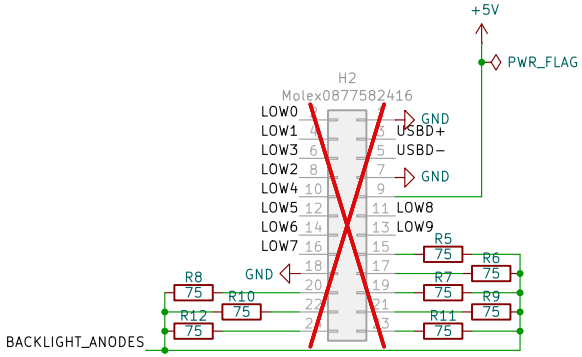
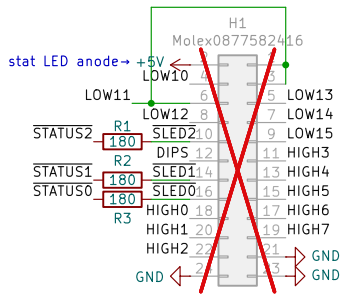
Keyboard controller headers

These connectors must be installed by the end user.

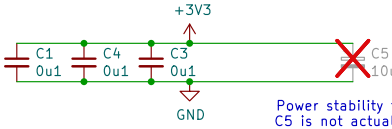


Limit resistors required by fullsize.
TKL model has the resistors on the backplane.
They will make the TKL LEDs dimmer if not replaced, but it's not yet clear how much dimmer.

There are 19 physical sense lines, but most columns are sparse. By unifying three physical lines we can reduce the required pins to 16. See table below.

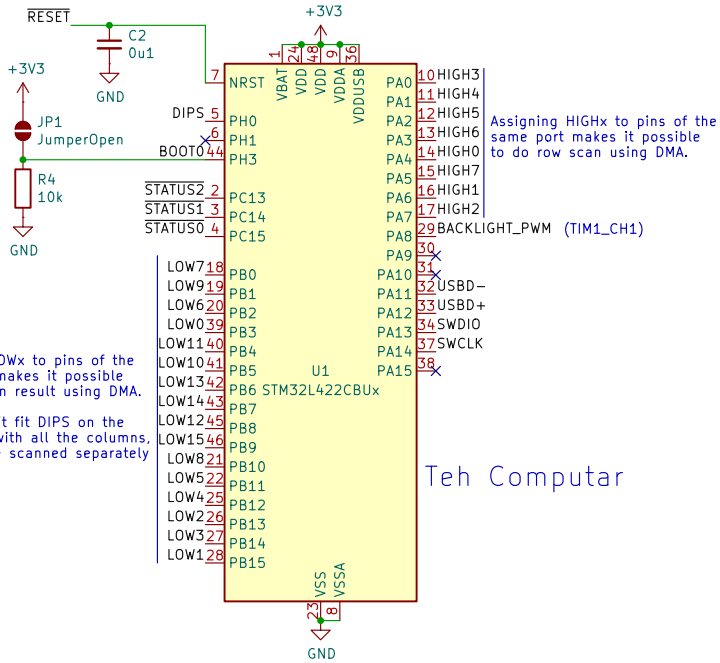


Decoupling



Power stability tests show C5 is not actually needed.

STM32L4 does not have an internal BOOT pulldown. External resistor req'd for stable boot from flash. Jumper allows recovery in case the firmware is thoroughly hosed.



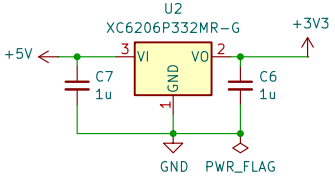
Assigning HIGHx to pins of the same port makes it possible to do row scan using DMA.

Assigning LOWx to pins of the same port makes it possible to read scan result using DMA.

Since I can't fit DIPS on the same port with all the columns, it has to be scanned separately

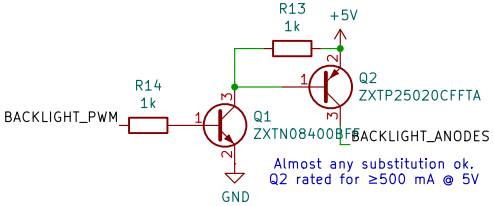
Teh Computar

Regulator

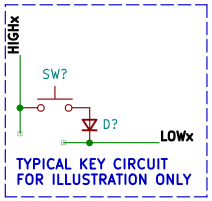


Compatible parts include:
MCP1754S
Most "662K" parts

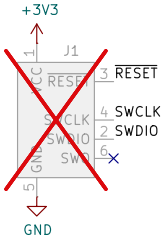
Backlight driver



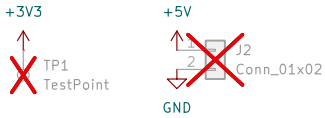
Almost any substitution ok.
Q2 rated for ≥500 mA @ 5V



Debug header



Test



WASD CODE V2B KEY MATRIX WIRING

HIGH \ LOW	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	PGDN				7	F10	0	9	8	END	4	F5	PRTS	3	2	1	DIP1
1	KP-	RT		DN	N	F12	/			LT	B		RALT				DIP3
2	KP*	KP/		NUMLK	M	ENT		(.)	(.)		V	RCTL		C	X	Z	DIP4
3	KP.	KP0		SPACE	H	F11	(')		F6	UP	G		LALT	F4	K88	ESC	DIP5
4	KP3	KP2	RSHIF	KP1	J	\	;	L	K	KPENT	F	RSUP		D	S	A	DIP6
5	KP6	KP5	LSHIF	KP4	Y	BSP	[	F7	]		T	LSUP	MENU	F3	CAPS	TAB	
6	KP9	KP8		KP7	U		P	O	i	KP+	R	PAU	SCLK	E	W	Q	
7	PGUP	INS		DEL	6	F9	(-)	F8	=	HOM	5	LCTL		F2	F1	(')	DIP2

Note that LOW11 combines multiple sparse physical columns to save I/Os.

Keys named by PC104 convention, e.g. CAPS next to A, ALTs by SPACE, MENU by RSUP.

DIP1–6 are the configuration switches, which act like keys.

Cliff L. Biffle

Sheet: /
File: wasd-code-upgrade.kicad_sch

Title: reCODE for WASD CODE v2 (universal)

Size: A4	Date: 2024-11-02	**Rev: C**
KiCad E.D.A. 8.0.5		Id: 1/1