Mine, after editing, looked like this:

```
cpulimit -l 580 -b ghb
```

The -l 580 switch sets the maximum CPU load made available to the program it will call. (That is not -I. It's a “minus lowercase ell”.)

The -b switch puts the target program (ghb is Handbrake) in the background.

(I had previously appended %f at the end of this command string for some reason. **parnote** was kind enough to point out that %f is an Xfce parameter that means the launcher is expecting a source file name. Since Handbrake needs to scan the source, usually a DVD, and has a special mechanism for this, it's not really needed.)

A note about cpulimit's -l switch values. Each CPU is limited over a scale from 0 (don't use) to 100 (gimme all you've got). My machine is a quad-core Xeon with Hyperthreading enabled, so it presents as 4 real and 4 virtual cores (threads). That's a total of 8 cores as far as cpulimit is concerned.

Eight times 100 yields 800, which represents the total work output of all “cores”. So the value 580 means that cpulimit throttles Handbrake to 580/800 or 72.5% of the Xeon's total output. I determined this value by trial and error, after testing and observation, as the best compromise between thermal control and good performance. You, if you are going to use cpulimit, should get to know your hardware so you can set up reasonable values for the -l switch.

With this setup there is one drawback: If you do an “open with Handbrake” without using the Launcher shortcut, all your limits are no longer in play, Handbrake will be the greedy little CPU hog it is once more, and things may get hotter than you'd like.

(**Mauro** was kind enough to mention that making the ghb command that starts Handbrake into an alias can resolve this problem. I should have realized this: I've used aliases in the distant past. Thanks, man.)

To create the alias, I edited the file ~/.bashrc, adding this line and a carriage return to the end of the existing file, then saving:

```
alias ghb='cpulimit -l 580 -b ghb'
```

I encountered high temperatures this afternoon (06 Sep 2024) on a ripping job, and looking at what happened, I decided to undo this alias. Here's why:

The original alias line added to my ~/.bashrc was:

```
alias ghb='cpulimit -l 580 -b ghb'
```

What I believe may be taking place is a circular reference: the alias ghb refers to the program ghb. Until I can figure out what I'm doing incorrectly here, I have retreated to using the command:

```
cpulimit -l 580 -b ghb
```

from my Handbrake Launcher.

~~This makes the alias local to my user, and means the Launcher command should now be edited to just say ghb, and cpulimit will be invoked with its settings. It also means that any invocation of ghb from my user will likewise observe those settings.~~

(For more on using aliases, see: Linux Alias Command Note that the author of this article refers to single quotes as “inverted commas”, and may not be a native speaker of English, but the info there is good.)

How does cpulimit do all this? I could tell you what little I know (basically in the package description above), but that is not likely to be useful. I'm usually more interested in the results, and it does work. The best I can tell from what I've observed using it like this for about a month is that cpulimit acts in some way to make the load on the entire CPU a bit more balanced. CPU Zero is still the hottest of the lot, but is much better behaved, with peak temperatures running somewhere from 160 F to about 180 F with occasional spikes to 187 F [86 C] (highest observed so far). That little Xeon is tough — she can handle it.

The trade-off is that the ninety-minute movie rip I mentioned earlier that took about 30 minutes got about 4 to 6 minutes longer. Small tradeoff for extended system life, at least to me.

Here's hoping cpulimit works for you. Its manpage is not in the PCLinuxOS man-pages package. It may be found online, here.