

EprOric

Rev. A



EPROMs and floppy drives in perfect harmony

What is EprOric?

EprOric is a small adapter designed to be able to use an EPROM and a disk drive together.

It connects directly to the Oric ROM socket, and the EPROM memory connects on top of it. EprOric is designed so that the whole, EprOric and EPROM, do not hinder when screwing the computer cover.

The EprOric PCB has been designed to be able to use several different types of components. The original idea is to use two Pico-Gates, a 74HC1G04 and a 74HC1G00, but two 74HC1G00s or a 74HC00D, which contains four two-input NAND gates, can be used if the Pico-Gates are not available. Two 74HC1G04 Pico-Gates cannot be used.

If the Pico-Gates are used, the 74HC00D integrated circuit must not be used, and if the 74HC00D is used, the Pico-Gates must not be used.

An EPROM of type 27256/27C256 or 27512/27C512 can be used with EprOric. On both EPROMs, pin 1 and 27 are at high level. Pin 27 is the A14 addressing signal on the 27C256 and 27C512, and pin 1 is the A15 addressing signal on the 27C512, so the highest 16K will always be active on both EPROMs. This must be taken into consideration when programming them.

Material used.

- **Female round receptacle.** We need 28 of them, one for each pin of the EPROM. In Aliexpress they sell ones without the "pin" that are perfect (figure 1), but they are too expensive. There are other very valid and cheaper options. One of them is to get a round pin socket for 28-pin integrated circuit (figure 2), and remove each of the pins from the plastic structure, cut the pin and file the remaining part to a length of about 3.88 - 3.90 mm (figures 3 and 4).

For 0.5mm diameter mating pin
Contact Clip pre-loaded

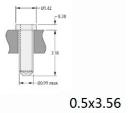


Fig. 1



Fig. 2



Fig. 3



Fig. 4

We must be careful in the process of filing. If we file too much, we can reach the hollow part, where the EPROM pin is inserted, and the receptacle becomes unusable (figure 5).

If you find it difficult to remove the pins or you don't want to damage a socket, the other option is to buy the female turned pins loose. On Aliexpress you can get a bag of 50 or 100 pins at an affordable price.



Fig. 5

- **Pin strips.** We need two strips of 14 pins each. The profile of the plastic that holds the pins should be as narrow as possible to ensure that, once the adapter is plugged to the ROM socket, together with the EPROM, the red cap can be placed and screwed on without any problems. After a long search, the pin strips I used had to be 1.27mm pitch 50-pin strips, as the 2.54mm pitch strips were too high profile. A comparison is shown in figure 6. The 1.27mm strips have a plastic holder of 1mm thick, while the others are 3mm or more.



Fig. 6

In addition, the 1.27mm strip has pins that are only 0.4 mm thick, while the others are at least 0.5 mm thick. This is even better as it will put less strain on the contacts of the ROM socket when the adapter is plugged into it.

To these strips you have to remove pins to convert them to 2.54 mm pitch. To do this we count 27 pins, cut the strip, and remove the even pins, as shown in Figures 7, 8 and 9.



Fig. 7

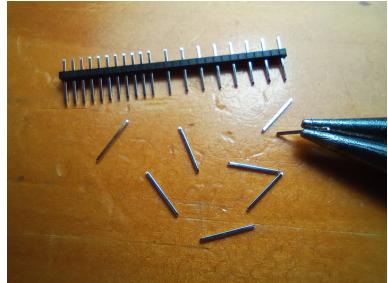


Fig. 8

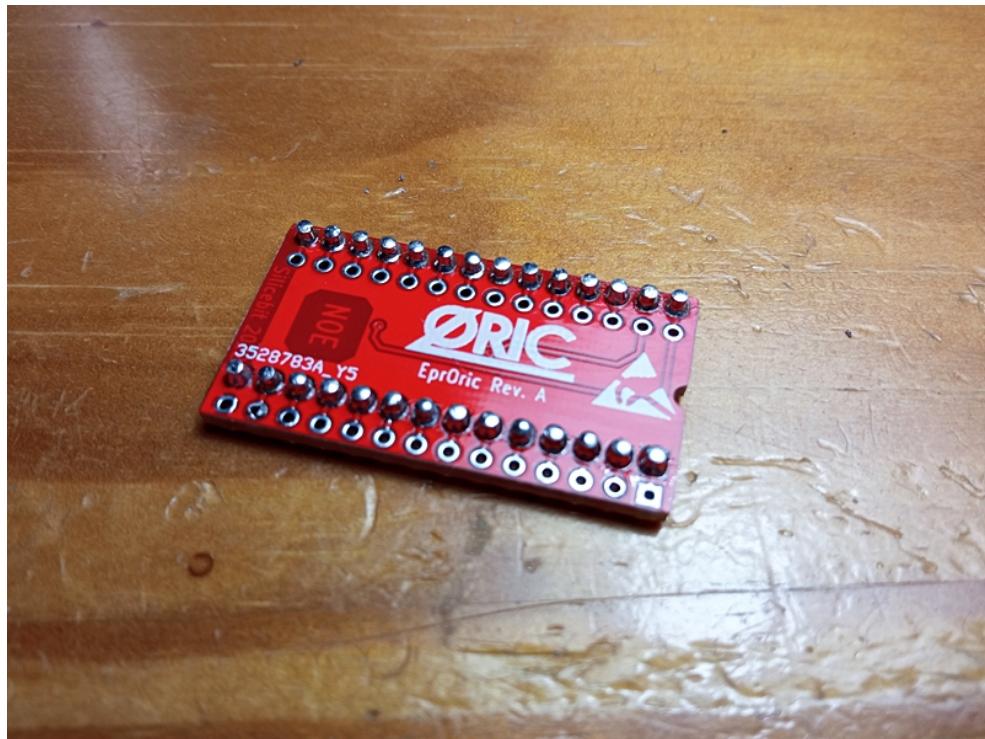


Fig. 9

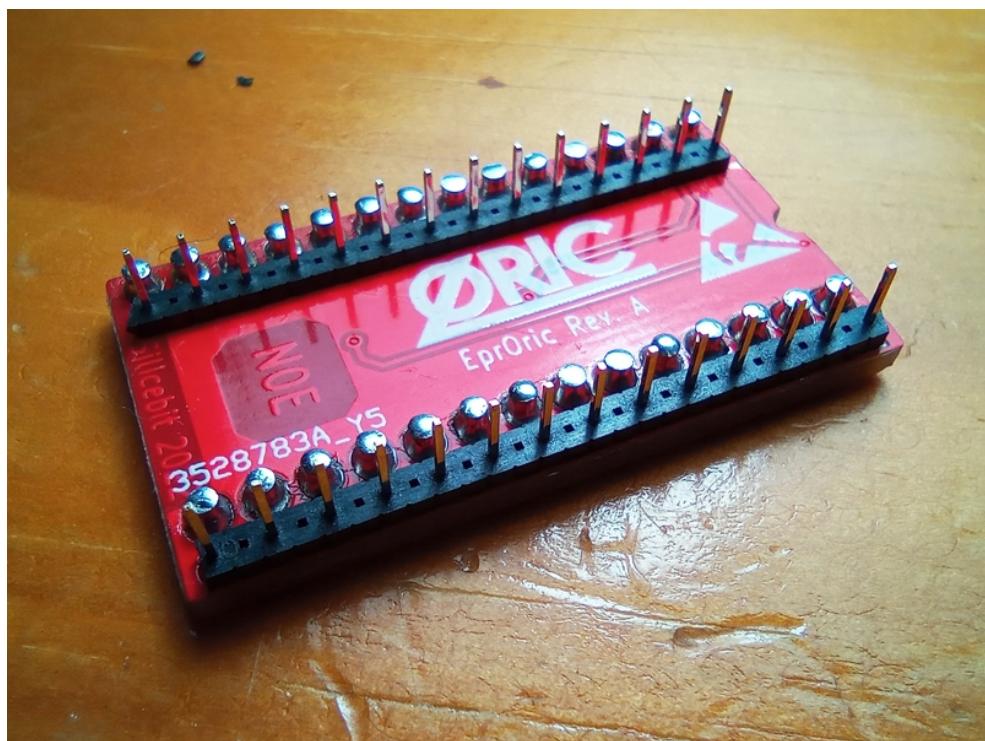
- **Pico-Gates or 74HC00D.** Pico-Gates that can be used are listed in the bill of materials. Instead of Pico-Gates a 74HC00D (SMD) can also be used.

IMAGES

Photographs about the different phases of construction of the EprOric adapter, its connection on the Oric ROM socket, and the connection of the EPROM to the adapter.



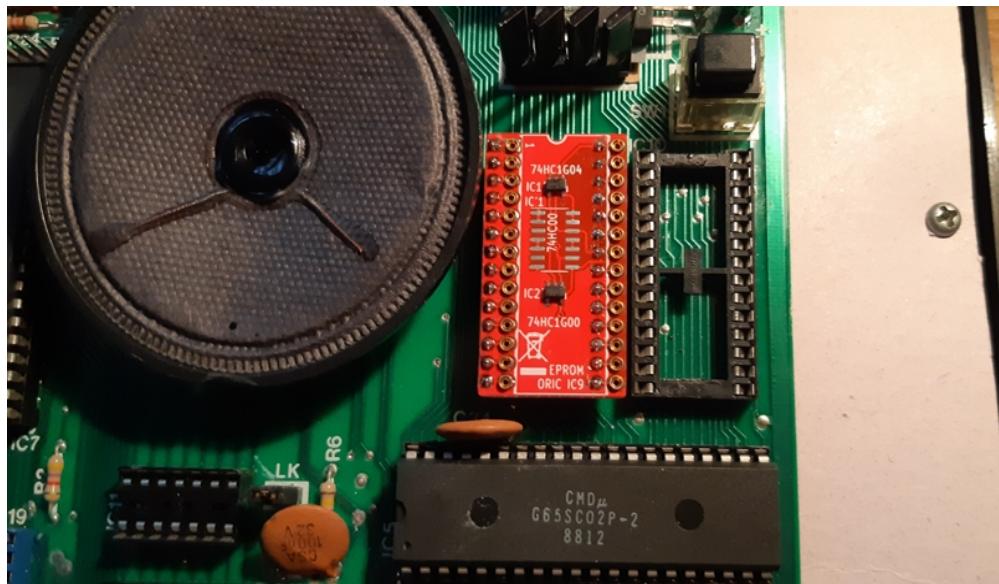
Round receptacles soldered



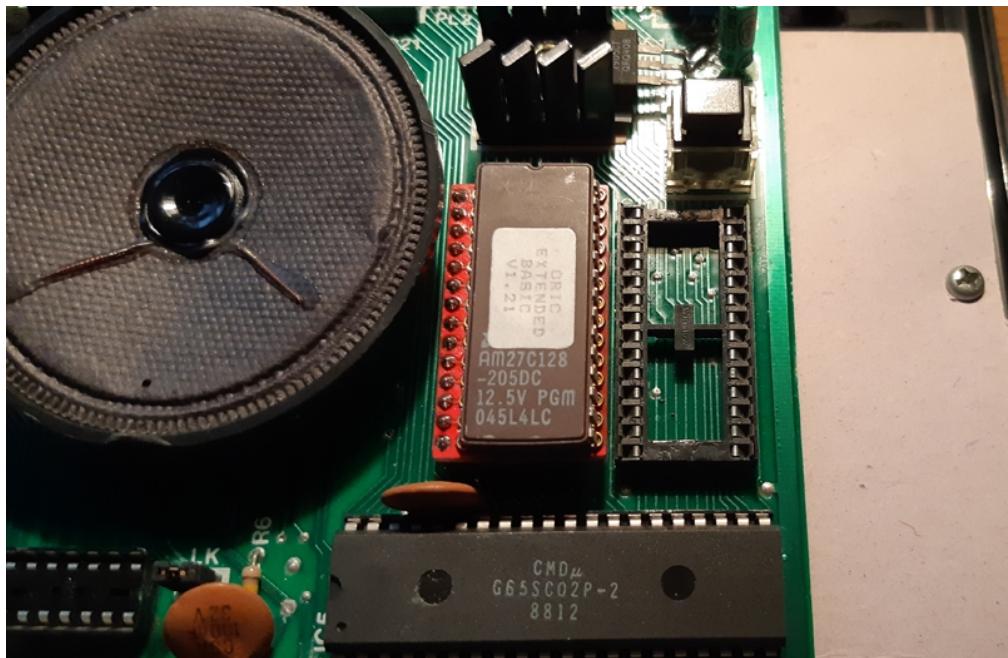
Round receptacles and pin strips soldered



Finished EprOrics with Pico-Gates



EprOric connected on the Oric ROM socket



EPROM connected to EprOric

SCHEMATIC DIAGRAM AND DESIGN OF THE PCB

1 2 3 4 5 6 7 8 9 10

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B

C

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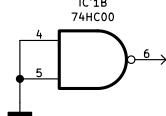
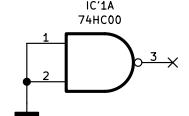
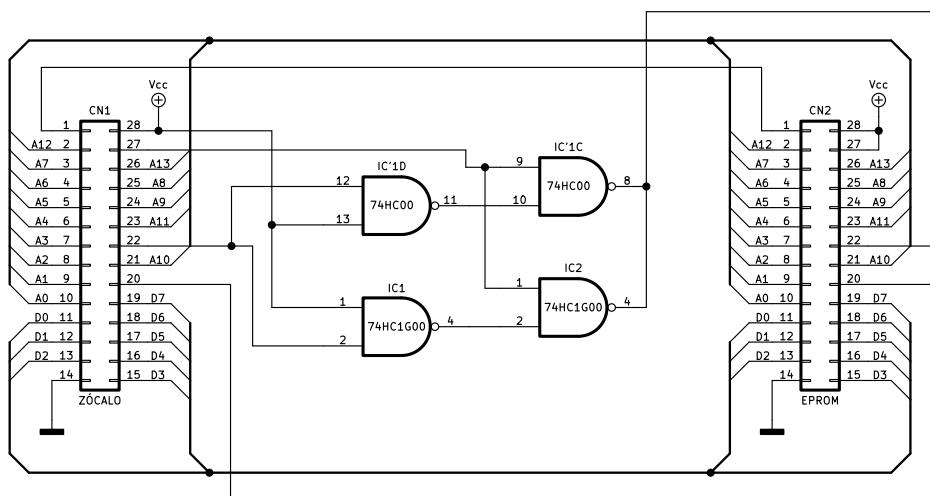
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DIBUJADO POR	SILICEBIT	DISEÑADO POR	REVISIÓN
FECHA	19-02-2022	SILICEBIT	A
DISEÑO NÚMERO			HOJA
OE	EPRORIC		
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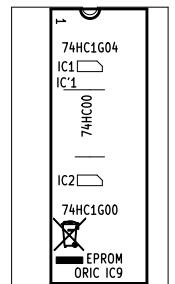
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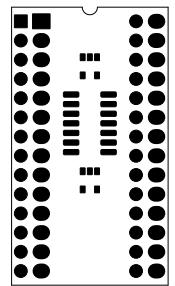
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OE		EPRORIC	1/1

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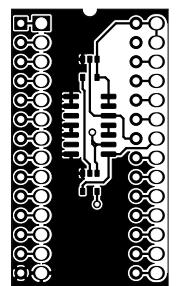
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FECHA	19-02-2022	SILICEBIT	A
DISEÑO NÚMERO			HOJA
OE		EPRORIC	1/1

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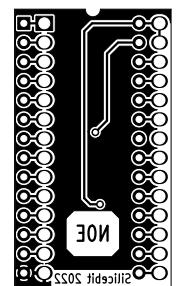
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OE		EPRORIC	1/1

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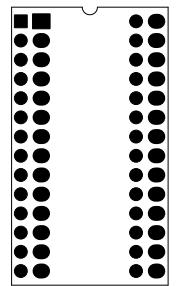
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DIBUJADO POR	SILICEBIT	DISEÑADO POR	REVISIÓN
FECHA	19-02-2022	SILICEBIT	A
DISEÑO NÚMERO			HOJA
OE	EPRORIC		1/1

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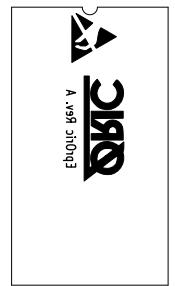
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DIBUJADO POR	SILICEBIT	DISEÑADO POR	REVISIÓN
FECHA	19-02-2022	SILICEBIT	A
DISEÑO NÚMERO			HOJA
OE		EPRORIC	1/1

EprOric Rev.A COMPONENTS		
QUANTITY	REFERENCE	DESCRIPTION
SEMICONDUCTORS		
1	IC1	74HC1G04GV or NC7S04M5 or NC7SZ04M5, (74HC1G00GV or NC7S00M5 or NC7SZ00M5) ¹
1	IC2	74HC1G00GV or NC7S00M5 or NC7SZ00M5
1	IC'1	74HC00D ¹
CONNECTORS		
28	--	FEMALE ROUND PIN
2	--	1.27mm PITCH MALE PIN HEADER STRIP

¹ Optional.

1.27mm pitch, male pin header strip: https://es.aliexpress.com/item/4000114140550.html?spm=a2g0o.order_list.0.0.37e2194dETdFWw&gatewayAdapt=glo2esp

Female round pins: https://es.aliexpress.com/item/1005002830101899.html?spm=a2g0o.order_list.0.0.37e2194dETdFWw&gatewayAdapt=glo2esp

Female round receptacle: <https://es.aliexpress.com/item/1005001548490460.html?spm=a2g0o.detail.1000023.15.683fca1a7aldmW&gatewayAdapt=glo2esp>

DISCLAIMER

The author is not responsible for the damage caused to any equipment by a bad performance or improper use of this design.

The author has run tests on one of his own computers, and an EprOric is working permanently on one of them without causing any malfunction on it.