NumPEx

Digital for Exascale

NumPEx meeting - 07-08 Nov 2024

NumPEx Energy working group feedback
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- Context:
  - Different energy needs for each PC
  - Different levels of expertise
  - Everyone needs to measure power consumption (Wattmeters, performance counters, …)
  - Needed for multiple usages
    - Research, reporting in publications, raising awareness, …
  - Energy is important!!!!

- Purpose:
  - A place to raise awareness, to answer questions, and to discuss this topic
  - Represent the thematics toward other communities (InPEx for example)
  - Gather information from each PC (needs, requirements, applications ?, …)
    - Are the users willing to accept a slowdown, another metric (e.g. energy-to-solution)

Actions [Done]

- GT is composed of points of contacts
  - one or two from each PC
- Mailing-list between points of contacts: gt-energie-numpex@groupes.renater.fr
- Three meetings (visio) to gather the propositions, the needs and start working
- Assessment questionnaire sent to all PC
  - Need of feedback from all PCs for sharing needs and point of view
- Sharing energy-related datasets on   https://zenodo.org/communities/numpex/
  - https://zenodo.org/records/10982239   : time series of power for Nas Parallel Benchmark on 20 architecture at all processor frequencies
- Discussion with supercomputer operators for accessing the needed information (RAPL, IPMI, …)

Next actions

- Complete the needs assessment
- Sheet on energy metrics
    - Multiple methods of measurement: IPMI, RAPL, Watt-meter, ...
    - Multiple time-scale related to usage
        - high frequency for understanding a code section
        - low frequency to have overall impact of a code
    - Idem for precision
- Organize a summer school for 2025 on the following thematics:
    - eco-conception, measurement tools, leverages, Life-Cycle Assessment
- Tutorial for trivially obtain power profile / total energy consumption on ~~Grid'5000~~ SLICES-FR

... organize the next meeting of the GT :)