



Benchmarking Working Group

Beyond HS06: Toward a New HEP CPU Benchmark – Update March 2015 – HEPiX Spring 2015, Oxford

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Benchmarking Working Group

Status:

- Collecting benchmark candidates
- No regular meetings so far



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Collection of benchmark candidates:

- SPEC CPUv6 (designated successor of CPU2006):
 - Waiting, no final release date announced
 - KIT is preparing toolkits
- Open source benchmark candidate:
 - Geant4
(<https://indico.cern.ch/event/272778/contribution/2/material/slides/1.pdf>)
 - ◆ Investigation in progress,
HEPiX Benchmarking Working Group is involved



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Collection of benchmark candidates:

- Quick benchmark:
 - Requirement:
 - ◆ Quick evaluation of the performance of a provided slot, e.g. in commercial clouds
 - Python script provided by Philippe Charpentier (LHCb)
 - ◆ Average runtime: ~ 1 minute



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Open question – mandatory compiler flags:

- Scaling of HS06 – as well as of the new benchmark – with real applications depends on compiler and optimization flags:
 - General optimization level
 - Target optimization



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Open question – mandatory compiler flags:

- Rumors about unsatisfying scaling of HS06 mostly caused by arbitrary optimization flags, e.g.
 - Extra target optimization flag: 3dnow, ...
 - Other compiler than gcc (Intel, Pathscale, ...)
- Mandatory compiler and flags (HS06):
 - **gcc -O2 -pthread -fPIC -m32**
- Waiting for final proposal of new compiler flags by the Architects Forum
 - Preliminary suggestion:
 - **gcc -O2 -fPIC**
 - More aggressive optimization level?



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Assessment tools:

- Collection of representative HEP/WLCG applications (candidates are welcome)
- Can experiments provide statistics of the performance of jobs which run on a given host?



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Benchmarking working group:

- Not kicked off so far
- Informal meeting after this talk



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Current list of volunteers:

- Manfred Alef, Michele Michelotto (chairmen)
- VO representatives:
 - Alice: Peter Hristov, Costin Grigoras
 - Atlas: Alessandro Di Salvo, Franco Brasolin, Domenico Giordano
 - CMS: Gabriele Benelli, Samir Cury
 - LHCb: Ben Couturier
- Other:
 - Martin Bly
 - Ian Gable
 - Fotis Georgatos
 - Andrew McNab
 - Liviu Valsan
 - Romain Wartel



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