ícm

Interdisciplinary Centre for Mathematical and Computational Modelling
University of Warsaw

WARSAW TEAM 2019 ROUTE

Denver
18-20.11

Frankfurt
16-20.06

Dalian
21-25.04

STUDENT CLUSTER COMPETITION

3 TOP CONTESTS
3 CONTINENTS
3 HPC EVENTS

TABLE OF CONTENTS

THE FOUNDING OF WARSAW TEAM

Warsaw Team was first assembled in 2016 on the initiative and with full support of dr. Marek Michalewicz, the acting director of ICM, who is credited with creating a successful competitive HPC student team in Singapore, back in December of 2013.

The Warsaw team is supervised and coached by HPC professionals of Interdisciplinary Center for Mathematical and Computational Modelling at the University of Warsaw.
Dr. Maciej Cytowski, the original team coach has recently passed the mantle on to dr. Maciej Szpindler and Marcin Semeniuk, who currently oversee team operations.

According to July 2019 HPC-AI Advisory Council ranking, Warsaw Team (University of Warsaw) is classified 5th in the EMEA region (Europe, Middle East and Africa) and 14th in the world, after participating in only six world finals in supercomputing.

RANKING STUDENT CLUSTER COMPETITION LEADERSHIP LIST
HPC-AI Advisory Council
July, 2019

HPC infrastructure, including development and application opportunities, is critical for Polish science and economy on a global scale and it's wellbeing is of strategic importance in matters of the state.

Mobilization of students of Polish universities in the HPC environment is an opportunity to provide cutting-edge expertise for future professionals in the field.

Dr. Marek Michalewicz
Director of ICM UW

2019 ROUTE

ASC 2019   Student Supercomputer Challenge, Dalian, China

Warsaw Team, consisting of five students from both the University of Warsaw and the Warsaw University of Technology, placed in the top twenty out of over 300 teams representing higher education institutions from all over the world, during the **Student Supercomputer Challenge in China** (Dalian, 21-25th of April, 2019).

Not long after the challenge in China, our team qualified for the finals stage at the **Student Cluster Competition** (SCC), one of the most anticipated events of the highly acclaimed conference in the field of supercomputing in Europe (Frankfurt, June 16-20).

Currently, Warsaw Team is preparing to compete in the United States at the high performance computing festival that is **Denver's Supercomputing'19**, which takes place in November of this year.

Finals in Denver will be the seventh consecutive SCC competition in which Polish students compete, while training hard and broadening team line-up continuously since December 2016.

STUDENT CLUSTER COMPETITION

**3kW
48 hours**

Student Cluster Competition (SCC) events make use of High Performance Computing (HPC) technology in four areas: science, technology, engineering and mathematics (STEM disciplines). During a 48-hour competition, the teams work on achieving the highest computing performance using a computer system (a cluster) of their own design, within a 3kW power consumption limit. The teams are required to consist of students who have not yet acquired a bachelor's degree.

**3 tough
preliminaries**

Fifteen (for competitions in Germany and the USA) up to twenty teams from around the world (for SCC in China) compete in the finals. Each of the final events is preceded by a qualification round. Most of the student teams who apply, do not qualify for the final stages. In the case of SCC in China, over 300 teams competed for a position in the final round!

**3 top
HPC events**

The origins of the Student Cluster Competition date back to 2007. The first competition in testing the limits of high performance hardware and software took place in Reno. Currently, the contests are held at the three most important HPC events in the world:
- SC High Performance Conference and Exhibition in Germany,
- The International Conference for High Performance Computing, Networking, Storage, and Analysis in the USA,
- Asia Supercomputer Community Student Supercomputer Challenge in China.

WARSAW TEAM SUPERCOMPUTER

ASC17
4 nodes
8 Intel Xeon Broadwell
8 NVIDIA P100 GPUs
Mellanox FDR Interconnect

SC17
4 nodes
8 Intel Xeon Haswell CPUs
8 NVIDIA V100 GPUs
Mellanox FDR Interconnect

ISC18
3 nodes
6 Intel Xeon Haswell CPUs
8 NVIDIA V100 GPUs
Mellanox FDR Interconnect

SC18
4 nodes
8 Intel Xeon Skylake CPUs
8 NVIDIA V100 GPUs
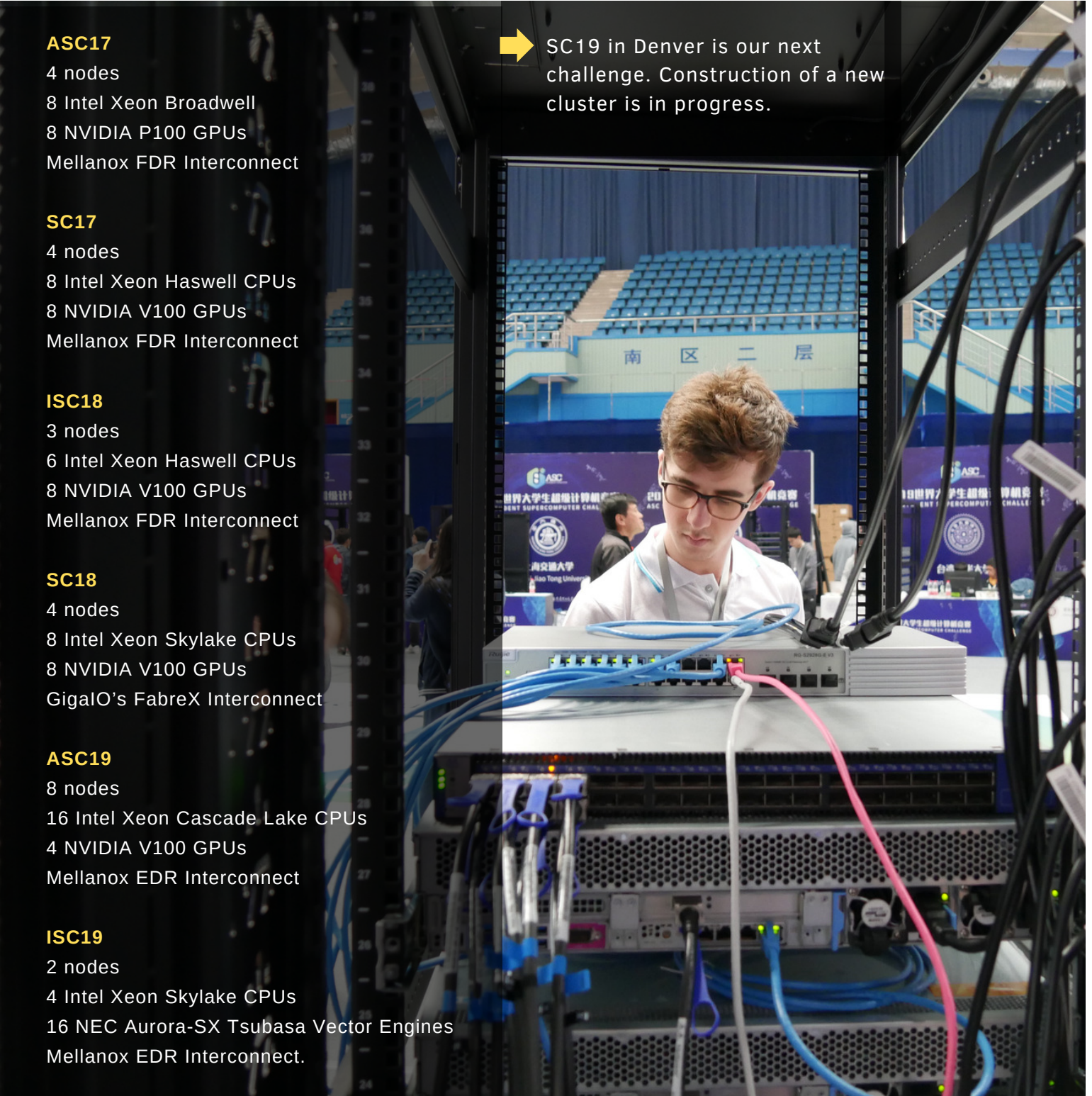GigaIO's FabreX Interconnect

ASC19
8 nodes
16 Intel Xeon Cascade Lake CPUs
4 NVIDIA V100 GPUs
Mellanox EDR Interconnect

ISC19
2 nodes
4 Intel Xeon Skylake CPUs
16 NEC Aurora-SX Tsubasa Vector Engines
Mellanox EDR Interconnect.

SC19 in Denver is our next challenge. Construction of a new cluster is in progress.

7 FINALS IN 3 YEARS

2017

ASC17 Student Supercomputer Challenge, Wuxi, China
SC17 Student Cluster Competition, Denver, USA

Jan Kopański, Marcin Mielniczuk, Adam Sobecki, Szymon Pajzert , Jarosław Ławnicki (University of Warsaw);
Bartosz Zięba (Military University of Technology), Dominik Psujek (Warsaw University of Technology);
Piotr R. Konopelko (Lodz University of Technology)

COACHES
Maciej Cytowski, Maciej Szpindler, Marcin Semeniuk (ICM UW)

7 FINALS IN 3 YEARS

2018

ISC18 Student Cluster Competition, Frankfurt, Germany
SC18 Student Cluster Competition, Dallas, USA

Julia Bazińska, Jarosław Ławnicki, Marcin Mielniczuk , Adam Sobecki, Łukasz Kondraciuk, Jakub Kowalski, Kamil Mykitiuk (University of Warsaw); Maciej Korpalski (University of Wroclaw); Dominik Psujek (Warsaw University of Technology); Piotr R. Konopelko (Lodz University of Technology)
COACHES
Maciej Szpindler, Marcin Semeniuk (ICM UW)

WARSAW TEAM ISC18

WARSAW TEAM SC18

7 FINALS IN 3 YEARS

2019

**ASC19 Student Supercomputer Challenge, Dalian, China
ISC19 Student Cluster Competition, Frankfurt, Germany
SC19 Student Cluster Competition, Denver, USA**

Julia Bazińska, Adam Sobecki, Łukasz Kondraciuk, Jakub Kowalski, Aleksandra Księżny, Kamil Mykitiuk,
Jakub Zarzycki Franciszek Budrowski, Tomasz Cheda, Mateusz Biesiadowski, Iwona Kotlarska, Anna Kalisz
(University of Warsaw), Dominik Psujek (Warsaw University of Technology)
COACHES
Maciej Szpindler, Marcin Semeniuk (ICM UW)

WARSAW TEAM **ASC19**

WARSAW TEAM
ASC19

WARSAW TEAM
ISC19

OUTSTANDING ACHIEVEMENTS

ASC17
**2nd place in High Performance
Linpack category**

- 29.79 TFlop / s on a system composed of four Inspur servers - each equipped with two Intel Broadwell processors and two Nvidia P100 cards.
- The team also received high marks in tasks related to the High Performance Conjugate Gradients (HPCG) benchmark, molecular dynamics calculations on Lammps software and traffic forecasting machine learning.

SC17
White Hat Award

ISC18
4th place in Deep Learning - Tensor Flow

ISC19
**3rd place in STREAM benchmark
5th place in CP2K application**

Ministry of Science
and Higher Education
Republic of Poland

The best of the best! 2.0

During the 2017/2018 academic year, Warsaw Team received a grant from the Ministry of Science and Higher Education. "The best of the best!" project supports highly gifted students in developing scientific activity, enabling them to participate in high-ranking international competitions and conferences.

WARSAW TEAM IN MEDIA

2nd place in High Performance
Linpack category
ASC17

The Register
Apr 27, 2017

"Another newcomer, the University
of Warsaw, grabbed second place
by an incredibly small margin.
Warsaw is driving a small four-
node cluster equipped with eight
P100 GPUs and only 512GB
memory"

HPC Wire
May 1, 2017

"Another new team University of
Warsaw came in a close second
on the Linpack testing (with 29.79
teraflops) using eight P100s in
four nodes, and performed
admirably across the application
set. They will be a team to watch
and we hope to see them at the
upcoming ISC and SC events."

HPC Wire, July 7, 2019
ISC19 Cluster Competition: HPCC Deep Dive
STREAM: third-place score of 240.74

Inside HPC, July 8, 2019
Student Cluster Competition Leadership List
5th in the EMEA region and 14th on the world

HPC Wire, July 15, 2019
ISC19 Cluster Competition: Application Results, Finally!
CP2K: 5th place with 90.32% score

HPC Wire, February 12, 2019
GigaIO Technology Featured in the SCC at SC18
Warsaw Team incorporated FabreX into their cluster

HPC Wire, July 10, 2018
Tsinghua Powers Through ISC18 Field
4th place in Deep Learning - TensorFlow

Meet Team Warsaw
ISC19 Student Cluster Competition

Supercomputing for Fast Learners
Supercomputing Frontiers Europe 2018

GET IN TOUCH

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If you would like to join our team at ICM, we have opportunities just for you:

- Second-degree studies in **Computational Engineering**;
- Workshops for scholarship holders of the **National Children's Fund**;
- **Mathematics for the Curious of the World**, i.e. programming for high school students;
- **Tours at the Technology Center** for children and young achievers - finalists of mathematics and information technology competitions;
- **Internships for students** in two ICM's departments: Data Center and Networking or Software Development and User Support;
- **Hackathons (solving Great Programming Challenges)** – student competitions involving Big Data and high performance systems.

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ISC19
NEC
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DCX