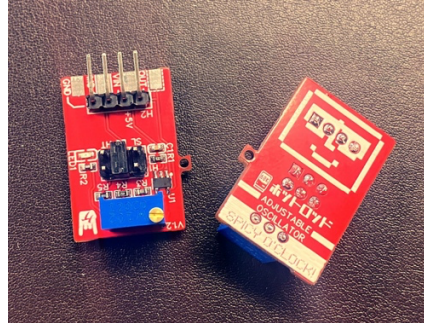




Spicy O' Clock ! instructions



Thank you for purchasing Spicy O'Clock!.

Spicy O'Clock! Is a silicon oscillator unit that can set the clock arbitrarily from 37.6MHz to 51.8MHz developed for 68040 Macintosh. (Actually 1/2 clock because it is doubled by the clock driver MC(XC)88916 on the logic board)

This breakthrough device can generate more stable clocks than crystal oscillators and can be finely clocked in 1/100 Mhz increments during overclocking.

Notes: Please install at your own risk. We are not responsible for any accidents (including death) or malfunctions of other equipment caused by this product.

Soldering work is also required for installation. Please be careful and do not overdo it.

Available models



LC475, LC575 (Mystic), LC630, Quadra (Centris) 650, Quadra 800

For the above models, Spicy O'Clock! Can be used because the MC(XC)88916DW clock driver designed exclusively for 68040 generates twice the clock. In addition to the above (we have not verified), any model using the MC(XC)88916DW can be used.

How to install the available models can be found at the link below:

[LC575\(Mystic\)](#)

<https://ameblo.jp/keroxiee1016/image-12724021953-15068028344.html>

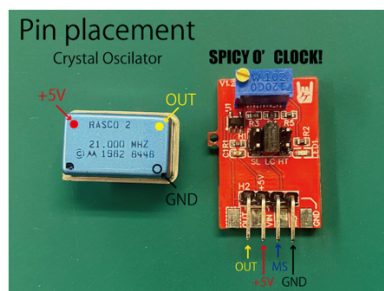
[LC475](#)

<https://ameblo.jp/keroxiee1016/image-12724021953-15068028360.html>

[Quadra \(Centris\) 650, Quadra 800](#)

<https://ameblo.jp/keroxiee1016/image-12724021953-15068028373.html>

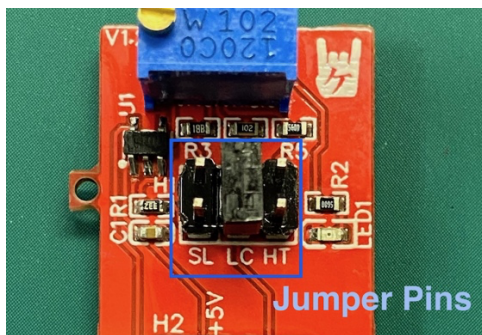
The figure below is a comparison of the pin arrangement of the crystal oscillator and Spicy O'Clock!



MS is probe point for measuring resistance when determining frequency.

How to set the clock

Spicy O' Clock! Has three modes with different variable ranges. The following settings can be made by replacing the jumper pins.



1: SL Mode 37.96MHz to 41.76MHz

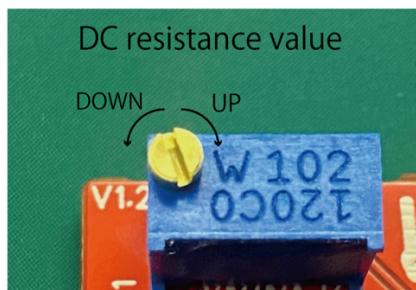
2: LC Mode 41.79MHz to 46.48MHz

3: HT Mode 45.9MHz to 51.49MHz

SL Mode is a low level overclocking mode. It is used when the CPU is not tolerant or when overclocking is restricted due to the upper limit of the clock driver. The minimum is set to 37.96 because when combined with a 40MHz CPU of 68040, 38MHz works without problems even without VRAM replacement.

LC Mode matches a standard Mac 040 / 40MHz CPU. This range is recommended because the LC575 (LC475 with a replaced clock driver) has a limit of about 42.7 to 42.8MHz.

HT Mode is specialized for machines that can support 43MHz or higher with some modification. Even in this case, it is difficult to raise it above 50MHz, so we set the limit to 51.49MHz.

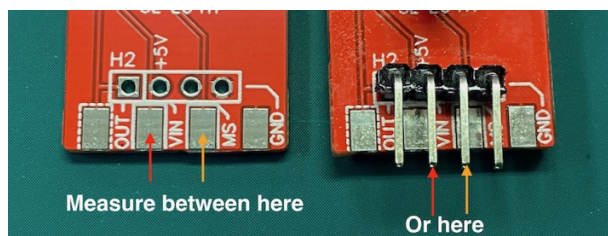


The variable resistance trimmer can be set to any frequency by simply setting the resistance measurement mode of the multimeter and measuring the number of ohms without using a frequency measuring instrument.

Variable resistance setting(Frequency setting)

Measure the DC resistance between V (+ 5V) and MS (Measurement Probe Point) with the Spicy O'Clock not energized. The calculation formula is as follows.

Notes: Measure with the power of Spicy O'Clock! Off.



*It is also possible to solder directly to the pad on the PCB without using pins.



CPU clock speed = $200 / (\text{Measured Resistance in } k\Omega + 3.3)$



I made an Excel macro with the formula I made, but [Stephen Arsenault](#) made it a web version on his page and remade it. You can raise or lower it with the slider, so please try it.

[Link here](#)

<https://stephen-arsenault.github.io>

Notes: This formula is a theoretical value. Please note that the values may vary depending on the usage conditions and individual differences. We also know that if your Mac has a high clock, the resistance will shift in the lower direction. A frequency counter is recommended if you want to set up for a high clock.

Lowest CPU Clock EXAMPLE ($R=2.3k\Omega$) :

$$200 / (2.3 + 3.3) = 35.7\text{MHz}$$

CPU clock (MHz) DC resistance between probes (Ohm)

35.7 2.3K

36.2 2.2K

37.0 2.1K

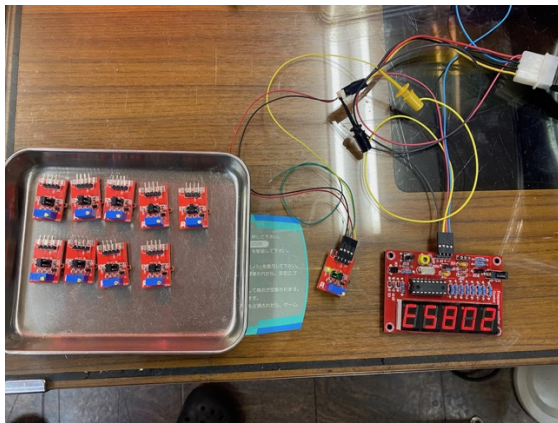
37.6 2.0K

38.4 1.9K

39.2	1.8K
40.0	1.7K
40.8	1.6K
41.6	1.5K
42.5	1.4K
43.4	1.3K
44.4	1.2K
45.4	1.1K
46.4	1.0K
47.6	0.9K
48.6	0.8K
50.0	0.7K
51.2	0.6K

Of course, the variable resistor can be adjusted steplessly, so the frequency can be changed in 1/100 MHz units.

Setting method using frequency counter



You can also set it while looking at the actual clock by using an inexpensive frequency counter made in China. I don't sell this so you have to buy the kit yourself and assemble it yourself.

You can buy it at the link below, but I have no commercial causality to the kit itself.

I think [this product](#) is well made, but I'm not confident of selling a complete Chinese product.

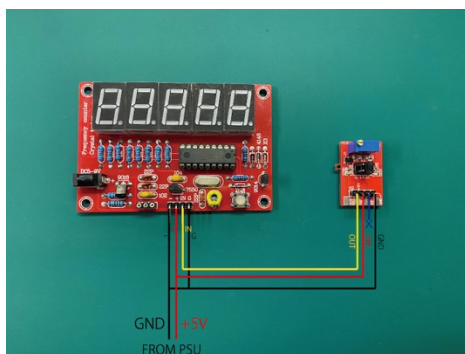
So unfortunately it is not available in my shop. I assembled it twice, but I can measure it at the rated value without any problem. There is no assembly manual, but the constants are written on the PCB with silk screen, so solder them as clues.



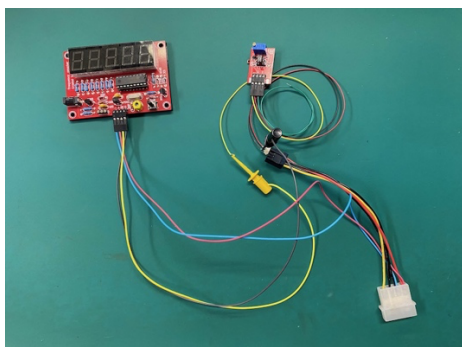
<https://www.ebay.com/itm/-/284341261618>

The wiring diagram when using this is as follows. Spycy O' Clock! It must be measured with the power supplied at the same time.

I made a dedicated wiring and wired it according to the pic below. At this time, I am using a 4-pin power supply for external HD, but of course I do not use 12V.



Set so that the actually measured MHz value is 1/2 of the CPU value. If the CPU is 40Mhz, Spicy O' Clock will be 20MHz.



You can also start the Mac with this attached and measure the frequency.

This little Spicy O'Clock is revolutionizing 68K overclocking. You can safely and stably obtain the correct frequency by freely changing the frequency, which was not possible until now.

We sincerely hope that this little device can be used effectively for your overclocking and repairs...

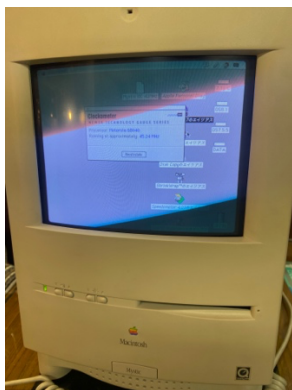
Special thanks to [Stephen Arsenault](#) for designing this amazing little PCB from my circuit design.

<https://github.com/Stephen-Arsenault>

Then, a good tester [JDW](#), gave me a lot of data.

<https://www.youtube.com/c/JDW11>

Thank you very much. I would also like to thank Drake for his early report.



Mystic with Spicy O' Clock, 45.24MHz...

Tinker Different Page:

<https://tinkerdifferent.com/forums/keros-mac-mods.193/>

My blog:

<https://ameblo.jp/keroxee1016>

Web site:

<https://www.kerosmm.com>

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