Karlsruhe Institute of Technology

GridKa

Benchmarks on ARM machines at KIT

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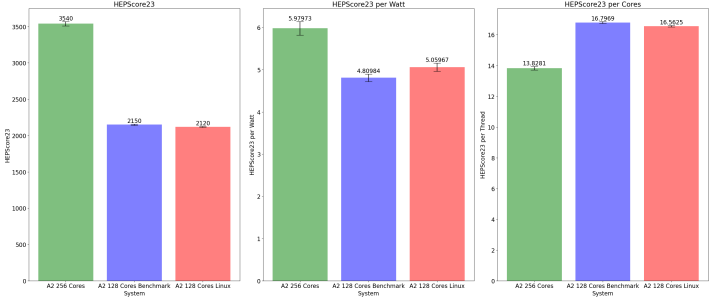
ARM machines at KIT

- A1
  - Ampere Altra 80-core
  - 80 physical core (no SMT)
  - one test machine
  - results showed https://indico.cern.ch/event/1299571/
- A2
  - Ampere Altra Max Processor M128-30 3.00GHz
  - 256 (dual socket, 2×128) physical cores per node (no SMT)
  - 15 machines as WNs going into production now
  - first testing jobs run

Benchmarks

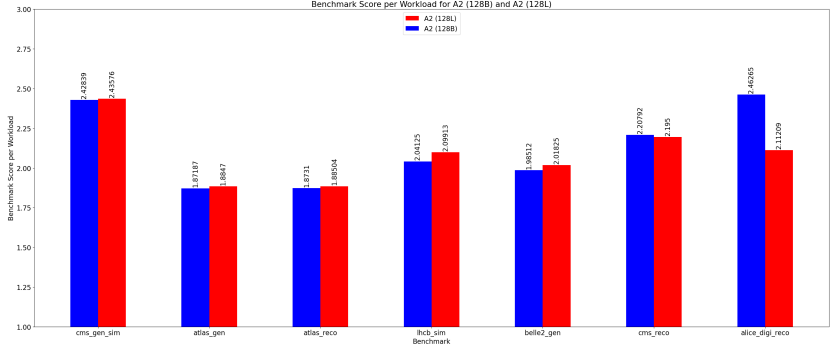
- HEPScore v2.0rc8
  - new version of ALICE and ATLAS Gen workload
- run on all 15 A2 machines
- benchmark results uploaded

- A1 and A2 have similar power consumption efficiency
  - A1 5.9 HS23/W (old workloads)
  - A2 6.0 HS23/W (new workloads)



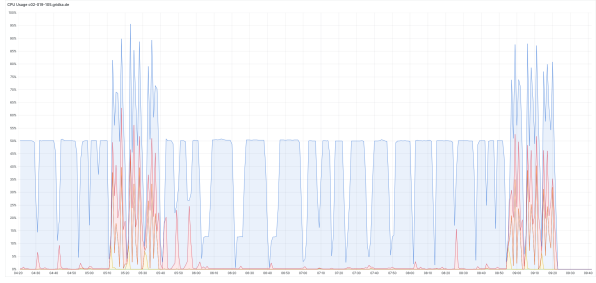
Workload Score

- limit used cores to 128 via kernel (L), or benchmark copies (B)
- Score divided by ref. score
- similar behavior as with old workloads
- ALICE does not limit to cores/copies



Challenges

- new ALICE Workload (ci-v3.0)
  - use free CPU cores
  - works on x86 and A2 nodes
  - did not work on A1 node (under investigation)
- ipmitool on ARM
  - sometimes sensor not readable until reboot
  - `ipmitool sdr` needs around 2 min. instead 3 sec. on x86



Summary

- first benchmark round with dual socket Ampere Altra Max Processor M128-30 CPUs
- Bigger Ampere ARM CPUs are similar efficient then small ones
- new workloads show a similar behavior as old ones by free cores

Backup