

Team Introduction



Team Website: <https://xflops.sjtu.edu.cn>

Shanghai Jiao Tong University (SJTU) Student HPC Team “Xflops” was founded in 2013 and has since grown into one of China’s most experienced student supercomputing teams, attracting over 150 members passionate about HPC. With a strong track record of excellence, the team has secured top honors in major international competitions—including the **ASC14 Champion**, **ASC16 Silver Medal**, **6th place globally in SC19 SCC**, **12th place in SC20 SCC**, and most recently, the **ASC25 Champion** in 2025, marking a triumphant return to the pinnacle of ASC competition after an 11-year gap.

This is our debut at IndySCC, with a diverse team spanning computer science, electronic engineering, and computational mathematics, plus mixed expertise in system optimization and parallel algorithms. We’re prepped via clear role division, regular syncs, and simulation drills—and are ready to showcase our skills here.

Team Preparation

Time and Team Management

- **Phased Preparation:** A 3-month pre-task phase is adopted, during which technical workshops are held every two weeks. A post-task phase follows, where roles are assigned based on members’ expertise.
- **Fixed Meetings:** Hybrid meetings are held weekly. The team works in Room 213 of SJTU’s Network and Information Center, which is equipped with facilities for collaboration, and holds weekly offline sessions there.
- **Structure:** Team members are divided into three roles, namely System Operations, Scientific Computing Optimization and AI Acceleration.

Training for Inexperienced Members

- A “formal education + team training” model is used:
- University courses such as CS4302 and CS4305 help build theoretical foundations, covering knowledge of parallel programming and CPU/GPU architectures.
 - A 4-week onboarding program is provided to teach practical skills, including those related to Linux systems, build tools and benchmarking, so as to help members integrate into the team quickly.

Application Exercises & Benchmarks

Before the arrival of vendor hardware, the team uses SJTU’s Siyuan-1 cluster and π-2.0 cluster for optimization work.



Resource Management

We manage and track resources using **Jetstream** and **OpenStack**.

Preparation Phase

- **Instance Deployment:** m3.large instances serve as dedicated prep machines for individual competition tasks, using Jetstream’s Ubuntu 24.04 image with xrt4 filesystem.
- **Environment Setup:** Enables independent management of two competition tasks, allowing task owners to test environment configurations without cross-interference.
- **Compiler Installation:** Team members may install compilers via apt, module load, or source code compilation per task requirements.
- **Resource Governance:** Resource allocation for each task is overseen by respective task leaders.

Pre-Competition Environment Configuration

- **Instance Deployment:** One m3.xl instance and one g3.xl instance are allocated for competition environment configuration.
 - **Environment Setup:** Separate user accounts are created for different tasks to maintain isolated environments; system package installations are minimized (based on prior tests) to reduce cross-task impacts.
 - **Storage Setup:** User home directories are mapped to Jetstream’s shared storage for consistent environments across instances. A 4TB data disk is created to store required data files, enabling fast transfer to competition machines.
 - **Resource Governance:** Coordinated through agreed working hours.
- Post-configuration, a system disk snapshot is taken to generate identical environment instances for the competition.

Competition Phase

- **Instance Deployment:** Multiple instances with consistent environments are created using the pre-configured system disk snapshot.
- **Storage Setup:** Shared storage is mounted as user home directories to ensure uniform user environments across all machines. The prepped data disk is mounted on one machine and shared with others via NFS, supporting cross-machine data access.

