

SIGPLAN Benchmarking in the Data Center: Expanding to the Cloud

Workshop held in conjunction with [PPOPP 2023](#): Principles and Practice of Parallel Programming 2023

Workshop Scope

High performance computing (HPC) is no longer confined to universities and national research laboratories, it is increasingly used in industry and in the cloud. Education of users also needs to take this into account. Users need to be able to evaluate what benefits HPC can bring to their companies, what type of computational resources (e.g. multi-, many-core CPUs, GPUs, hybrid systems) would be best for their workloads and how they can evaluate what they should pay for these resources. Another issue that arises in shared computing environments is privacy: in commercial HPC environments, data produced and software used typically has commercial value, and hence needs to be protected.

Recent general adoption of machine learning has motivated migration of HPC workloads to cloud data centers, and there is a growing interest by the community on performance evaluation in this area, especially for end-to-end workflows. In addition to traditional performance benchmarking and high performance system evaluation (including absolute performance, energy efficiency), as well as configuration optimizations, this workshop will discuss issues that are of particular importance in commercial HPC. Benchmarking has typically involved running specific workloads that are reflective of typical HPC workloads, yet with growing diversity of workloads, theoretical performance modeling is also of interest to allow for performance prediction given a minimal set of measurements. The workshop will be composed of submitted papers, invited talks and a panel composed of representatives from industry.

Submission

We invite novel, unpublished research paper submission within the scope of this workshop. Paper submission topics include, but are not limited to, the following areas:

- Multi-, many-core CPUs, GPUs, hybrid system evaluation
- Performance, power, efficiency, and cost analysis
- HPC, data center, and cloud workloads and benchmarks
- System, workload, and workflow configuration and optimization

Authors are invited to submit work as regular paper (up to 8 pages including references). All papers must be prepared in ACM Conference Format using the 2-column acmart format and [SIGPLAN proceedings template](#). The submitted work shall be in the English language.

Submitted papers will be peer-reviewed by the technical program committee (TPC). The submitted manuscripts should not include author names and affiliations, as a double-blind review process will be followed. Review of supplementary material is at the discretion of the reviewers; papers must be complete and self-contained.

Workshop submission site: [https://easychair.org/conferences/?conf=bid23-BID-23-\(EasyChair\)](https://easychair.org/conferences/?conf=bid23-BID-23-(EasyChair)) closed

Schedule

Paper **submission deadline:** ~~05. January~~ **Final:** 19. January 2023 (23:59 AOE)

Author notification: 27. January 2023

Workshop: 25. February 2023

Date and Location

Sat 25. February 2023 (afternoon; 13:20-17:40)





[Hotel Bonaventure Montreal](#), Canada (**Room: Westmount 6**)

Co-located with [PPOPP 2023](#)

Join Remotely

[Zoom webinar](#) (password: BID23PPoPP)

Workshop Program

Feb. 25, 13:20 - 13:50, Eastern Standard Time (EST), UTC -5 (refer to PPOPP 2023 Program page for time zone conversion tool)	
13:20: Welcome Remark, Jens Domke, Workshop Chair	
<i>Research and Invited Paper Session (13:20 - 15:20)</i>	
13:20-13:50	Efficiently Processing Massive Graphs using Commodity Multicore Machines ► Abstract ~  Laxman Dhulipala, PhD <i>Assistant Professor</i> <i>Department of Computer Science at the University of Maryland, College Park</i> (view biography)
13:50-14:20	Accurate and efficient software microbenchmarks ► Abstract ~  Daniel Lemire, PhD <i>Professor</i> <i>Data Science Laboratory of the University of Quebec (TELUQ)</i> (view biography)
14:20-14:50	Overview of SPEC HPC Benchmarks and Details of the SPEC_{hpc} 2021 Benchmark ► Abstract ~  Robert Henschel, Dr. <i>Program Director for Research Engagement</i> <i>Indiana University</i> (view biography)
14:50-15:20	TailWAG: Tail Latency Workload Analysis and Generation ► Abstract ~  Heng Zhuo <i>PhD Student</i> <i>University of Wisconsin-Madison</i> (view biography)
<i>Coffee Break (15:20 - 15:40)</i>	
<i>Research and Invited Paper Session (15:40 - 17:40)</i>	
15:40-16:10	gprofng: The Next Generation GNU Profiling Tool ► Abstract ~  Ruud van der Pas, Drs. <i>Senior Principal Software Engineer</i> <i>Oracle Corporation</i> (view biography)
16:10-16:40	Benchmarking MPI for Deep Learning and HPC Workloads ► Abstract ~  Yiltan Temucin <i>PhD student</i> <i>Queen's University, Canada</i> (view biography)
16:40-17:10	Too many chefs in the kitchen - An argument in favor of Program Execution Models (PXMs) ► Abstract ~  Jose Manuel Monsalve, PhD <i>Postdoctoral Researcher</i> <i>Argonne National Laboratory</i> (view biography)
17:10-17:40	Benchmarking in Google Cloud: Google Cloud HPC-Toolkit + Ramble ► Abstract ~  Doug Jacobsen, PhD <i>Software Engineer</i> <i>Google LLC</i> (view biography)
17:40: Closing Remarks, Aleksandr Drozd, Panel Chair	

Registration

[PPOPP 2023 Registration Website](#) (early bird registration deadline is January 31st)

Attending

We will support presenters with travel restrictions by setting up a way to present remotely. However, regular registration fees, as stated on PPOPP website, will still apply.

Organizing Committee

[Jens Domke](#) ([RIKEN Center for Computational Science](#))

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Industrial Panel Chairs

[Aleksandr Drozd](#) ([RIKEN Center for Computational Science](#))

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Program Committee

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Advisory Committee

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