Project Documentation

Commodore C64 Wifi-Modem PET Adapter

Project number: 175

Revision: 0

Date: 10.03.2021

Commodore C64 WiFi-Modem PET Adapter Rev. 0

Module Description

The C64 WiFi-Modem Adapter for PET was made to connect the C64 WiFi-Modem (https://1200baud.wordpress.com/2017/03/04/build-your-own-9600-baud-c64-wifi-modem-for-20/), (project on github.com) to the User Port of the Commodore PET or CBM.

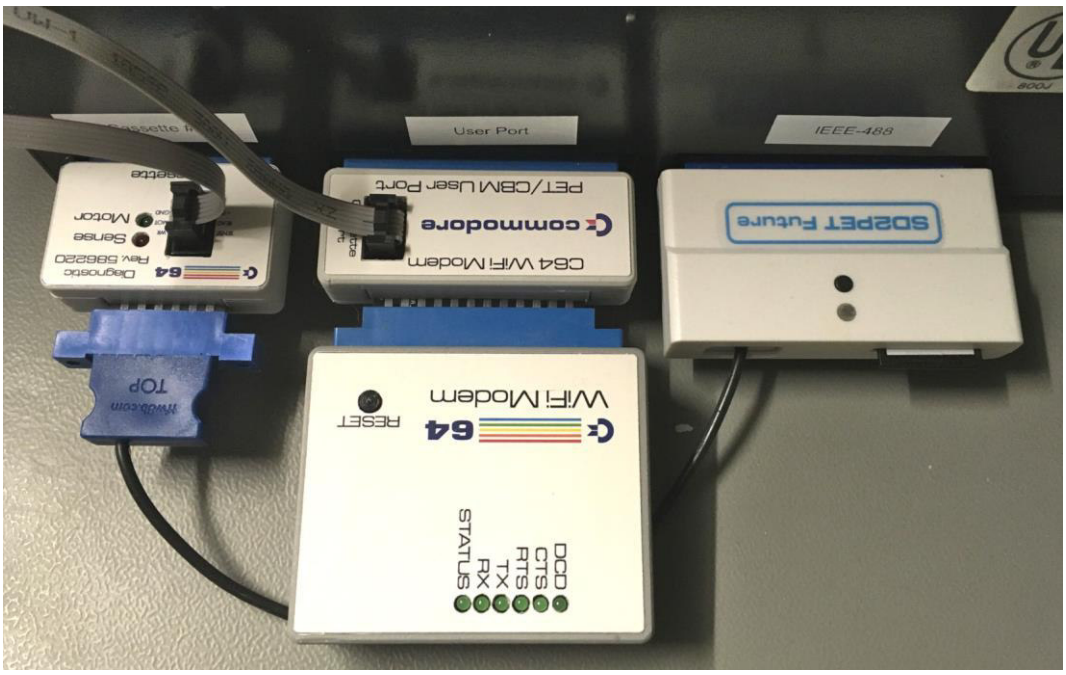


Figure 1: Setup with cassette dongle, user port adapter, WiFi modem and SD2PET

The wiring is done according to the requirements of the terminal program PETTERM 0.5.0.

Modem Signal	PET User Port	Direction (seen from PET)	PET UP Pin	C64 Modem	Modem Pin
TxD	CA1 & PA0	input	B & C	Flag & PB0	B & C
RxD	CB2	output	M	PA2	M

The signals RTS, DCD and CTS are not used, neither by the modem nor by PETTERM.

To provide an upgrade in future, the unused PET User Port pins and the signals mentioned before, are connected to a pin header (for jumpering).

Pin	PET Userport	JP1	JP1	C64 WiFi Modem	Pin
D	PA1	13	14	RTS	D
E	PA2	11	12	-	-
F	PA3	9	10	-	-
H	PA4	7	8	DCD	H
J	PA5	5	6	-	-
K	PA6	3	4	CTS	K
L	PA7	1	2	-	-

Since the PET User Port does not provide +5V for powering the modem, this voltage is tapped from the Cassette Port and a cassette port dongle, which is also used in the C64 Diagnostic Harness. The connection is achieved with a 2x3 pin header (J3) and a ribbon cable.

Signal	Pin	Pin	Signal
GND	1	2	+5V
-	3	4	-
-	5	6	-

There is also a barrel connector for the +5V (5.5/2.1mm), which is not recommended to use, since it might collide with an IEEE-488 port connector/device.

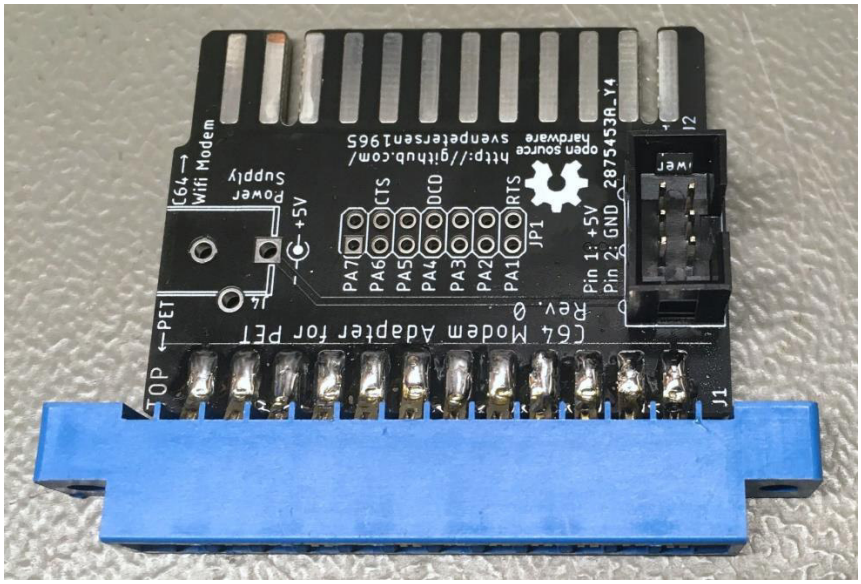


Figure 2: assembled PCB of the WiFi modem adapter

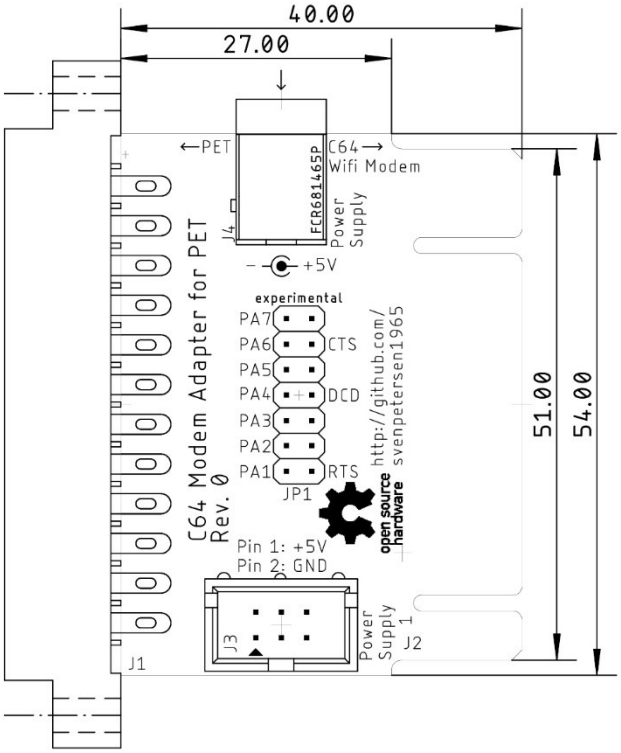
Figure 3: Adapter in 3D printed case

The screws recommended for the 3D printed case are

- 2x C2.9x9.5 DIN 7981 (for connecting bottom shell and top shell of the case)
- 2x C2.9x13 DIN 7981 (for attaching the edge connector to the bottom shell)

Other screws of approximately the same dimensions might work as well.

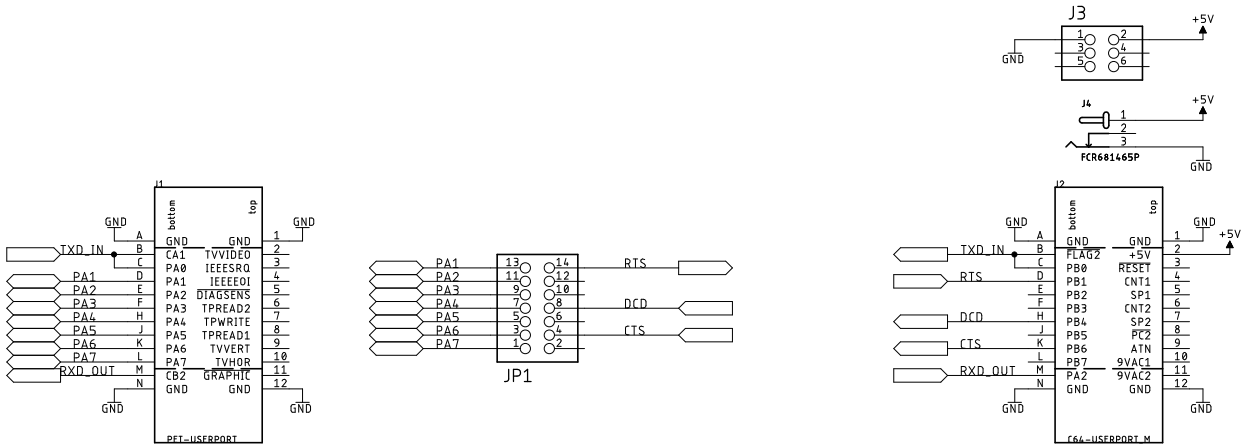
Dimensions



Revision History

Rev. 0

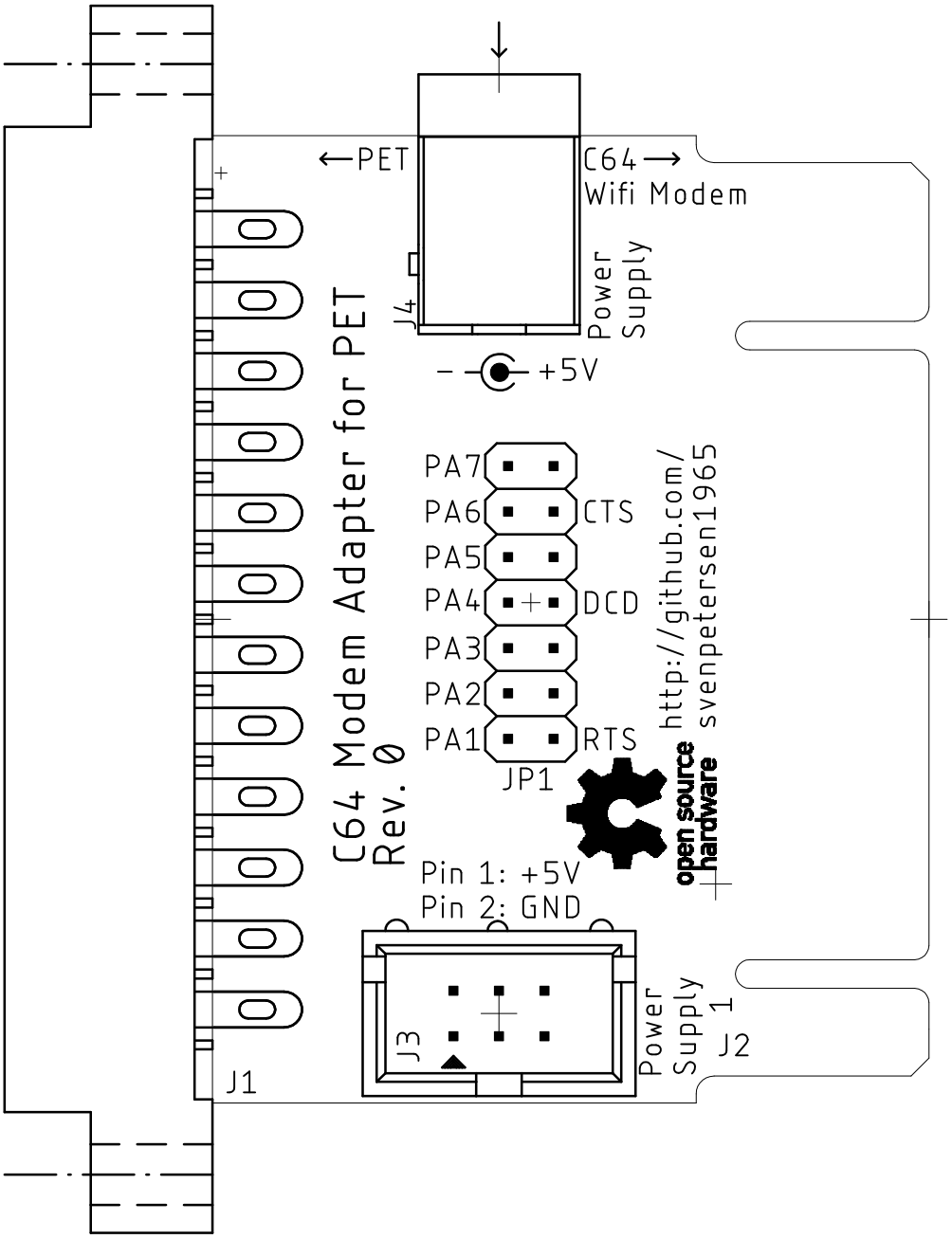
- Fully functional prototype



open source hardware

Title:	C64 WiFi Modem Adapter for PET User Port	Doc.-No.:	175-1-01-00
		Draft.:	Sven Petersen
Date:	12.03.2021 13:01	Rev.: 0	Page 1/1
File:	Wifi_Modem_PET-Adapter		
	http://github.com/svenpetersen1965		A3

Sven Petersen 2021	Doc.-No.: 175-2-01-00	
	Cu: 35µm	Cu-Layers: 2
Wifi_Modem_PET-Adapter		
12.03.2021 13:01		Rev.: 0
placement component side		



Sven Petersen 2021	Doc.-No.: 175-2-01-00	
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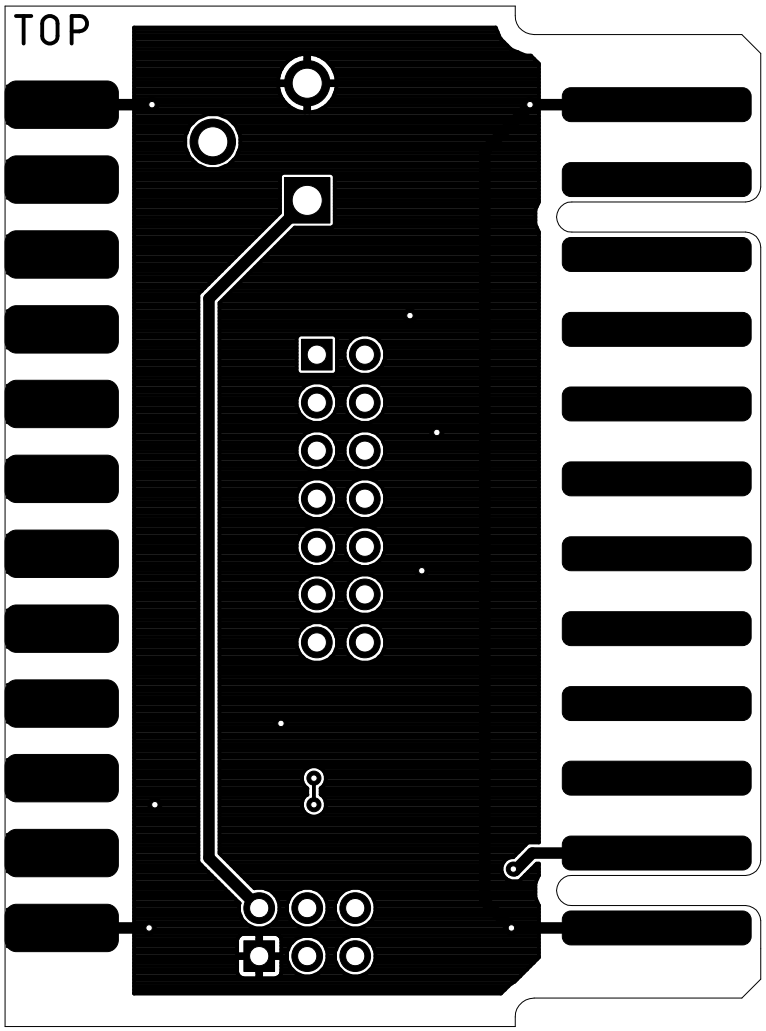
Wifi_Modem_PET-Adapter		
12.03.2021 13:01		Rev.: 0
top		



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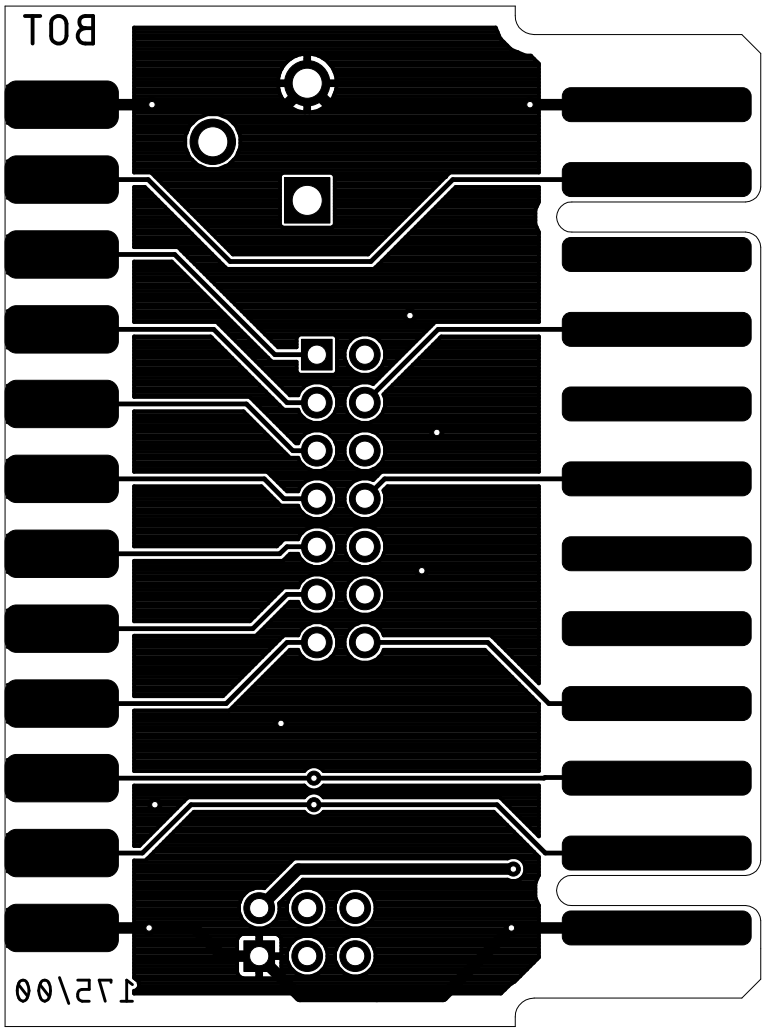
Wifi_Modem_PET-Adapter		
12.03.2021 13:01		Rev.: 0
bottom		



Sven Petersen 2021	Doc.-No.: 175-2-01-00	
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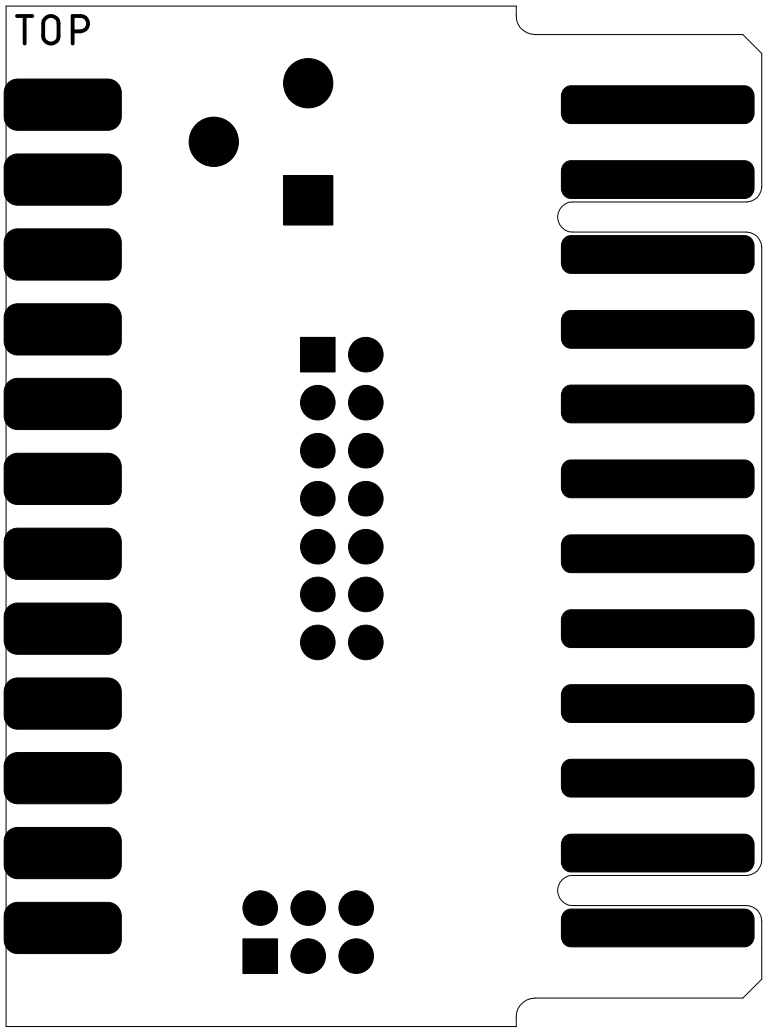
Wifi_Modem_PET-Adapter		
12.03.2021 13:01		Rev.: 0
stopmask component side		



Sven Petersen 2021	Doc.-No.: 175-2-01-00	
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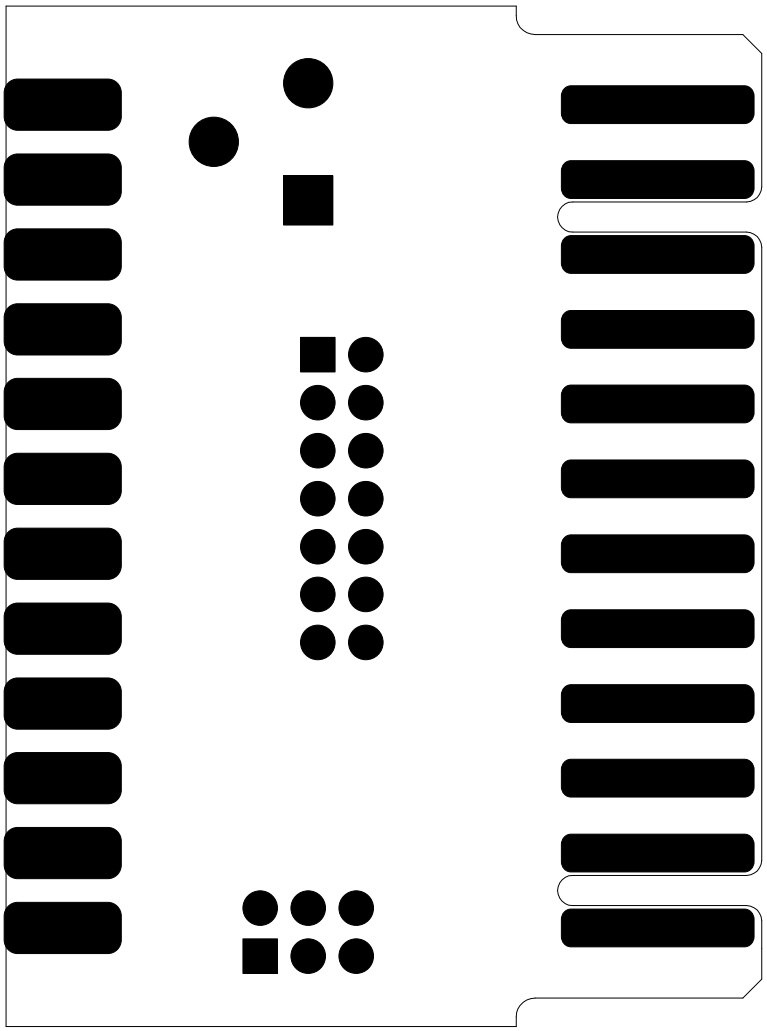
Wifi_Modem_PET-Adapter		
12.03.2021 13:01		Rev.: 0
stopmask solder side		



Sven Petersen 2021	Doc.-No.: 175-2-01-00	
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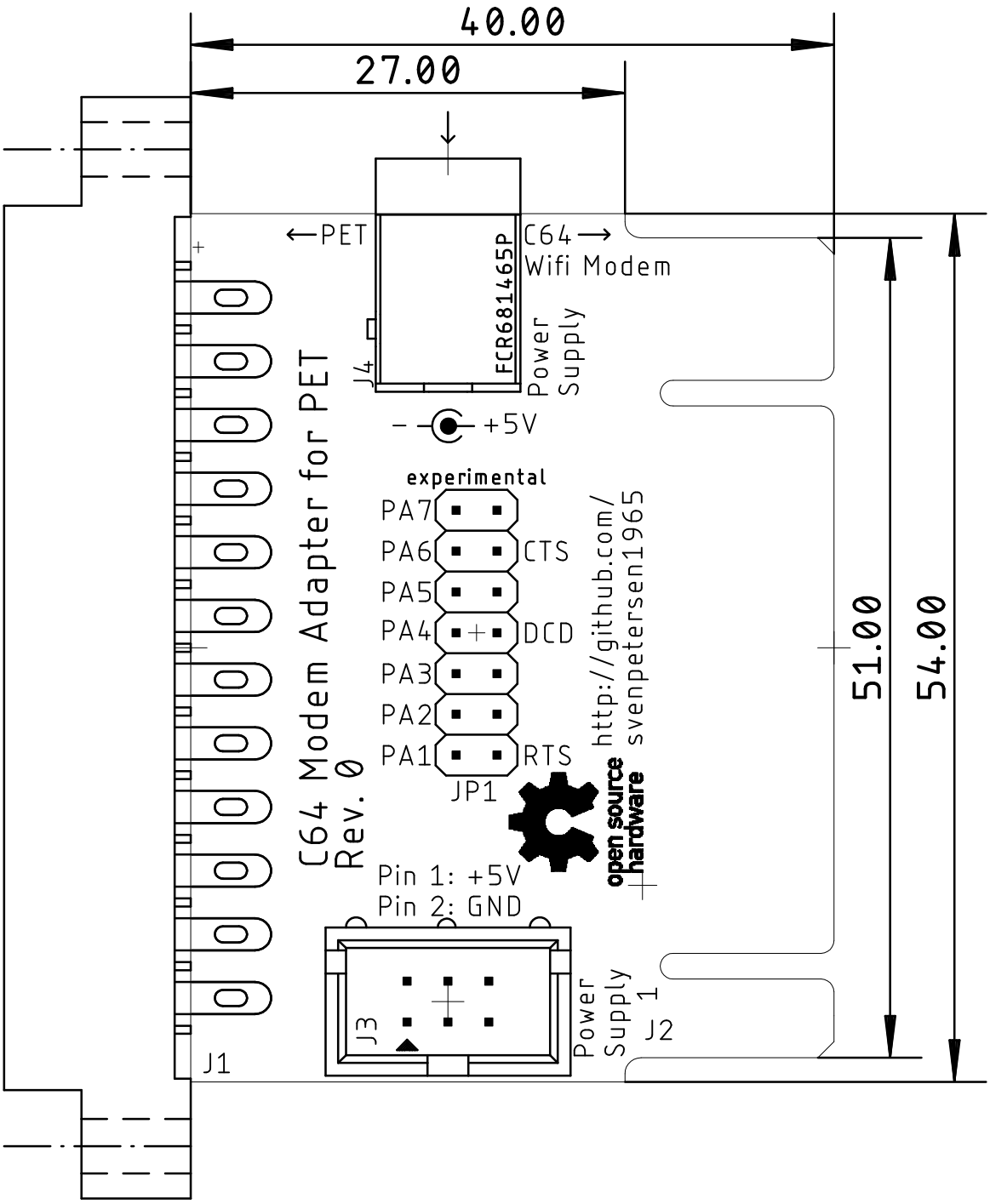
Wifi_Modem_PET-Adapter		
12.03.2021 13:01		Rev.: 0
placement component side measures		



Commodore C64 WiFi-Modem PET Adapter Rev. 0

Testing

Test Setup

The Test was conducted on a CBM8032 with a German character set, a C64 WiFi-Modem (like mentioned in Document 175-6-01-**), a Cassette Port dongle Rev. 1 and a C64 WiFi-Modem Adapter Rev. 0. The software PETTERM0-5-0 was stored on an SD-card in the SD2PET future.

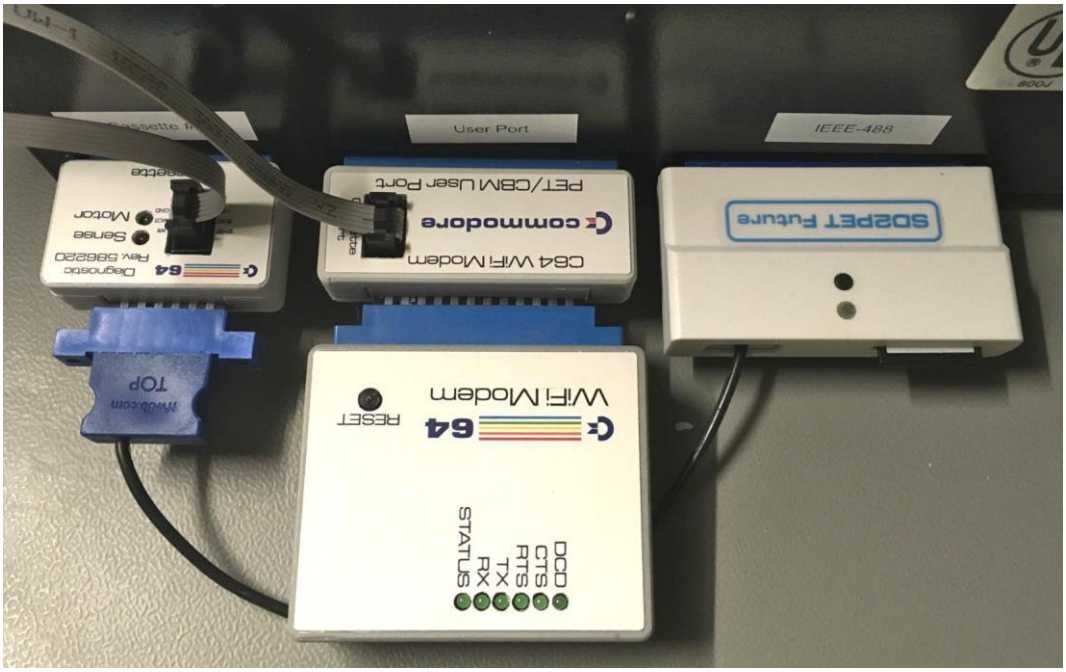


Figure 1: Test Setup

The baud rate of the modem was set to 1200baud (this configuration was done and stored with the software CSMG2017 running on a C64).

Test Execution

Several BBSes have been called. The WiFi-Modem has been fully operational at all time, the information transfer was correct.

Conclusion

The WiFi-Modem Adapter is fully functional.

Figure 2: CBM8032 connected to the BBS 8Bit Playground

Commodore C64 Wifi-Modem PET Adapter
Bill of Material Rev. 0.0

Pos.	Qty	Value	Footprint	Ref.-No.	Comment
1	1	175-2-01-00	2 Layer	PCB Rev. 0	2 layer, Cu 35µ, HASL, 54.0mm x 40.0mm, 1.6mm FR4
2	1	2x3 box header, 2.54mm	2X03WV	J3	e.g. Reichelt WSL 6G
3	1	2x07, pinheader, 2.54mm	2X07	JP1	Do not place
4	1	FCR681465P	FCR681465P	J4	Cliff. Do not place!
5	1	Edge connector, 2x12, 3.96mm	USERPORT	J1	edge connector, C64 user port, series 805