



Workload Contributions to HS23

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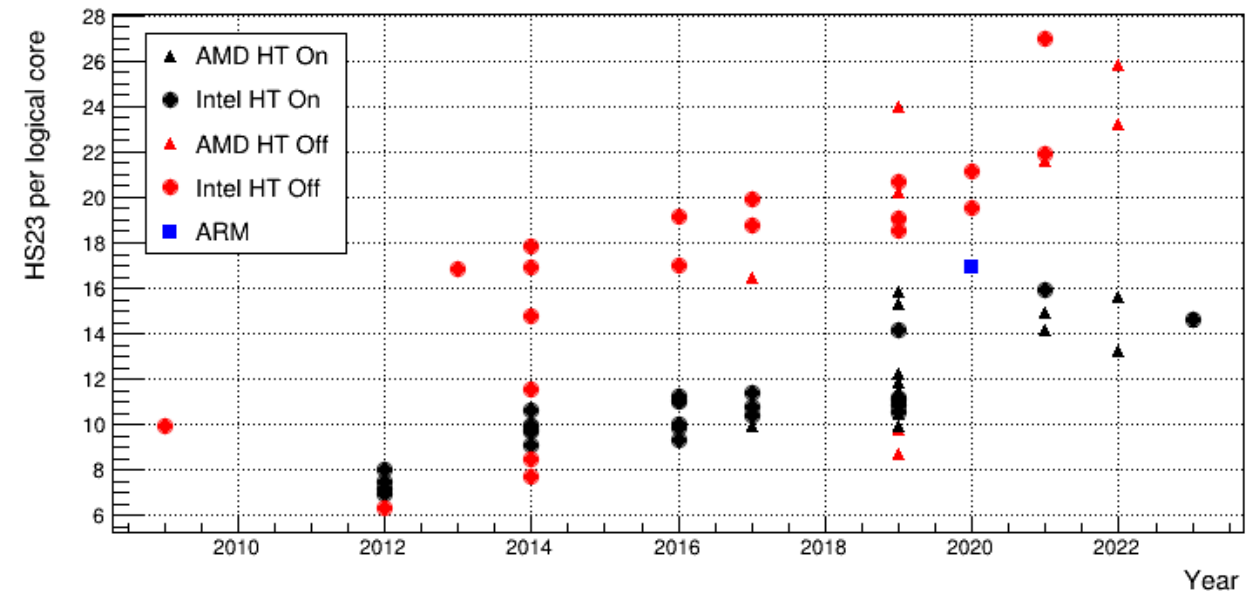
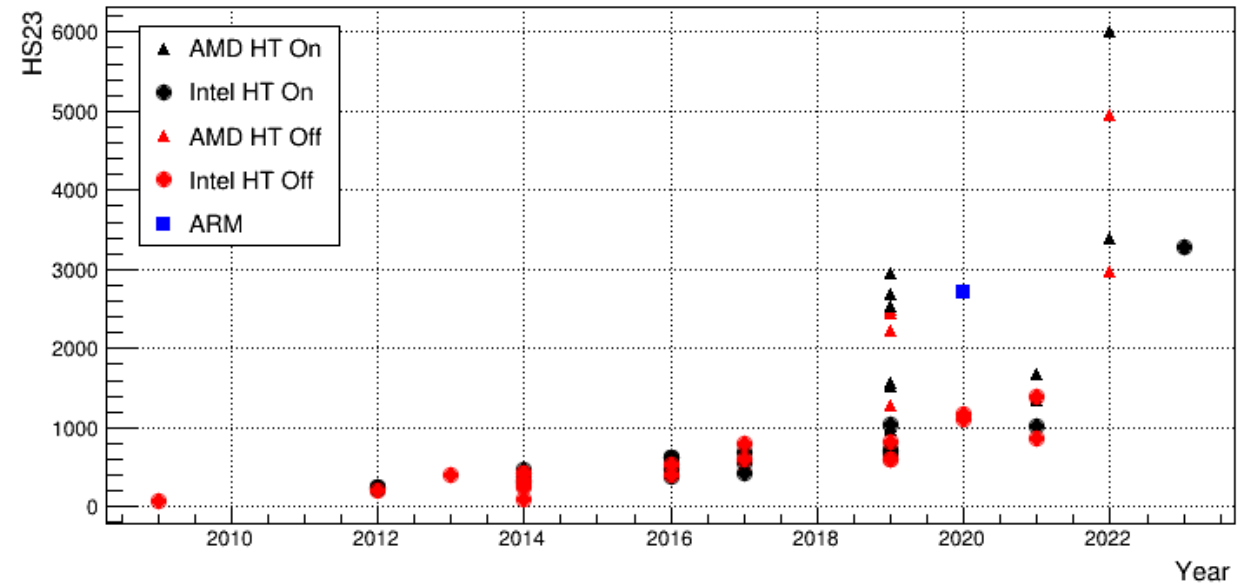
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CPU Models by Year of Release

UPDATE

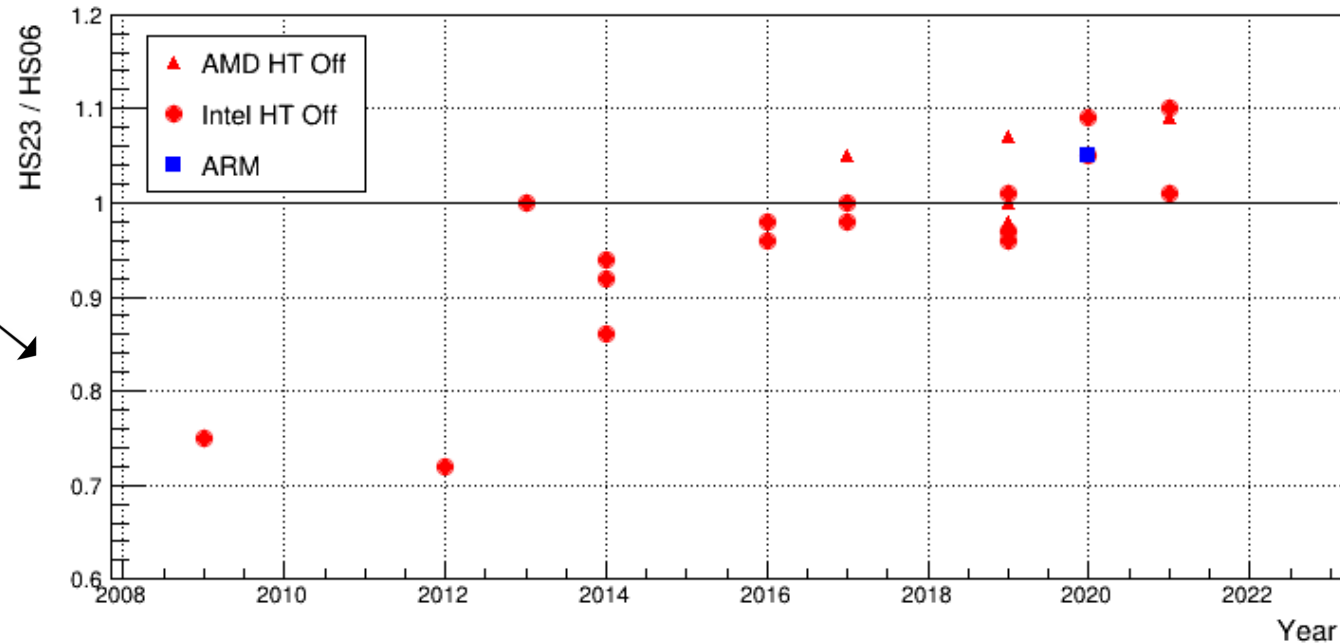
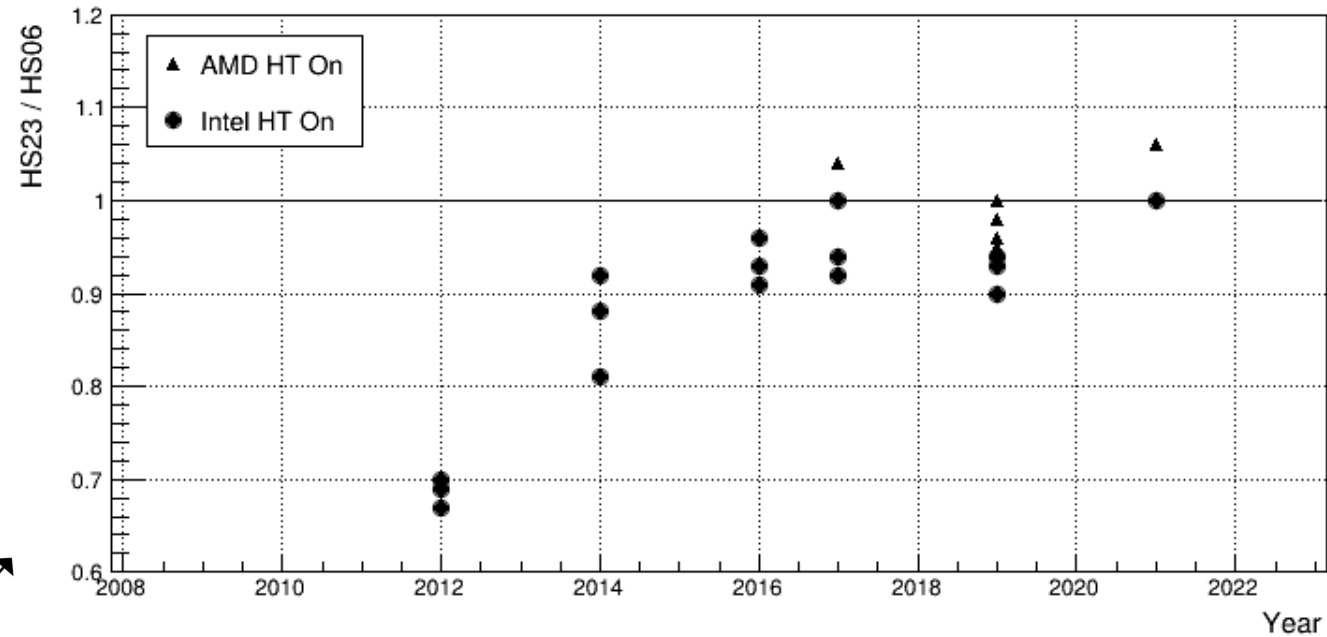
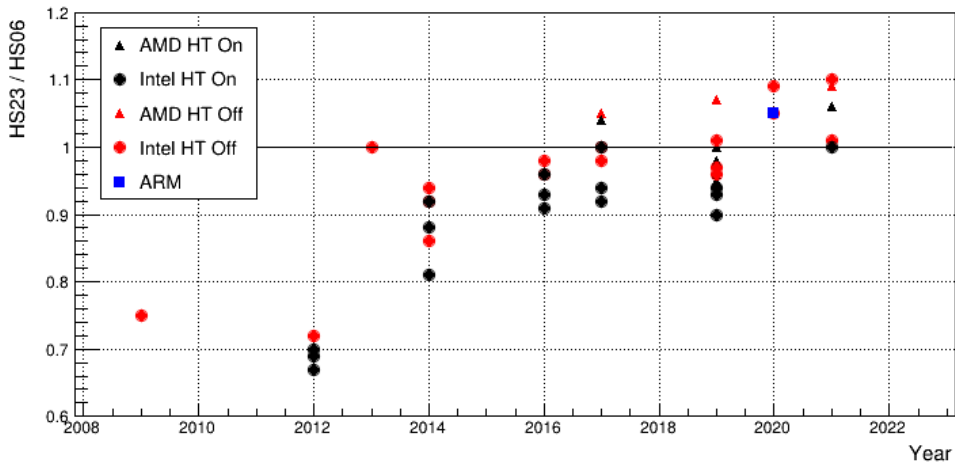
Year vs. HS23

- ❑ Considerably more data points
- ❑ AMD CPUs exhibit large scores due to the large number of cores
- ❑ Score per physical core shows year-by-year increase



Year vs. HS23/HS06

- The trend observed before is being supported by new data points



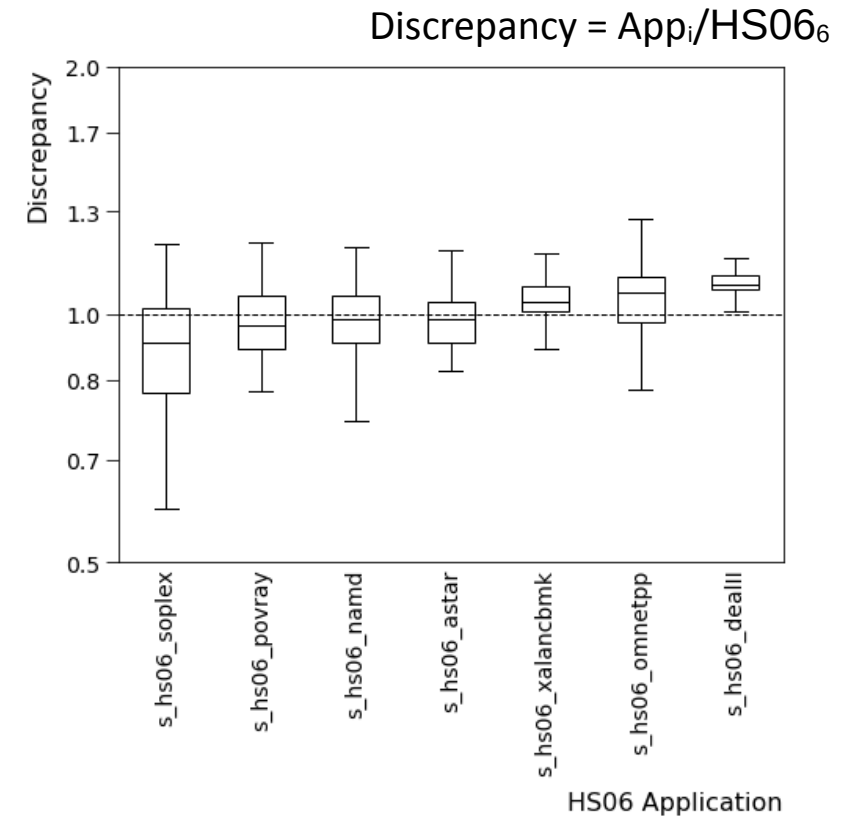
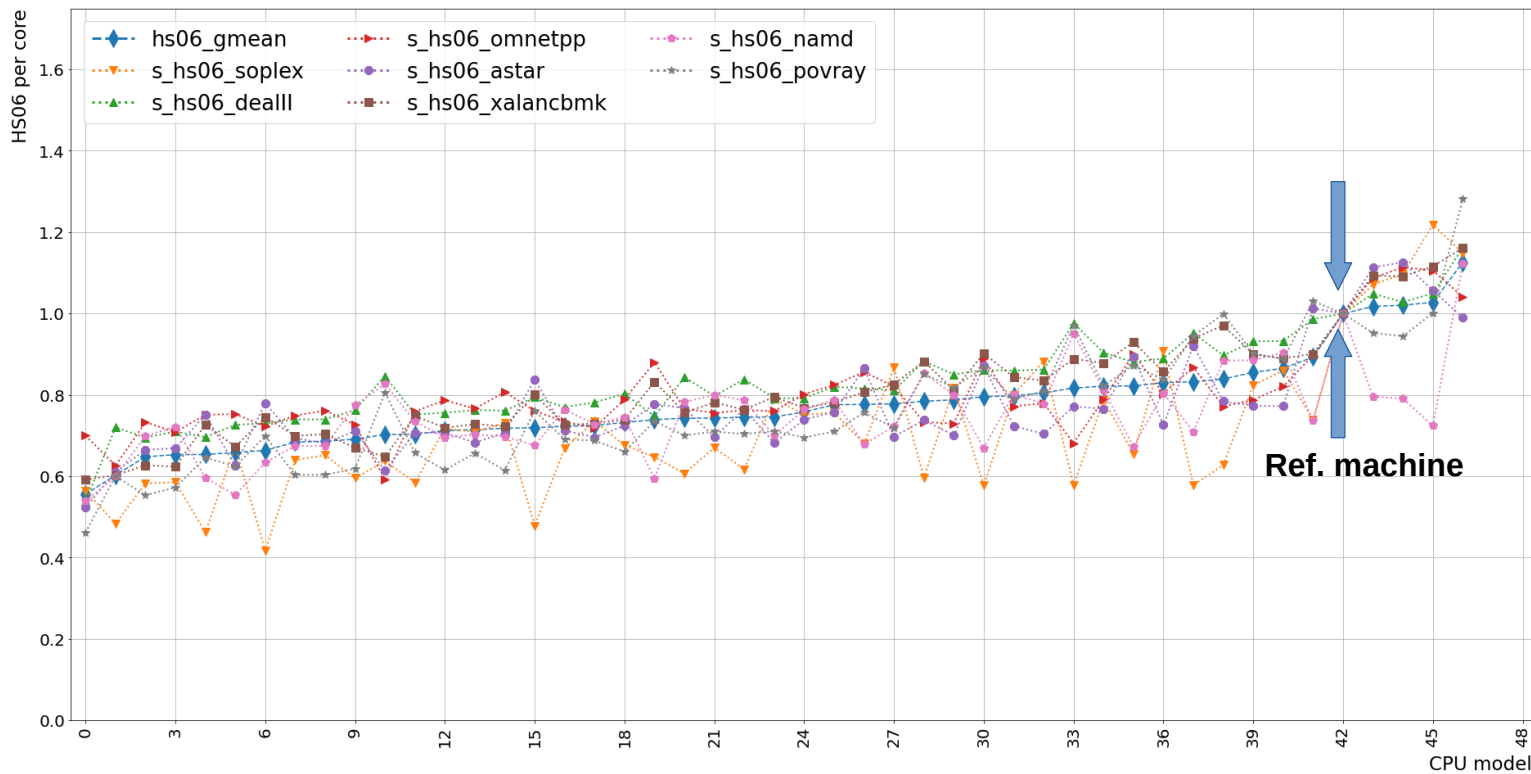
Workload Contributions to HS23

Understanding the contribution of individual workloads

- Purpose: evaluate the effect of removing a workload from HS23
 - By comparing a single workload to the rest
 - WL_i/HS_6 where $WL_i \in HS23$, $HS_6 = HS23 - \{WL_i\}$
 - By comparing HS23 with all workloads to HEPscore constructed of only a subset of six workloads
 - $HS_6/HS23 - 1$
- Comparison to HS06
- Reference machine as usual
 - Intel(R) Xeon(R) Gold 6326 CPU @ 2.90GHz, HT=On, site=CERN

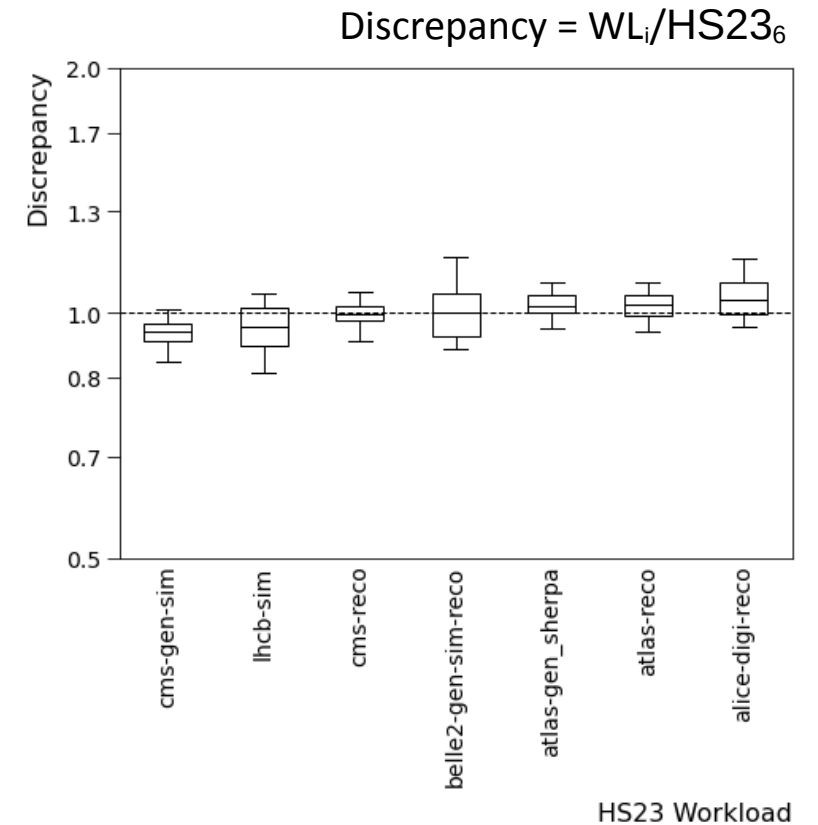
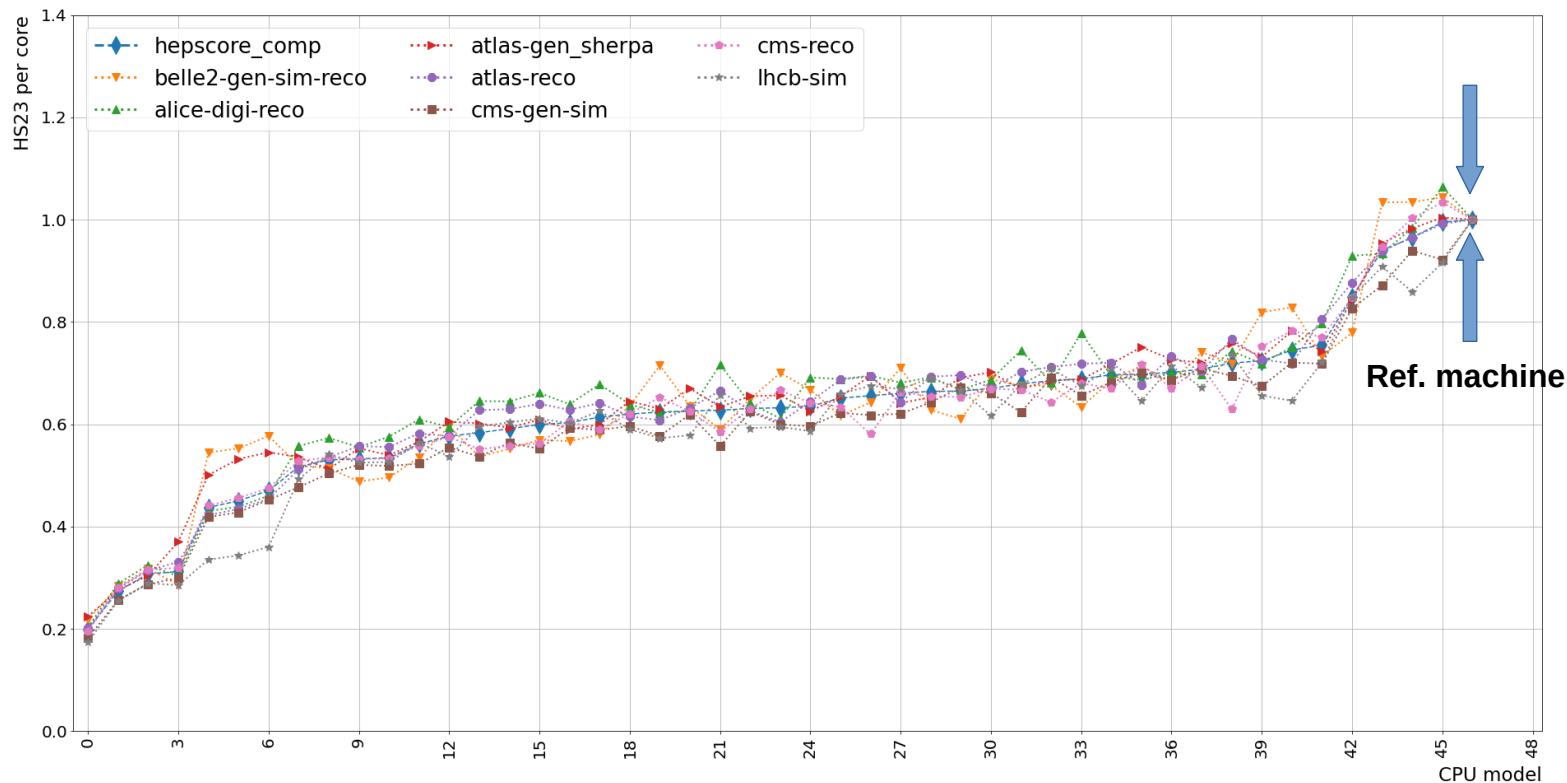
Separate Workloads Contributing to HS06

- Individual HS06 applications tend to deviate from HS06



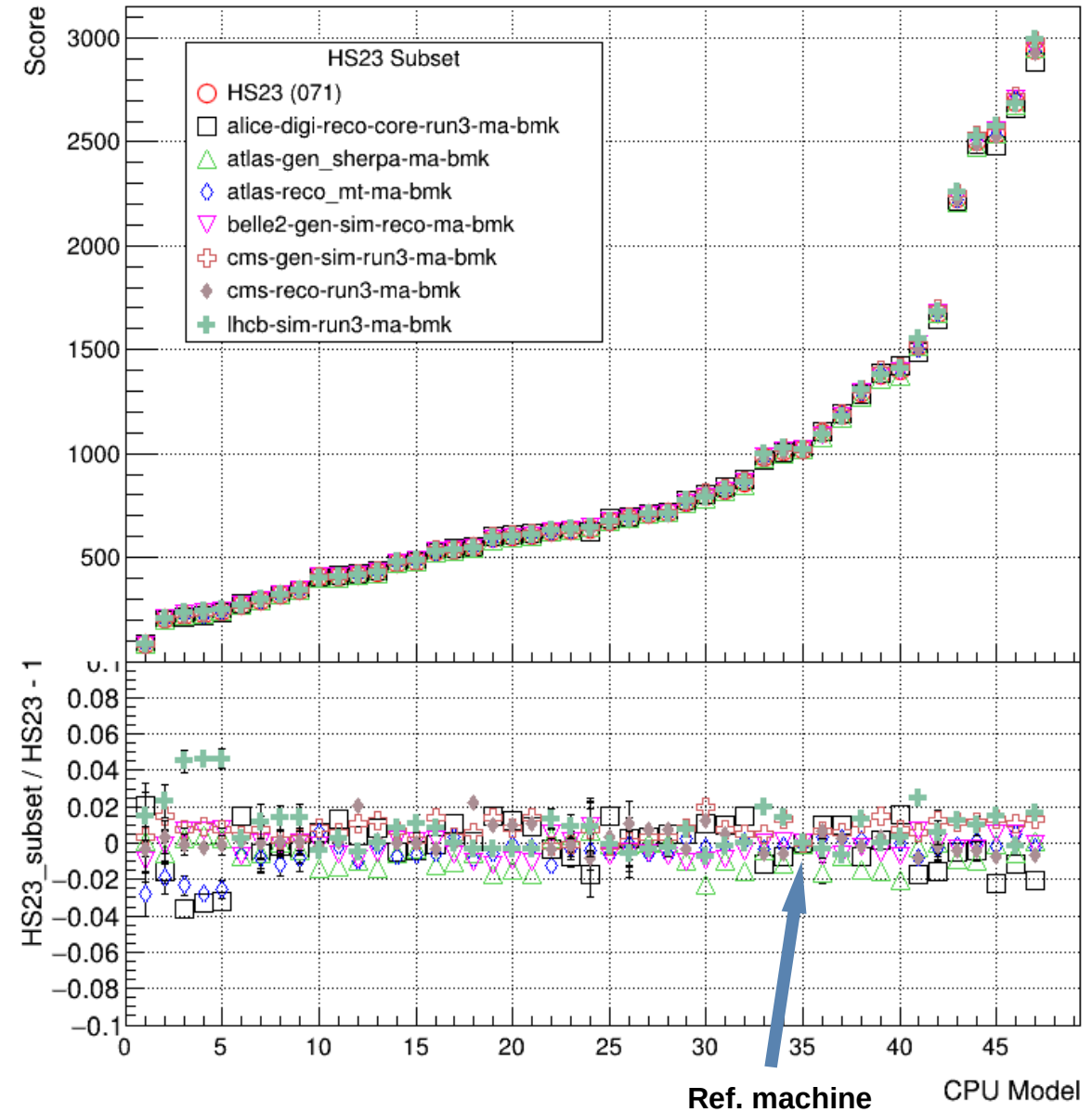
Separate Workloads Contributing to HS23

- HS23 workloads are more stable with respect to the reference machine than HS06



HS₆/HS23

- ❑ Removing workload from HS23 and recomputing HEPScore
 - HS₆ is a recomputed score from a subset of six workloads of HS23
 - Each HS₆ is divided by HS23 for comparison
- ❑ Change in HEPScore $\leq 5\%$ when a single workload is removed
 - Typically $\leq 2\%$
- ❑ A single workload has a low impact on the score due to the multi-workload composition of HS23



HS₆/HS06

- Same process as before
 - Except the application scores are normalized to the same reference machine as HS23
- Change in HS06 $\leq 7\%$ when a single workload is removed
 - Typically $\leq 3\%$ with large deviations
 - CPU models with higher scores than the ref. CPU exhibit larger discrepancies

