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Bringing Energy-Aware Scheduling to x86

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Energy-Aware Scheduling (EAS) is not a straight fit for x86 hybrid processors. Thus, x86 hybrid processors do not make use of EAS yet. A large range of turbo frequencies, inter-CPU dependencies, simultaneous multithreading, and instruction-specific differences in throughput makes it difficult to feed the scheduler with a simple, timely, accurate model of CPU capacity.

Dependencies between CPUs and other on-chip components makes it difficult to create an energy model. The widespread use of hardware-controlled frequency-scaling on systems based on Intel processors needs to be reconciled with a model in which the kernel controls the operating point of the CPU.

The goal of this talk is to discuss the level of support from hardware, the challenges of EAS on x86, and proposed solutions to provide simple capacity and energy models that are sufficiently accurate for the scheduler to use.

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Yes

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