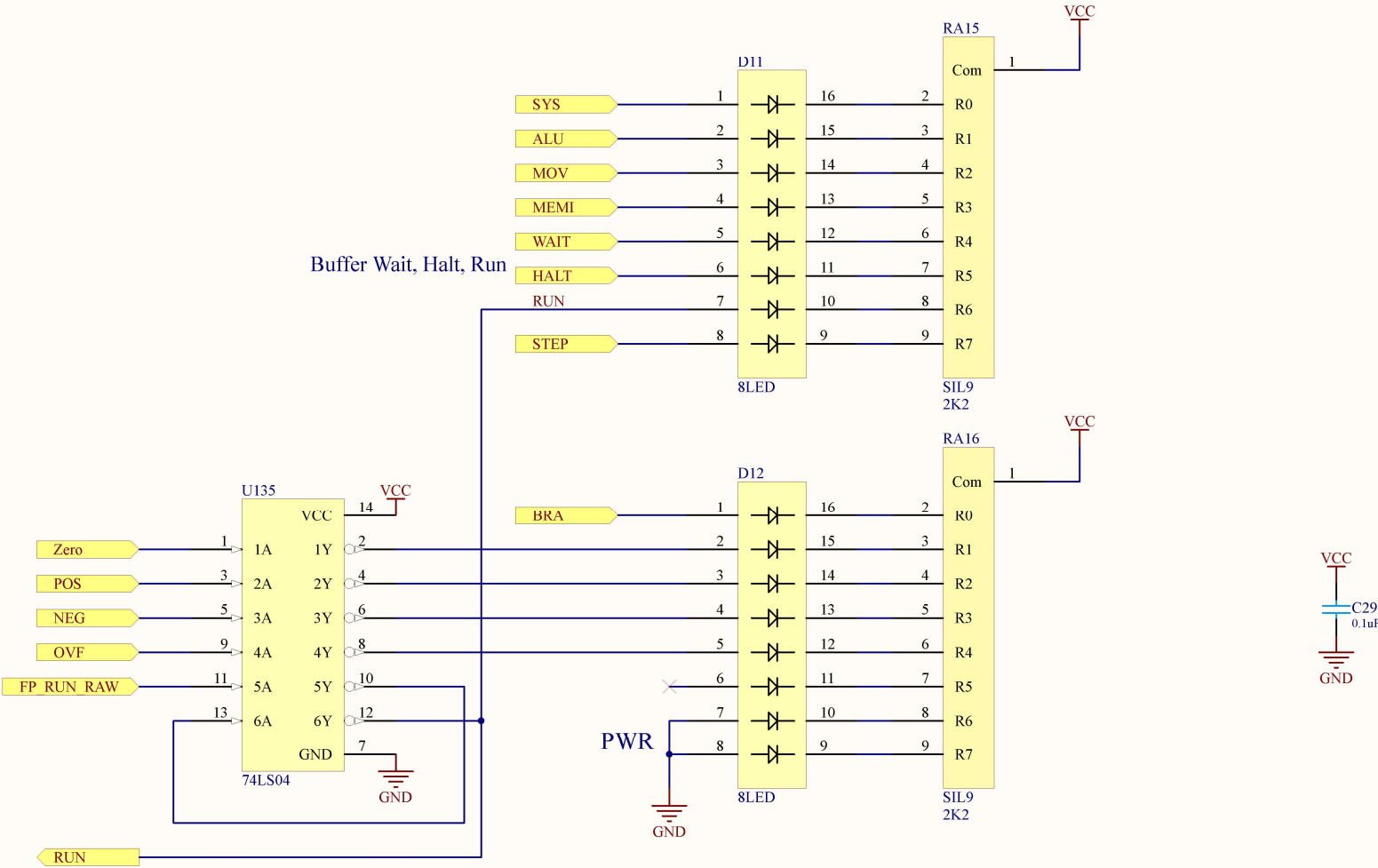
DAVIAC2



Title			
MAR LEDs			
Size	Number		Revision
A4			
Date:	31/05/2025		Sheet of
File:	C:\Users\A\MARLEDs.SchDoc		Drawn By:

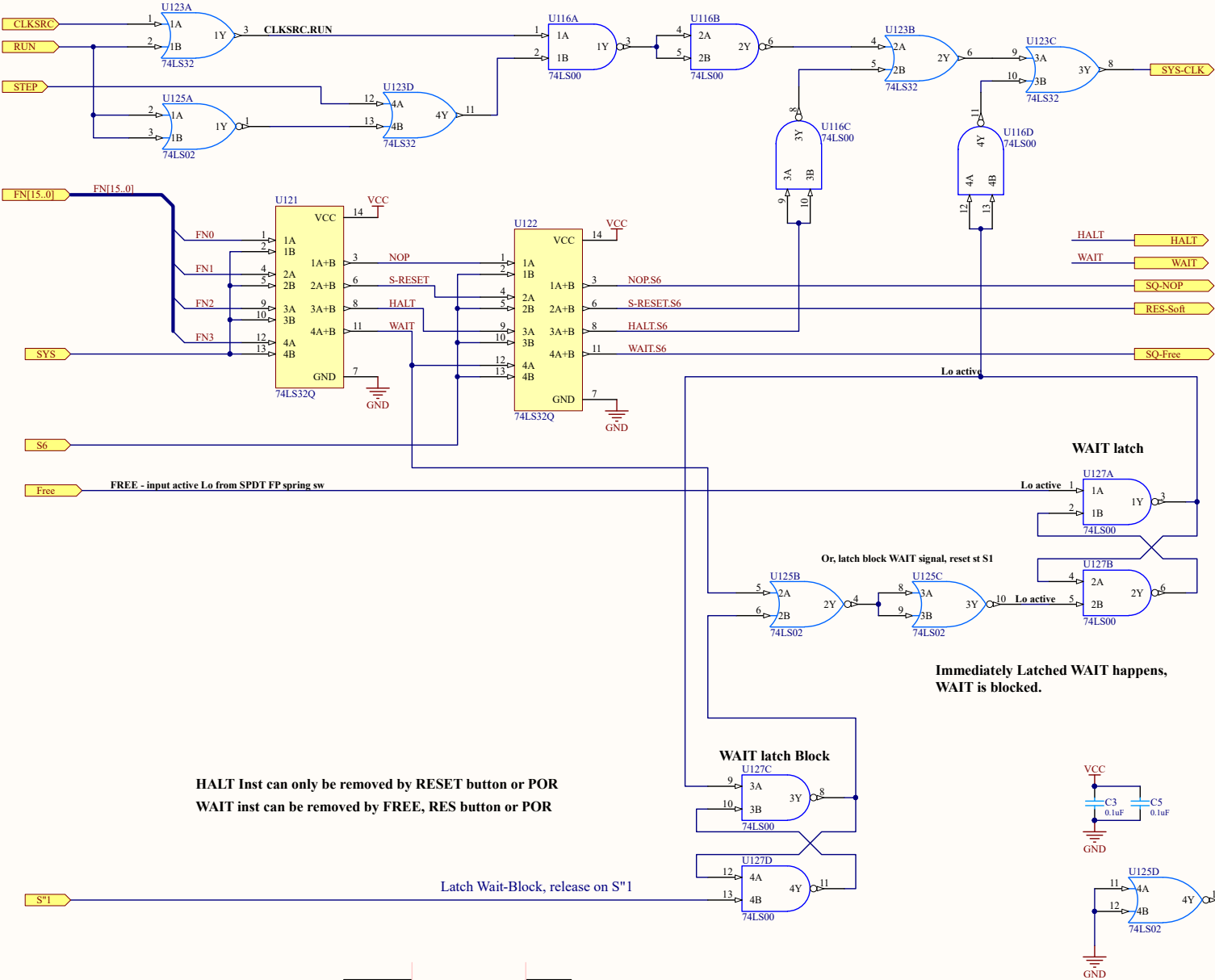
DAVIAC2

Zero, Neg & OVF are Positive logic, controls are neg.



Title			STATUS Display	
Size	Number		Revision	
A4				
Date:	31/05/2025		Sheet of	
File:	C:\Users\...\Status.SchDoc		Drawn By:	

DAVIAC2



Title			SYSTEM	
Size	Number		Revision	
A3				
Date:	31/05/2025		Sheet of	
File:	C:\Users\...\SYS-D2.SchDoc		Drawn By:	