NAME
est - Enhanced Speedstep Technology

SYNOPSIS
To compile this capability into your kernel place the following line in your kernel configuration file:

device cpufreq

DESCRIPTION
The **est** interface provides support for the Intel Enhanced Speedstep Technology.

Note that **est** capabilities are automatically loaded by the cpufreq(4) driver.

LOADER TUNABLES
The **est** interface is intended to allow cpufreq(4) to access and implement Intel Enhanced SpeedStep Technology via acpi(4) and the acpi_perf interface accessors. If the default settings are not optimal, the following sysctls can be used to modify or monitor **est** behavior.

hw.est.msr_info
>   Attempt to infer information from direct probing of the msr. Should only be used in diagnostic cases. (default 0)

hw.est.strict
>   Validate frequency requested is accepted by the CPU when set. It appears that this will only work on single core cpus. (default 0)

SYSCTL VARIABLES
The following sysctl(8) values are available

dev.est.%d.%desc
>   Description of support, almost always Enhanced SpeedStep Frequency Control.

dev.est.0.%desc: Enhanced SpeedStep Frequency Control

dev.est.%d.%driver
>   Driver in use, always est.

dev.est.0.%driver: est

dev.est.%d.%parent

The CPU that is exposing these frequencies. For example *cpu0*.

dev.est.0.%parent: cpu0

dev.est.%d.freq_settings.
    The valid frequencies that are allowed by this CPU and their step values.

dev.est.0.freq_settings: 2201/45000 2200/45000 2000/39581 1900/37387
    1800/34806 1700/32703 1600/30227 1500/28212 1400/25828 1300/23900 1200/21613
    1100/19775 1000/17582 900/15437 800/13723

DIAGNOSTICS
est%d: <Enhanced SpeedStep Frequency Control> on cpu%d

Indicates normal startup of this interface.

est: CPU supports Enhanced Speedstep, but is not recognized.
est: cpu_vendor GenuineIntel, msr 471c471c0600471c
device_attach: est%d attach returned 6

Indicates all attempts to attach to this interface have failed. This usually indicates an improper BIOS
setting restricting O/S control of the CPU speeds. Consult your BIOS documentation for more details.

COMPATIBILITY
est is only found on supported Intel CPUs.

SEE ALSO
cpufreq(4)

Intel 64 and IA-32 Architectures Software Developer Manuals,
http://www.intel.com/content/www/us/en/processors/architectures-software-developer-manuals.html.

AUTHORS
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