Project Documentation

Ultimate 64 Keyboard Extension

Project number: 151

Revision: 0

Date: 26.06.2020

Ultimate 64 Keyboard Extension Rev. 0

Module Description

This is a keyboard extension for the Ultimate 64. It was designed in collaboration with @edu_arana.

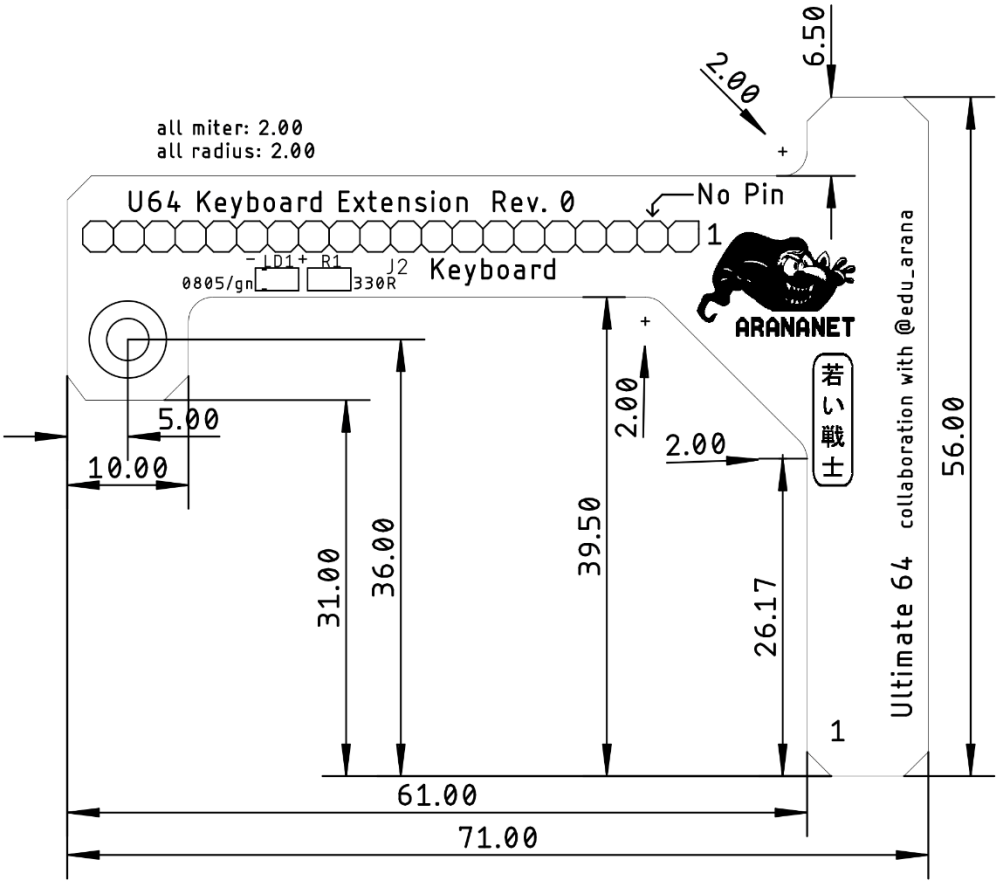


Figure 1: Dimensions

When using the 3D printed keyboard mounting bracket (https://www.thingiverse.com/thing:3220123), the access to the keyboard connector is blocked. Also, some keyboard cables are too short, so it does not reach the position of the connector or it is installed with a not acceptable tension. The Ultimate 64 Keyboard Extension fixes this problem.

The PCB offers an optional power LED (SMD 0805).

Connectors

J1 - Keyboard connector to Ultimate 64

Receptacle (1x20p, pitch 2.54mm) – Harwin M20-7862042

Pin	Signal	Pin	Signal
1	GND	11	ROW1 (PB1)
2	No pin	12	ROW0 (PB0)
3	$\overline{\text{RESTORE}}$	13	COL0 (PA0)
4	+5V	14	COL6 (PA6)
5	ROW3 (PB3)	15	COL5 (PA5)
6	ROW6 (PB6)	16	COL4 (PA4)
7	ROW5 (PB5)	17	COL3 (PA3)
8	ROW4 (PB4)	18	COL2 (PA2)
9	ROW7 (PB7)	19	COL1 (PA1)
10	ROW2 (PB2)	20	COL7 (PA7)

J2 – Pin Header to Keyboard

Standard 1x20p, pitch 2.54. Pin 2 has to be removed to fit the C64 keyboard connector. The pin out is identical to J1.

Mounting

The distance between this keyboard extension and the bottom of the case depends on the height of the receptacle. With a 8mm high receptacle, it is approximately 16mm. The project includes 3D printed a stand-off of this height.

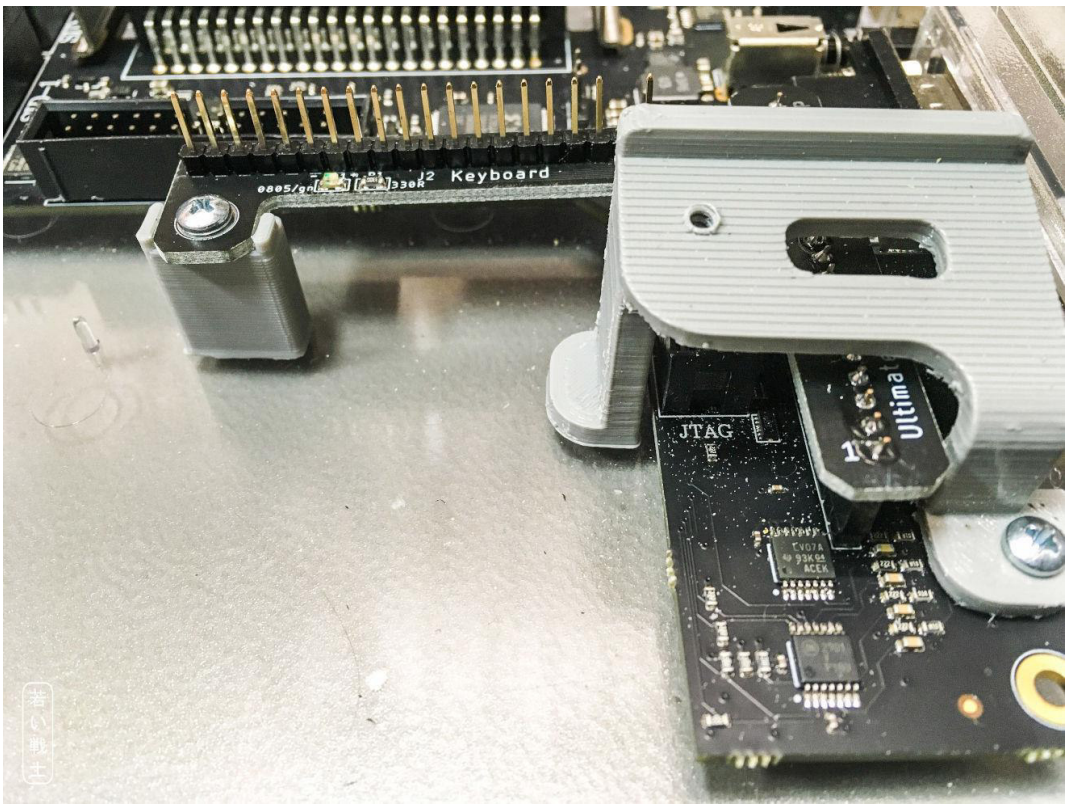


Figure 2: Mounting of the keyboard extension with stand-off and keyboard bracket

The recommended screw for the stand-off is a C2.9x9.5 DIN 7981.

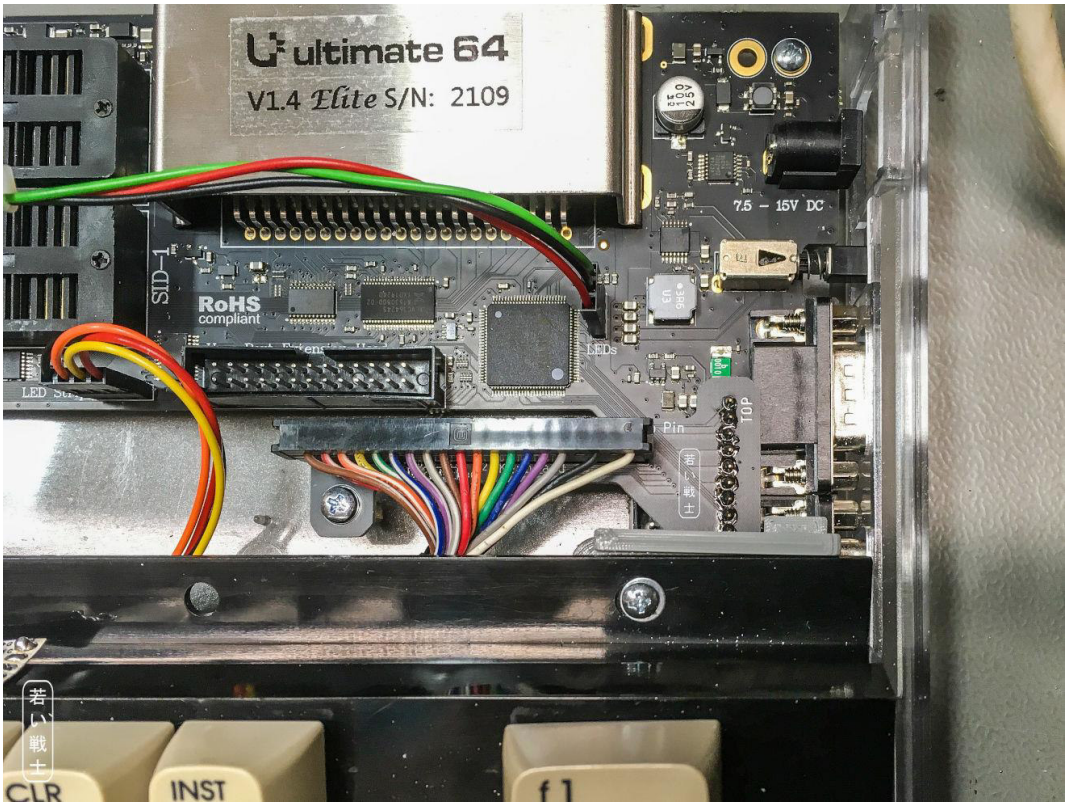
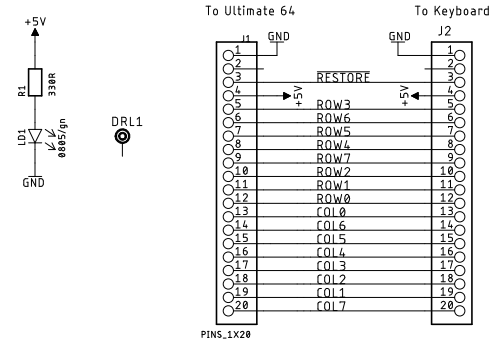


Figure 3: Complete assembly with keyboard installed



open source hardware

Title:	Ultimate 64 Keyboard Adapter	Doc.-No.:	151-1-01-00
		Draft.:	Sven Petersen
Date:	26.06.2020 15:02	Rev.: 0	Page 1/1
File:	U64_KB_Ada		
			A3

Sven Petersen 2020	Doc.-No.: 151-2-01-00	
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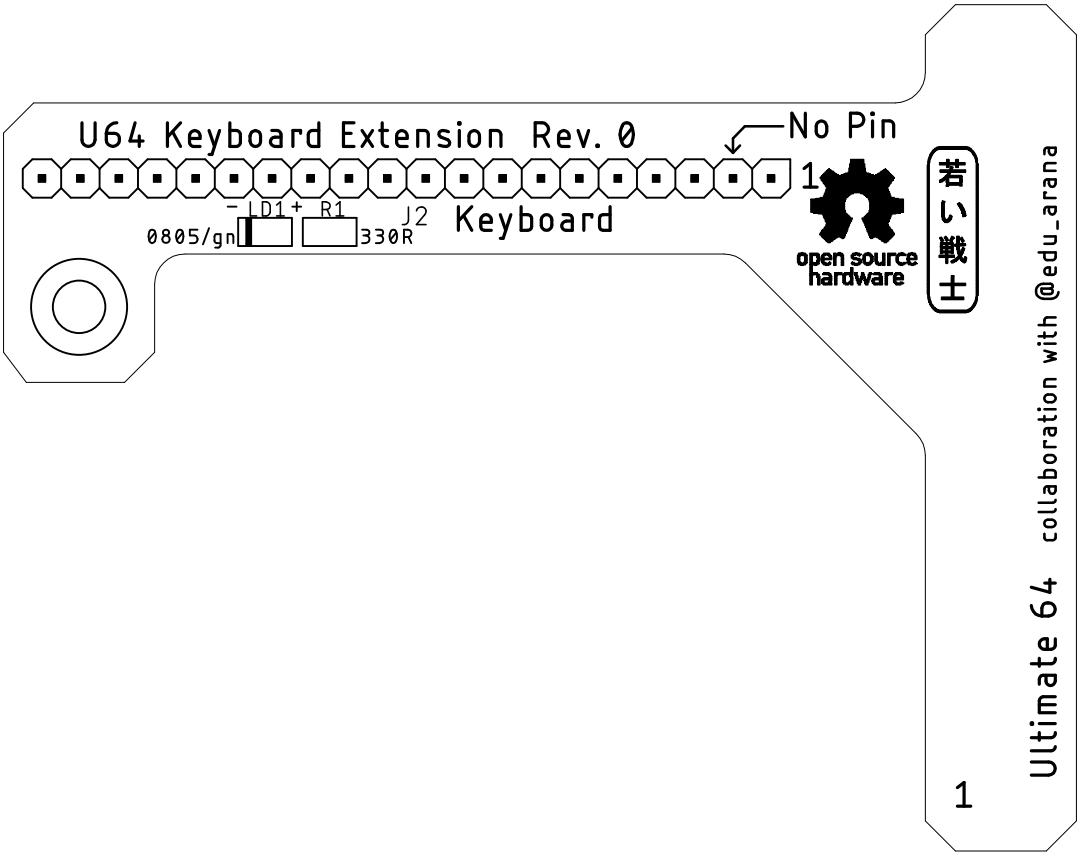
U64_KB_Ada		
26.06.2020 15:08		Rev.: 0
placement component side		



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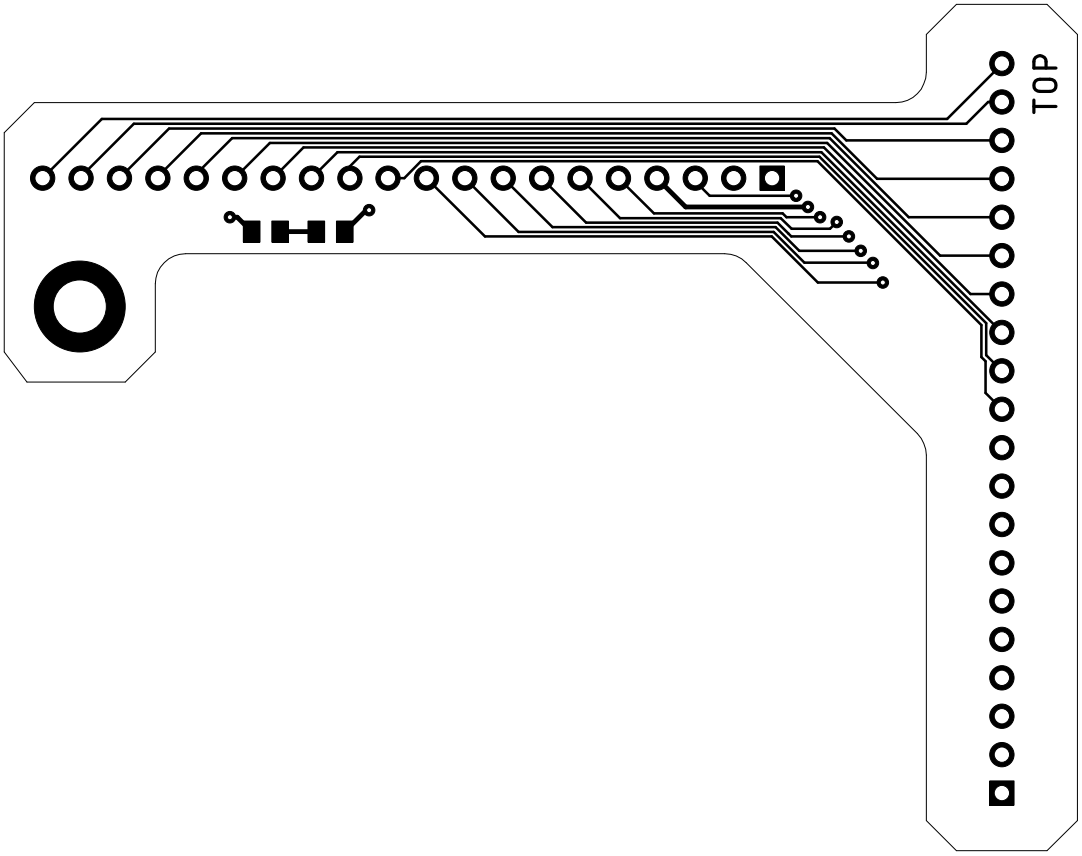

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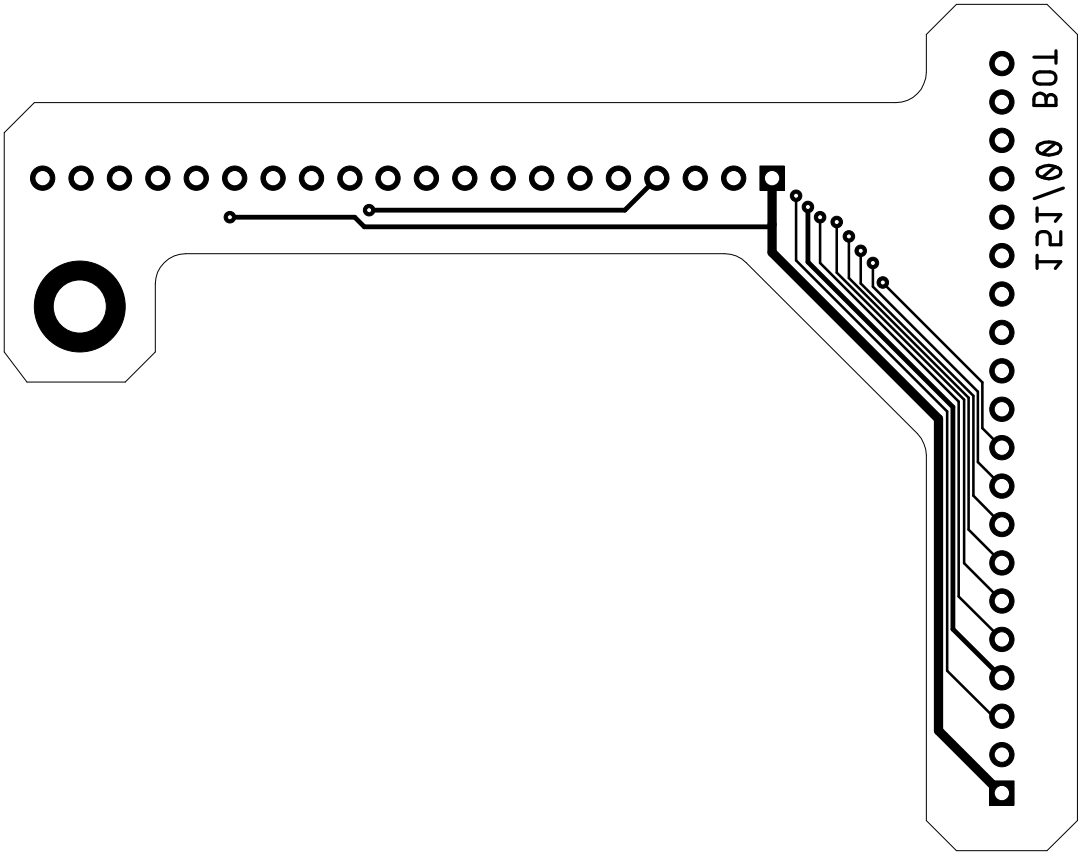

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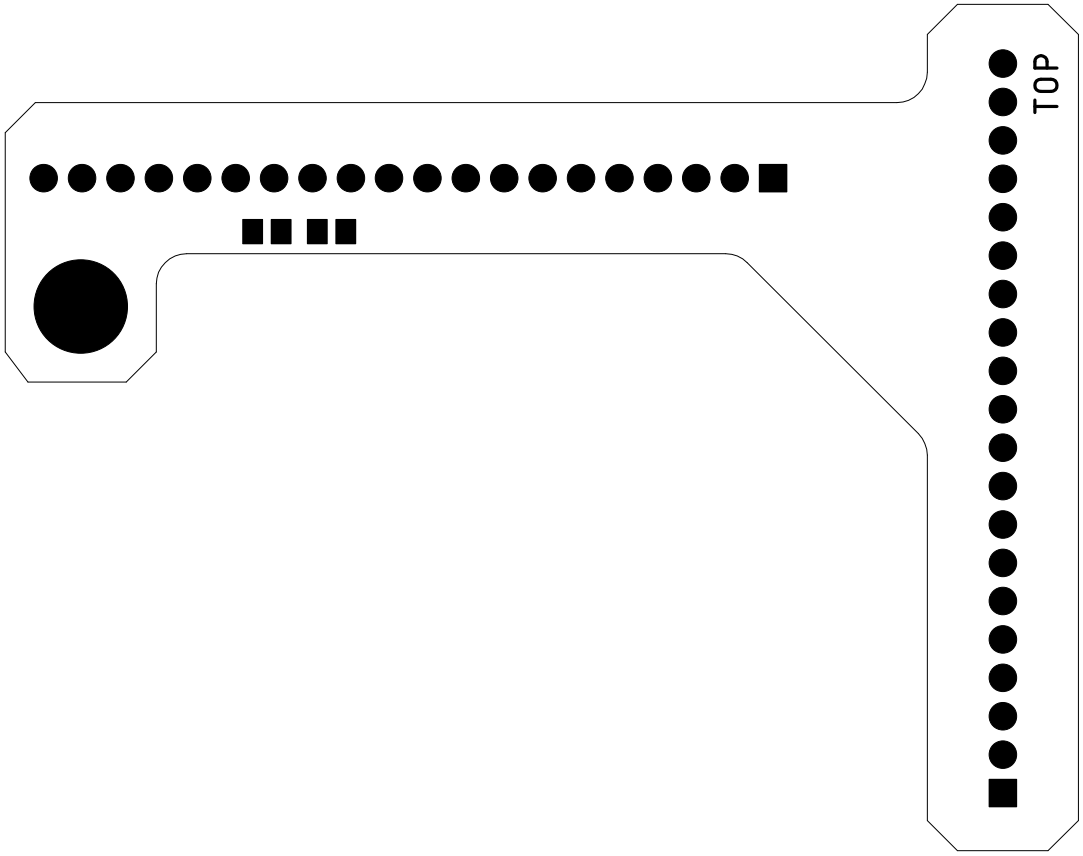
26.06.2020 08:35		Rev.: 0
stopmask component side		



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26.06.2020 08:35		Rev.: 0
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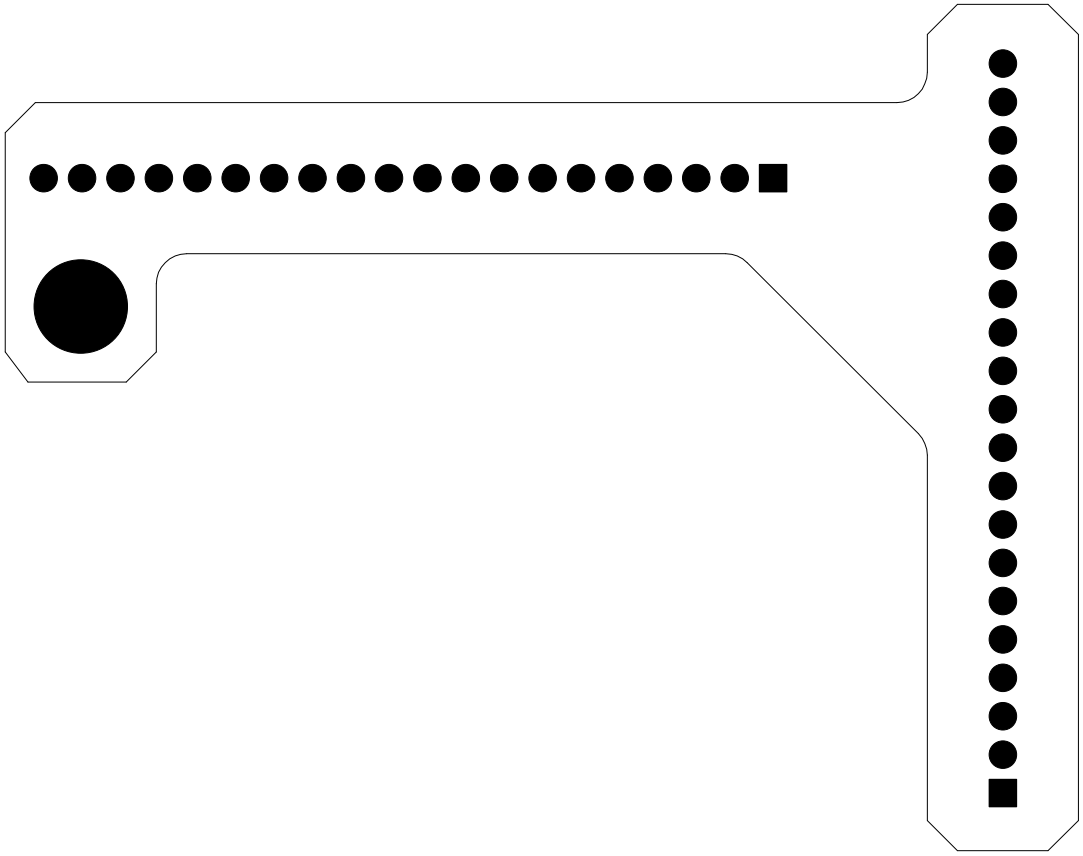

Sven Petersen 2020	Doc.-No.: 151-2-01-00	
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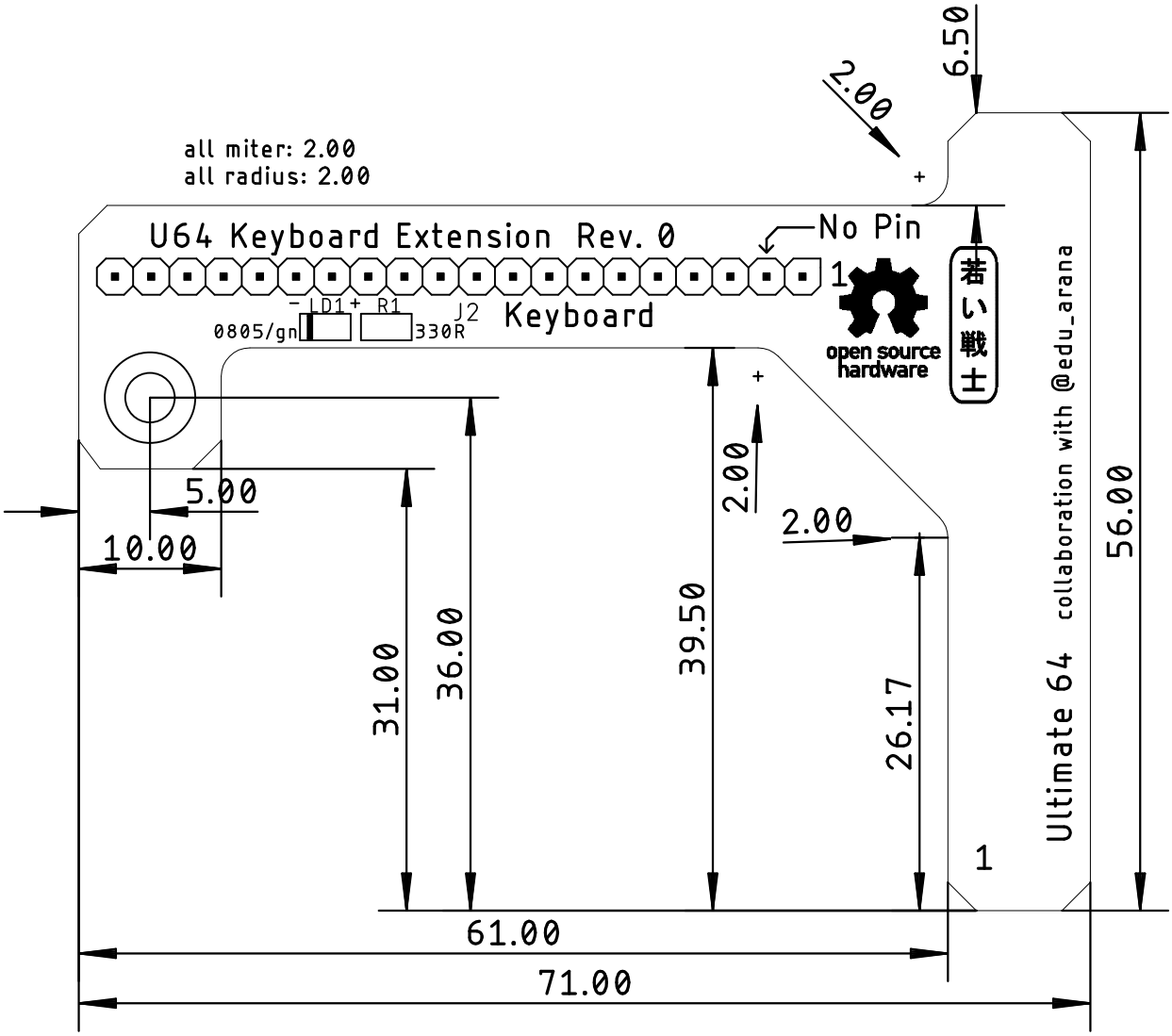
26.06.2020 15:08		Rev.: 0
placement component side measures		



Ultimate 64 Keyboard Extension Rev. 0
Bill of Material Rev. 0.0

Pos.	Qty	Value	Footprint	Ref.-No.	Comment
1	1	151-2-01-00	2 Layer	PCB Rev. 0	2 layer, Cu 35μ, HASL, LLL x BBB, 1.6mm FR4
2	1	1x20, 2.54mm, h=8mm	1x20	J1	standard receptacle for pin header, pitch 2.54mm, height appr. 8mm
3	1	1x20p, 2.54mm	1x20p	J2	standard pin header 1x20p, pitch 2.54, pin 2 removed
4	1	330R	0805	R1	optional, SMD 0805 resistor 10% or better
5	1	LED 0805/green	LED0805	LD1	optional SMD LED