Project Documentation

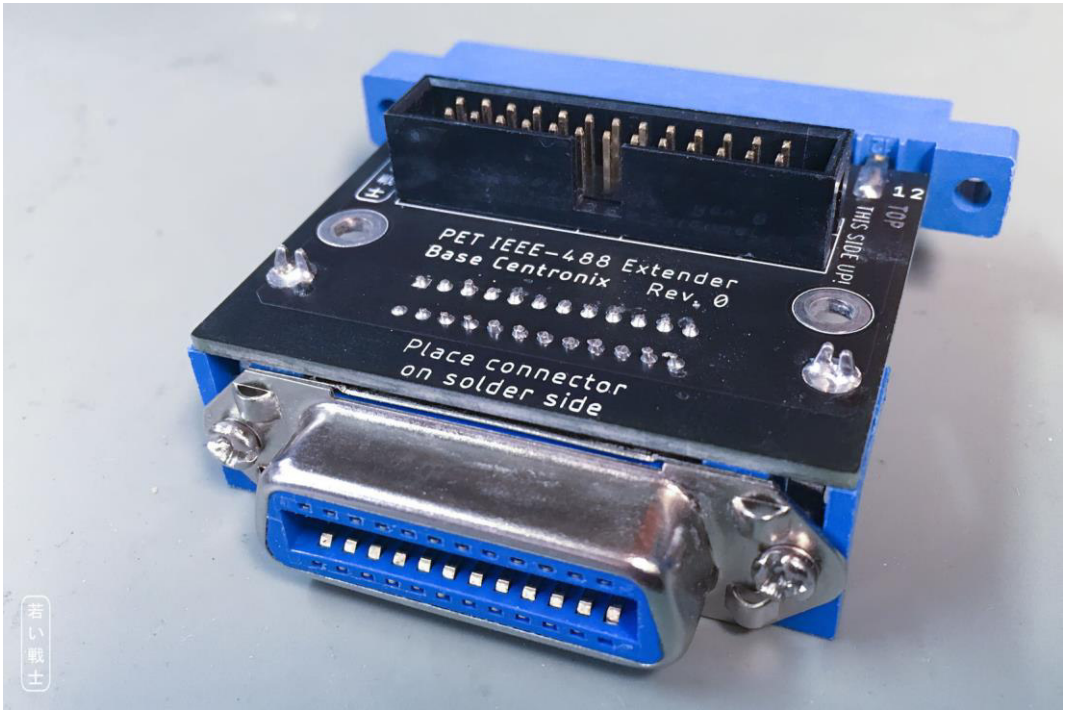
Commodore IEEE-488 Extender

Base Centronics

Project number: 204

Revision: 0

Date: 18.11.2022



Commodore PET IEEE-488 Extender Base Centronics Rev. 0

Module Description

The IEEE-488 extender can serve multiple purposes:

1. Splitting the card edge IEEE-488 connector via a riser board (Project No. 170), so an additional device like a SD2PET future can be connected.
2. Adapting an IEEE-488 cable to the edge connector of the PET.

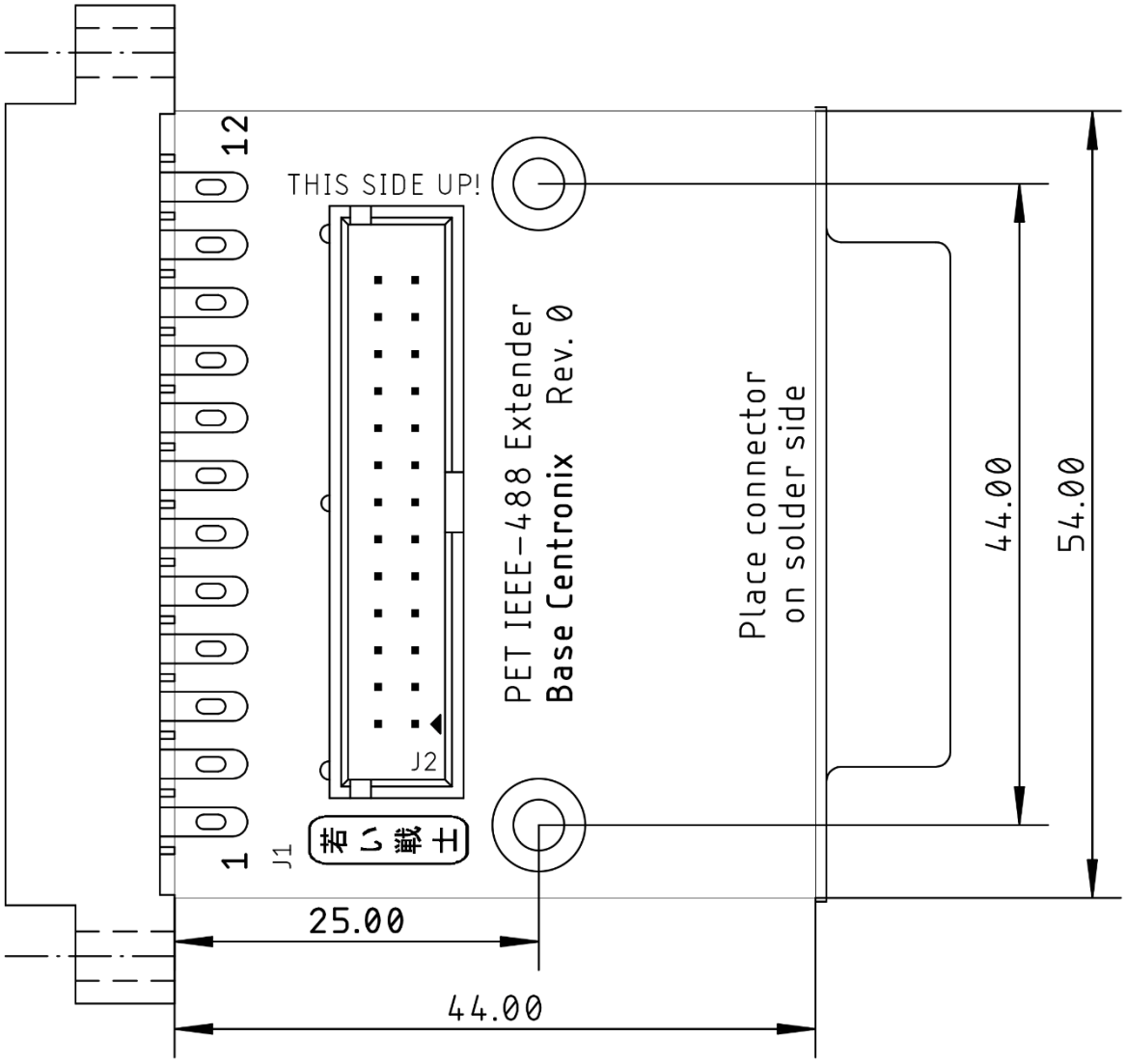


Figure 1: Dimensions of the IEEE-488 Extender

3D-Printed Case

Depending on the intended usage, there are different sorts of 3D cases/configurations. The 3D-printed case provides a good support for the extension board and the cable. If it is only intended to use the extension as an adapter for the Centronics type (=standard) IEEE-488 cables, the top shell can be installed (J2 cannot be assembled in this case). The height above the desktop of the PET is different than that of the Tynemouth Software/TFW8bit miniPET. The miniPET adapter case is 2mm higher.

Figure 2: Full 3D printed case

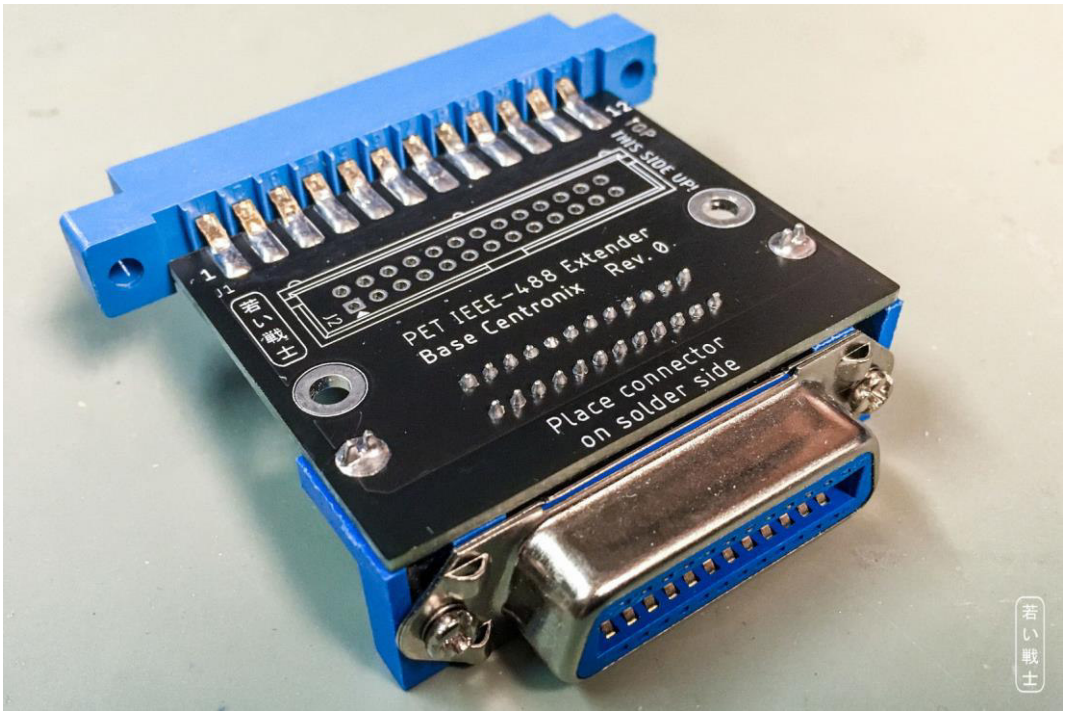


Figure 3: Centronics Base without J2

Figure 3 shows the Centronics Base without J2 to allow the top shell of the case to be installed.

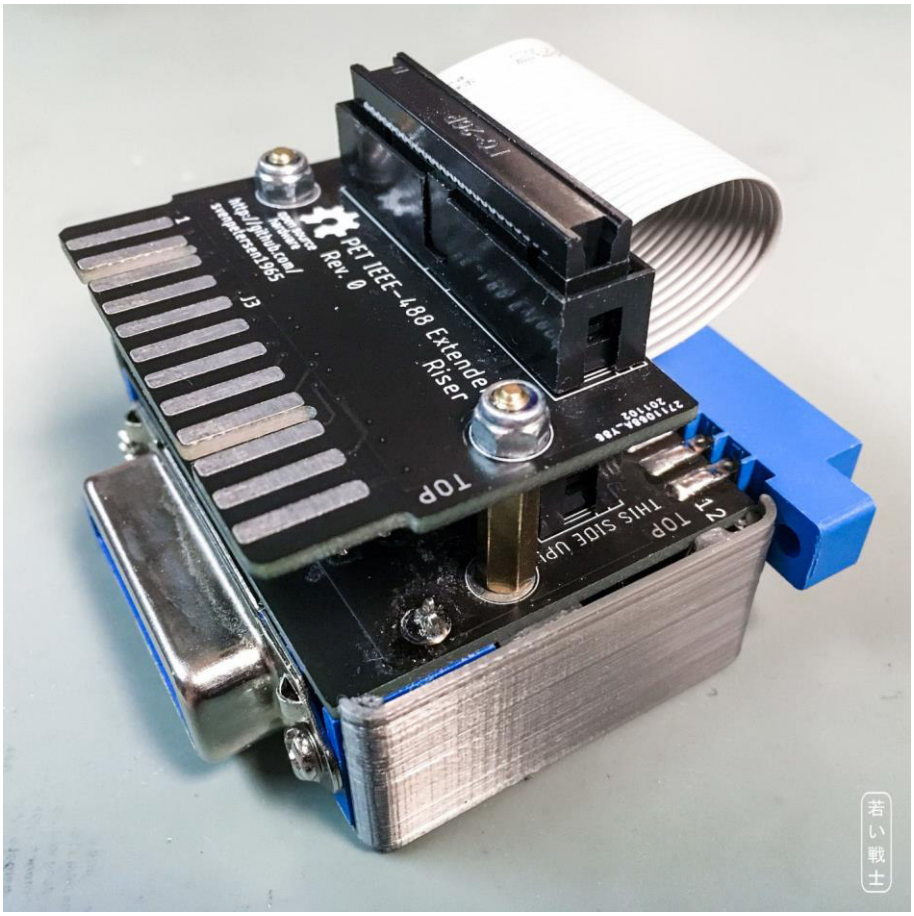


Figure 4: Centronics Base with Riser and the bottom shell installed only

Connectors

J1 is a female card edge connector, that connects to the PET/CBM Mainboard, **J3** is a 24p. female Centronics connector (fits IEEE-488) (Ali Express "Series 57"), which connects to the IEEE-488 peripherals via an IEEE-488 cable. **J2** is a 2x13 pin header/box connector.

J1	J3	Signal	J2	J2	Signal	J3	J1
1	1	DIO1	1	2	DIO5	13	A
2	2	DIO2	3	4	DIO6	14	B
3	3	DIO3	5	6	DIO7	15	C
4	4	DIO4	7	8	DIO8	16	D
5	5	EOI	9	10	REN	17	E
6	6	DAV	11	12	GND	18	F
7	7	NRFD	13	14	GND	19	H
8	8	NDAC	15	16	GND	20	J
9	9	IFC	17	18	GND	21	K
10	10	SRQ	19	20	GND	22	L
11	11	ATN	21	22	GND	23	M
12	12	GND	23	24	GND	24	N
-	-	GND	25	26	GND	-	-

Table 1: IEEE-488 signal pinouts

The shield of J3 is connected to GND.

SD2PET future Splitter

The SD2PET future has an edge connector IEEE-488 interface, which does not allow to connect any other IEEE-488 peripheral. It might be desired to do so, though. In this case, the SD2PET future has to drive both, the PET and the peripheral bus load. The maximum load is not defined.

The configuration was tested with a CBM8032 and a CBM8050 floppy disk drive attached via a 1.5 meter long IEEE-488 cable. The CBM8050 has to be set (via hardware) to a **device address** other than 8, since this is the default address of the SD2PET future. It is not possible to switch off the CBM8050 and reconfigure the device address of the SD2PET.

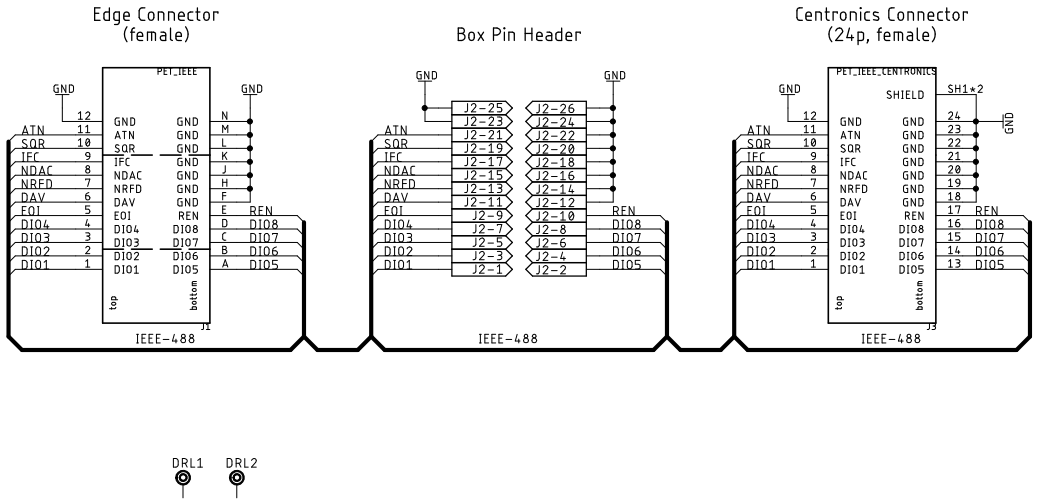
Using the SD2PET future and a printer was not tested, but very likely works, since the interface circuitry is similar to the CBM8050.

The bus splitting requires the riser board, like shown in Figure 4.

Revision History

Rev. 0

- Prototype (fully functional)



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		Draft.:	Sven Petersen
Date:	18.11.2022 16:47	Rev.: 0	Page 1/1
File:	IEEE_EXT_Base_Centr		
	http://github.com/svenpetersen1965		A3

open source hardware

Sven Petersen 2022	Doc.-No.: 204-2-01-00	
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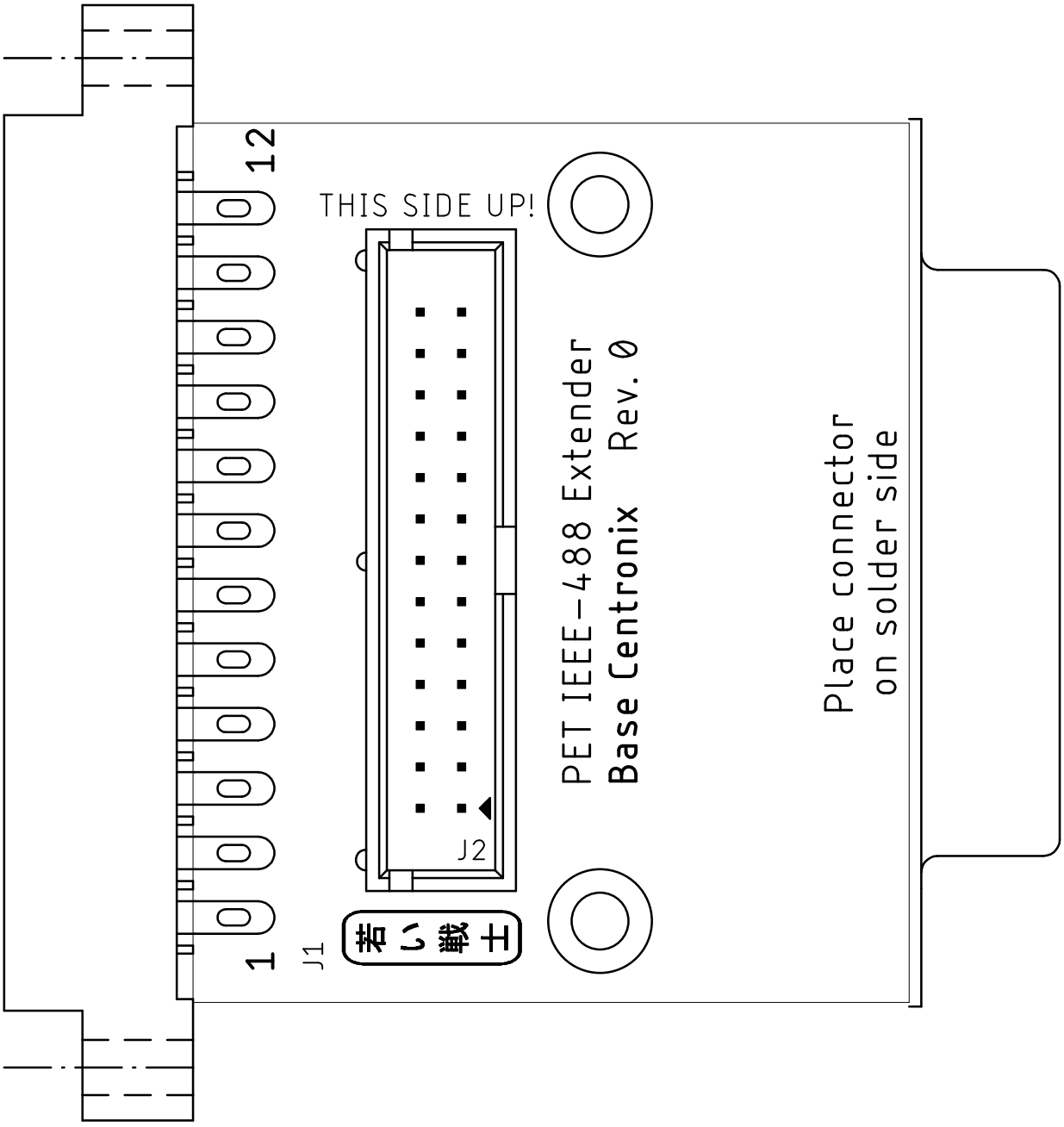
IEEE_EXT_Base_Centr		
18.11.2022 16:56		Rev.: 0
placement component side		



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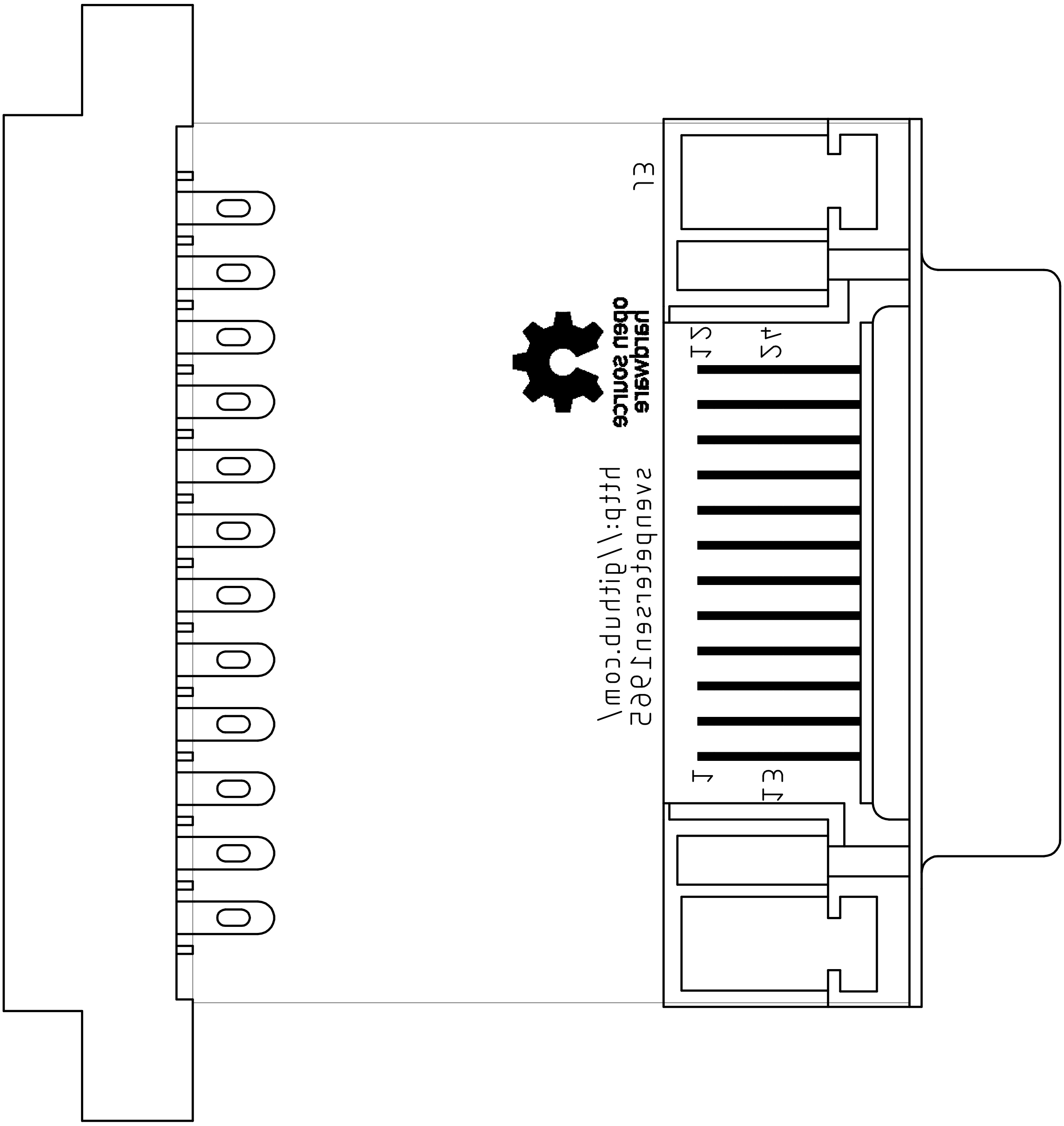

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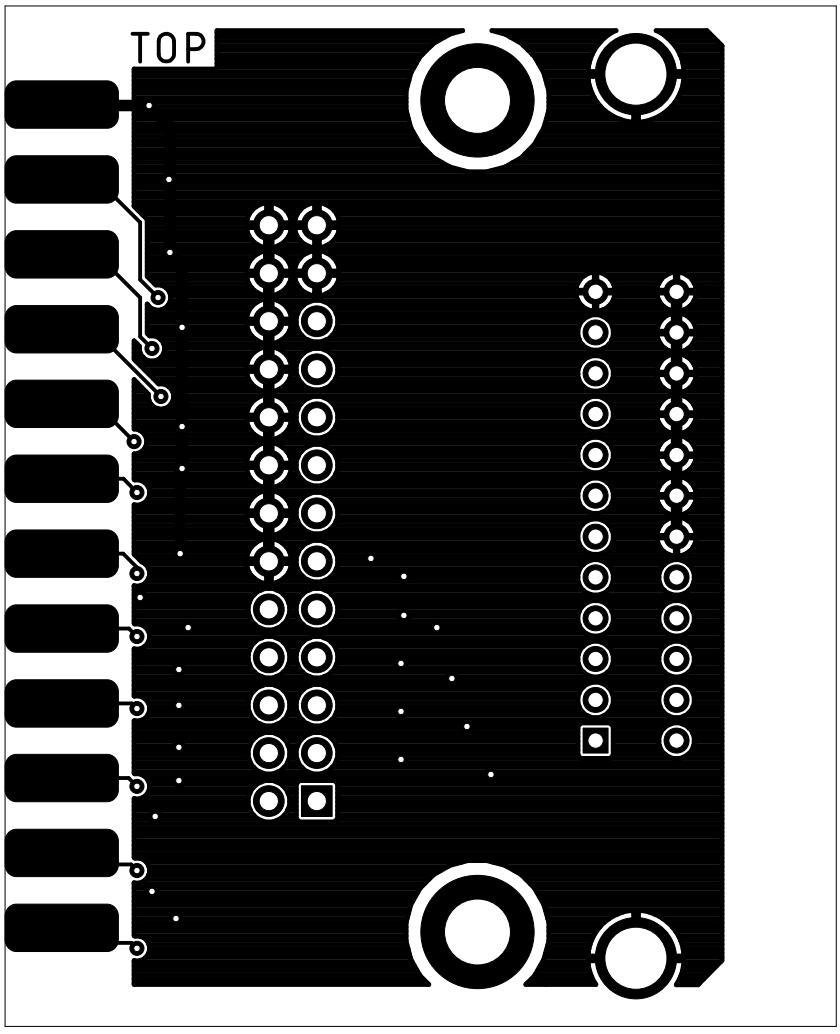

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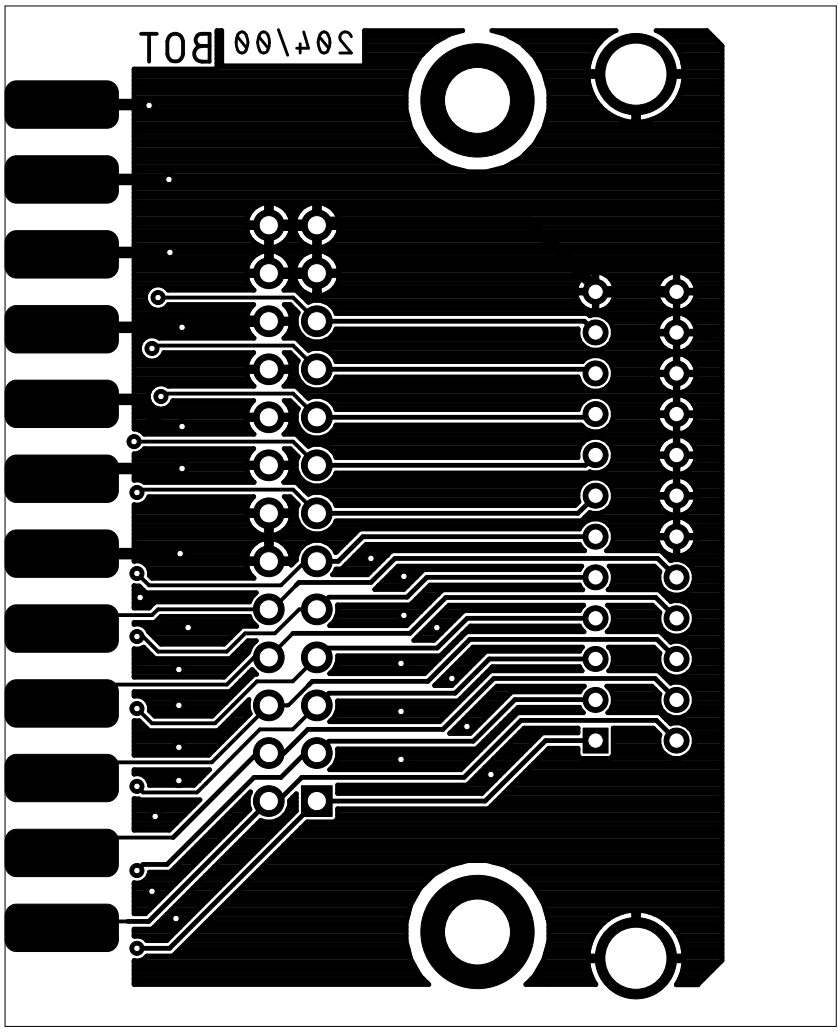

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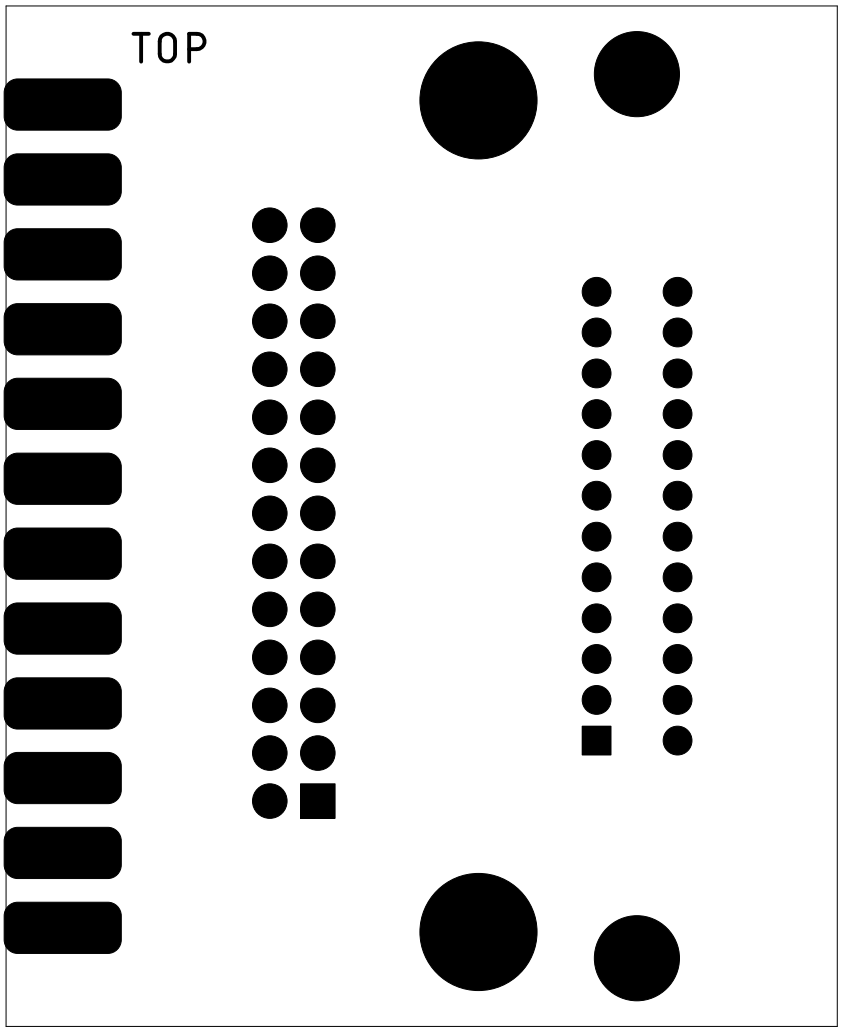

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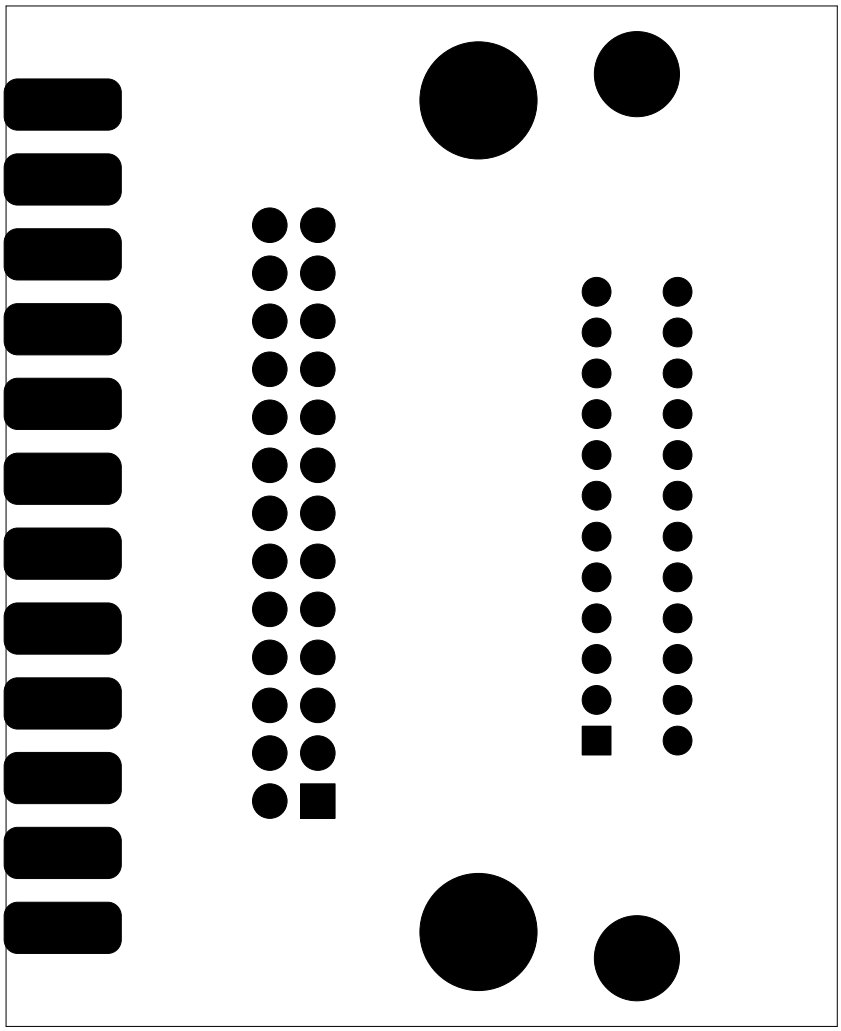

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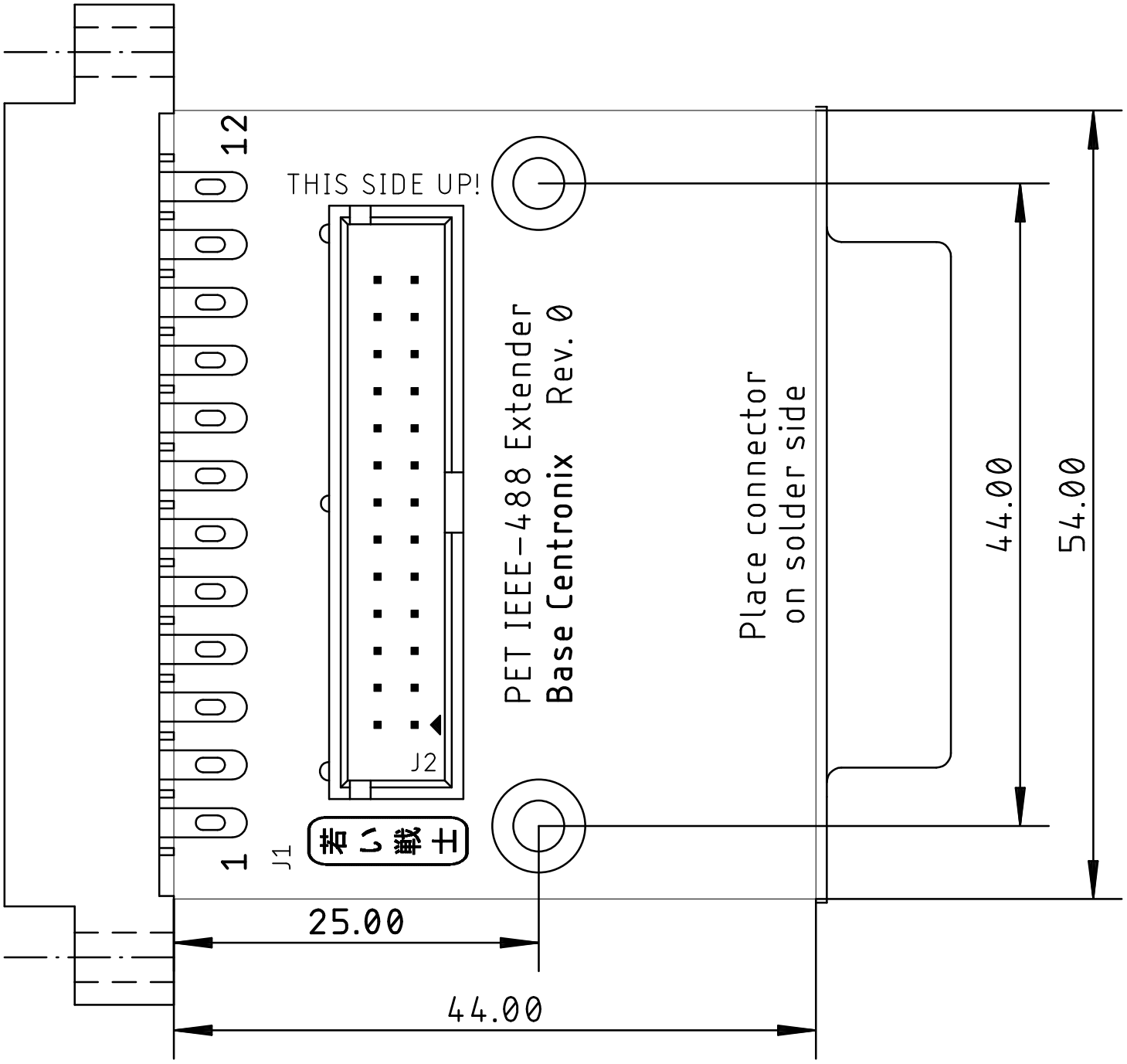

Commodore PET IEEE-488 Extender Base Centronics Rev. 0

Testing

Setup

- CBM3016 computer
- CBM8032 computer
- CBM8050 floppy disk drive
- TFW8bit.com SD2PET future
- Standard Centronics IEEE-488 cable (1.5m)
- Centronics Base Rev. 0 with case
- Centronics Base Rev. 0 with Riser and jumper cable cable (drawing no. 169-3-02-00)

Test execution

The Centronics Base was installed in the PET's IEEE-488 port and a cable was attached.

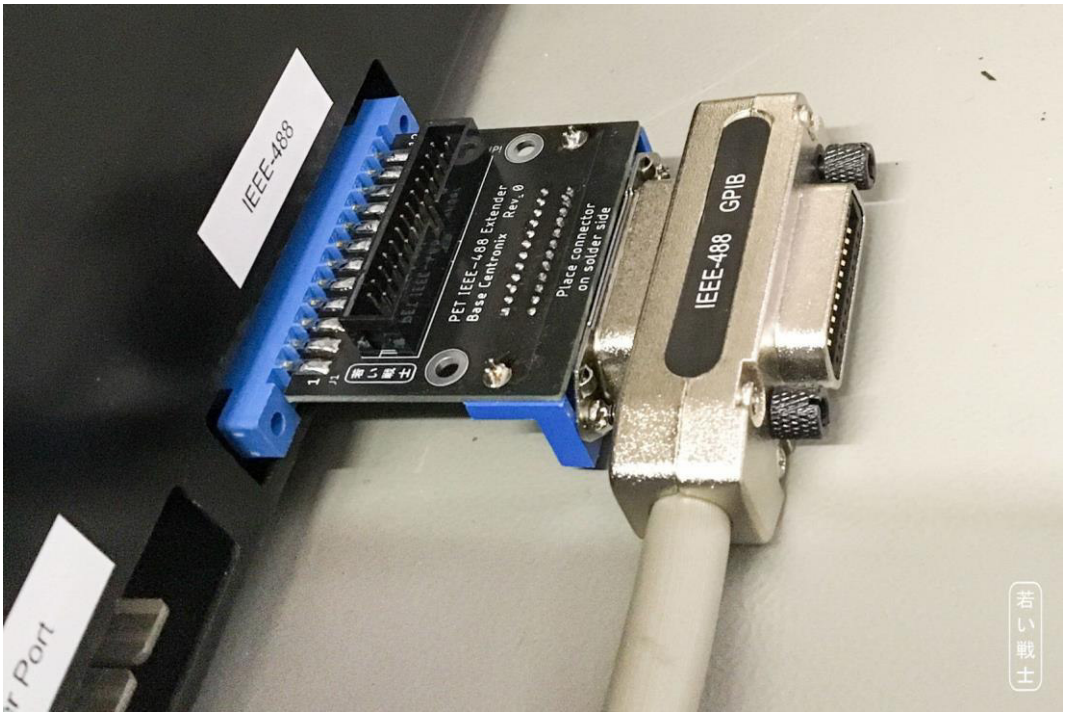

Figure 1: Installed Centronics Base with cable

The cable could be installed and was sitting firmly enough. There are no known screw posts for the connector (J3) to fit with the screws of the cable.

Then, a CBM8050 floppy disk drive was connected. Both, the computer and the drive were switched on. The drive can be flawlessly accessed.

A test fit was performed with SD2PET future, the CBM8050 (device address 9) with cable and a user port WiFi modem (Figure 3). The configuration did not interfere mechanically. The SD2PET future could be accessed as could the CBM8050. It was possible to copy the content of several floppy disks to the SD2PET future without any problems.

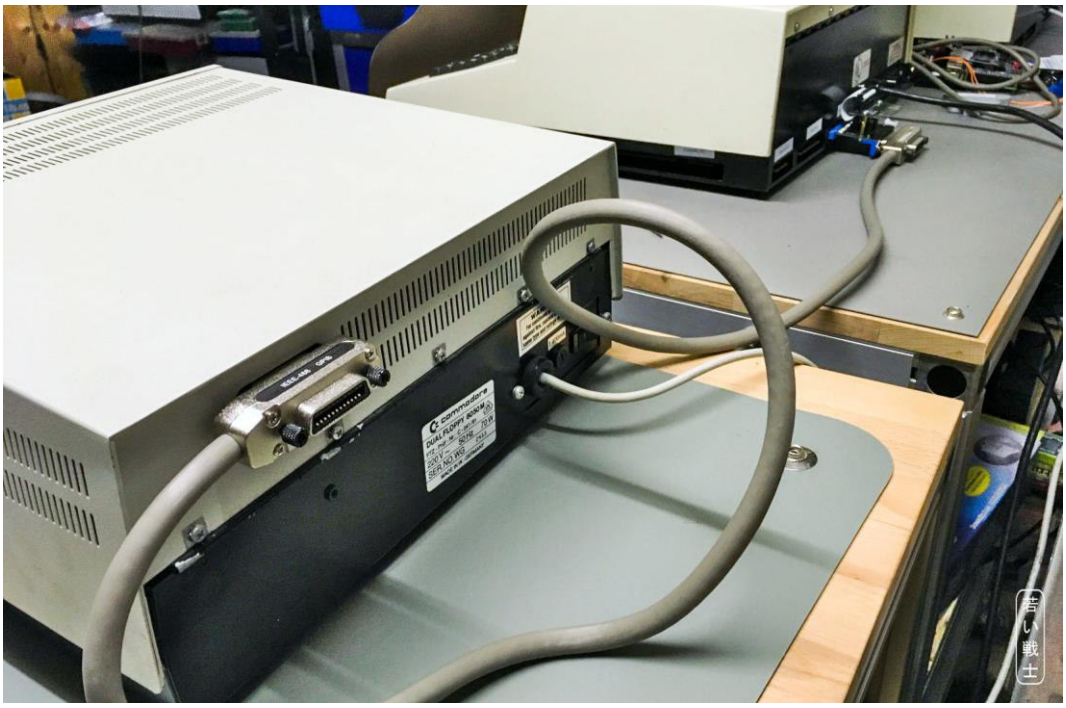

Figure 2: CBM8050 drive connected via cable and the Centronics Base rev. 0

Figure 3: Centronics Base with Riser card, SD2PET future and user port peripherals (Wifi modem)

Other Computers

The tests were repeated with the CBM3016 and the miniPET. No problems were noticed.

Conclusion

The Centronics Base rev. 0 is working flawlessly.

Commodore PET IEEE-488 Extender Base Board Centronics Rev. 0
Bill of Material Rev. 0.0

Pos.	Qty	Value	Footprint	Ref.-No.	Comment
1	1	204-2-01-00	2 Layer	PCB Rev. 0	2 layer, Cu 35µ, HASL, 44.0mm x 54.0mm, 1.6mm FR4
2	1	2x13 box pin header, 2.54mm	2X13WV	J2	e.g. Reichelt.de WSL26G
3	1	2x12 edge connector 3.96mm pitch	USERPORT	J1	edge connector, C64 user port, Ali Express: "Series 805"
4	1	24p Centronics, 90°, female	PET_IEEE_CENTRONICS	J3	PCB mount 24 pin Centronics, female, 90°. Ali Express "Series 57", https://a.aliexpress.com/_mr8TkVY