

Re: Why do CPUs run hotter...?

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- *From:* "Roger" <irwin@xxxxxx>
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mc wrote:

Why does a Pentium CPU run hotter when "working hard" (executing complex software) than when the OS is idling?

It is always executing **some** instruction, and in that sense, is never idle.

I understand that CMOS gates dissipate power only when changing state. I **presume** what's going on is that when the CPU is executing software, it is executing a greater variety of machine instructions and therefore heating up a larger proportion of the circuitry in the chip (since there is special circuitry for each kind of instruction).

Am I on the right track? This is one of those dumb questions where I'd like to know the exact answer, rather than just guessing.

1) Yes you are on the right track as idling will only involve regurgitating a few instructions in the cache and will require less use of CPU cct's.

2) The OS can throttle back the CPU when it is lightly loaded (mostly used on portables)

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