

	1	2	3	4	5	6
A	<div>Expansion bus connector</div> <div>File: expansion_bus.kicad_sch</div>	<div>Buffers and transceivers</div> <div>File: buffers_transceivers.kicad_sch</div>	<div>Address decoding</div> <div>Sheetfile: addr_decode.kicad_sch</div>	<div>GAL</div> <div>File: gal.kicad_sch</div>	<div>Interrupt logic</div> <div>File: interrupt.kicad_sch</div>	
B	<div>Registers</div> <div>File: registers.kicad_sch</div>	<div>Printer port</div> <div>File: printer_port.kicad_sch</div>	<div>Register documentation</div> <div>File: reg_doc.kicad_sch</div>			
C						
D						
	1	2	3	4	5	6

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Sheet: /

File: Printer\_Interface.kicad\_sch

Title: **PARALLEL PRINTER INTERFACE**

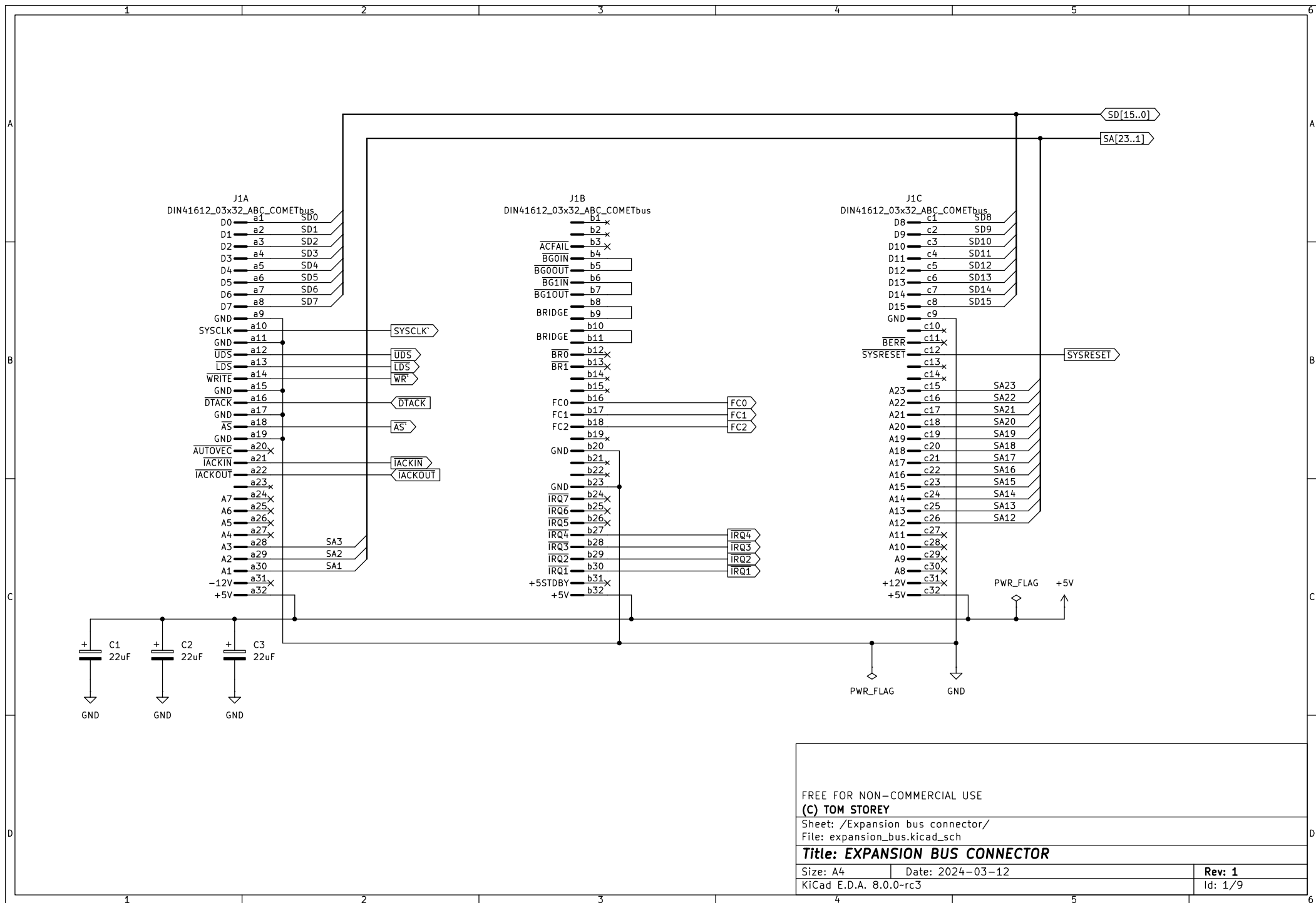
Size: A4

Date: 2024-03-12

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Id: 1/9



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Sheet: /Expansion bus connector/

File: expansion\_bus.kicad\_sch

**Title: EXPANSION BUS CONNECTOR**

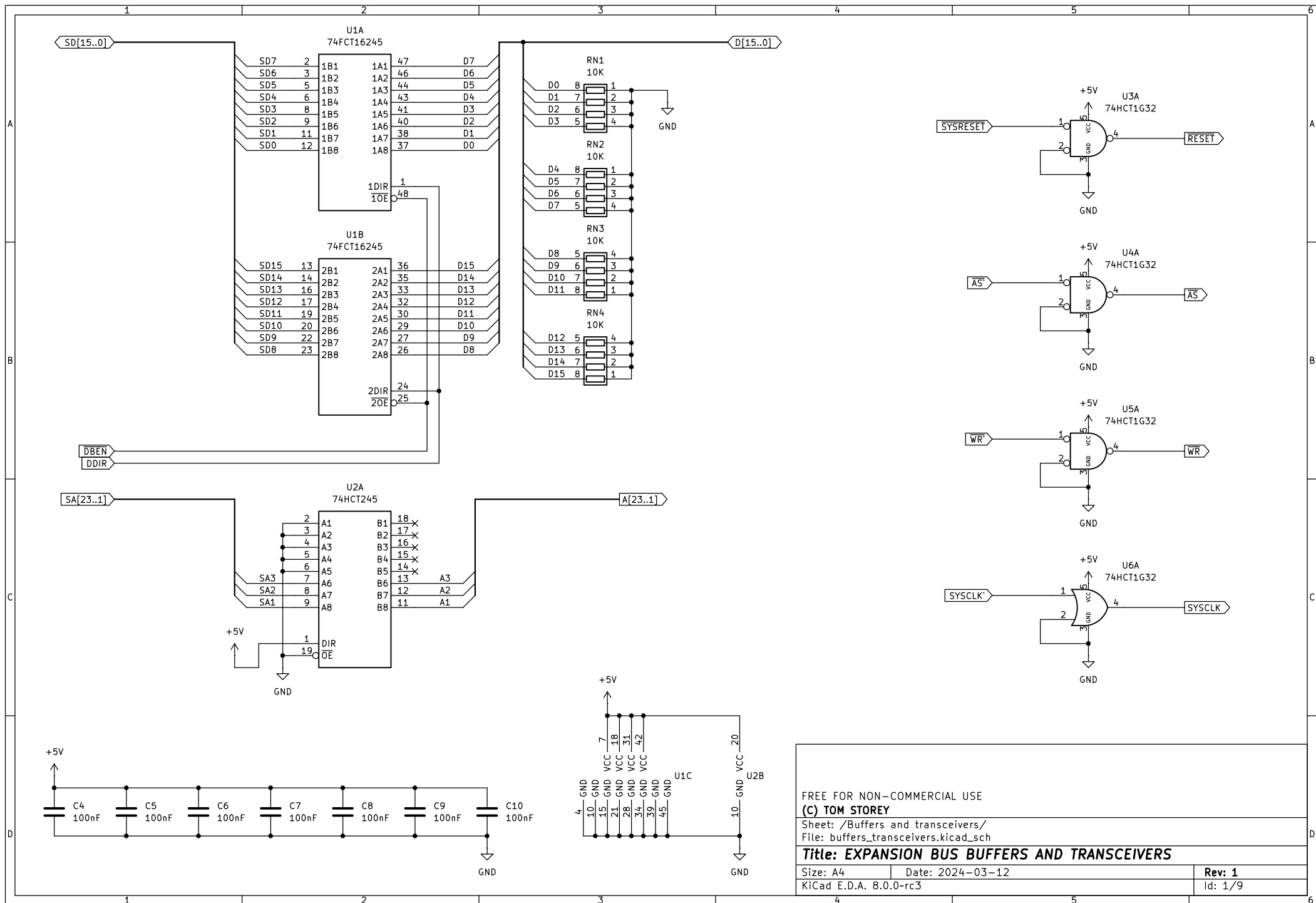
Size: A4

Date: 2024-03-12

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Sheet: /Buffers and transceivers/  
File: buffers\_transceivers.kicad\_sch

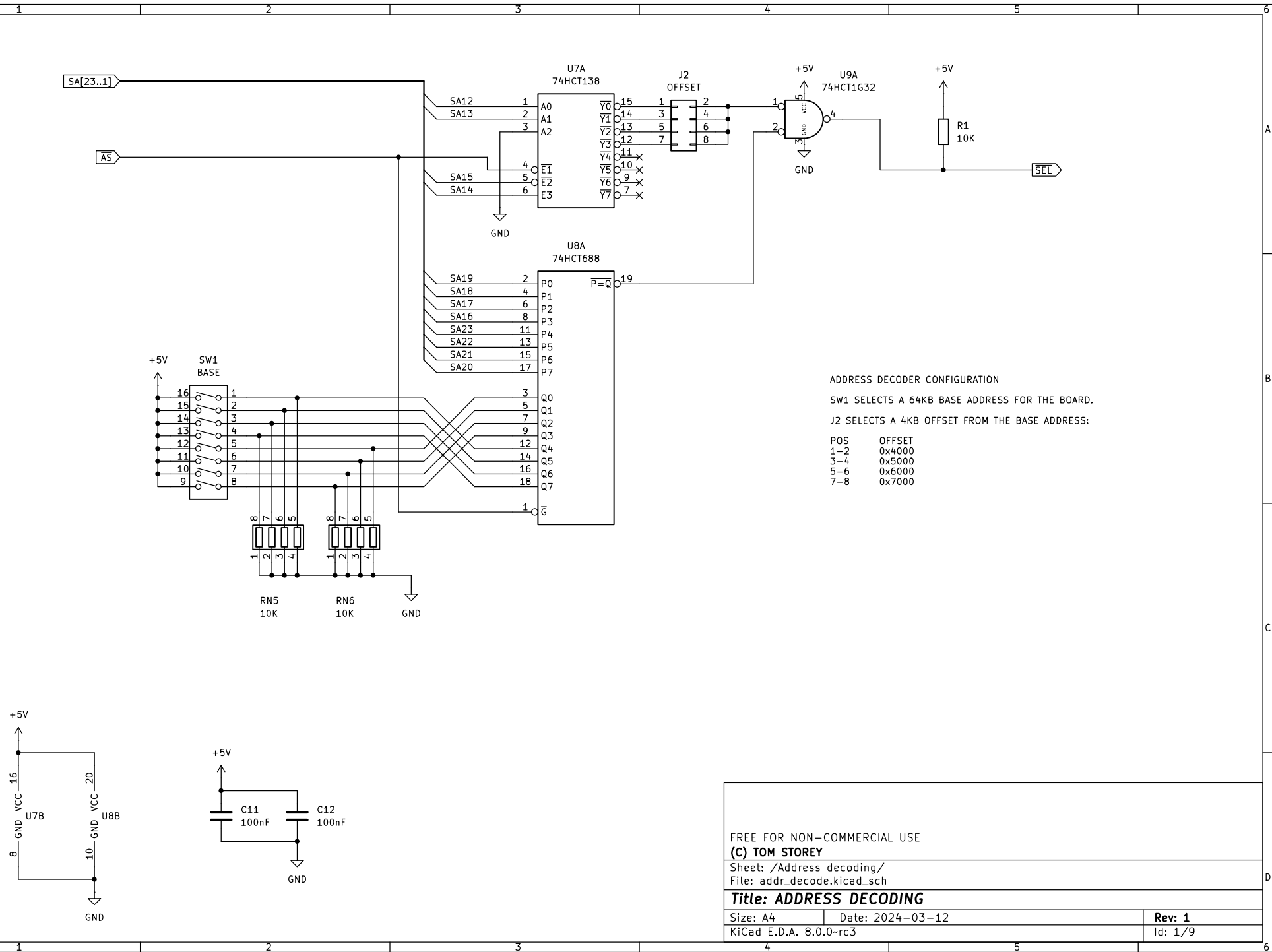
**Title: EXPANSION BUS BUFFERS AND TRANSCEIVERS**

Size: A4 Date: 2024-03-12

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Sheet: /Address decoding/  
File: addr\_decode.kicad\_sch

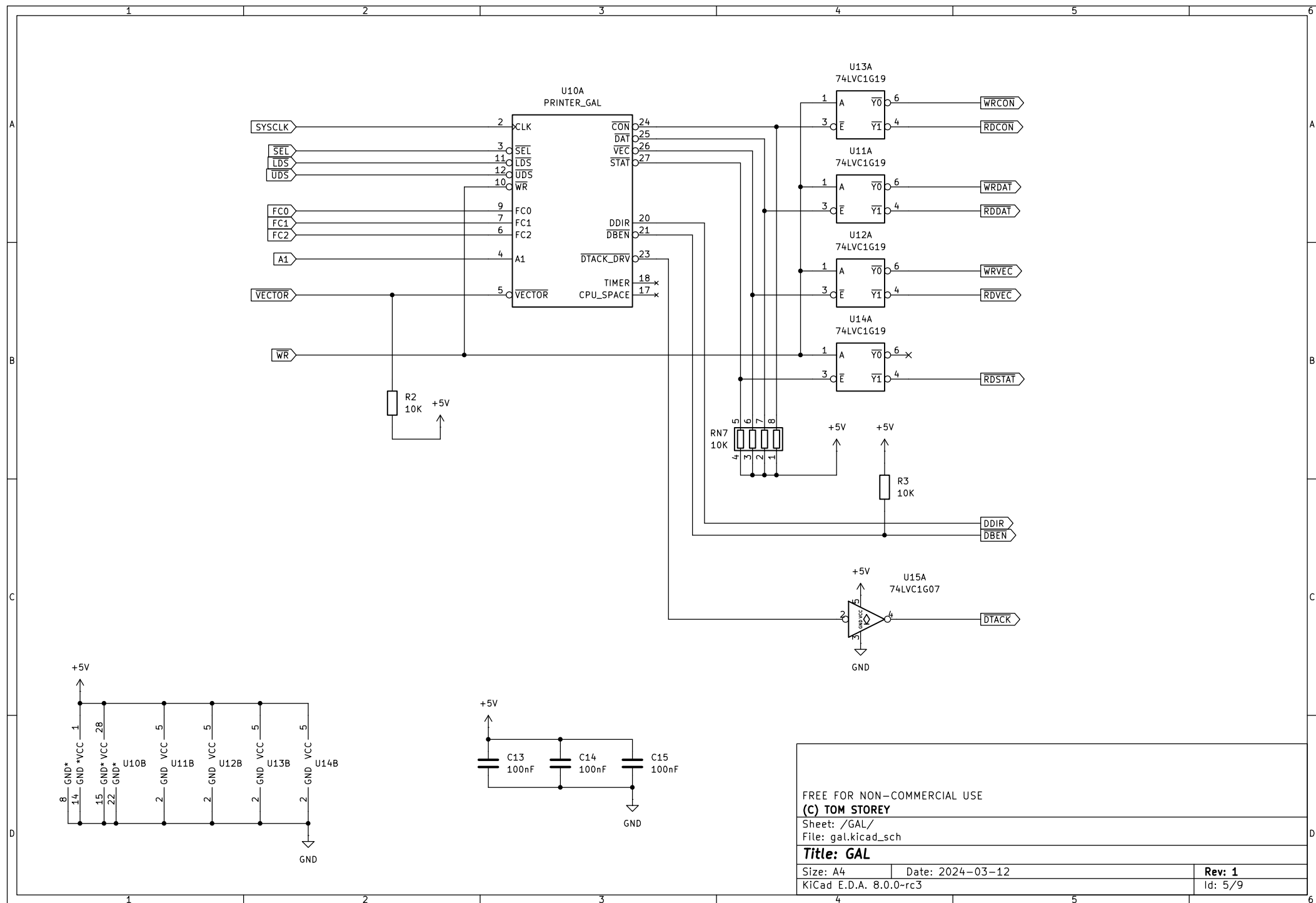
Title: ADDRESS DECODING

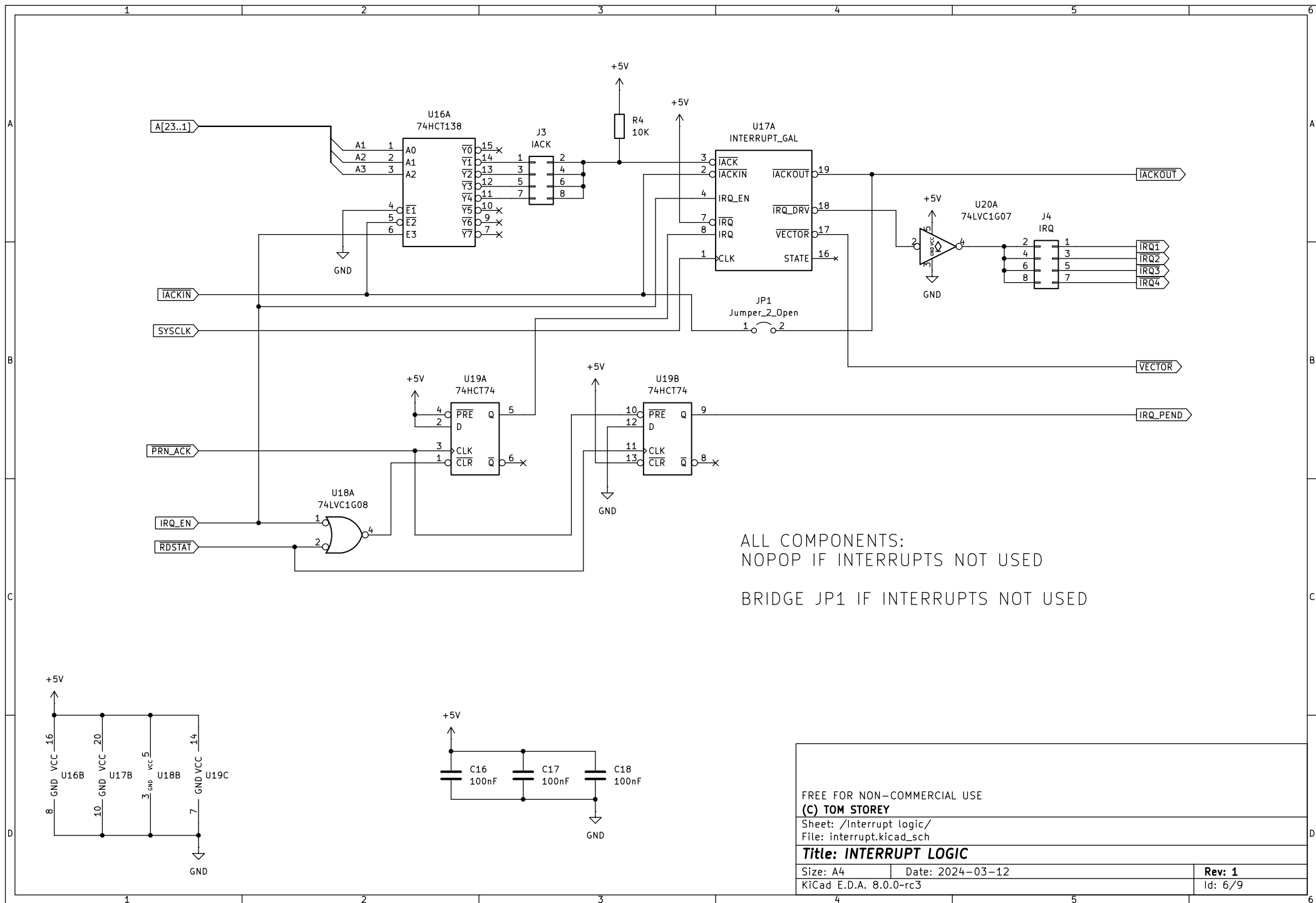
Size: A4 Date: 2024-03-12

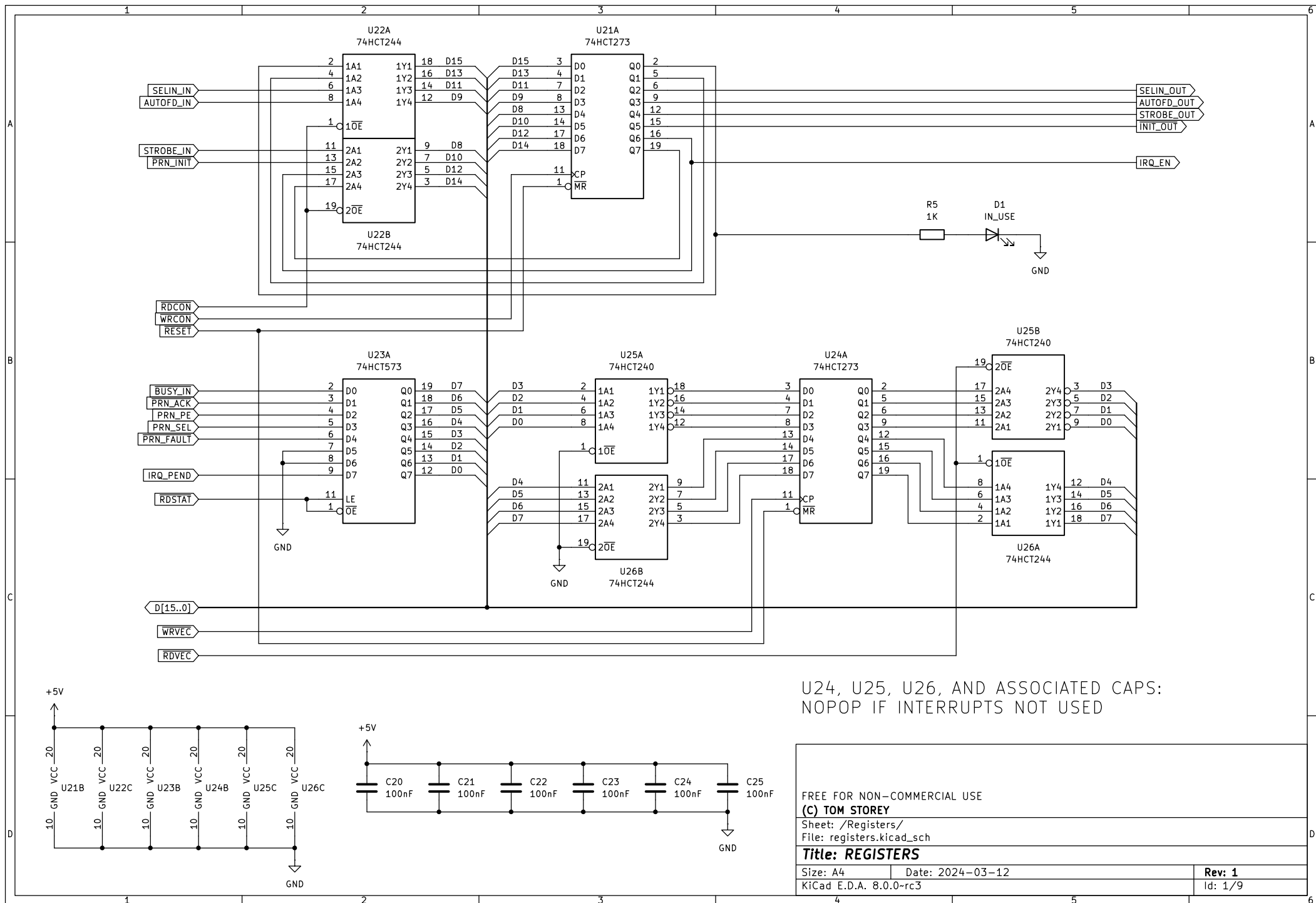
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0x0 – DATA PORT

RW-x	RW-x	RW-x	RW-x	RW-x	RW-x	RW-x
D<7:0>						
BIT 7			BIT 0			

BIT 7-0 D<7:0>: INPUT/OUTPUT DATA  
THE DATA PORT IS ALWAYS DRIVING AN OUTPUT VALUE, BUT AN EXTERNAL DEVICE MAY OVERRIDE THE OUTPUT DATA BY DRIVING THE DATA LINES TO AN ALTERNATE STATE.  
  
THE OUTPUT VALUE AT RESET IS INDETERMINATE.

0x1 – INTERRUPT VECTOR

RW-0	RW-0	RW-0	RW-0	RW-1	RW-1	RW-1	RW-1
VEC<7:0>							
BIT 7				BIT 0			

BIT 7-0 VEC<7:0>: INTERRUPT VECTOR  
THIS IS THE VECTOR NUMBER THAT IS SUPPLIED TO THE CPU DURING THE INTERRUPT ACKNOWLEDGE CYCLE.  
  
ON RESET, THE VECTOR NUMBER INITIALISES TO 0x0F TO SUPPLY THE "UNINITIALISED INTERRUPT" VECTOR. USER SOFTWARE MUST CONFIGURE AN APPROPRIATE VECTOR NUMBER FOR THE APPLICATION.

0x2 – STATUS REGISTER

R-x	R-x	R-x	R-x	R-x	U-0	U-0	R-x
BUSY	ACK	ERROR	SELECT	FAULT	-	-	IRQ_PEND
BIT 7			BIT 0				

BIT 7 BUSY: PRINTER BUSY  
1 = PRINTER IS READY TO RECEIVE NEW DATA  
0 = PRINTER IS NOT READY TO RECEIVE NEW DATA

BIT 6 ACK: TRANSFER ACKNOWLEDGE  
1 = SIGNAL IS NEGATED  
0 = PRINTER IS ACKNOWLEDGING TRANSFER  
  
THE FALLING EDGE OF ACK CAUSES THE IRQ\_PEND BIT TO BE SET. THE RISING EDGE OF ACK CAUSES AN INTERRUPT REQUEST TO BE GENERATED AS LONG AS THE IRQ\_EN BIT OF THE CONTROL REGISTER IS SET.

BIT 5 ERROR: PAPER ERROR  
1 = PRINTER IS EXPERIENCING AN ERROR IN THE PAPER PATH  
0 = NO ERROR CONDITION EXISTS

BIT 4 SELECT: PRINTER ONLINE INDICATOR  
1 = PRINTER IS ONLINE  
0 = PRINTER IS NOT ONLINE

BIT 3 FAULT: PRINTER FAULT INDICATOR  
1 = NO FAULT CONDITION EXISTS  
0 = PRINTER IS EXPERIENCING A FAULT

BIT 2-1 UNIMPLEMENTED

BIT 0 IRQ\_PEND: INTERRUPT PENDING  
1 = AN INTERRUPT IS CURRENTLY PENDING FOR THIS INTERFACE  
0 = NO INTERRUPT PENDING  
  
IRQ\_PEND REMAINS SET AS LONG AS THE ACK SIGNAL IS ASSERTED, AND IS CLEARED BY READING THE STATUS REGISTER ONCE ACK IS NEGATED.

LEGEND:  
R = READABLE      W = WRITABLE      U = UNIMPLEMENTED  
-n = VALUE AT RESET      1 = SET      0 = CLEARED      x = UNKNOWN

0x3 – CONTROL REGISTER

RW-0	U-0	U-0	RW-0	RW-0	RW-0	RW-0
IN_USE	-	-	IRQ_EN	SELIN	INIT	AUTOFD
BIT 7			BIT 0			

BIT 7 IN\_USE: IN USE LED CONTROL  
1 = LED ON  
0 = LED OFF

BIT 6-5 UNIMPLEMENTED

BIT 4 IRQ\_EN: INTERRUPT REQUEST ENABLE  
1 = INTERRUPT WILL BE GENERATED ON THE RISING EDGE OF ACK  
0 = INTERRUPTS ARE DISABLED  
  
WHEN IRQ\_EN IS CLEARED, INTERRUPT REQUESTS ARE INHIBITED BUT THE IRQ\_PEND BIT OF THE STATUS REGISTER WILL STILL REFLECT PENDING INTERRUPT CONDITIONS. CLEARING IRQ\_EN WHILE AN INTERRUPT REQUEST IS PENDING WILL CANCEL THE INTERRUPT REQUEST BUT DOES NOT CLEAR THE IRQ\_PEND BIT OF THE STATUS REGISTER.

BIT 3 SELIN: PRINTER SELECT  
1 = PRINTER IS SELECTED  
0 = PRINTER IS NOT SELECTED

BIT 2 INIT: PRINTER RESET  
1 = PRINTER IS IN NORMAL OPERATION  
0 = PRINTER IS IN RESET STATE

BIT 1 AUTOFD: AUTOMATIC LINE-FEED MODE  
1 = ENABLE AUTOMATIC LINE-FEED MODE  
0 = DISABLE AUTOMATIC LINE-FEED MODE

BIT 0 STROBE: DATA TRANSFER STROBE  
1 = ASSERT STROBE TOWARDS PRINTER TO LATCH DATA  
0 = SIGNAL IS NEGATED

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Sheet: /Register documentation/  
File: reg\_doc.kicad\_sch

Title: REGISTER DOCUMENTATION

Size: A4      Date: 2024-03-12

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