NAME

acpi_thermal - ACPI thermal management subsystem

SYNOPSIS

device acpi

DESCRIPTION

The **acpi_thermal** driver provides the thermal management features of the ACPI module. This driver has a sysctl(8) interface and a devd(8) notification interface. The sysctls export properties of each ACPI thermal zone object.

There can be multiple thermal zones in a system. For example, each CPU and the enclosure could all be separate thermal zones, each with its own setpoints and cooling devices. Thermal zones are numbered sequentially in the order they appear in the AML.

The **acpi_thermal** driver also activates the active cooling system according to each thermal zone's setpoints.

SYSCTL VARIABLES

hw.acpi.thermal.min_runtime

Number of seconds to continue active cooling once started. A new active cooling level will not be selected until this interval expires.

hw.acpi.thermal.polling_rate

Number of seconds between polling the current temperature.

hw.acpi.thermal.user_override

If set to 1, allow user override of various setpoints (below). The original values for these settings are obtained from the BIOS and system overheating and possible damage could occur if changed. Default is 0 (no override).

hw.acpi.thermal.tz%d.active

Current active cooling system state. If this is non-negative, the appropriate _AC%d object is running. Set this value to the desired active cooling level to force the corresponding fan object to the appropriate level.

hw.acpi.thermal.tz%d.passive_cooling

If set to 1, passive cooling is enabled. It does cooling without fans using cpufreq(4) as the mechanism for controlling CPU speed. Default is enabled for tz0 where it is available.

hw.acpi.thermal.tz%d.thermal_flags
Current thermal zone status. These are bit-masked values.

hw.acpi.thermal.tz%d.temperature
Current temperature for this zone.

hw.acpi.thermal.tz%d._PSV
Temperature to start passive cooling by throttling down CPU, etc. This value can be overridden by the user.

hw.acpi.thermal.tz%d._CR3
Temperature to start critical suspend to RAM (S3). This value can be overridden by the user.

hw.acpi.thermal.tz%d._HOT
Temperature to start critical suspend to disk (S4). This value can be overridden by the user.

hw.acpi.thermal.tz%d._CRT
Temperature to start critical shutdown (S5). This value can be overridden by the user.

hw.acpi.thermal.tz%d._ACx
Temperatures at which to switch to the corresponding active cooling level. The lower the _ACx value, the higher the cooling power.

All temperatures are printed in Celsius. Values can be set in Celsius (by providing a trailing "C") or Kelvin (by leaving off any trailing letter). When setting a value by sysctl(8), do not specify a trailing decimal (i.e., 90C instead of 90.0C).

NOTIFIES

Notifies are passed to userland via devd(8). See */etc/devd.conf* and devd.conf(5) for examples. The **acpi_thermal** driver sends events with the following attributes:

system	ACPI
subsystem	Thermal
type	The fully qualified thermal zone object path as in the ASL.
notify	An integer designating the event:

0x80	Current temperature has changed.
0x81	One or more trip points (_ACx, _PSV) have changed.
0x82	One or more device lists (_ALx, _PSL, _TZD) have changed.
0xcc	Non-standard notify that the system will shutdown if the temperature stays above

_CRT or _HOT for one more poll cycle.

SEE ALSO

acpi(4), cpufreq(4), acpidump(8)

AUTHORS

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