Power and Performance Project (PERF)

Plan Of Record (12 Apr - 15 Oct 2021)

Vincent Guittot
On dynamic PM side, we will continue to develop the support of cluster idling in Linux kernel with the improvement of genPD governor and we will work on the support PSCI OSI in TFA.

The thermal activity will be focused on DTMP enablement with the support of devfreq and some userspace development for connecting Android HAL to thermal netlink and powercap and for providing a daemon that will manage power allocation on the system.

A new activity on deadline scheduler will start this cycle. After a 1st step which will evaluate the use of deadline scheduler for multimedia use case like audio, we will start to work on filling the missing feature to make deadline suitable for multimedia.

We will continue to enable more features on Arm server to be on par with Arm embedded system and Intel server. In addition we will continue to work on tasks placement on numa system and will start helping on the latency sensitive but fair tasks.
**Power and Performance Project (PERF)**

**Next Cycle: Planned**

**Thermal Management (PERF-17)**
- **PERF-32** - Android thermal HAL connection with new thermal notification mechanism
- **PERF-33** - Temperature and power monitoring daemon

**Scheduler Evolution (PERF-19)**
- **PERF-12** - Enabling new scheduler features on Arm server
- **PERF-14** - Optimize tasks placement on NUMA system
- **PERF-15** - Improve latency sensitive task placement
- **PERF-30** - Evaluate the current feature status of Deadline CPU scheduler
- **PERF-31** - Add missing features in Deadline CPU scheduler

**Dynamic PM evolution (PERF-20)**
- **PERF-11** - Evolve genpd based support for cluster idling
- **PERF-21** - Energy and performance optimizations for cluster idling
- **PERF-23** - Enable PSCI OSI in TFA

Remaining effort for 10 planned epics: 14.73 engineer months
Supplementary Information
Power and Performance Project (PERF)

Next Cycle: Out Of Scope Work

Thermal Management (PERF-17) - has planned epics
- PERF-24 - DTPM generic framework
- PERF-26 - DTPM kernel power rebalancing

Scheduler Evolution (PERF-19) - has planned epics
- PERF-13 - Evaluate and optimize interaction with other systems

Dynamic PM evolution (PERF-20) - has planned epics
- PERF-8 - Get next wake up event of cluster/power domain
- PERF-9 - Support for multiple device idle states
- PERF-22 - Address requirements from GKI 2.0 for cluster idling
Previous Cycle Summary
Power and Performance Project (PERF)

Last Cycle: Key Achievements

Thermal Management  (**PERF-17**)
- **PERF-1** - Improve scheduler reactivity to thermal capping
- **PERF-2** - Support multiple sensors in thermal framework
- **PERF-3** - Using utilization information in cooling devices
- **PERF-25** - DTPM energy model based CPU
- **PERF-27** - DTPM energy model based devfreq
- **PERF-28** - DTPM CPU power against load
- **PERF-29** - DTPM devfreq power vs load

Common DVFS infrastructure for SoCs (**PERF-18**)
- **PERF-4** - Bus scaling enhancements

Scheduler Evolution  (**PERF-19**)
- **PERF-5** - Profile and improve performance of scheduler for all type of Arm system
- **PERF-6** - Load balance improvement
- **PERF-7** - Prototype sched_idle usage for Android
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Last Cycle: Delayed

Nothing.