
RE-303 CPU installation

SONIC-POTIONS

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Intro

Thanks for buying the RE-303 CPU. The installation should be quick and painless and you are just a few solder joints away from a working 303! We hope you'll enjoy your new instrument and will bring a little more Acid to these modern times!

Boring legal Disclaimer

We take no responsibility to any damage done to your machine during the installation of this CPU. It is assumed that you have the technical skills needed to do the installation, but any modification on existing machines will happen at your own risk! If in doubt, seek a trained technician.

Parts on the RE-303 board not needed for the RE-CPU

A few parts can be left unpopulated on the RE-303 board when using the new CPU, as they are only needed by the original Roland CPU.

- IC3-5 - μ PD 444 CMOS RAM
- IC2 – MC14556B Dual binary to 1-of-4 decoder
- Yellow Coil
-

Needed Parts

To install the RE-303 CPU the following extra parts are needed:

- Small piece of shrinking tube for the MIDI sockets
- Spring contact IC socket or two 2x21 pin strip sockets with 2.54mm pin spacing

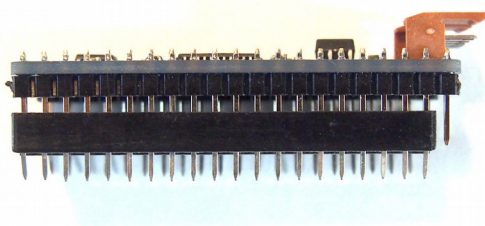
To install the CPU an IC socket is recommended. You can either use a standard IC socket or 2 pin strip sockets. The 21-pin strip sockets or 42-pin IC sockets may be hard to find, but since pin 1 and 42 are not used on the CPU you can also use 2x20 pin strips or a normal 40-pin IC socket.



Needed Parts

The 42-Pin IC socket is the best choice, as it results in the lowest profile of the installed CPU and it will even fit very slim cases. If you are using an original case both solutions will fit perfectly.

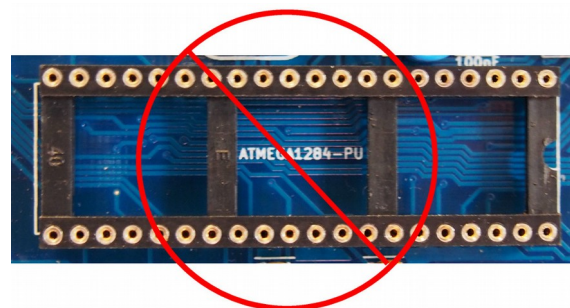
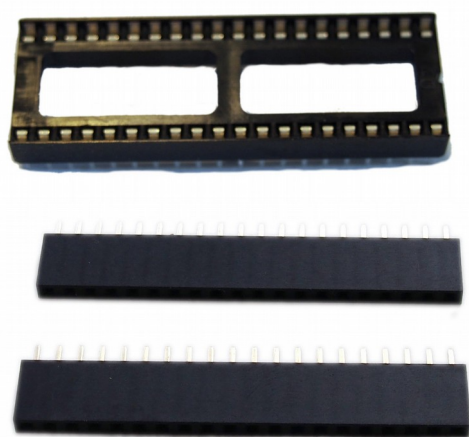
Be aware that **a milled IC socket DOES NOT WORK!** As the pins of the CPU won't fit the milled holes



Example how to use a 20 pin strip socket to mount the CPU. Pin 1 and 42 are not connected.

Here are a few example parts to get the idea:

- 42-Pin IC socket <http://www.tme.eu/de/details/icvt-42p/dip-socket-standard/ninigi/icvt-42p/>
- 40-Pin IC socket <http://www.tme.eu/de/details/icvt-40p/dip-socket-standard/ninigi/icvt-40p/>
- 20-pin strip socket <http://www.tme.eu/gb/details/zl305-20/pin-headers/ninigi/>



- 1 or 2 MIDI jacks (DIN 5-pin connectors) matching your enclosure

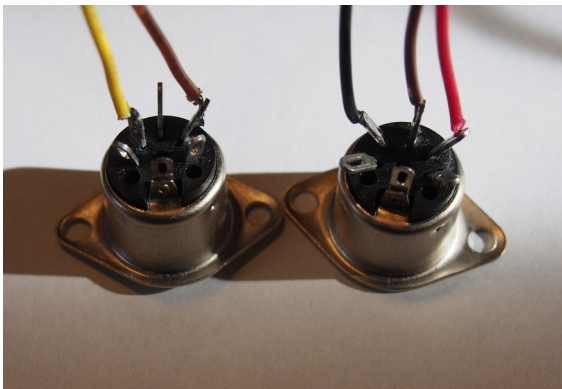
Not much to say here. To use MIDI you'll need some MIDI jacks. Form factor depends on the enclosure you want to use.

Soldering the MIDI connectors

The CPU comes with a detachable rainbow cable to connect the MIDI jacks.

The pinout is:

- Black MIDI Out pin 5
- Brown MIDI Out pin 2
- Red MIDI Out pin 4
- Orange MIDI In pin 4
- Yellow MIDI In pin 5



Normally the MIDI jacks have small (like really small! You need good lighting) numbers printed next to their pins. But here you also have a pic that should make the cabling clear.

Just don't be as sloppy as me and use shrinking tube on the cables.

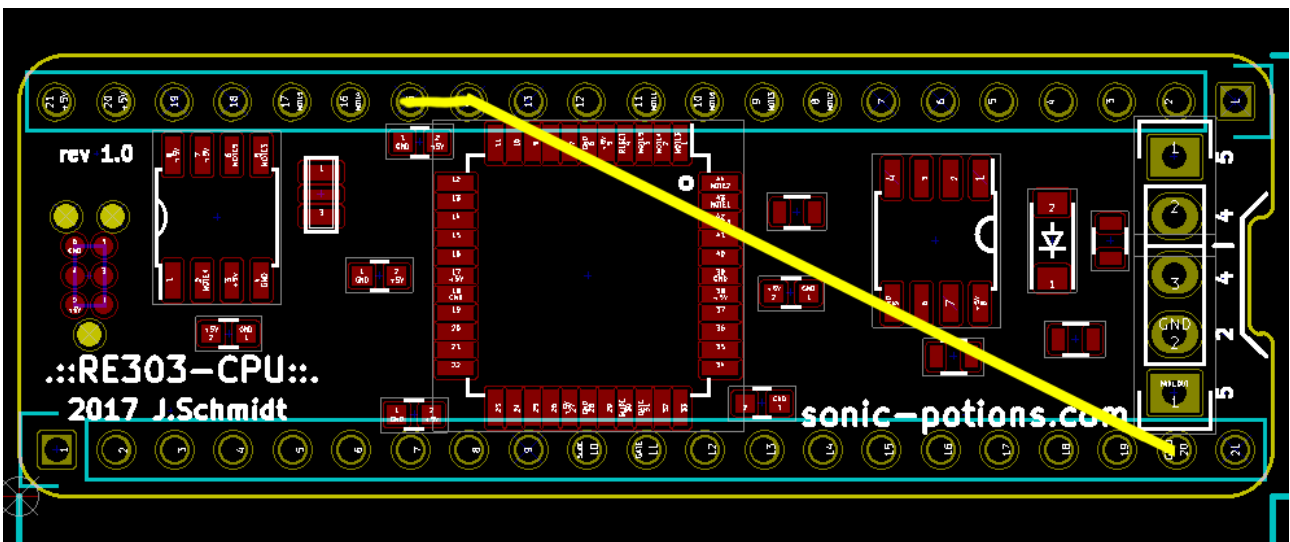


A note for Roland TB-303 users

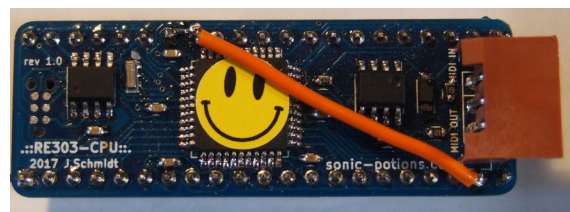
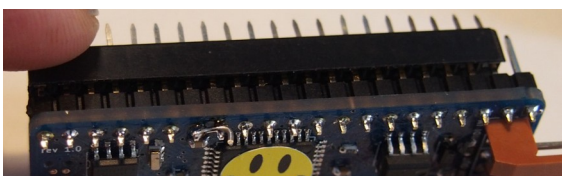
Since the RE-303 is an exact replica of the Roland TB-303, the CPU also works in the vintage machines. If you want to leave the μ PD 444 CMOS RAM in your machine, a small modification to the CPU board might be needed. The CPU was tested in a RE-303 fitted with the μ PD RAM chips and worked like a charm, but the chip select lines of the RAM is floating so you might get other results with another machine. If you get erratic pitch changes, a simple additional cable can fix the problem.

To disable the RAM of the TB-303, pins 14 and 15 of the CPU need to be pulled to GND, so the chip select on the ram chips is inactive. This can be achieved by simply soldering a cable between pin 20 (GND) and pins 14/15

Here is a picture showing the needed connection:



And 2 pictures showing the actual mod:



First connect the 2 pins with a small wire, then add a cable from the GND pin to these pins.

