Clock Modder

Peter Cat Productions

What is this thing?

Clock Modder is a simple, tunable mod board that makes installing an LTC1799 mod super easy!

These chips are great for adding pitch bends to anything from toys to SK-1s, but SMD soldering and Circuit Bending don't usually go together. I offer a Pre-Built version so you can do a clock mod without having to invest in the gear/parts, and a PCB Only version if you have all the stuff and just want something to make the connections a bit easier/more stable.

How do I hook it up?

PCB Only Version:

Install LTC1799

The PCB version doesn't include any components! You'll need to solder your own LTC1799 onto the pad with 5 connectors.

Install 100nF Capacitor

Insert a 100nF Capacitor into the labeled connector and solder in place. This component isn't strictly necessary depending on how clean the power you're supplying is, but a little power filtering never hurts. That's all this capacitor is for, so you can probably flub the value by a good bit. I use Film Caps in the Pre-Built version, but you can definitely get away with cheapos/ceramics.

All Versions:

Connect the Power and Ground

You can usually find a decent 5v supply somewhere on the board of your project. There's a lot of ways to skin this cat, so I'll just keep it simple:
- Connect the V+ Pin to a 5 volt power source.
- Connect the GND pin to ground.

Connect the Rate Control

- Install a potentiometer between the RT1 and RT2 pins.
- Typically attach RT1 to the rightmost pin of the pot (when viewed from the front) and RT2 to the center pin. (You can change this to your liking; as long as one of the rate pins is on the center pin of the pot you can't really do it wrong).
- I recommend a Linear potentiometer, but any kind will work.
- Start with a pot value around 100k. As you turn the rate down, if your project begins to glitch and crash too quickly, try a smaller value. If it doesn't slow down enough, try a higher value. Experiment until you have a control that feels right for your project.

Connect the Clock Out

- Connect the Clock Out to the input on your project.
- Typically you'll install with a switch that lets you toggle between the on-board clock and your mod:
  - Connect the Clock Input from your project to the common pin of the switch.
  - Connect the Clock Out from your project to one side of the switch (you may need to cut a trace to isolate it).
  - Connect the Clock Out from the Clock Modder to the other side of the switch.

What's a Trim Resistor, and how do I use it?

A Trim Resistor lets you put a minimum control resistance in place. That way your Rate Control can't crank up the LTC1799 too high and crash your project.

Finding the Trim Value

- Once connected, turn your Rate Control up until your project begins to glitch and crash.
- Check the resistance between the two pins you used on your Rate Control Pot.
- This is the approximate value resistor you need. To be safe, round up to the nearest value you have handy. Remember, you can also stack resistors in series to create odd values to really fine tune things.
- Experiment! I recommend using alligator clips/breadboarding to tweak the value until the control feels right!

Installing the Trim Resistor

- Cut the trace between the two resistor connectors (marked with a scissor icon):
- Insert the resistor and solder in place (you may want to temporarily put wires/breadboard connections in place to try out different resistor values before committing)

What's this hole that says DIV?

The DIV Pin controls the overall speed of the LTC1799. It comes Grounded which has the chip operating at the fastest speed, which works for most things I've tried personally. But you can either leave the pin open to decrease the speed 10x or connect it to V+ to decrease the speed 100x.

The only time I've had to do that was with the Meowsic keyboards with the little silver cylinder crystal which needs this pin jumpered to V+. But if your project needs it, it's super easy to do!

- If you need it Grounded, don't do anything! It's already connected to Ground!
- If you need to change it, cut the trace on the back of the board leading to the DIV connector (marked with a scissor icon):
- Jumper the connector to either V+ or leave open.