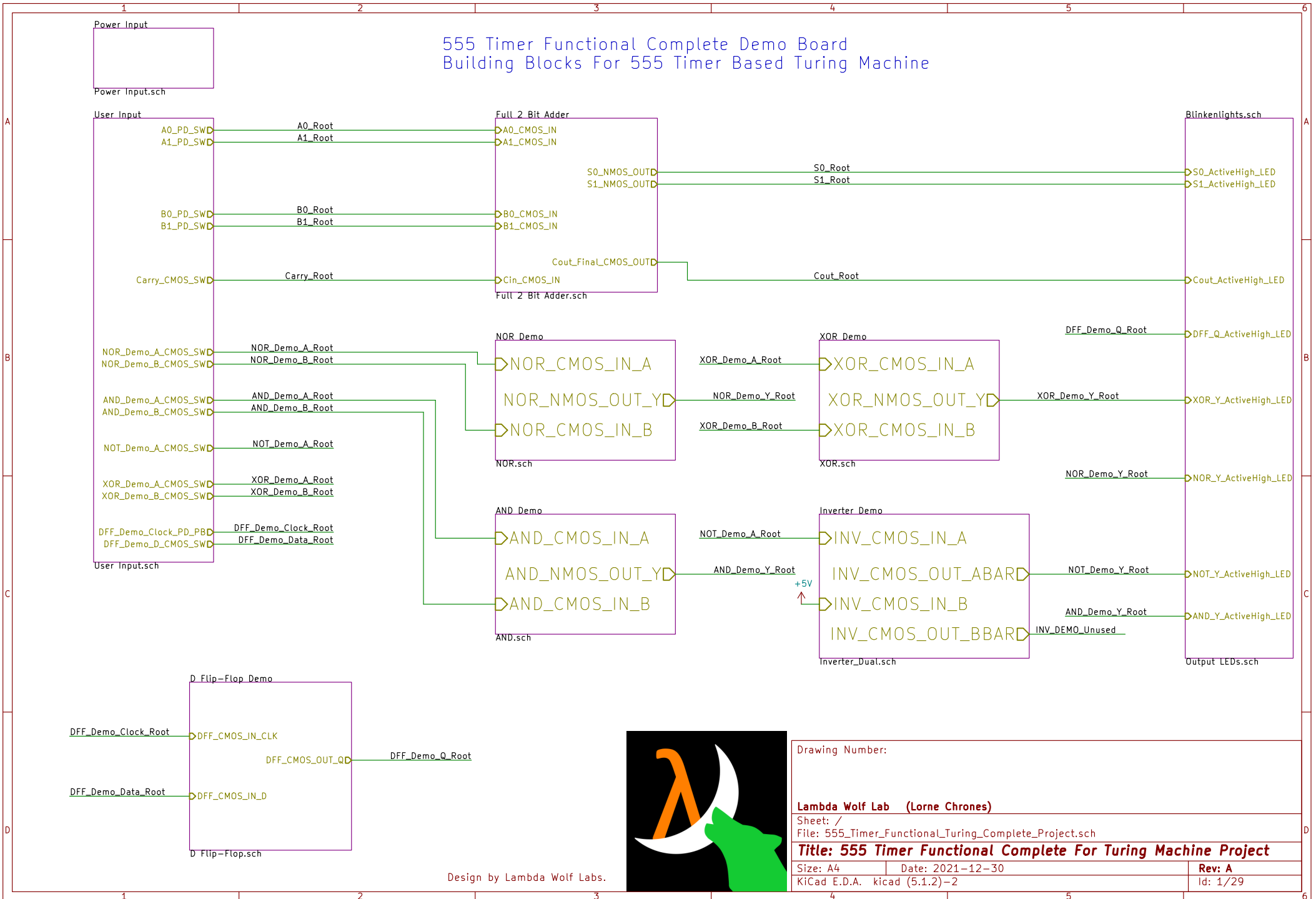


555 Timer Functional Complete Demo Board

Building Blocks For 555 Timer Based Turing Machine



Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /

File: 555_Timer_Functional_Turing_Complete_Project.sch

Title: 555 Timer Functional Complete For Turing Machine Project

Size: A4 Date: 2021-12-30

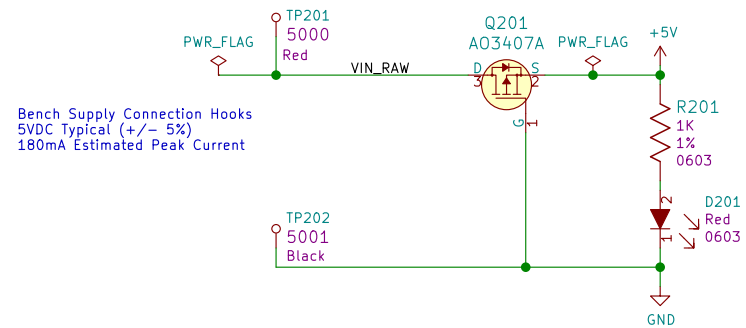
KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 1/29

Design by Lambda Wolf Labs.

Power Input



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Power Input/
File: Power Input.sch

Title: 555 Timer Functional Complete For Turing Machine Project

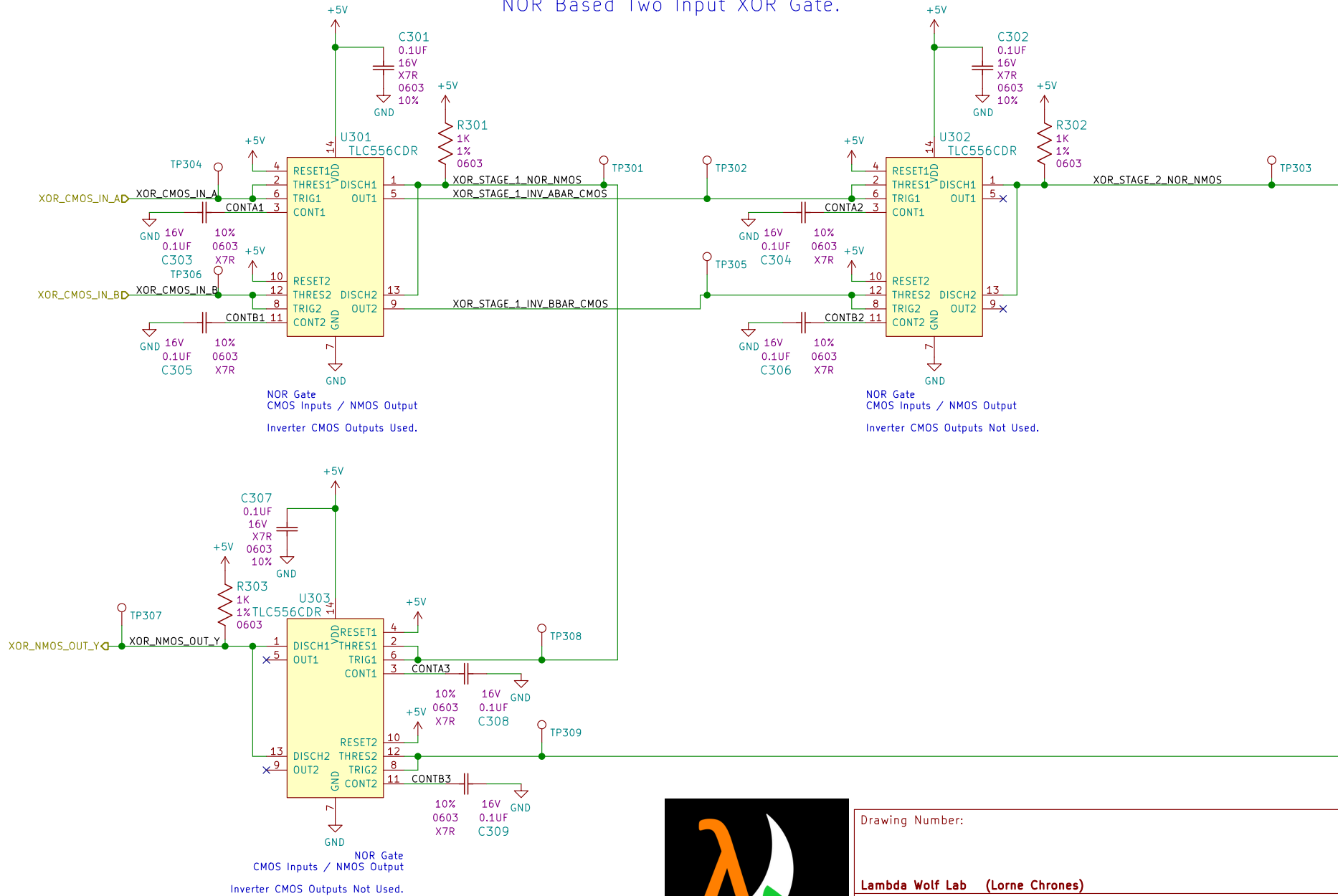
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 2/29

NOR Based Two Input XOR Gate.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /XOR Demo/

File: XOR.sch

Title: 555 Timer Functional Complete For Turing Machine Project

Size: A4

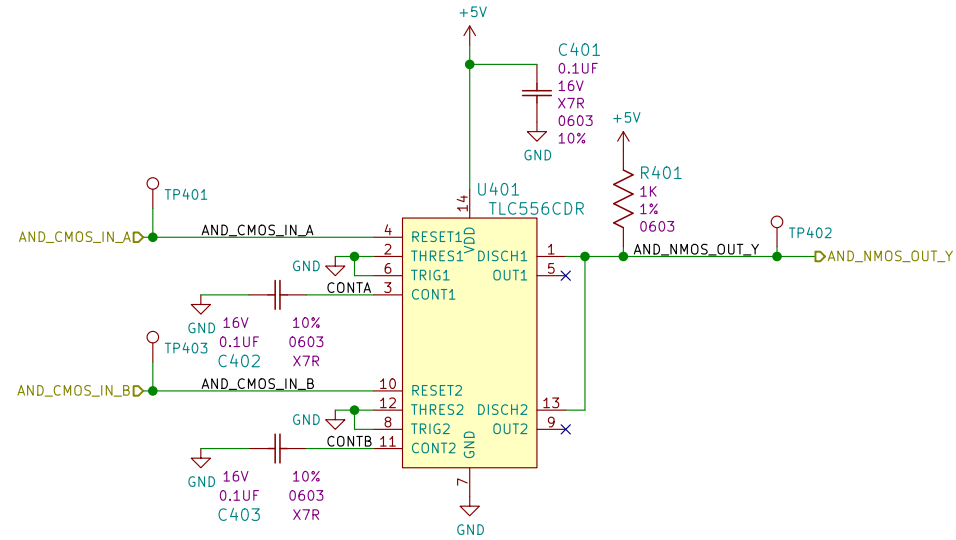
Date: 2021-12-30

Rev: A

KiCad E.D.A. kicad (5.1.2)-2

Id: 3/29

Two Input AND Gate.



AND Gate
 CMOS Inputs / NMOS Output
 Inverter CMOS Outputs Not Used.

Design by Lambda Wolf Labs.



Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /AND Demo/
 File: AND.sch

Title: 555 Timer Functional Complete For Turing Machine Project

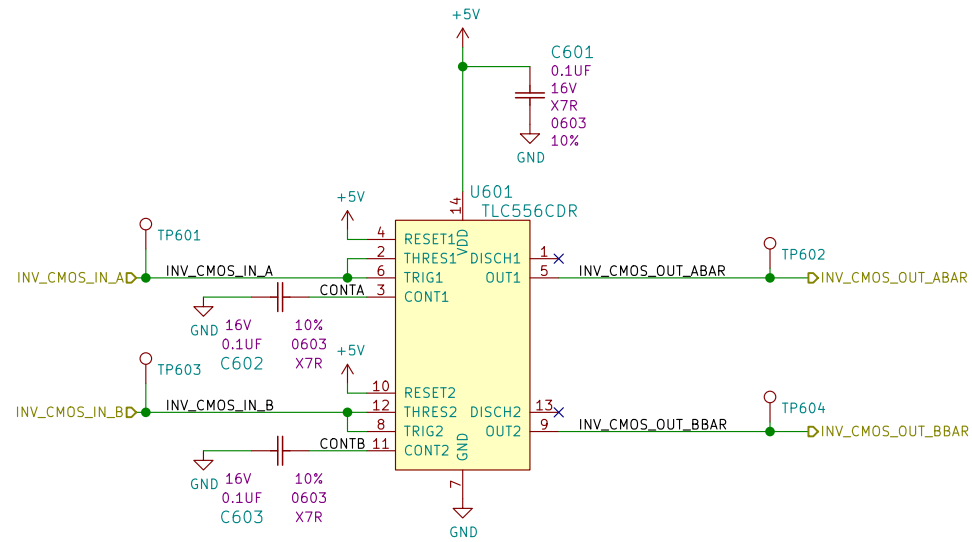
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 4/29

Dual Inverter Gates



Dual Inverters
CMOS Inputs / CMOS Outputs.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

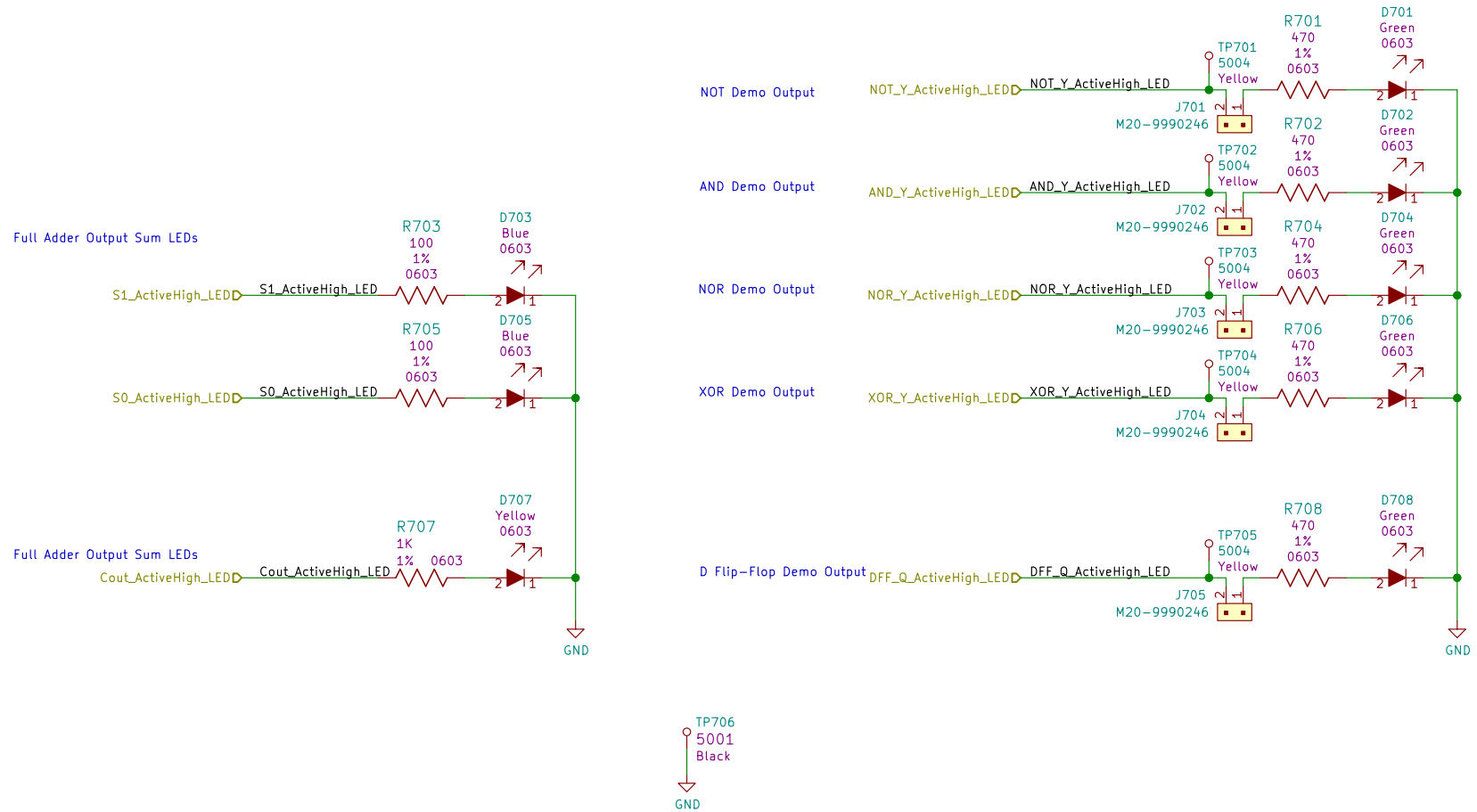
Sheet: /Inverter Demo/
File: Inverter_Dual.sch

Title: 555 Timer Functional Complete For Turing Machine Project

Size: A4 Date: 2021-12-30
KiCad E.D.A. kicad (5.1.2)-2

Rev: A
Id: 5/29

Output LEDs



Design by Lambda Wolf Labs.



Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Blinkenlights.sch/
File: Output LEDs.sch

Title: 555 Timer Functional Complete For Turing Machine Project

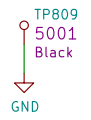
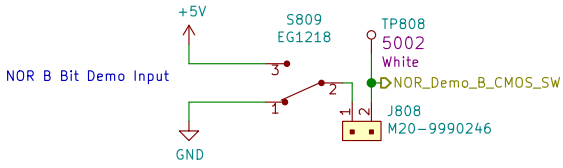
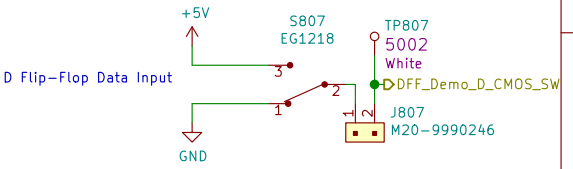
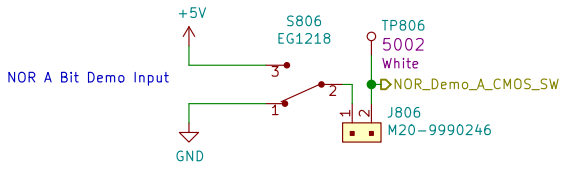
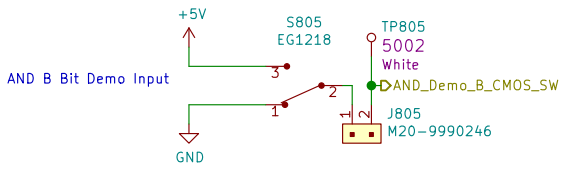
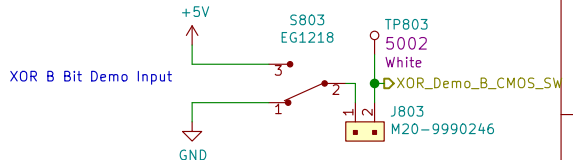
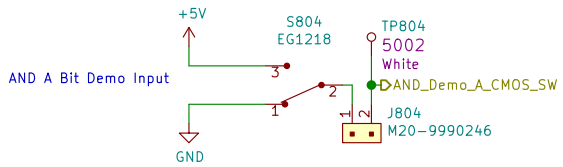
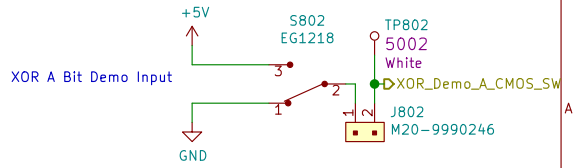
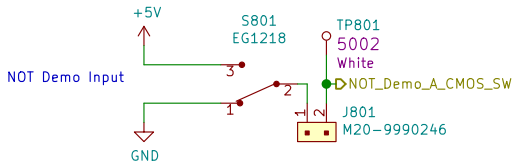
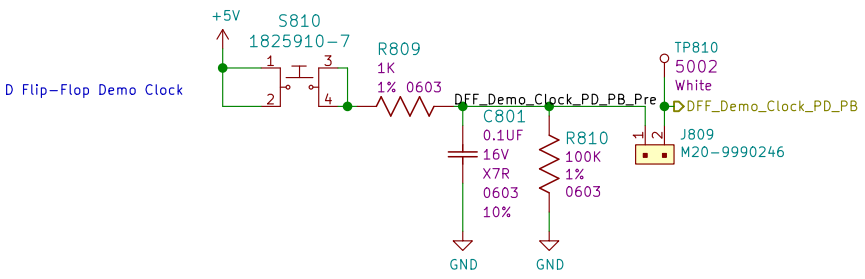
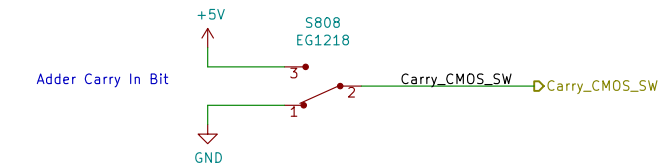
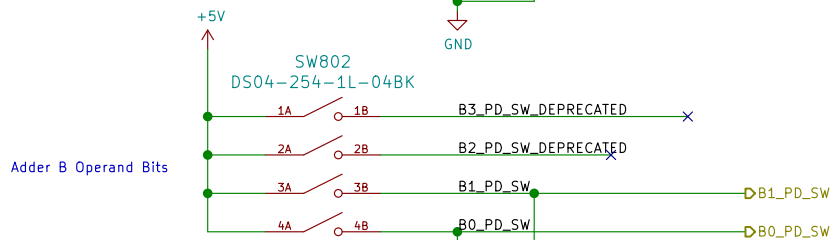
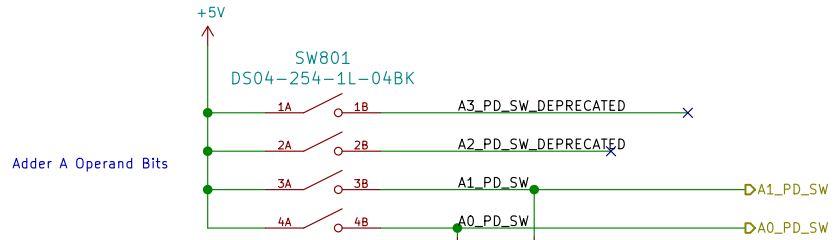
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

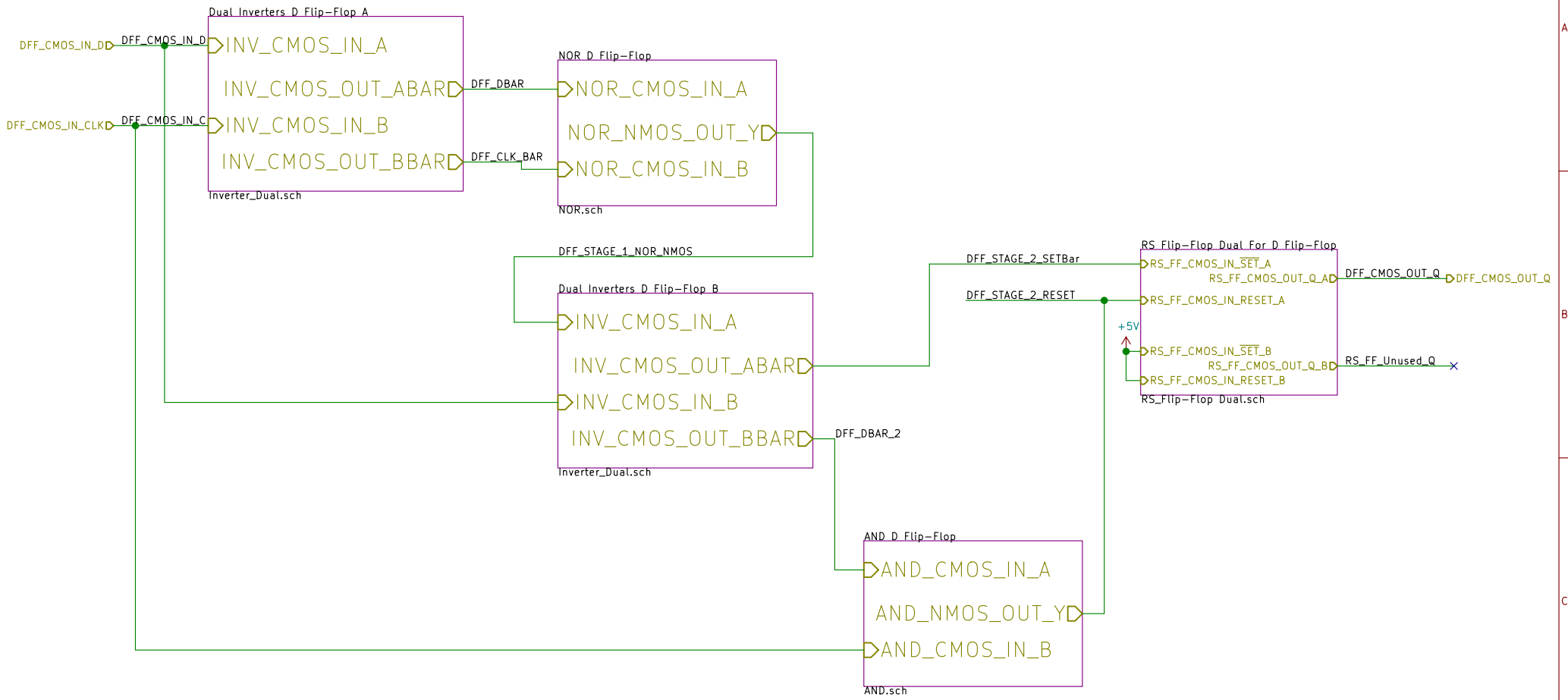
Id: 6/29

User Input



Drawing Number:	
Lambda Wolf Lab (Lorne Chrones)	
Sheet: /User Input/ File: User Input.sch	
Title: 555 Timer Functional Complete For Turing Machine Project	
Size: A4	Date: 2021-12-30
KiCad E.D.A. kicad (5.1.2)-2	Rev: A
	Id: 7/29

RS-Based D Flip-Flop (Level, Not Edge Triggered)

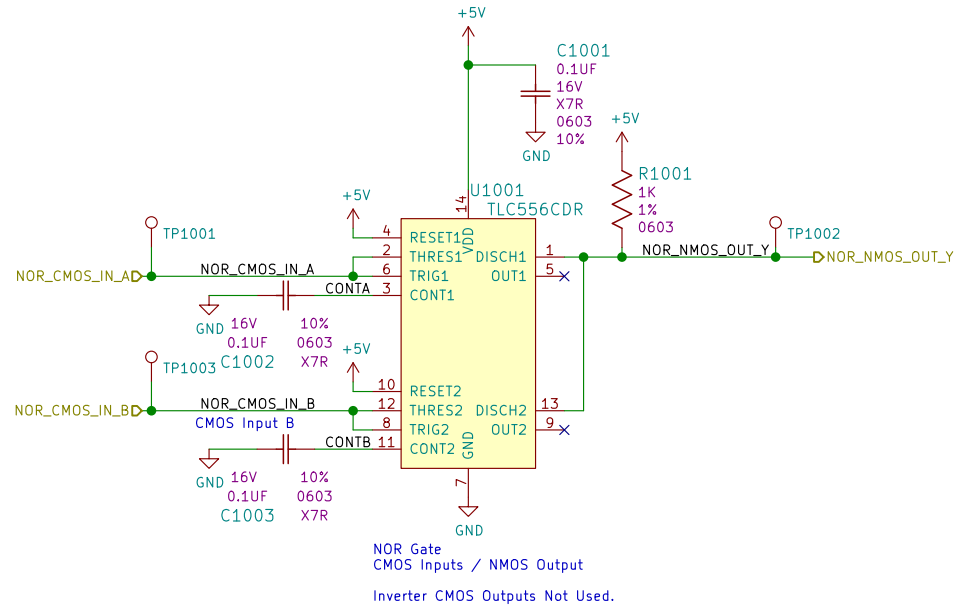


Design by Lambda Wolf Labs.



Drawing Number:		
Lambda Wolf Lab (Lorne Chrones)		
Sheet: /D Flip-Flop Demo/ File: D Flip-Flop.sch		
Title: 555 Timer Functional Complete For Turing Machine Project		
Size: A4	Date: 2021-12-30	Rev: A
KiCad E.D.A. kicad (5.1.2)-2		Id: 8/29

NOR Based Two Input NOR Gate.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /D Flip-Flop Demo/NOR D Flip-Flop/
File: NOR.sch

Title: 555 Timer Functional Complete For Turing Machine Project

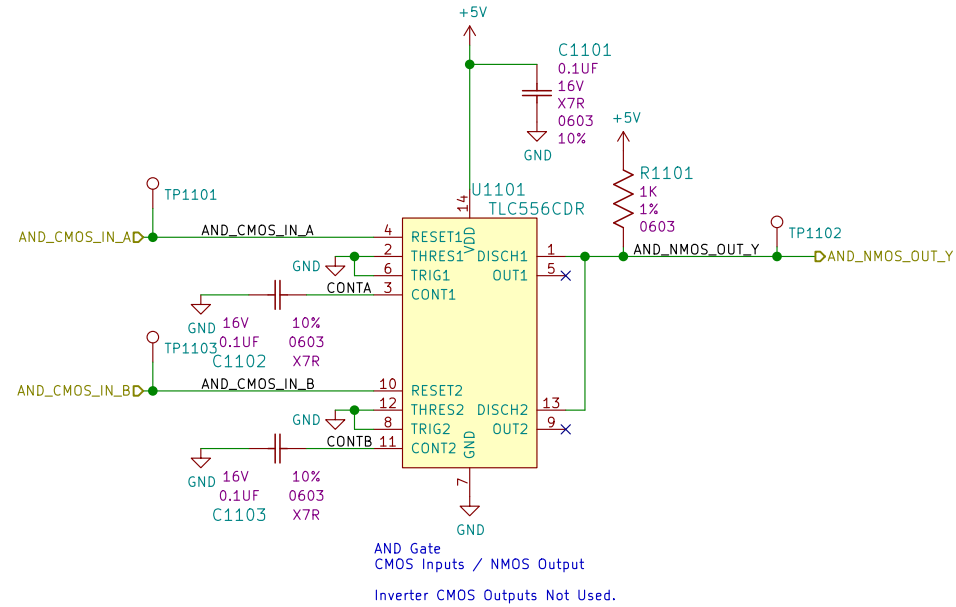
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 9/29

Two Input AND Gate.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /D Flip-Flop Demo/AND D Flip-Flop/
File: AND.sch

Title: 555 Timer Functional Complete For Turing Machine Project

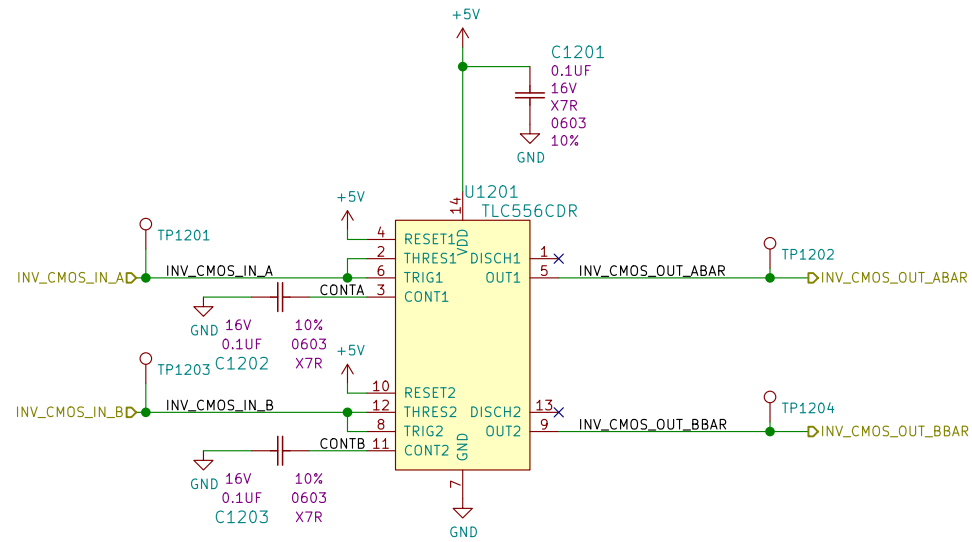
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 10/29

Dual Inverter Gates



Dual Inverters
CMOS Inputs / CMOS Outputs.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /D Flip-Flop Demo/Dual Inverters D Flip-Flop A/
File: Inverter_Dual.sch

Title: 555 Timer Functional Complete For Turing Machine Project

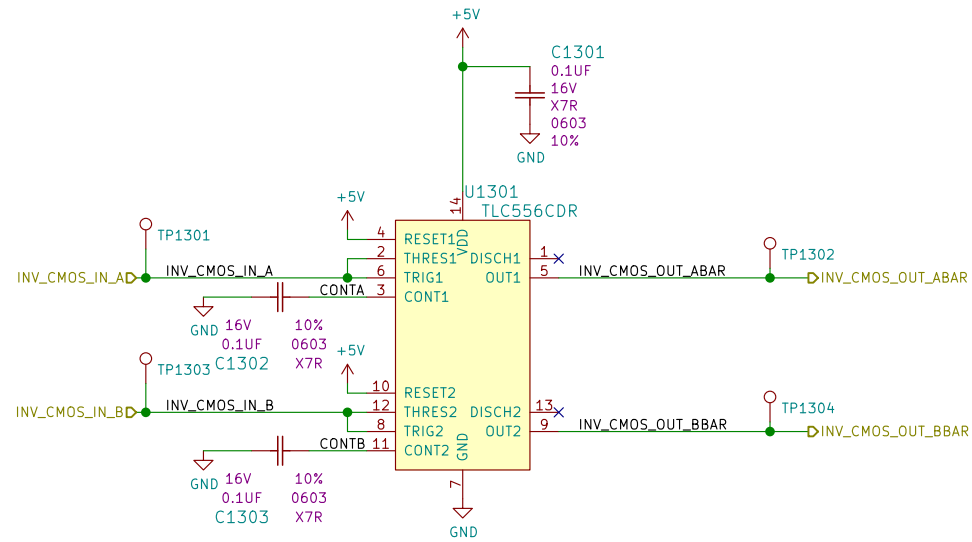
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 11/29

Dual Inverter Gates



Dual Inverters
CMOS Inputs / CMOS Outputs.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /D Flip-Flop Demo/Dual Inverters D Flip-Flop B/
File: Inverter_Dual.sch

Title: 555 Timer Functional Complete For Turing Machine Project

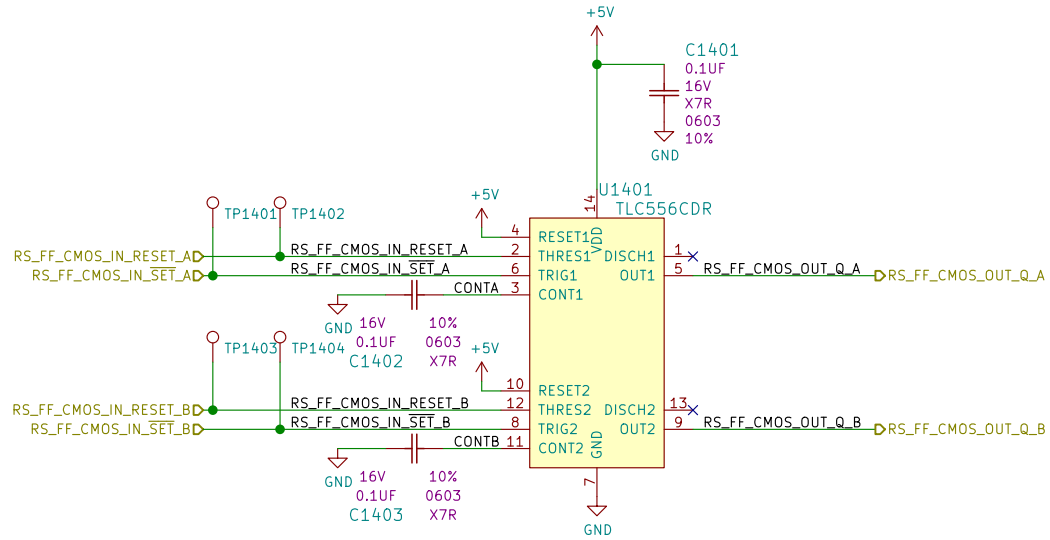
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 12/29

Dual RS Flip-Flops



Dual RS Flip-Flops
CMOS Inputs / CMOS Outputs.

Design by Lambda Wolf Labs.



Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /D Flip-Flop Demo/RS Flip-Flop Dual For D Flip-Flop/
File: RS_Flip-Flop Dual.sch

Title: 555 Timer Functional Complete For Turing Machine Project

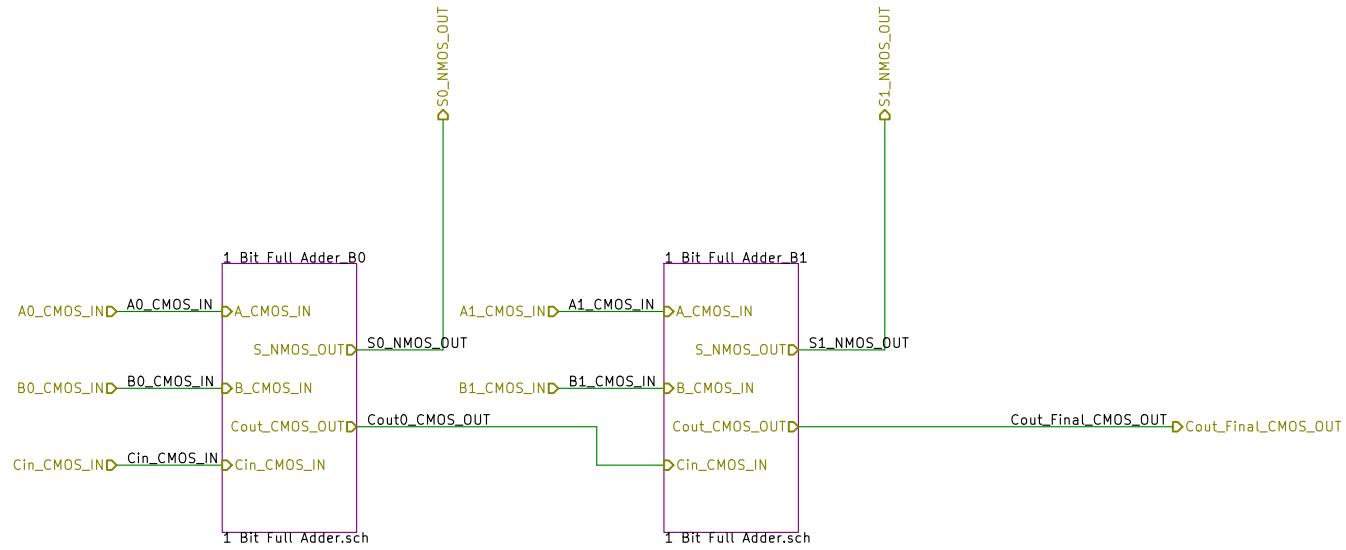
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 13/29

2 Bit Full Ripple Carry Adder



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Full 2 Bit Adder/
File: Full 2 Bit Adder.sch

Title: 555 Timer Functional Complete For Turing Machine Project

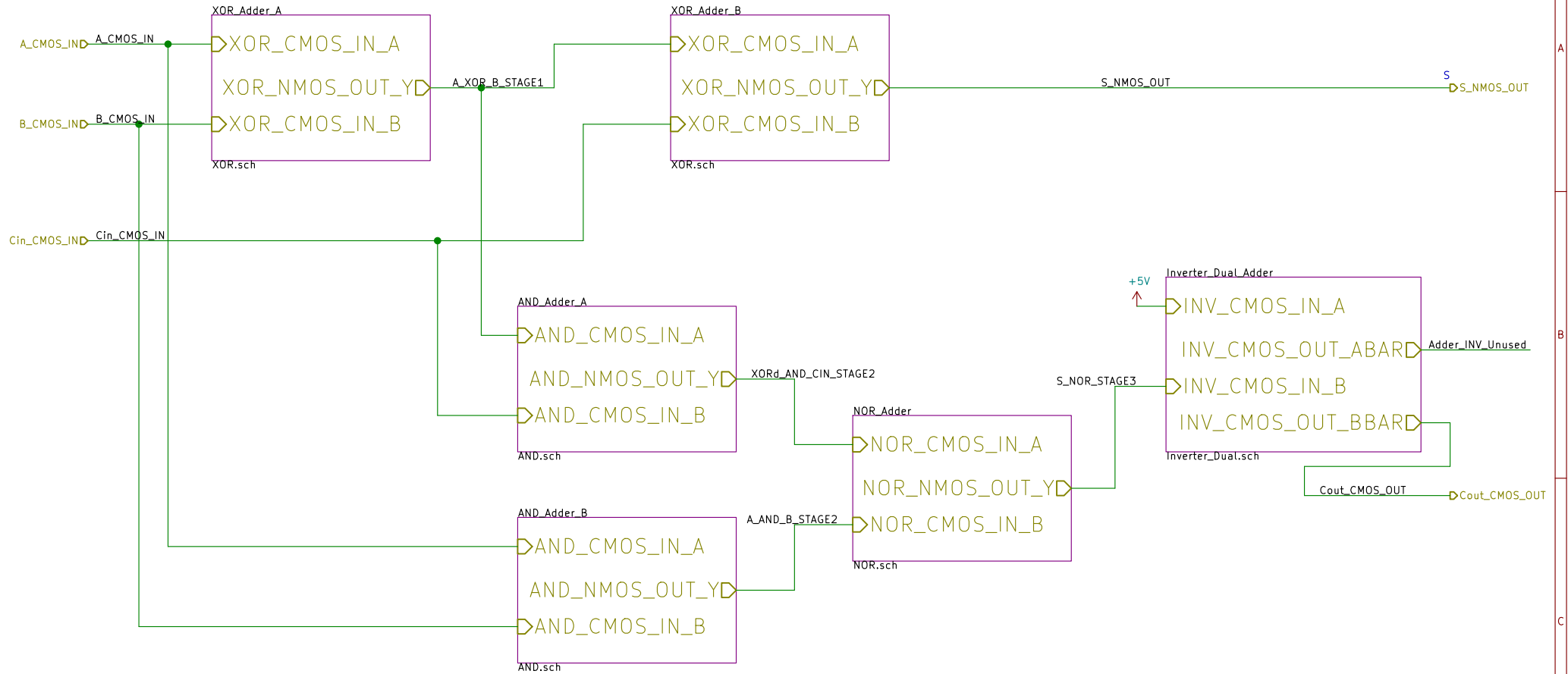
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 14/29

1 Bit Full Ripple Carry Adder.



Design by Lambda Wolf Labs.



Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B0/

File: 1 Bit Full Adder.sch

Title: 555 Timer Functional Complete For Turing Machine Project

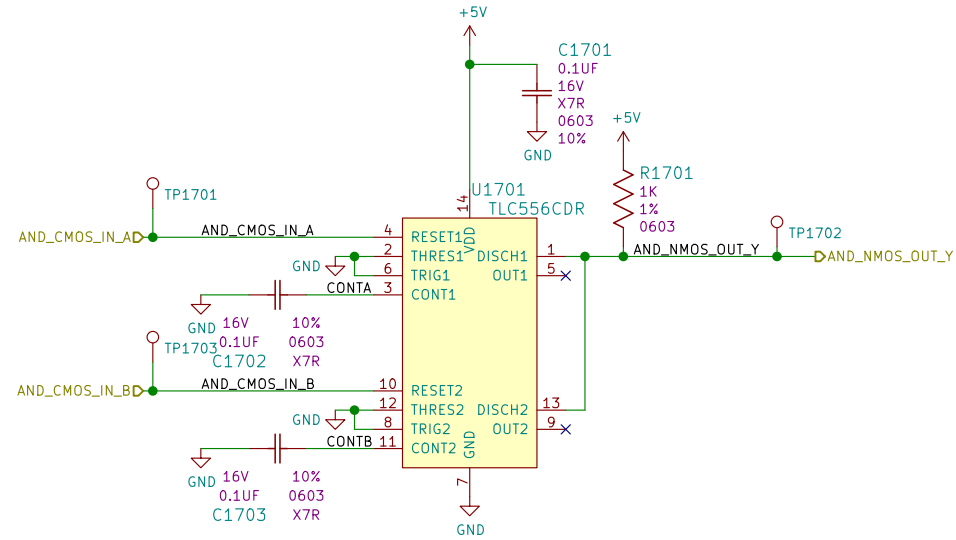
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 15/29

Two Input AND Gate.



AND Gate
 CMOS Inputs / NMOS Output
 Inverter CMOS Outputs Not Used.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B0/AND_Adder_A/
 File: AND.sch

Title: 555 Timer Functional Complete For Turing Machine Project

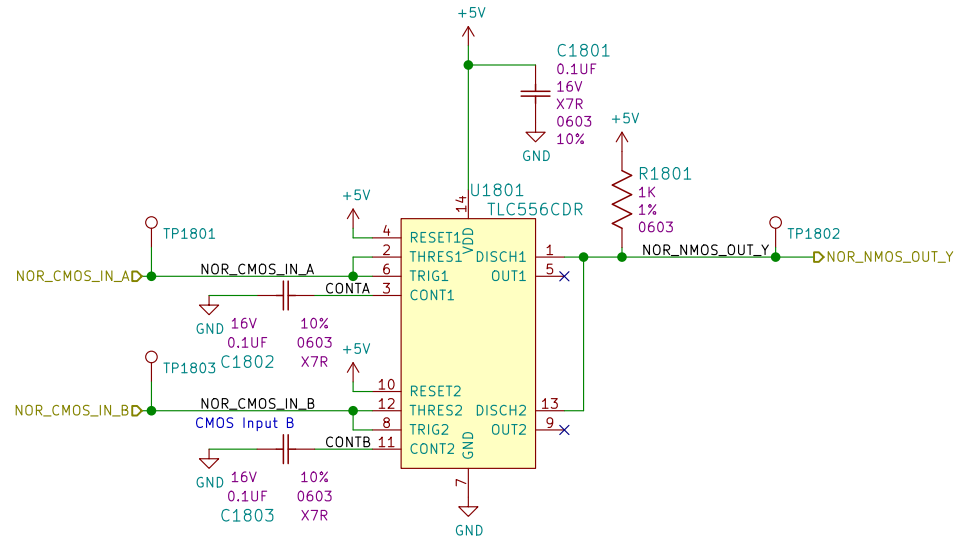
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 16/29

NOR Based Two Input NOR Gate.



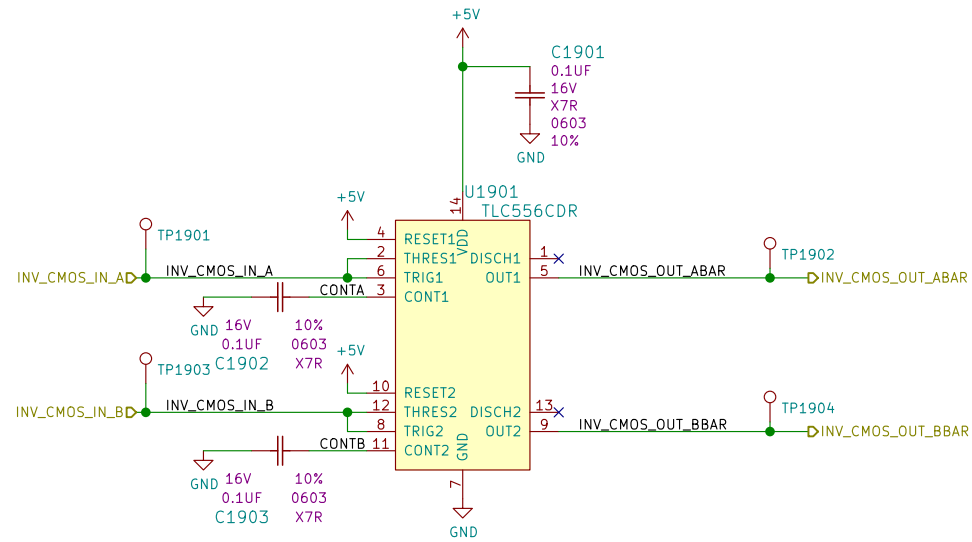
NOR Gate
 CMOS Inputs / NMOS Output
 Inverter CMOS Outputs Not Used.

Design by Lambda Wolf Labs.



Drawing Number:		
Lambda Wolf Lab (Lorne Chrones)		
Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B0/NOR_Adder/ File: NOR.sch		
Title: 555 Timer Functional Complete For Turing Machine Project		
Size: A4	Date: 2021-12-30	Rev: A
KiCad E.D.A. kicad (5.1.2)-2		Id: 17/29

Dual Inverter Gates



Dual Inverters
CMOS Inputs / CMOS Outputs.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B0/Inverter_Dual_Adder/
File: Inverter_Dual.sch

Title: 555 Timer Functional Complete For Turing Machine Project

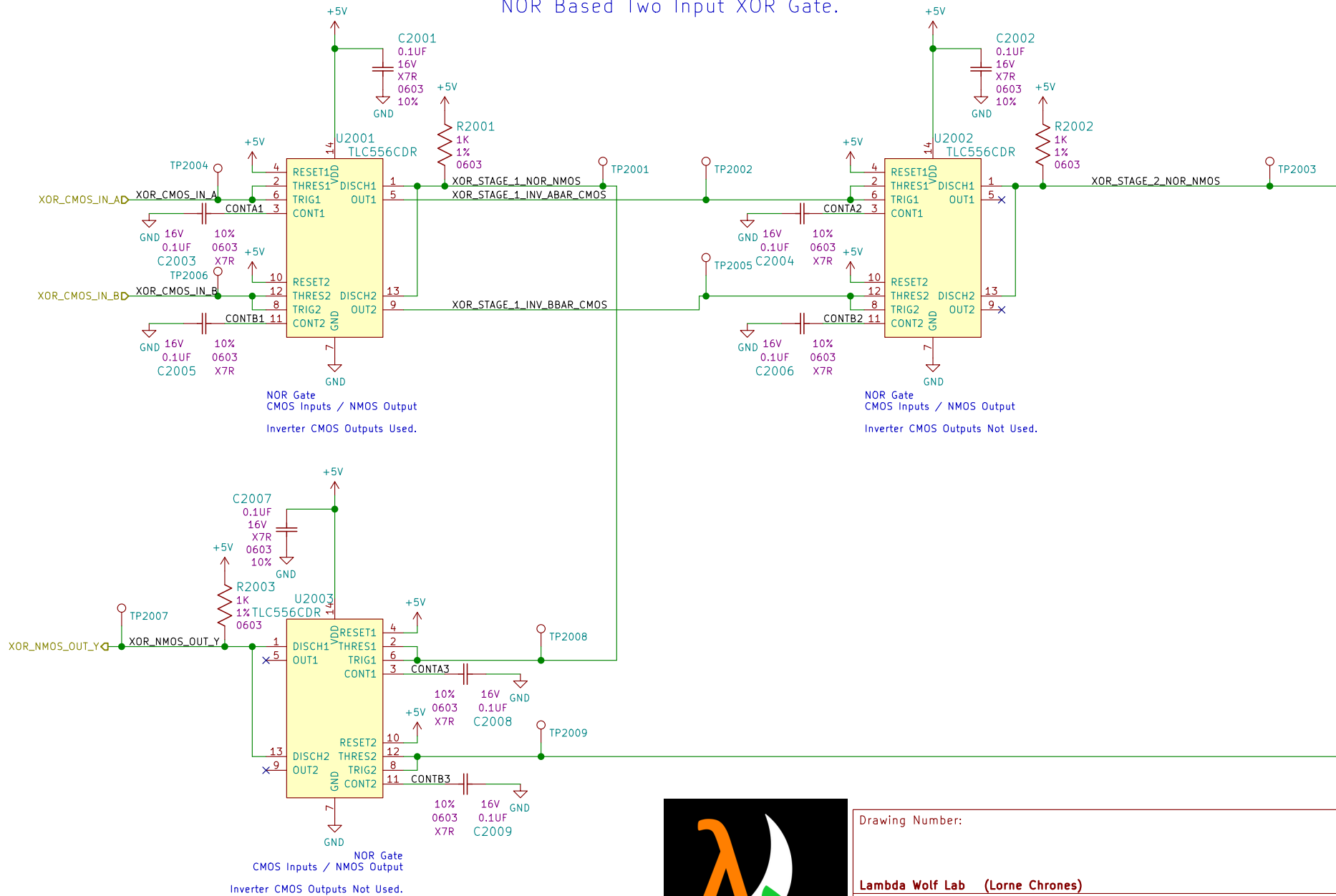
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 18/29

NOR Based Two Input XOR Gate.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B0/XOR_Adder_B/
File: XOR.sch

Title: 555 Timer Functional Complete For Turing Machine Project

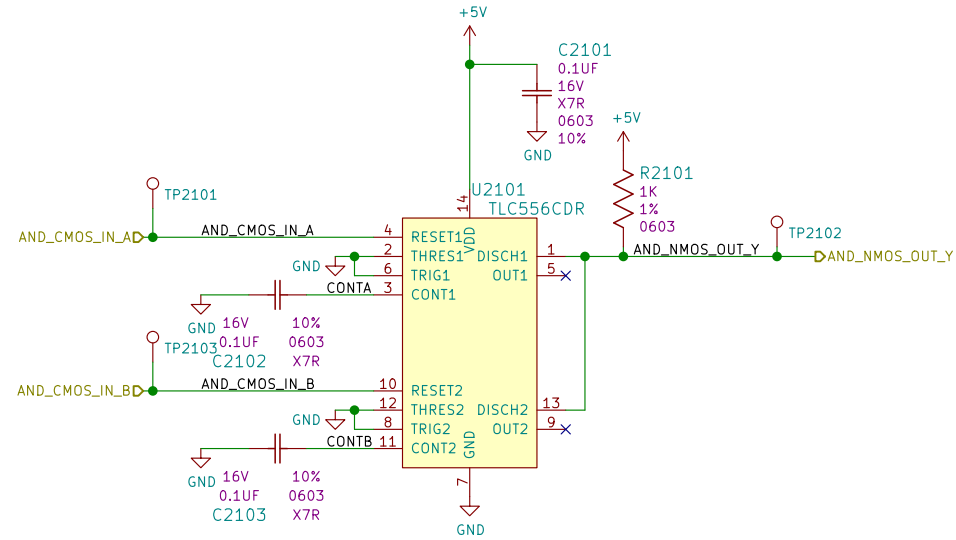
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 19/29

Two Input AND Gate.



AND Gate
CMOS Inputs / NMOS Output
Inverter CMOS Outputs Not Used.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B0/AND_Adder_B/
File: AND.sch

Title: 555 Timer Functional Complete For Turing Machine Project

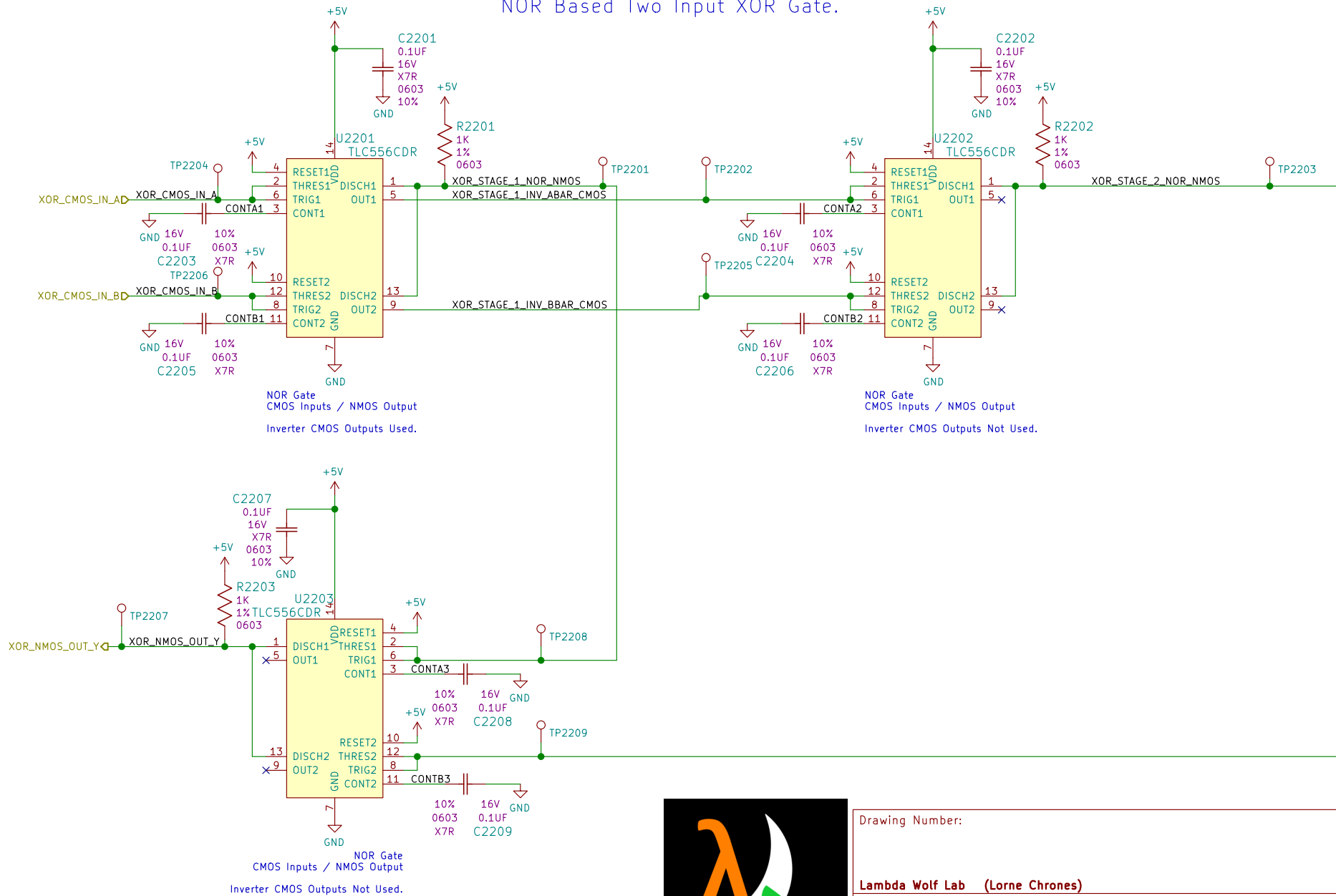
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 20/29

NOR Based Two Input XOR Gate.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B0/XOR_Adder_A/
File: XOR.sch

Title: 555 Timer Functional Complete For Turing Machine Project

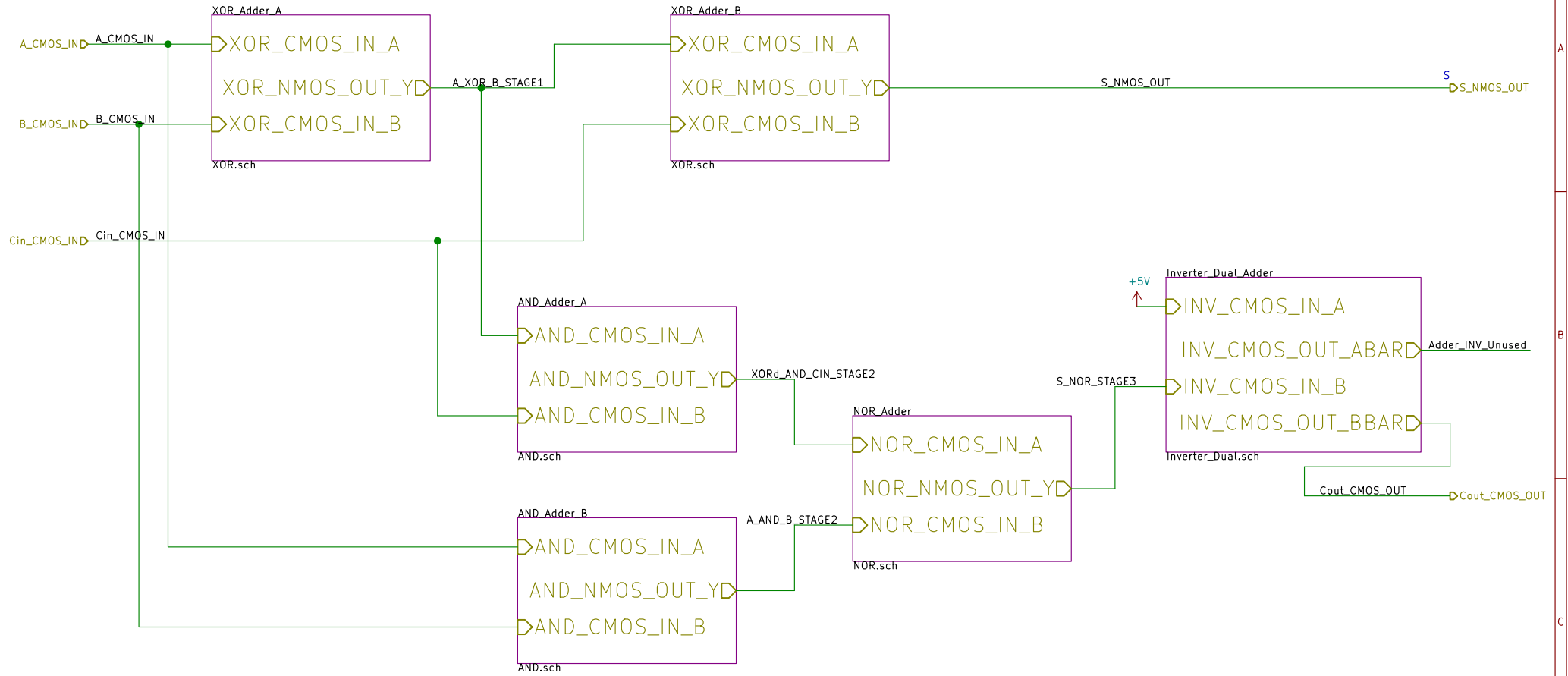
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 21/29

1 Bit Full Ripple Carry Adder.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B1/

File: 1 Bit Full Adder.sch

Title: 555 Timer Functional Complete For Turing Machine Project

Size: A4

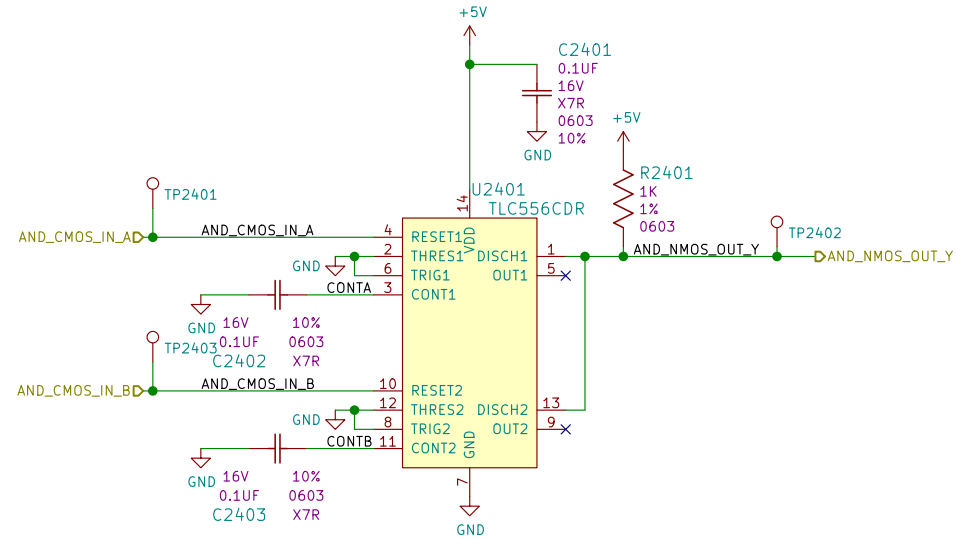
Date: 2021-12-30

Rev: A

KiCad E.D.A. kicad (5.1.2)-2

Id: 22/29

Two Input AND Gate.



AND Gate
CMOS Inputs / NMOS Output
Inverter CMOS Outputs Not Used.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B1/AND_Adder_A/
File: AND.sch

Title: 555 Timer Functional Complete For Turing Machine Project

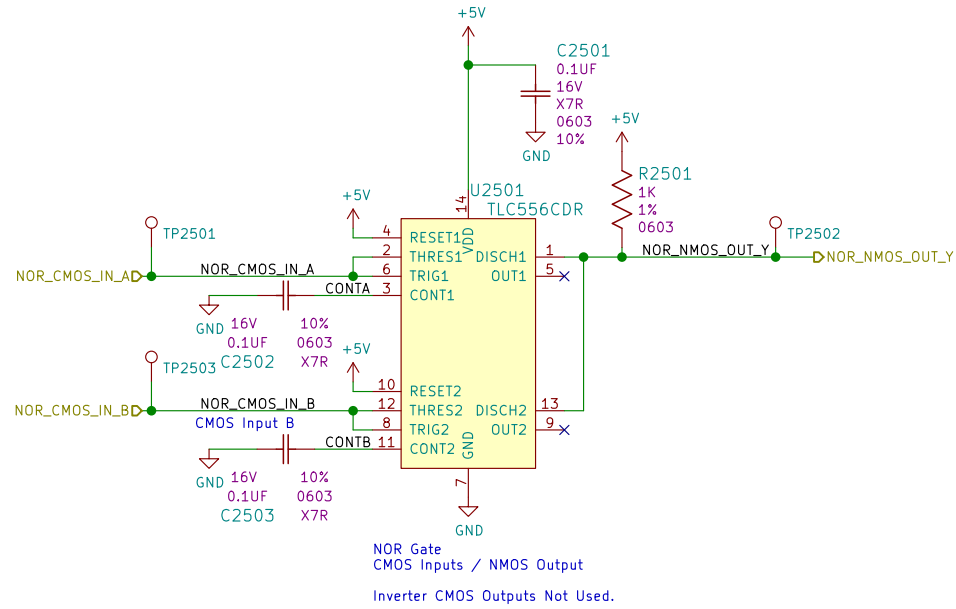
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 23/29

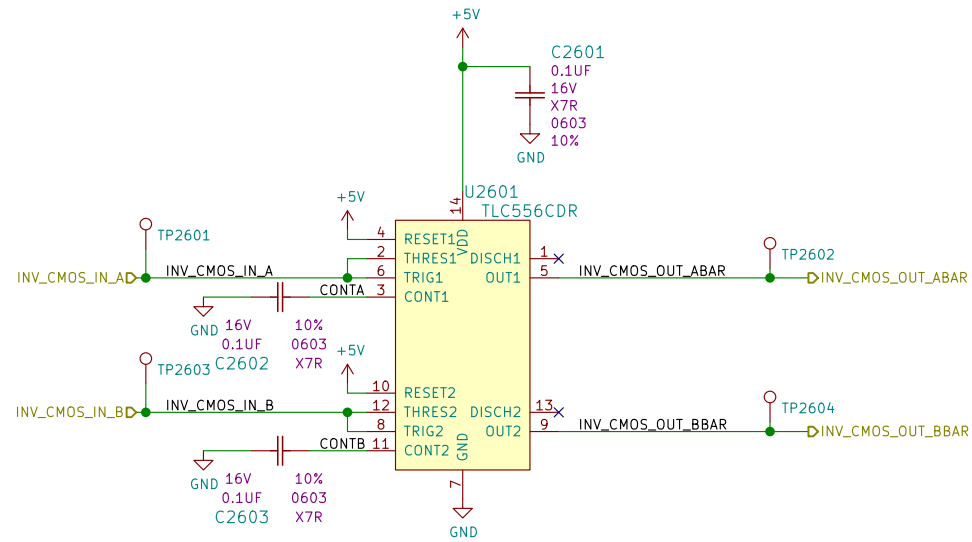
NOR Based Two Input NOR Gate.



Design by Lambda Wolf Labs.

Drawing Number:		
Lambda Wolf Lab (Lorne Chrones)		
Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B1/NOR_Adder/ File: NOR.sch		
Title: 555 Timer Functional Complete For Turing Machine Project		
Size: A4	Date: 2021-12-30	Rev: A
KiCad E.D.A. kicad (5.1.2)-2		Id: 24/29

Dual Inverter Gates



Dual Inverters
CMOS Inputs / CMOS Outputs.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B1/Inverter_Dual_Adder/
File: Inverter_Dual.sch

Title: 555 Timer Functional Complete For Turing Machine Project

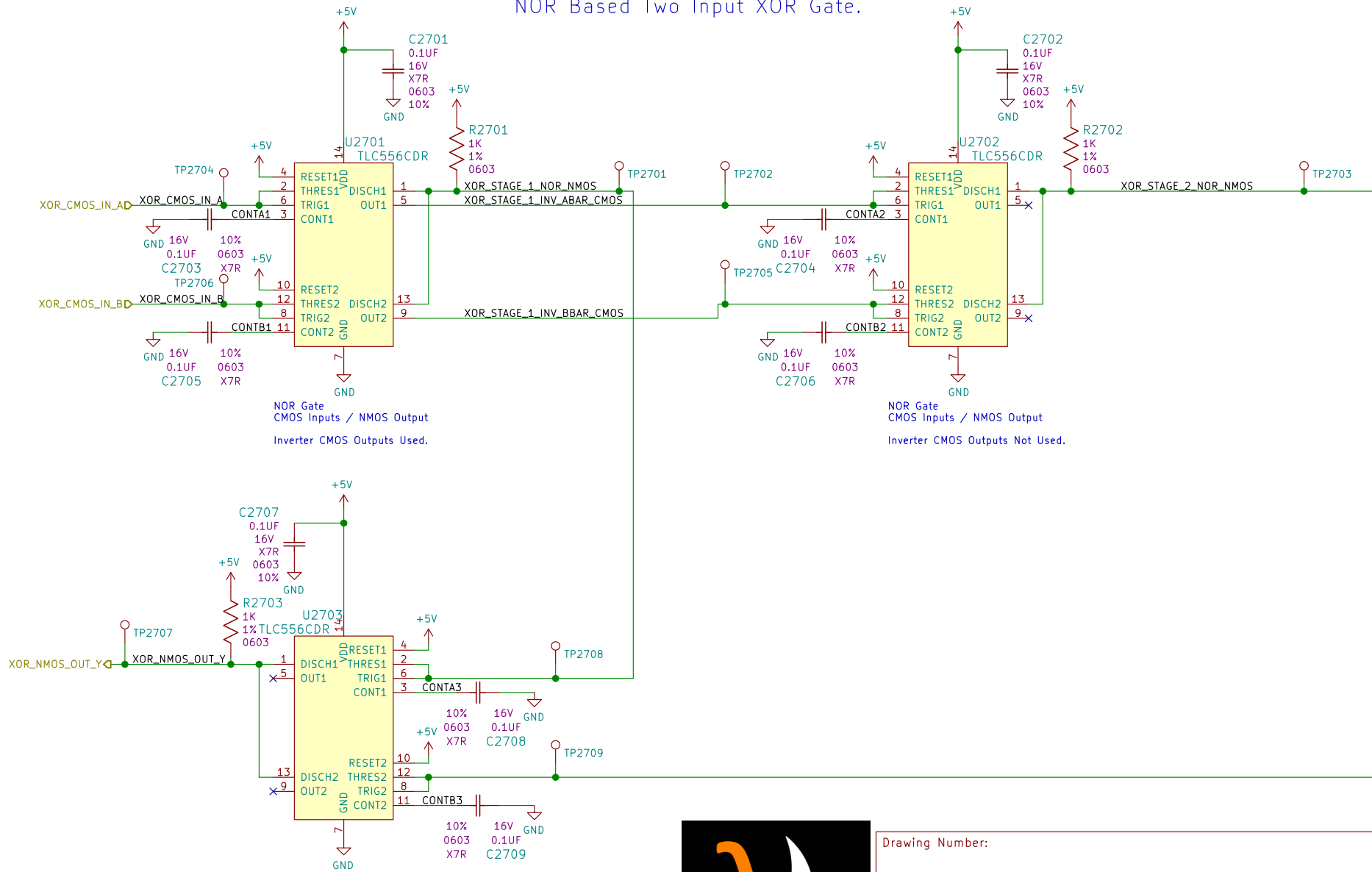
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 25/29

NOR Based Two Input XOR Gate.



NOR Gate
CMOS Inputs / NMOS Output
Inverter CMOS Outputs Used.

NOR Gate
CMOS Inputs / NMOS Output
Inverter CMOS Outputs Not Used.

NOR Gate
CMOS Inputs / NMOS Output
Inverter CMOS Outputs Not Used.



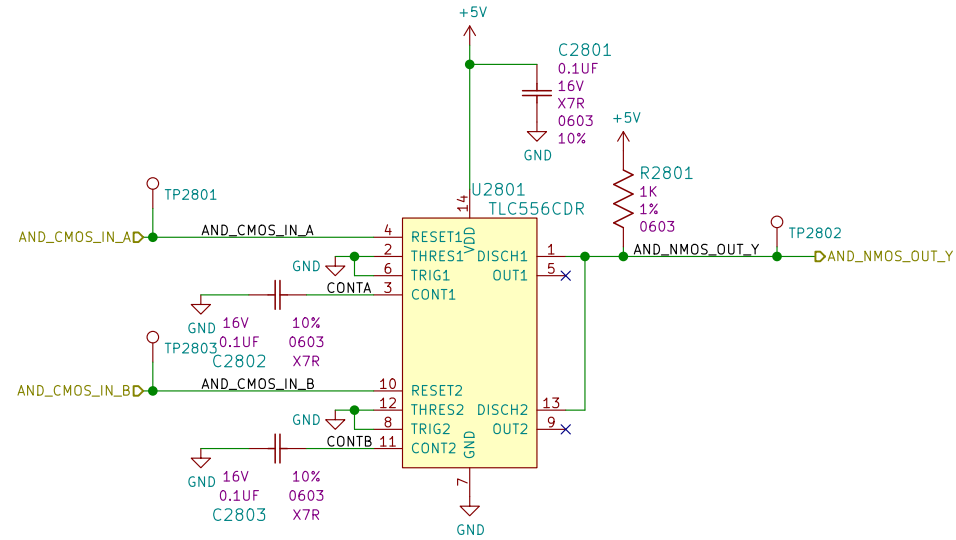
Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)
Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B1/XOR_Adder_B/
File: XOR.sch
Title: 555 Timer Functional Complete For Turing Machine Project

Size: A4	Date: 2021-12-30	Rev: A
KiCad E.D.A. kicad (5.1.2)-2		Id: 26/29

Two Input AND Gate.



AND Gate
CMOS Inputs / NMOS Output
Inverter CMOS Outputs Not Used.



Design by Lambda Wolf Labs.

Drawing Number:

Lambda Wolf Lab (Lorne Chrones)

Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B1/AND_Adder_B/
File: AND.sch

Title: 555 Timer Functional Complete For Turing Machine Project

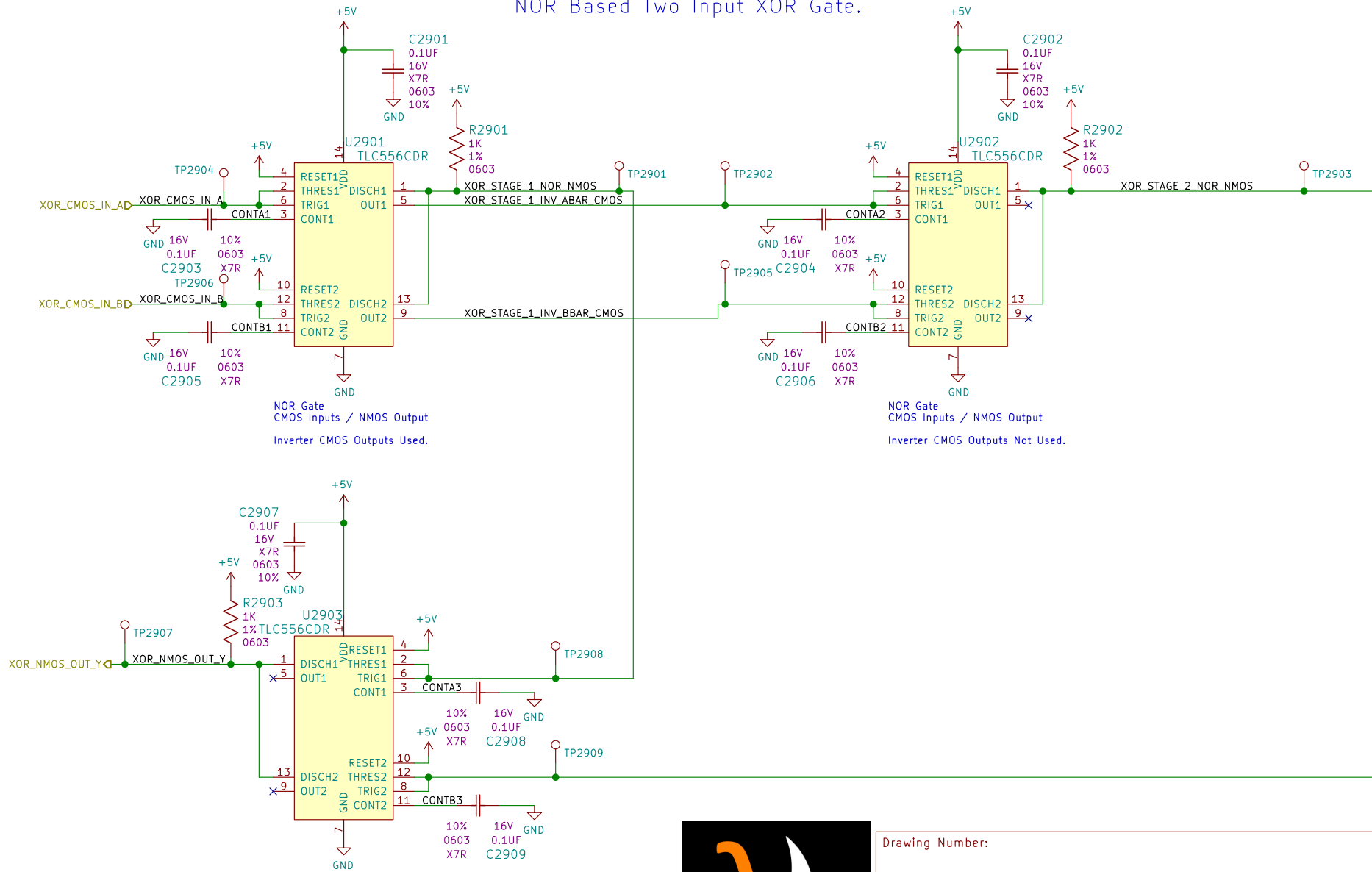
Size: A4 Date: 2021-12-30

KiCad E.D.A. kicad (5.1.2)-2

Rev: A

Id: 27/29

NOR Based Two Input XOR Gate.



NOR Gate
CMOS Inputs / NMOS Output
Inverter CMOS Outputs Used.

NOR Gate
CMOS Inputs / NMOS Output
Inverter CMOS Outputs Not Used.

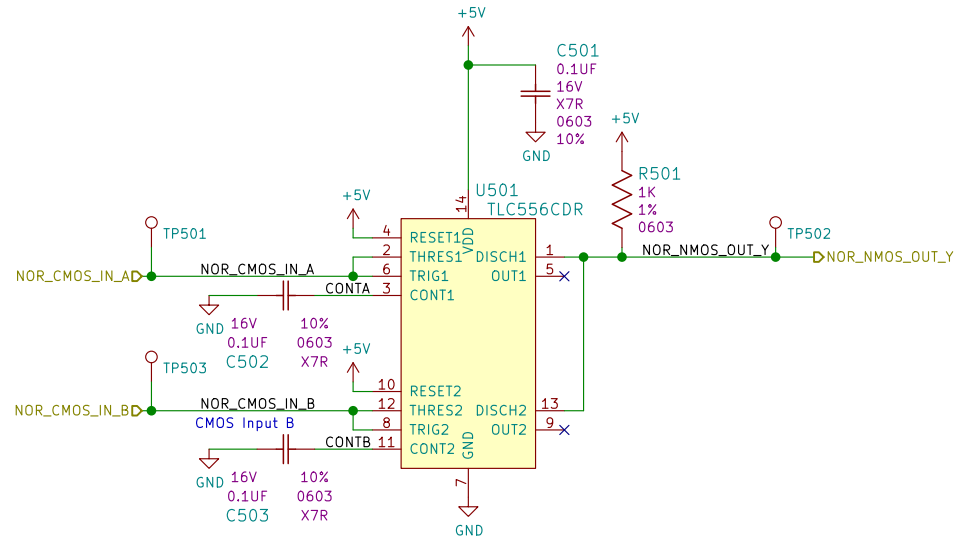
NOR Gate
CMOS Inputs / NMOS Output
Inverter CMOS Outputs Not Used.



Design by Lambda Wolf Labs.

Drawing Number:		
Lambda Wolf Lab (Lorne Chrones)		
Sheet: /Full 2 Bit Adder/1 Bit Full Adder_B1/XOR_Adder_A/ File: XOR.sch		
Title: 555 Timer Functional Complete For Turing Machine Project		
Size: A4	Date: 2021-12-30	Rev: A
KiCad E.D.A. kicad (5.1.2)-2		Id: 28/29

NOR Based Two Input NOR Gate.



NOR Gate
 CMOS Inputs / NMOS Output
 Inverter CMOS Outputs Not Used.

Design by Lambda Wolf Labs.



Drawing Number:		
Lambda Wolf Lab (Lorne Chrones)		
Sheet: /NOR Demo/ File: NOR.sch		
Title: 555 Timer Functional Complete For Turing Machine Project		
Size: A4	Date: 2021-12-30	Rev: A
KiCad E.D.A. kicad (5.1.2)-2		Id: 29/29