



# Benchmarking Working Group

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## **HS06+ Benchmark Update** WLCG GDB 2015-01-14

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## Collection of benchmark candidates:

- SPEC CPUv6 (designated successor of CPU2006):
  - Waiting, no final release date announced
- 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
- Quick benchmark:
  - 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 the new benchmark – with real applications depends on compiler and optimization flags:
  - General optimization level
  - Target optimization
- 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 proposal of new compiler flags by the Architects Forum



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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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## Testing quick benchmarking tool:

- Python script (LHCb) run as regular batch jobs in GridKa farm to estimate the performance of the assigned job slot
  - Total number of jobs: ~ 8,500
  - Performance summary:
    - ◆ HS06 of executing host: 8.05 ... 13.74 HS06 per job slot
    - ◆ LHCb scores: 2.05 ... 11.92 scores per job
    - ◆ LHCb scores / HS06: 0.16 ... 0.93 (median: 0.77)  
(strongly depending on system load)
- It's a Python script – no compilation, no optimization:  
scaling with real HEP applications depends on compiler flags!



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## Current list of volunteers:

- Manfred Aef, Michele Michelotto (chairmen)
- VO representatives:
  - ◆ Alice: Peter Hristov, Costin Grigoras
  - ◆ Atlas: Alessandro Di Salvo, Franco Brasolin
  - ◆ 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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## Mailing list:

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