

Kernel driver k10temp

Supported chips:

* AMD Family 10h processors:

Socket F: Quad-Core/Six-Core/Embedded Opteron (but see below)

Socket AM2+: Quad-Core Opteron, Phenom (II) X3/X4, Athlon X2 (but see below)

Socket AM3: Quad-Core Opteron, Athlon/Phenom II X2/X3/X4, Sempron II

Socket S1G3: Athlon II, Sempron, Turion II

* AMD Family 11h processors:

Socket S1G2: Athlon (X2), Sempron (X2), Turion X2 (Ultra)

Prefix: 'k10temp'

Addresses scanned: PCI space

Datasheets:

BIOS and Kernel Developer's Guide (BKDG) For AMD Family 10h Processors:

http://support.amd.com/us/Processor_TechDocs/31116.pdf

BIOS and Kernel Developer's Guide (BKDG) for AMD Family 11h Processors:

http://support.amd.com/us/Processor_TechDocs/41256.pdf

Revision Guide for AMD Family 10h Processors:

http://support.amd.com/us/Processor_TechDocs/41322.pdf

Revision Guide for AMD Family 11h Processors:

http://support.amd.com/us/Processor_TechDocs/41788.pdf

AMD Family 11h Processor Power and Thermal Data Sheet for Notebooks:

http://support.amd.com/us/Processor_TechDocs/43373.pdf

AMD Family 10h Server and Workstation Processor Power and Thermal Data Sheet:

http://support.amd.com/us/Processor_TechDocs/43374.pdf

AMD Family 10h Desktop Processor Power and Thermal Data Sheet:

http://support.amd.com/us/Processor_TechDocs/43375.pdf

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Description

This driver permits reading of the internal temperature sensor of AMD Family 10h and 11h processors.

All these processors have a sensor, but on those for Socket F or AM2+, the sensor may return inconsistent values (erratum 319). The driver will refuse to load on these revisions unless you specify the "force=1" module parameter.

Due to technical reasons, the driver can detect only the mainboard's socket type, not the processor's actual capabilities. Therefore, if you are using an AM3 processor on an AM2+ mainboard, you can safely use the "force=1" parameter.

There is one temperature measurement value, available as `temp1_input` in `sysfs`. It is measured in degrees Celsius with a resolution of 1/8th degree. Please note that it is defined as a relative value; to quote the AMD manual:

Tctl is the processor temperature control value, used by the platform to control cooling systems. Tctl is a non-physical temperature on an arbitrary scale measured in degrees. It does not represent an actual physical temperature like die or case temperature. Instead, it specifies

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the processor temperature relative to the point at which the system must supply the maximum cooling for the processor's specified maximum case temperature and maximum thermal power dissipation.

The maximum value for Tctl is available in the file templ_max.

If the BIOS has enabled hardware temperature control, the threshold at which the processor will throttle itself to avoid damage is available in templ_crit and templ_crit_hyst.