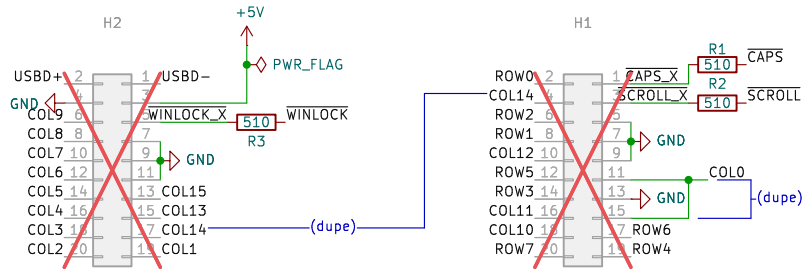


## Keyboard controller headers

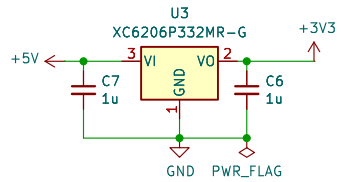


Headers are shown looking through the board from the user's perspective. Pin numbering matches the backplane PCB.

There are 18 physical column lines. However, two of the lines only have the Win keys on them -- presumably to make it easier to implement the winlock feature. Two more of the lines are quite sparse. To reduce the required number of columns to 16, I have --  
 - Folded the RGUI column into a neighbor  
 - Merged the PGUI/DN with the SHIFTs.  
 I left column 13 as just LGUI because it simplified routing. Col14 was bad enough.

Indicator LEDs must be driven open-drain. Their Vf is < 1.7V, so driving them "high" (3.3V) to turn them off doesn't actually turn them all the way off.

## Regulator



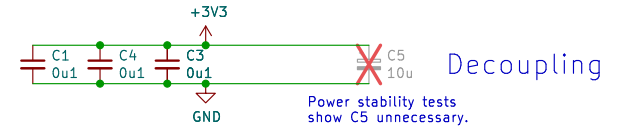
Total requirement on the 3.3V rail: -10 mA

## QUICKFIRE RAPID KEY MATRIX WIRING

NOTE: diodes go row-to-column!

COL	top	0	bot	1	2	3	4	5	6	7	8	9	10	11	12	13	left	right	14	15
ROW 0	LCTRL			GRAV	F1	F2	5	6	=	F8	-	F9	INS	DEL	HOME			PGUP		
1	F5			1	2	3	4	7	8	9	9	F10			END			PGDN	PRINT	
2	PAUSE			Q	W	E	R	U	I	O	P									SCROLL
3				TAB	CAPS	F3	T	Y	]	F7	[	BKSP			LGUI	LSHIFT				
4				RGUI	A	S	D	F	J	K	L	:	\			RSHIFT				
5				ESC		F4	G	H	F6		APOS	F11		SPACE	UP					LALT
6	RCTRL			Z	X	C	V	M		COMMA	DOT	ENTER								
7							B	N		MENU	/	F12	RIGHT	DOWN	LEFT					RALT

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

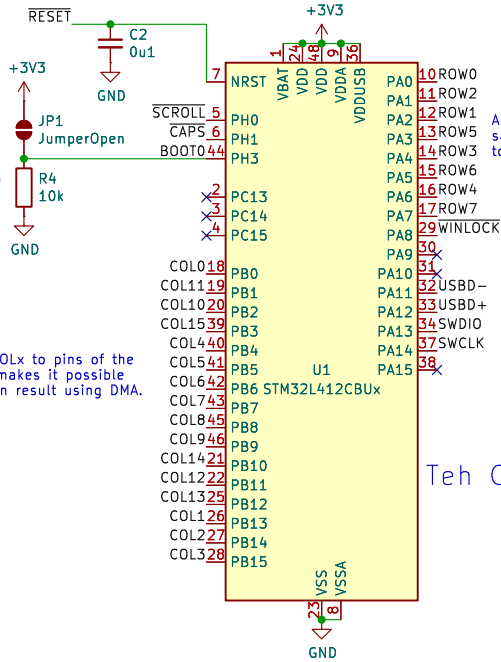


STM32L4 does not have an internal BOOT pulldown. External resistor req'd for stable boot from flash. Jumper allows recovery with thoroughly hosed firmware.

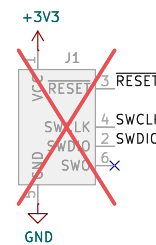
Assigning COLx to pins of the same port makes it possible to read scan result using DMA.

Assigning ROWx to pins of the same port makes it possible to do ROW scan using DMA.

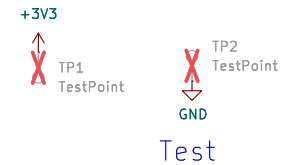
One indicator over here for routing reasons.



Teh Computer



Debug header



Test

**Cliff L. Biffle**  
 Sheet: /  
 File: cmstorm-upgrade.kicad\_sch  
**Title: reFIRE for Quickfire Rapid**  
 Size: A4 Date: 2024-10-31 Rev: 1  
 KiCad E.D.A. 8.0.5 Id: 1/1