SC22 IndySCC Rules

Updated Aug 10, 2022

Now in its second year, the IndySCC is an event sharing the goals of the SCC but with an emphasis on education and inclusion, intended for less-experienced teams. Teams compete remotely using provided hardware through an education-focused experience supported by HPC industry experts during the months leading up to the conference. A 48-hour contest the weekend prior to SC22 will be the culmination of the experience and knowledge gained by the teams in the preceding months.

Selected teams are invited to participate in a remote phased-style competition from July to November:

Phase 1: August – Familiarizing with the provided resources and learning about architecture
Phase 2: August – Benchmarks on different architectures and compilers
Phase 3: September & October – Real-world applications and optimizing for performance
Phase 4: November – A final, 48-hour contest similar to the SCC, held the weekend prior to the SCC.

Final scoring of winners will be determined from a combination of the final competition scoring and participation during the educational and training periods leading up to the competition. The educational period may include brief reports or submissions and mandatory instruction (e.g., live or recorded webinar or written material). The final competition will be very similar to the SCC competition, with scoring based on completing computational tasks, interviews with the application judges, lightning talks, and poster submissions.

Violation of any rule may result in a team's disqualification from the competition, or point penalization, at the discretion of the SCC committee. Any unethical conduct not otherwise covered in these rules will also be penalized at the discretion of the SCC Committee.

All decisions are the sole discretion of the IndySCC committee, and IndySCC committee decisions concerning the rules in a given situation, are final.

1. Safety first

IndySCC is a fully remote competition, however, safety is still a priority consideration at all times. If a task cannot be done safely, then it is unacceptable. When in doubt, ask an SCC supervisor or team liaison.

2. Teams

Teams are composed of six students and an advisor.

- The advisor provides guidance and recommendations
- The students provide the skill and enthusiasm.
- The IndySCC committee will provide the hardware for the teams to run on

Teams can optionally nominate up to two "logistics coordinators", who are secondary advisors or other support staff who should receive a copy of any communications sent to the primary advisor.

Teams will be invited to participate based on their Team Application, submitted via https://submissions.supercomputing.org/. The Team Application includes a description of the team, the proposed hardware and software that will make up their cluster, and their approach to the competition. The SCC committee reviews each proposal and provides comments for all submissions. The team composition and proposed hardware and software must all conform to the rules described below.

2.1. Advisor requirements

- Advisors are required to be staff, faculty or graduate students of the team's educational institution(s) or sponsoring HPC center.
- The primary advisor should provide support, guidance, and be available to the student team members during the educational period leading up to final 48-hour competition
- The advisors cannot assist the team members during the final 48-hour competition, but they must be available to the team and competition organizers for any logistical or other needs that arise.

2.2. Team composition

Student Team Members must:

- Be enrolled in a university or high school
- Not have received a bachelor's degree or equivalent before the beginning of the competition

2.2.1 Team Selection

The intent of the IndySCC is to keep teams who do not make it into the SCC engaged in the world of cluster competitions and to build up new and inexperienced teams into successful teams that go on to compete in the SCC.

Entry into the IndySCC will be by invitation. Teams are selected from those who are not selected for the SCC, as well as from teams that indicate a preference to join the IndySCC. An indication of a preference of one competition or the other is not a guarantee of an invitation into that or any competition. Teams that attempt for entry into the SCC will be given priority for an invitation, followed by teams that are inexperienced with cluster competitions but indicate an IndySCC preference.

2.3. Team assistance and access to IndySCC resources

During preparation for the competition and during the educational periods, the Team Advisor and other supporters are encouraged to help the team train for the competition. Team advisors may have access to the computational resources during the educational period, however, only the six registered team members should be doing actual work, configuration, and working on tasks. During the final competition, only the six registered team members will have access to the computational resources.

Participation in the educational portion of the competition is mandatory. Any webinars or other “live” sessions will be recorded and made available for those who have scheduling or time zone conflicts. Teams and all team members are expected to participate in any hands-on activities and submissions throughout the educational period. Failure to participate may result in penalties in final scoring or disqualification.

2.3.1. Assistance

During the educational and training period, the team advisors and other supporters may provide additional instruction to the team members. Any submitted tasks as part of the educational period may only be completed by the six team members.

Once the final competition begins, the six team members must work on the competition tasks with **no external assistance** - advisors, vendor partners and other supporters must not help the team in any way (other than to occasionally deliver coffee, snacks, etc).

Outsourcing of competition tasks at any time, to either paid services or unpaid volunteers is not permitted.

2.4. Team conduct

Teams must conduct themselves professionally and adhere to the SC22 Code of Conduct. Students must compete fairly and ethically.

3. Hardware requirements and rules

The IndySCC committee will provide the hardware the teams will use during the educational and final competition periods. Teams may not use any other hardware or other resources (other than laptops and PCs for interfacing with the provided hardware) during the final competition or to complete tasks for submission during the educational period.

Other limitations such power draw limitations (static or dynamic) may be implemented as other dimensions to the final competition, so teams may want to consider how they would manage power or prioritize work to fit within constraints. These details will be provided at a later date.

4. Software requirements and rules

4.1. System software

4.1.1. All system software (operating system, drivers, filesystems, compilers, etc) used in the competition must be publically or commercially available at the start of the competition.
4.1.2. All system software must be compatible with the Chameleon Cloud platform.
4.1.3. No modifications may be made to or otherwise interfere (including accidentally, e.g., running machines out of memory) with metrics reporting or control of resources by the Chameleon Cloud platform, including, but not limited to any background processes or the out-of-band hardware management interface (BMC, iLO, etc).

4.2. Benchmarks and applications

The benchmark and application executables used in the competition must be built by the team members from open source implementations. Executables may be built in advance by the team members, but teams must provide the URL of the source package or commit hashes (e.g., for

git repos) if non-standard releases are used. Teams should also be prepared to demonstrate building and running the executable if requested.

Teams may study and tune the code used in the benchmarks and applications. Any modifications to the application or benchmark source code made by the team must be shared with the IndySCC committee.

5. Network connections

Teams will access all IndySCC resources remotely and will be responsible for providing their internet connection. Teams should only connect to the IndySCC resources using personal computing devices (i.e., external HPC resources should not be connected to IndySCC resources).

6. Logistics

IndySCC is a fully remote competition and there are no in-person requirements. Teams are encouraged to attend the conference in-person or virtually, however teams are responsible for their own travel arrangements, lodging, conference registration, and any other incurred expenses. Teams may be required to complete posters that the committee will print and display at the conference, record lightning talks that will be replayed at the conference, and remotely attend “meet the teams” sessions during the conference, but no conference registration or in-person attendance will be necessary for these components.