

PowerNow! and Cool'n'Quiet are AMD names for frequency management capabilities in AMD processors. As the hardware implementation changes in new generations of the processors, there is a different cpu-freq driver for each generation.

Note that the driver's will not load on the "wrong" hardware, so it is safe to try each driver in turn when in doubt as to which is the correct driver.

Note that the functionality to change frequency (and voltage) is not available in all processors. The drivers will refuse to load on processors without this capability. The capability is detected with the cpuid instruction.

The drivers use BIOS supplied tables to obtain frequency and voltage information appropriate for a particular platform. Frequency transitions will be unavailable if the BIOS does not supply these tables.

6th Generation: powernow-k6

7th Generation: powernow-k7: Athlon, Duron, Geode.

8th Generation: powernow-k8: Athlon, Athlon 64, Opteron, Sempron. Documentation on this functionality in 8th generation processors is available in the "BIOS and Kernel Developer's Guide", publication 26094, in chapter 9, available for download from www.amd.com.

BIOS supplied data, for powernow-k7 and for powernow-k8, may be from either the PSB table or from ACPI objects. The ACPI support is only available if the kernel config sets CONFIG_ACPI_PROCESSOR. The powernow-k8 driver will attempt to use ACPI if so configured, and fall back to PST if that fails.

The powernow-k7 driver will try to use the PSB support first, and fall back to ACPI if the PSB support fails. A module parameter, `acpi_force`, is provided to force ACPI support to be used instead of PSB support.