Calculate Linux - Feature # 81: CLD 10 default kernel does not support any cpu energy-saving features.

Status:	Closed	**Priority:**	High
Author:	Vladimir Berkut	**Category:**	Calculate Linux
Created:	01/22/2010	**Assignee:**	
Updated:	01/14/2011	**Due date:**	
Subject:	CLD 10 default kernel does not support any cpu energy-saving features.		

Description:

Please build conservative governor into kernel (or provide it to load as default governor, leaving it as module), because it will immensely reduce energy consumption on modern multicore or mobile devices.

CLD 10 default CPU governor is "performance" and is built-in. Perfomance just leaves system 100% running regardless of load.
Other governors (especially "conservative" and "on-demand") are done as modules,
@------
config-2.6.31-gentoo-r6:
CONFIG_CPU_FREQ_GOV_PERFORMANCE=y
CONFIG_CPU_FREQ_GOV_POWERSAVE=m
CONFIG_CPU_FREQ_GOV_USERSPACE=m
CONFIG_CPU_FREQ_GOV_ONDEMAND=m
CONFIG_CPU_FREQ_GOV_CONSERVATIVE=m
------@
but are not loaded (maybe due to all cpufreq drivers done as modules):
@------
CONFIG_X86_ACPI_CPUFREQ=m
CONFIG_X86_POWERNOW_K8=m
CONFIG_X86_SPEEDSTEP_CENTRINO=m
CONFIG_X86_P4_CLOCKMOD=m
------@

This results in default system to run on top performance, regardless of load, without utilization of cpu energy saving features. This may be disaster for core i7 series or mobile/server cpus in matter of energy cost (didnt have it at hand), and on c2d E5300 system results in 30% more energy consumption(70Watt vs 96Watt, perfomance vs conservative, measured on-spot with device). http://dpaste.org/nBU5/

Currently this steps are needed to turn "conservative" governor(switches far less often than on-demand) on, on dual cpu systems:
(once)# emerge cpufreq
#modprobe acpi-cpufreq
#modprobe cpufreq_conservative cpufreq_ondemand
(core 1)#cpufreq-set -c 0 -g conservative
(core 2)#cpufreq-set -c 1 -g conservative

Or you have to manually recompile the kernel.
Please make power-management available out-of-the-box.

Otherwise systems will not be able to go beyond C1.

History

01/14/2011 10:13 am - Alexander Tratsevskiy

- Status changed from New to Closed

- % Done changed from 0 to 100

In the Calculate Linux 10.9 and above is supported by setting cpufreq.