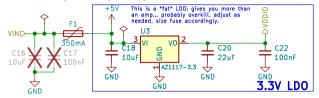


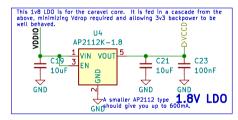
## Voltage Regulators

Simple voltage regulation for logic and core. In a distinct sheet to allow you to easily do fancy stuff, like use switchers or whatever is needed.



NOTE: On our simple TinyTapeout demo boards, with power good LEDs and everything, idle draw on the 3v3 supply was below 40mA, so both the 3v3 and the 1v8 LDOs have more than a little margin.

Chances are you could get away with much (much) smaller regulators and maybe even a zener diode shunt type thing for the 1v8 core.



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Sheet: /Power\_Regulation/ File: power\_reg.kicad\_sch

### Title: Voltage Regulation

Size: User	Date: 2023-09-30	Rev: 1.2
KiCad E.D.A.	kicad 7.0.8-7.0.8~ubuntu22.04.1	ld: 2/3

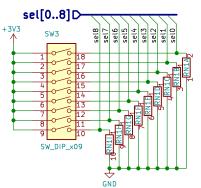
# Stand-Alone TinyTapeout Reqs and Knobs

If not using the Caravel CPU, you can save space and cost by dumping its support components but that means you need to handle a bit of its work externally. Here are the related components and configs.

### **Project Selection**

Projects are selected using the 9 active\_select bits (sel\* here). If you're only interested in a single specific project, you can hardwire it here as shown in this image. For example, I want project #267, which in binary (MSB) is: 1 0000 1011 Bringing every '1' bit high and tying ever '0' to ground, will select this value.

Or we can make things more configurable, by using switches or other means. The main thing to consider is always ensuring the signals are in a defined state (pulled high or low, not floating).



Rather than hard-wiring a selection, here is one scheme to allow any of the projects to be active using a DIP switch and resistor network.

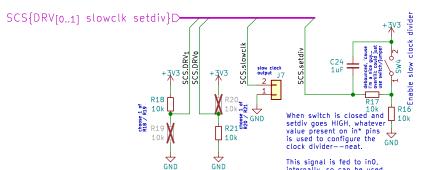
When a switch is open, the line is pulled low. When it is closed, that bit goes high.

The pull down resistors on each sel\* isn't required when you have everything you need to run the Caravel CPU because. as part of the running firmware, it is trivial to enable pull-up or -down on any of the I/O pins.

### Scan Chain Driver And Clocking

The scan chain stuff is a little involved... best to refer to the TinyTapeout documentation.

Still, notes here should be somewhat helpful.



The scan chain driver

		done through	these two pins.	to easily	clock TT	projects.
_1		•				
	0 1 X	external logic an. internal				

You mostly likely want internal, here, so populating as shown using DNPs.

Or you can use jumpers, such as in the TT demo board here: TinyTapeout 123 Demo PCB schematic

DRV

## Input State

in[0..7] **⊳** 

Depending on your use case, it might be worth ensuring the state of the input pins is always valid—i.e. using pull—ups or pull—downs. This is highly application specific but digital doesn't like floaties so much... worst case maybe just sit all the in't on some weak (high value) resistors to ground.

Note: none of these components are in the sample layout. This allows you to delete this sheet from the top level and not muck about, if you aren't going stand—alone.

> (C) 2023 Pat Deegan Psychogenic Technologies INC Sheet: /TT SA Config/ File: ttsa\_config.kicad\_sch Title: Stand-Alone TinyTapeout Requirements and Config Date: 2023-10-24 KiCad E.D.A. kicad 7.0.8-7.0.8~ubuntu22.04.1 Id: 3/3

internally, so can be used