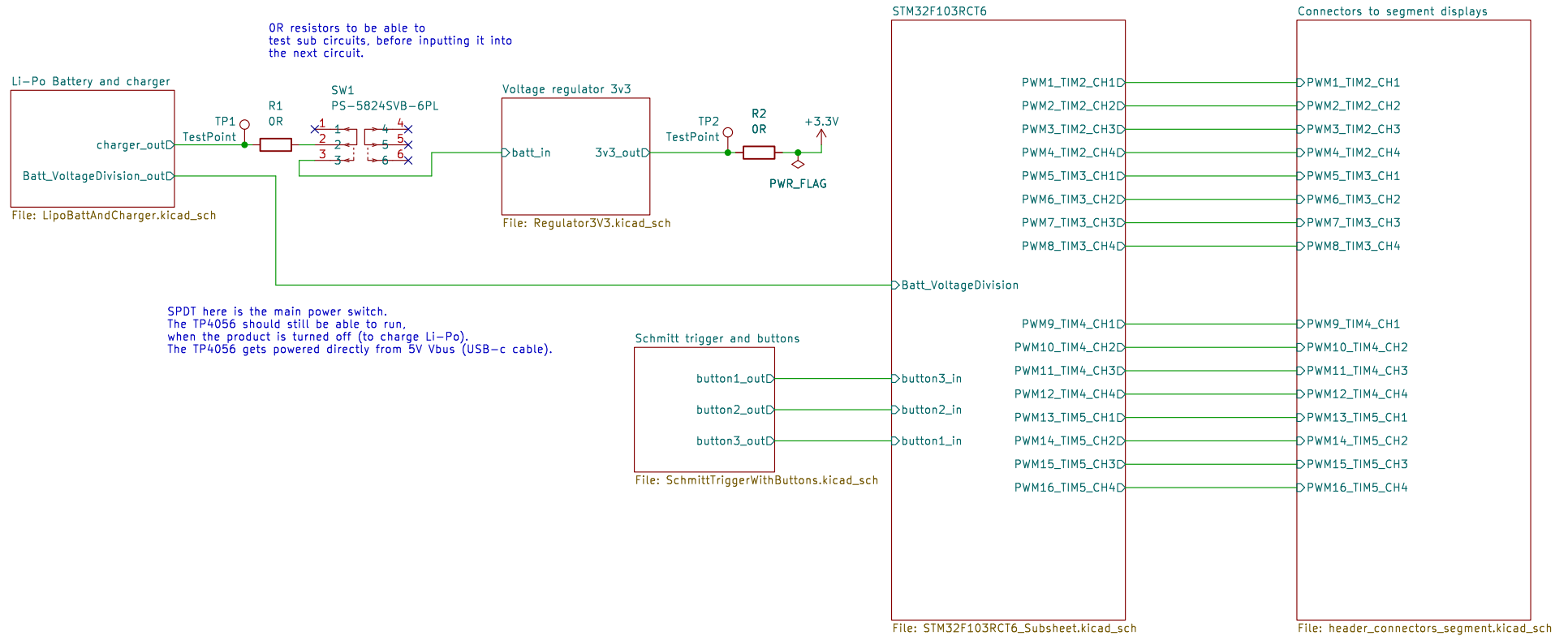


## 'Shotclock mainboard' root page



Author: M. de Waard

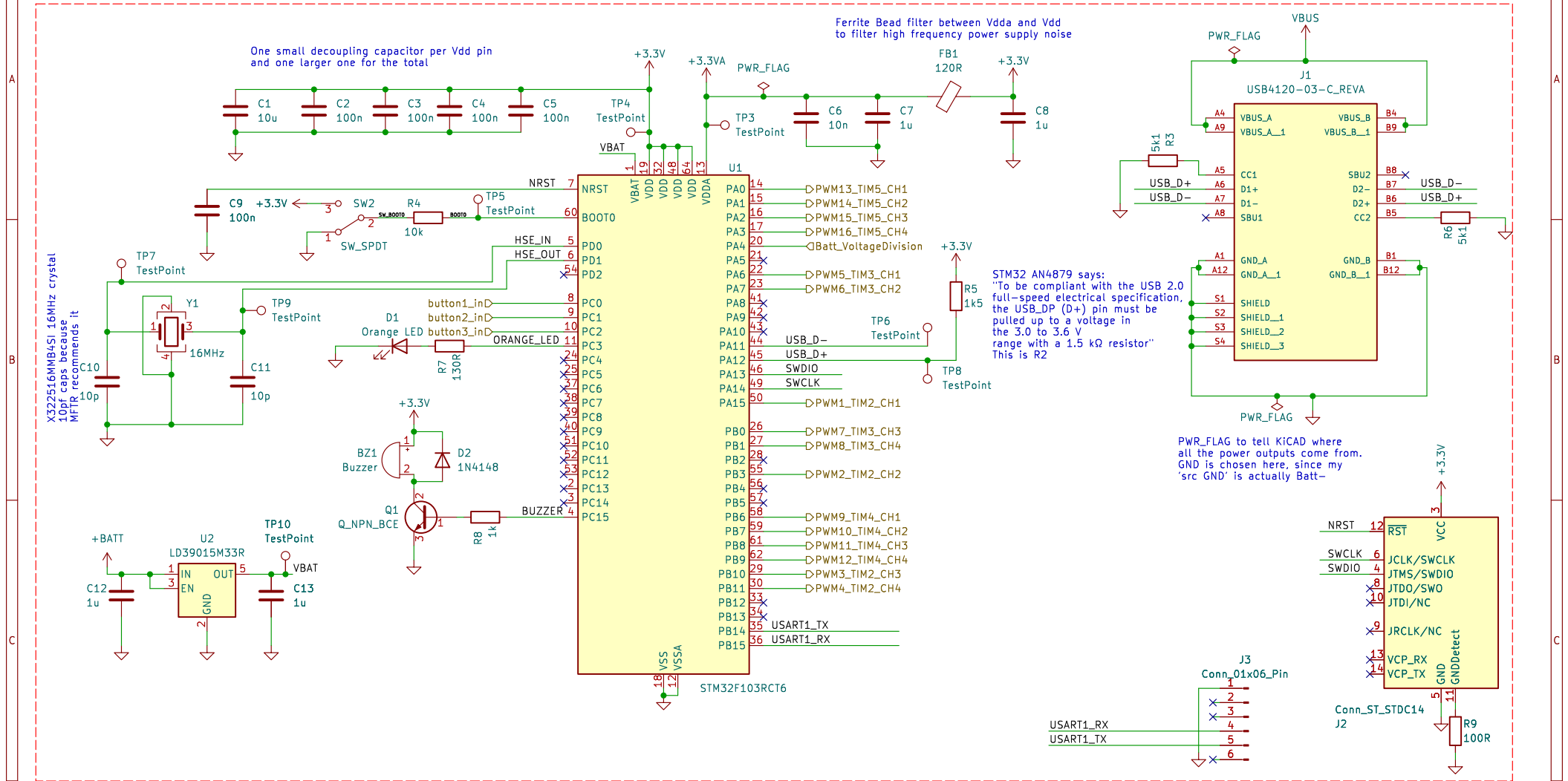
Sheet: /  
File: ShotClockProject.kicad\_sch

**Title: Shotclock Mainboard**

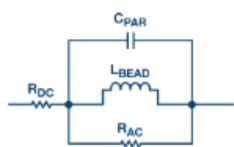
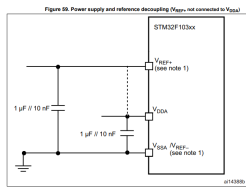
Size: A4 Date: 2023-06-28  
KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

Rev: 1  
Id: 1/6

# STM32F103RCT6 with crystal, Vbat LDO, buzzer, status\_led, USB connector, GPIO, UART and SWD



## STM32F103RCT6 Typical application schematics & global notes



Author: M. de Waard

Sheet: /STM32F103RCT6/  
File: STM32F103RCT6\_Subsheet.kicad\_sch

**Title: Shotclock Mainboard**

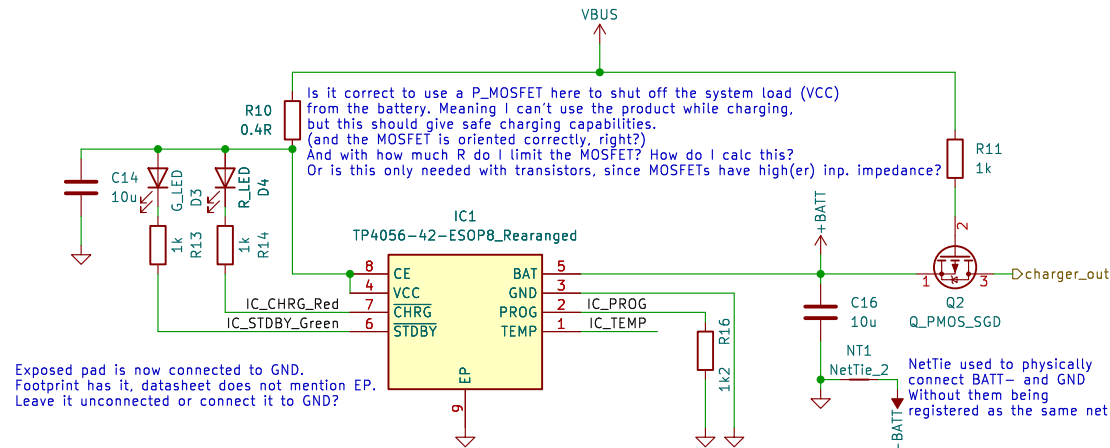
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KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

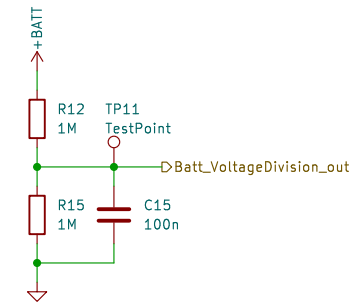
Rev: 1

Id: 2/6

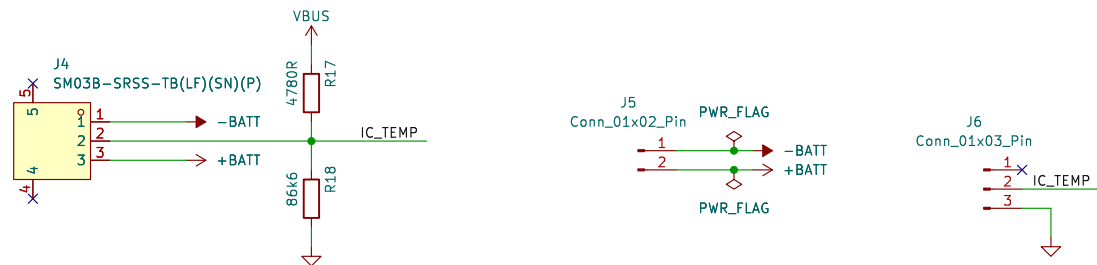
## TP4056 Li-Po Charging Circuit



## ADC Voltage readout

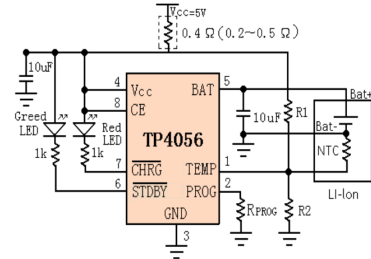


## Battery Connections & jumper to disable/enable TEMP sensing of batt.



## TP4056 Typical application schematic & global notes

### TYPICAL APPLICATIONS



### Rprog Current Setting

RPROG (k)	I <sub>BAT</sub> (mA)
10	130
5	250
4	300
3	400
2	580
1.66	690
1.5	780
1.33	900
1.2	1000

Rprog is 1k2, because that is the max value the datasheet shows (or should I be able to extrapolate the R values to get a higher charge current?)  
The batteries I want to use (and have at home), are 1500mAh. But charging 1500mAh with 0.66C should also be fine I guess?

R1 and R2 calculations are in attached PDF file.

Make sure to add to silkscreen to never connect a battery to both connectors at the same time.  
Jumper is only used to pull TEMP pin to GND. So adding two batteries would result in them unloading into each other

Author: M. de Waard

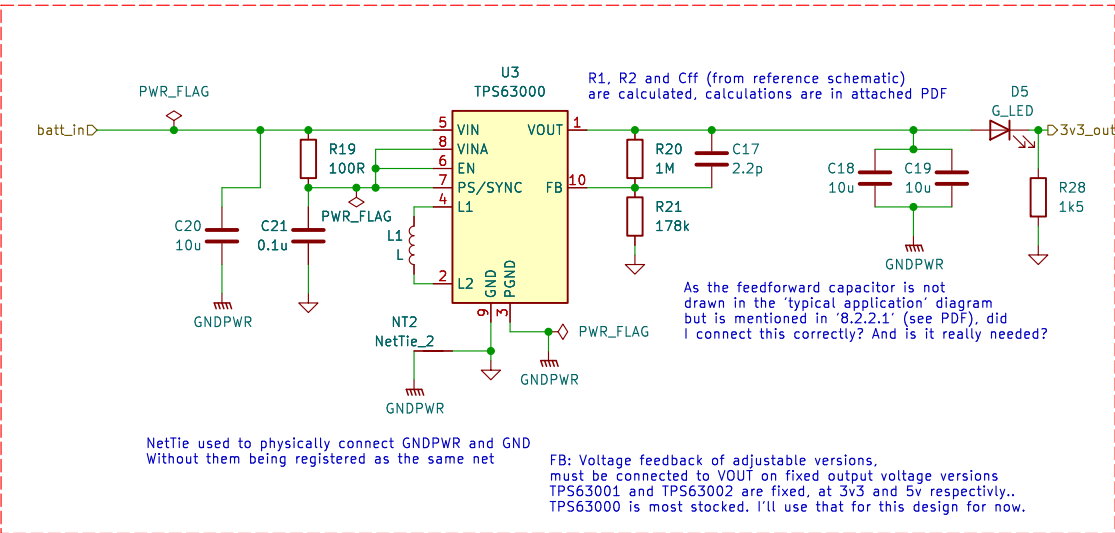
Sheet: /Li-Po Battery and charger/  
File: LipoBattAndCharger.kicad\_sch

**Title: Shotclock Mainboard**

Size: A4 Date: 2023-06-28  
KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

Rev: 1  
Id: 3/6

TPS63000 Variable Output Voltage Regulator



TPS63000 Typical application schematic & global notes

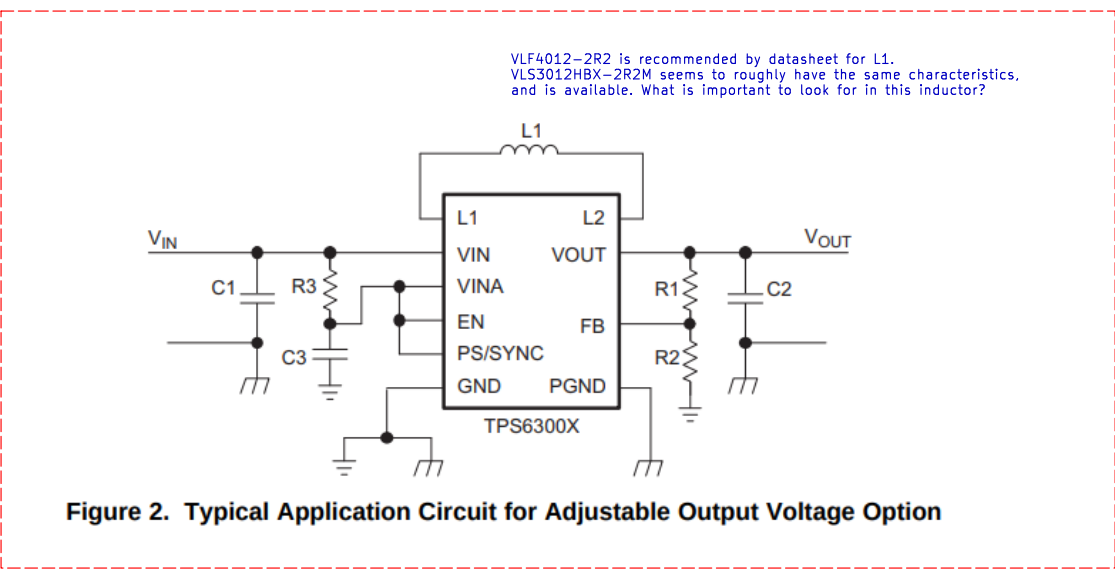


Figure 2. Typical Application Circuit for Adjustable Output Voltage Option

Author: M. de Waard

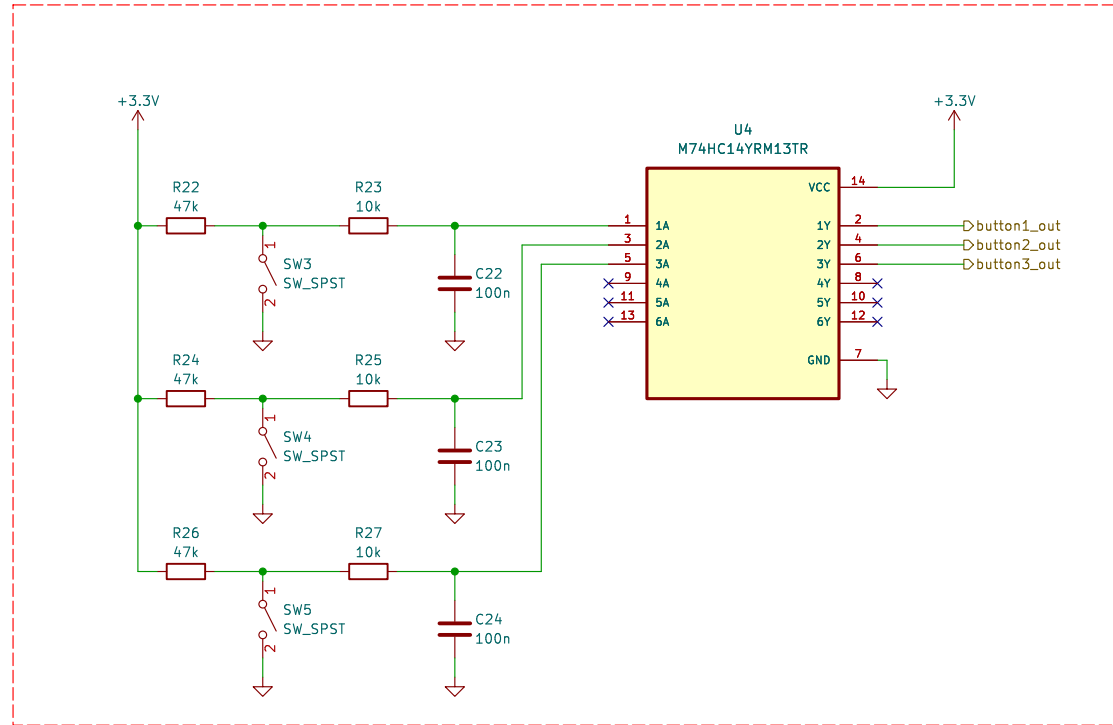
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**Title: Shotclock Mainboard**

Size: A4 Date: 2023-06-28  
KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

Rev: 1  
Id: 4/6

## Schmitt trigger with buttons



Author: M. de Waard

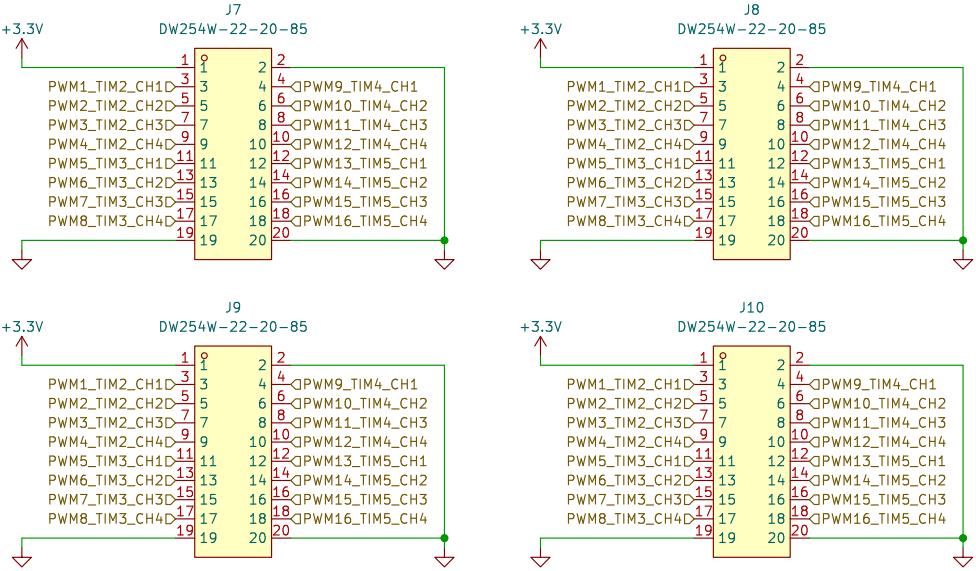
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File: SchmittTriggerWithButtons.kicad\_sch

**Title: Shotclock Mainboard**

Size: A4 Date: 2023-06-28  
KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

Rev: 1  
Id: 5/6

Connections to the seven (eight) segment display PCB's (4 connectors, each rotated 90° in the end product)



Author: M. de Waard

Sheet: /Connectors to segment displays/  
File: header\_connectors\_segment.kicad\_sch

**Title: Shotclock Mainboard**

Size: A4 Date: 2023-06-28

KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

Rev: 1

Id: 6/6