

Nixie Clock Main Board

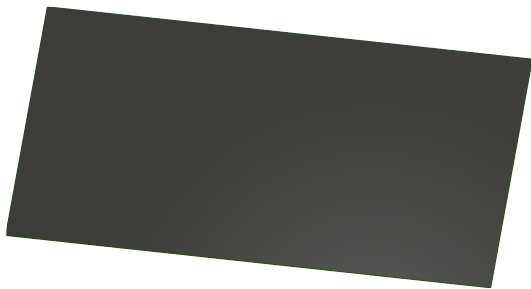
Variant: DRAFT

2026-03-03

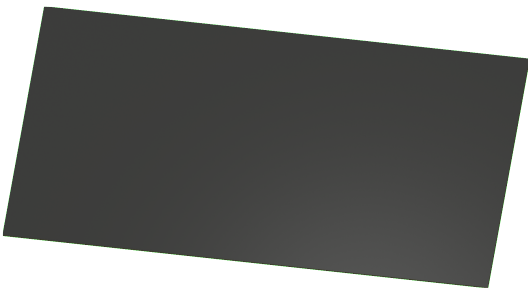
Rev + (Unreleased)

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TOP VIEW



BOTTOM VIEW



NOTES

Nixie Clock Main Board Document

Comment

Not fitted components are marked as **X**

DRAFT - Very early stage of schematic, ignore details.

PRELIMINARY - Close to final schematic.

CHECKED - There shouldn't be any mistakes. Contact the engineer if you find any.

RELEASED - A board with this schematic has been sent to production.

Date: 03-Mar-2026

DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational design notes.

DESIGN NOTE:
Example text for debug notes.

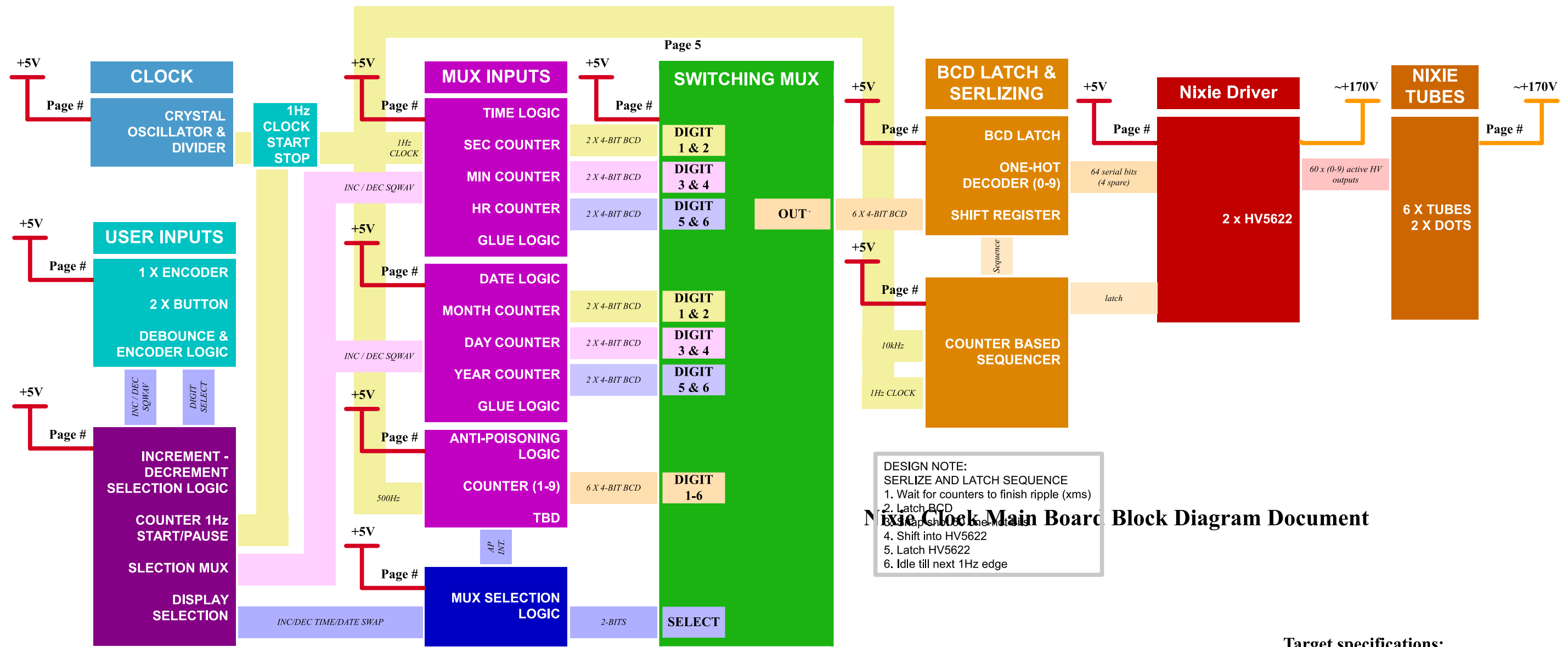
DESIGN NOTE:
Example text for cautionary design notes.

DESIGN NOTE:
Example text for critical design notes.

LAYOUT NOTE:
Example text for critical layout guidelines.

	Comments:	Company: Company Name		Variant: DRAFT	
		Board Name: Nixie Clock Main Board		Project Name: Nixie Tube Clock	
	Sheet Title:	File Name: Nixie_Tube_Clock.kicad_sch	Designer: Aidan Brzezinski	Date: 2025-01-12	Revision: + (Unreleased)
	Sheet Path: /	Reviewer:		Size: A3	Sheet: 1 of 10

[2] Block Diagram

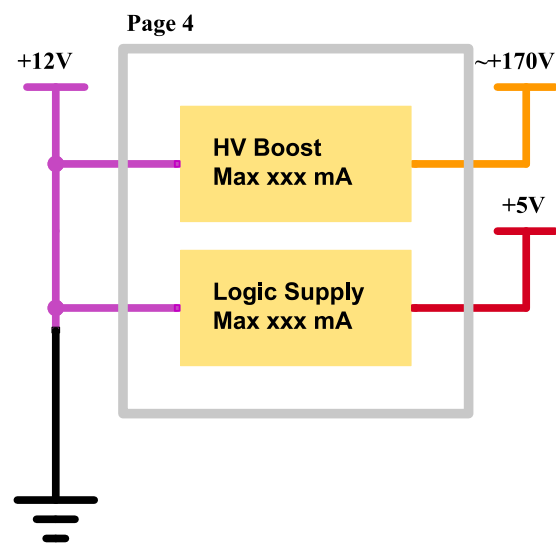


DESIGN NOTE:
SERLIZE AND LATCH SEQUENCE
1. Wait for counters to finish ripple (xms)
2. Latch BCD
3. Latch shift into HV5622
4. Shift into HV5622
5. Latch HV5622
6. Idle till next 1Hz edge

Nixie Clock Main Board Block Diagram Document

Target specifications:

Input voltage:	?? - ?? V
Spec 2	??
Spec 3	??
Spec 4	??



DESIGN NOTE:
TIMER FOR AP CYCLE HARD SET ~1HR NOT SURE. INCLUDE BUTTON SOMEWHERE, NOT DIRECT USER INPUT.

ENCODER FOR INCRMENT DECRMENT, 1 BUTTON FOR CYCLING THROUGH DIGITS, 1 BUTTON FOR SHOWING DATE ~15 SECONDS.

FOR INCREMENT - DECREMENT AN ENCODER INC. AND DEC. AND CYCLE BUTTON. FIRST THE CYCEL BUTTON WILL PAUSE THE 1Hz CLOCK, THEN THE CYCLE BUTTON WILL INCREMENT A COUNTER THAT WILL GO TO A MUX SELECT THAT CHANGES BTWEEN: SS, MM, HH, (AT THIS POINT THE DISPLAY WILL SWAP TOO)MM, DD, YY, THEN ENABLE THE 1Hz CLOCK AGAIN(AND SWAP BACK).

THEN EACH INC, DEC, IS PASSED TROUGH TO THE RESPECTIVE COUNTER AND PUT INTO THE INCREMNT OR DECRMENT INPUT. THE INCRMENT WILL NEED TO BE AND WITH THE RESPECTIVE INCREMNT FOR THAT COUNTER.

IMPORTANT: A COUNTER SHOULD NEVER RECEIVE AN INCREMNT AND DECREMENT AT THE SAME TIME.

	Comments:	Company:		Variant:	
		Company Name		DRAFT	
		Board Name:		Project Name:	
		Nixie Clock Main Board		Nixie Tube Clock	
	Sheet Title:	File Name:	Designer:	Date:	Revision:
Block Diagram	Block Diagram.kicad_sch	Aidan Brzezinski	2025-01-12	+ (Unreleased)	
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[3] Project Architecture

Description {

Clock - Oscillator & Divider

Page 4

File: Clock - Oscillator & Divider.kicad_sch

MUX Inputs - Time Logic

Page 5

File: Section B - Title B.kicad_sch

Switching MUX

Page 5

File: Switching MUX.kicad_sch

MUX Inputs - Date Logic

Page 5

File: MUX Inputs - Date Logic.kicad_sch

MUX Inputs - Anti-Poisoning Logic

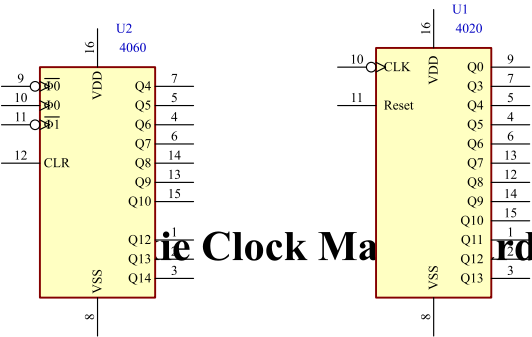
Page 5

File: MUX Inputs - Anti-Poisoning Logic.kicad_sch

Nixie Clock Main Board Project Architecture Document

	Comments:	Company:		Variant:	
		Company Name		DRAFT	
	Sheet Title:	Board Name:		Project Name:	
		Project Architecture		Nixie Clock Main Board	
	File Name:	Designer:	Date:	Revision:	
	Project Architecture.kicad_sch	Aidan Brzezinski	2025-01-12	+ (Unreleased)	
	Sheet Path:		Reviewer:	Size:	Sheet:
	/Project Architecture/			A3	3 of 10

[4] Clock



ie Clock Main Board Clock Document

Block Description

LAYOUT NOTE:
blablabla

DESIGN NOTE:
blablabla

	Comments: AN5346 STM32G474 Datasheet p.81 J. Pieper ADC Investigation		Company: Company Name		Variant: DRAFT			
			Board Name: Nixie Clock Main Board		Project Name: Nixie Tube Clock			
	Sheet Title: Clock - Oscillator & Divider		File Name: Clock - Oscillator & Divider.kicad_sch		Designer: Aidan Brzezinski			
					Date: 2025-01-12			
						Revision: + (Unreleased)		
Sheet Path: /Project Architecture/Clock - Oscillator & Divider/			Reviewer:		Size: A4		Sheet: 4 of 10	

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	1	2	3	4	5	6	7	8
A	[8] Sheet Title B							
B	Block Description	Block Description				Nixie Clock Main Board Sheet Title B Document		
C		Block Description	Block Description		Block Description			
D			Block Description			Block Description		
E	Block Description	Block Description		Block Description			Block Description	
F								

	Comments:	Company:		Variant:	
	References: Flexible I/O worked examples Flexible I/O source configuration	Company Name		DRAFT	
		Board Name: Nixie Clock Main Board		Project Name: Nixie Tube Clock	
	Sheet Title: MUX Inputs - Anti-Poisoning Logic	File Name: MUX Inputs - Anti-Poisoning Logic.kicad_sch	Designer: Aidan Brzezinski	Date: 2025-01-12	Revision: + (Unreleased)
	Sheet Path: /Project Architecture/MUX Inputs - Anti-Poisoning Logic/		Reviewer:	Size: A3	Sheet: 8 of 10

Comments: References: Flexible I/O worked examples Flexible I/O source configuration	Company: Company Name		Variant: DRAFT	
	Board Name: Nixie Clock Main Board		Project Name: Nixie Tube Clock	
Sheet Title: MUX Inputs - Anti-Poisoning Logic	File Name: MUX Inputs - Anti-Poisoning Logic.kicad_sch	Designer: Aidan Brzezinski	Date: 2025-01-12	Revision: + (Unreleased)
Sheet Path: /Project Architecture/MUX Inputs - Anti-Poisoning Logic/		Reviewer:	Size: A3	Sheet: 8 of 10

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A	[9] Sheet Title B										
B	Block Description	Block Description				Nixie Clock Main Board Sheet Title B Document					
C		Block Description	Block Description		Block Description						
D			Block Description		Block Description						
E	Block Description	Block Description		Block Description		Block Description					
F											

	Comments:	Company:		Variant:	
	References: Flexible I/O worked examples Flexible I/O source configuration	Company Name		DRAFT	
	Sheet Title: Switching MUX	Board Name: Nixie Clock Main Board		Project Name: Nixie Tube Clock	
	Sheet Path: /Project Architecture/Switching MUX/	File Name: Switching MUX.kicad_sch	Designer: Aidan Brzezinski	Date: 2025-01-12	Revision: + (Unreleased)
	Reviewer:			Size: A3	Sheet: 9 of 10

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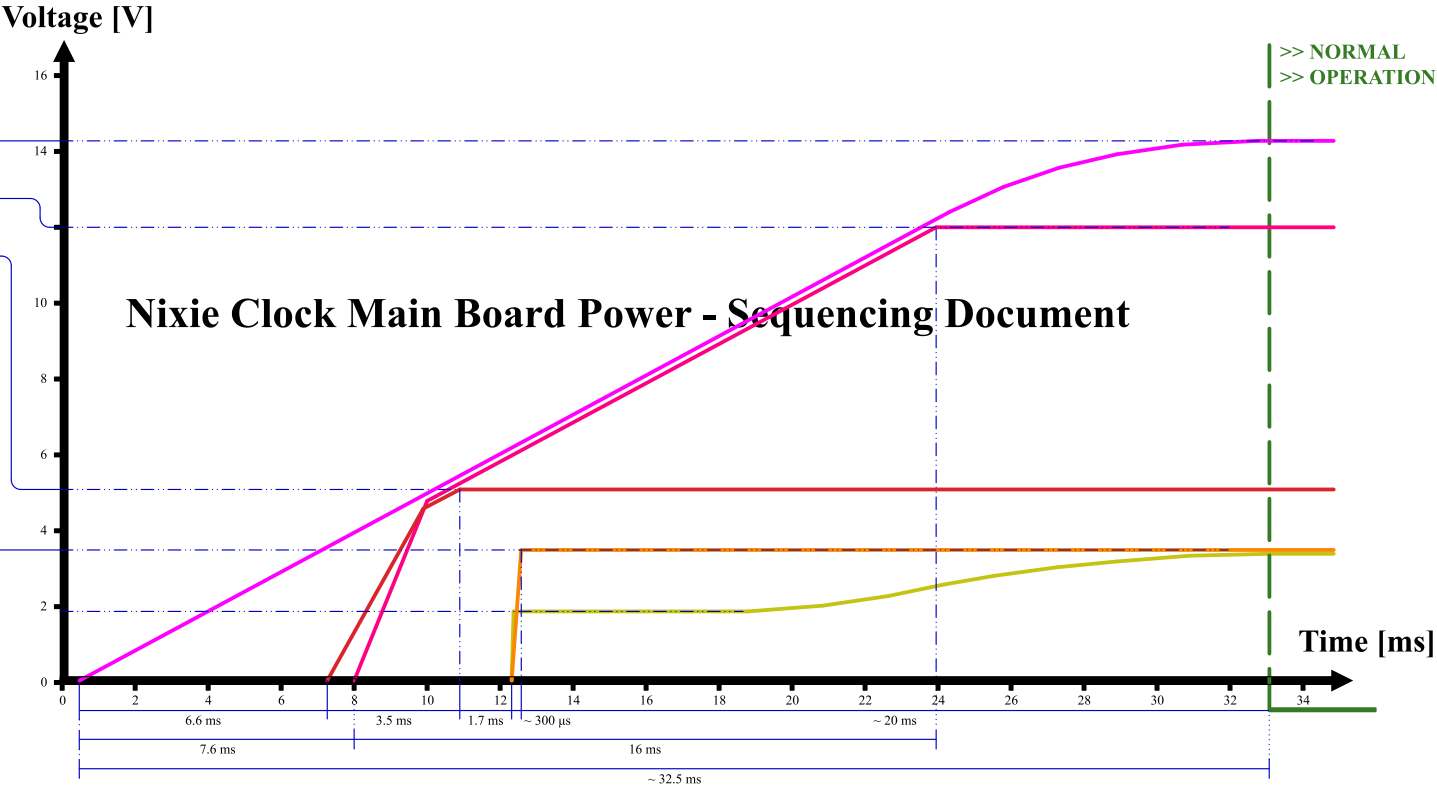
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C		Block Description	Block Description		Block Description			
D			Block Description		Block Description			
E	Block Description	Block Description		Block Description		Block Description	Block Description	
F								

Nixie Clock Main Board Sheet Title B Document

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Sheet Path: /Project Architecture/MUX Inputs - Date Logic/			Reviewer:	Size: A3
			Revision: + (Unreleased)	
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[6] Power - Sequencing

NAME	SOURCE	LEVEL
+V??	??	? - ? ± ??%
+V??	??	? - ? ± ??%
+V??	??	? - ? ± ??%
+V??	??	? - ? ± ??%
+V??	??	? - ? ± ??%



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	Power - Sequencing	Power - Sequencing.kicad_sch	Aidan Brzezinski	2025-01-12	+ (Unreleased)
	Sheet Path:	Reviewer:		Size:	Sheet:
	/Power - Sequencing/			A4	6 of 10

[7] Revision History

Nixie Clock Main Board Revision History Document

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		Company Name		DRAFT	
		Board Name:		Project Name:	
		Nixie Clock Main Board		Nixie Tube Clock	
	Sheet Title:	File Name:	Designer:	Date:	Revision:
	Revision History	Revision History.kicad_sch	Aidan Brzezinski	2025-01-12	+ (Unreleased)
	Sheet Path:		Reviewer:	Size:	Sheet:
	/Revision History/			A4	7 of 10