



Contribution ID: 36

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Power Management and Thermal Control Micro-conference

The Power Management and Thermal Control Microconference focuses on power management and thermal control infrastructure, CPU and device power-management mechanisms, and thermal control methods. In particular, we are interested in improving the thermal control infrastructure in the kernel to cover more use cases and utilizing energy-saving opportunities offered by modern hardware in new ways.

The goal is to facilitate cross-framework and cross-platform discussions that can help improve energy-awareness and thermal control in Linux.

Prospective topics:

- Idle injection and soft IRQs. (Srinivas Pandruvada)
<https://lore.kernel.org/linux-pm/20221215184300.1592872-1-srinivas.pandruvada@linux.intel.com>
<https://lore.kernel.org/linux-pm/abcc6689c283bbe91b6fd16572cfd4a8d5e78cc6.camel@linux.intel.com>
- Thermal sysfs/API update: are we happy with the current framework? (Srinivas Pandruvada)
<https://lore.kernel.org/linux-pm/abcc6689c283bbe91b6fd16572cfd4a8d5e78cc6.camel@linux.intel.com>
- A way to define additional private attributes for a thermal zone. (Srinivas Pandruvada)
<https://lore.kernel.org/linux-pm/abcc6689c283bbe91b6fd16572cfd4a8d5e78cc6.camel@linux.intel.com>
- intel_lpm - Intel Low Power Mode Daemon. (Zhang Rui)
<https://lore.kernel.org/linux-pm/717fd5f97da6fd3ac6fa323220ab4a948db1a174.camel@intel.com>
- Energy-efficiency API for scheduling tasks. (Len Brown)
<https://lpc.events/event/16/contributions/1276/>
- Thermal infrastructure for debugfs + clean up the sysfs debug-related information. (Daniel Lezcano)
<https://lore.kernel.org/linux-pm/745b8b17-af4d-e8e1-83c1-89d600e7cd19@linaro.org>
- New thermal trip types. (Daniel Lezcano)
<https://lore.kernel.org/linux-pm/745b8b17-af4d-e8e1-83c1-89d600e7cd19@linaro.org>
- Thermal management with the time dimension taken into account. (Daniel Lezcano)
<https://lore.kernel.org/linux-pm/745b8b17-af4d-e8e1-83c1-89d600e7cd19@linaro.org>
- Step-wise thermal governor improvements. (Daniel Lezcano)
<https://lore.kernel.org/linux-pm/745b8b17-af4d-e8e1-83c1-89d600e7cd19@linaro.org>
- ACPI extensions for device DVFS. (Sudeep Holla)
<https://lore.kernel.org/linux-pm/20230525091844.tbxrk5gcwr2lppfo@bogus>
- uclamp in CFS: Fairness, latency, and energy efficiency. (Morten Rasmussen)
<https://lore.kernel.org/linux-pm/ZHcebApf6WCPMxPa@R5WKVNH4JW>
- Support multiple system wide low power states. (Ulf Hansson)
<https://lore.kernel.org/linux-pm/CAPDyKfPeLcH53A+jRwU41aHs48zhSA54aSrTmHASWxPofaU-tg@mail.gmail.com>

All of the topics listed above can benefit from face-to-face discussions at the LPC, especially as far as the time needed to reach the consensus is concerned for at least some of them.

The specific list of topics will be determined through the CFP for this microconference.

The list of key participants for this microconference is as follows: Srinivas Pandruvada, Zhang Rui, Daniel Lezcano, Len Brown, Morten Rasmussen, Ulf Hansson, Sudeep Holla, Peter Zijlstra, Rafael Wysocki.

Since LPC 2022 we have been focusing mostly on the thermal zone device registration improvements (Unified structure for thermal zone device registration) which comprised several patch series submissions and pull requests:

- <https://lore.kernel.org/linux-pm/72fcddd3-0429-4e23-ab68-2a502f451966@linaro.org>
- <https://lore.kernel.org/linux-pm/20230120231530.2368330-1-daniel.lezcano@linaro.org>
- <https://lore.kernel.org/linux-pm/20230123152756.4031574-1-daniel.lezcano@linaro.org>
- <https://lore.kernel.org/linux-pm/5916342.IOV4Wx5bFT@kreacher>
- <https://lore.kernel.org/linux-pm/20230203173331.3322089-1-daniel.lezcano@linaro.org>
- https://lore.kernel.org/linux-pm/CAJZ5v0jXnjq+zRcsvUfuS=-5brPEdXw-BrFvkD8jR7kQ_ob_ww@mail.gmail.com
- <https://lore.kernel.org/linux-pm/20230223224844.3491251-1-daniel.lezcano@linaro.org>
- <https://lore.kernel.org/linux-pm/ab323c72-61f9-9ac6-48ce-366f62e82091@linaro.org>
- <https://lore.kernel.org/linux-pm/CAJZ5v0h7z2iy5M+eWoA6M23rYfZ+OS54FVDjWmGNze4fR45EmA@mail.gmail.com>

We have also done some work on scale-invariance improvements in accordance with an LPC 2022 topic Frequency-invariance gaps in current kernel:

- <https://lore.kernel.org/linux-pm/20220407234258.569681-1-yu.c.chen@intel.com>
- <https://lore.kernel.org/linux-pm/20220415133356.179706384@linutronix.de>

Moreover, following an LPC 2022 topic Linux per cpu idle injection, the Intel powerclamp driver has been improved to allow more fine-grained idle injection based on the generic power-capping idle-injection mechanism:

- <https://lore.kernel.org/linux-pm/20230201182854.2158535-1-srinivas.pandruvada@linux.intel.com>
- <https://lore.kernel.org/linux-pm/20230207173219.4190013-1-srinivas.pandruvada@linux.intel.com>
- <https://lore.kernel.org/linux-pm/20230117182240.2817822-1-srinivas.pandruvada@linux.intel.com>
- https://lore.kernel.org/linux-pm/CAJZ5v0jXnjq+zRcsvUfuS=-5brPEdXw-BrFvkD8jR7kQ_ob_ww@mail.gmail.com

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Track Classification: LPC Microconference Proposals