

Teensy 4.0 GRBL Pin Assignment working document

V 0.1

Goals:

1. Common Function on TH Pins for easy prototyping/testing. Simple machine should be possible with TH pins only.
2. Less Common Function of SMT “Back Side” Pins
3. Grouping of similar functions on nearby pins to simplify usage and PCB layout.

Issues:

1. No onboard EEPROM. Use EEPROM emulation? How frequently does EEPROM get written? See (alt) Pin assignment.
2. Does USB use Ser 1? Pins need to be reserved?
3. Pin 13 is LED, output only. Currently on spindle enable. Is there a better use for that pin as a diagnostic?
4. Stepper enable is often unused in simple machines. Move that to back side to free up a TH pin?

Through Hole Pins

Pin	Function
0	Reserved RX1
1	Reserved TX1
2	Step X
3	Dir X
4	Step Y
5	Dir Y
6	Step Z
7	Dir Z
8	Step A
9	Dir A
10	Stepper Enable 0
11	Spindle Dir
12	Spindle PWM
13 LED	Spindle Enable
14	Reset/Abort
15	Probe
16 I ² C 0	Feed/Hold (alt)
17 I ² C 0	Cycle Start (alt)
18 I ² C 1	Mist Enable (alt)
19 I ² C 1	Flood Enable (alt)
20	Lim X
21	Lim Y

22	Lim Z
23	Lim A

Back Side SMT Pins

Pin	Function
24 I2C 2	reserved
25 I2C 2	reserved
26	Step B
27	Dir B
28	Lim B
29	Door
30	Feed/Hold (alt)
31	Cycle Start (alt)
32	Mist Enable (alt)
33	Flood Enable (alt)
34	Stepper Enable 1
35	Stepper Enable 2
36	Stepper Enable 3
37	Stepper Enable 4
38	
39	

Simple Machine Definition

This section defines the functions needed to build a simple CNC/Laser machine. The goal is to be able to do this only with through hole pins. This allows easy prototyping and testing.

Note that strictly speaking, Stepper Enable is unnecessary and Feed/Hold, Cycle Start are often omitted in basic machines. For Lasers, I believe Spindle pins are used for control.

Step X	Stepper Enable 0	Lim Y	
Dir X	Spindle PWM	Lim Z	
Step Y	Spindle Enable	Lim A	
Dir Y	Reset/Abort	Feed/Hold	
Step Z	Probe	Cycle Start	
Dir Z	Lim X		

Note this is somewhat stating the obvious but I think it worthwhile to have written down.