National Supercomputing Centre (NSCC) Singapore e-newsletter

# NEWSBYTES

November 2022


## In this Issue…



## CORPORATE NEWS

## SupercomputingAsia 2023 (SCA23) returns from 27 February – 2 March 2023

***Themed "Sustainable Supercomputing for a Greener Future", the conference reflects the role that HPC could play in advancing decarbonisation research, technologies and solutions but also explores the impact that more supercomputers, HPC resources and data centres could have on the future.***


Co-organised by HPC centres from Australia (NCI and Pawsey), Japan (RIKEN-CCS) and Singapore (NSCC), the SCA conference is also proud to welcome its newest co-organising partner, Thailand, (ThaiSC). The SCA is an

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**Thank you!**

LET'S BEGIN

annual conference that encompasses an umbrella of notable supercomputing and allied events in Asia and beyond with the goal to promote a vibrant and shared high-performance computing (HPC) ecosystem in Asia. The conference programme covers a wide range of topics including the latest supercomputing trends, AI and quantum computing in areas like healthcare, weather & climate change, green data centres and quantum-enabled encryption, among many others.

SCA23 is unique. This is also the first year where the conference is co-located with the regional HPC Asia 2023 conference which will be held outside of China, South Korea and Japan for the first time ever. Together with the Conference on Next Generation Arithmetic (ConGA) and a slew of the SCA's mainstay topics covering areas such as the latest HPC research and technologies, AI, networking, data centres, cybersecurity, cloud computing and quantum computing, SCA23 promises to be a dynamic and forward-looking event.

The SCA23 Conference will be held in Singapore from **27 February – 2 March 2023** at the **Singapore Expo Convention & Exhibition Centre**. This is the first time in three years that the SCA conference will be returning to the stage as a fully in-person conference. We look forward to welcoming you back to Singapore and to reigniting the personal reconnections, networking, collaborations and camaraderie within the global HPC community.

**REGISTRATION IS NOW OPEN!** Register now at https://www.sc-asia.org/registration-fee-structure/ or head over to http://www.sc-asia.org for more details on the conference.

**REGISTER NOW**

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## Another Green Data Centre Award for NSCC!



## CONGRATULATIONS TO TEAM NSCC!

NSCC Singapore has been conferred a W.Media Southeast Asia Cloud and Datacenter (DC) Award 2022 in the Energy Efficient Innovation category for the new "NUS-NSCC i4.0 DC - A Tropical Supercomputing DC". The i4.0 DC, which houses Singapore's newest supercomputer, was recognised as a data centre project that resulted in significant benefits to the data centre owner where the energy efficiency of the facilities is concerned.

The annual W.Media Asia Pacific Cloud & Datacenter Awards is the region's flagship awards programme, recognising achievements and excellence across all mission critical technology sectors. This award adds to the accolades for NSCC's new data centre, which had sustainability built into its design. The i4.0 DC had already been conferred a Building & Construction Authority (BCA) Platinum Green Mark Award for Data Centres last year.

**Congratulations to the NSCC DC team and our close partners from the National University of Singapore (NUS)** for this achievement and in getting the i4.0 DC up and ready despite the pandemic challenges over the past two years!

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## Winners of the 5th Asia Pacific HPC-AI Competition announced

***With the continued support of NSCC, more than 100 students representing 22 teams from 12 countries and regions in APAC participated in the six-month long competition to develop HPC and AI powered solutions for the global challenges facing human health and environmental sustainability.***

The annual APAC HPC-AI Competition is a joint collaboration between the HPC-AI Advisory Council, National Supercomputing Centre (NSCC) Singapore and National Computational Infrastructure (NCI) Australia and it aims to bridge the gap between high performance computing (HPC) and AI use, and its application potential as part of talent development for participants from universities and research centres.

The 2022 competition included tasks and challenges focusing on three of the hottest research topics and mission critical issues that leverage the power of HPC and AI technologies to develop more in-depth understanding of the tasks and find solutions to help improve the issues of human health as well as the sustainability of our planet's resources and environment. These topics include developing future green energy mechanisms using HPC technology (Quantum ESPRESSO); analysing and training satellite data using AI technology for better climate modelling and weather forecasting (DASK); and using deep learning technologies to perform DNA Sequence Fast Decoding for enhanced disease prevention and medical care.

The National Tsing Hua University NTHU-CM team was crowned the overall champion while the teams from the Southern University of Science and Technology and The National Tsing Hua University NTHU-YC tied for second place. Teams from the National Cheng Kung University, Thammasat University, University of New South Wales and Universiti Putra Malaysia garnered third placing. The Australian National University, Griffith University and Agency for Science, Technology and Research (A*STAR) Singapore teams each won merit prizes. The Thammasat University team from Thailand won the award for best HPC performance while the Taiwan National Cheng Kung University won the award for the best deep learning performance and the Taiwan National Tsing Hua University NTHU-CM the award for best big data analytics performance. The A*STAR Singapore team also won the award for the best presentation performance.

"The fifth APAC HPC-AI competition once again shows the breadth and depth of regional young HPC talent as it continues to grow at a rapid pace," said Associate Professor Tan Tin Wee, Chief Executive of NSCC Singapore. "We congratulate all the participating teams and winners of the different categories who have once again shown the determination and innovativeness that make them the future of Asia Pacific's HPC community."

The 5th APAC HPC-AI Competition Award ceremony will be held during the SupercomputingAsia 2023 (SCA23) conference in Singapore from 27 February – 2 March 2023.

For more information on the APAC HPC-AI Competition, please visit https://www.hpcadvisorycouncil.com/press_releases.php.

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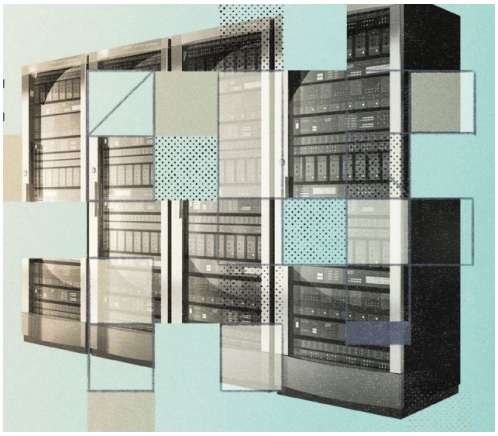
## At the leading edge: Technologies driving the future of HPC

***Take a look at the innovations that are unlocking the power of high performance computing to solve grand challenges in research and industry alike.***



Much like the FIFA world rankings of the top football teams or the songs skipping up and down the music charts each week, the most powerful computers around the globe are also indexed in what is called the Top500 list.

For two straight years, Japan's Fugaku dominated the supercomputing charts, boasting a computing speed of 442 petaFLOPS. But a new challenger—the 1.1-exaFLOPS Frontier system at the Oak Ridge National Laboratory in the US—has made its debut atop the latest rankings released in May 2022, inching Fugaku down to the number two spot.

Besides the top places, the rest of the Top500 has also seen plenty of shuffling around during the list's biannual publication. Such movement in the rankings is a testament to the breakneck pace of technological advancement in the high performance computing (HPC) sector.

By providing high-speed calculations on vast amounts of data, HPC systems not only stand at the frontiers of the tech industry but also serve as enabling tools for tackling complex problems in many other fields. For example, scientists can use such technologies to uncover biomedical breakthroughs from clinical data or model the properties of novel materials more efficiently and accurately.

Given the ever-expanding value of these innovations, it comes as no surprise that researchers and industry leaders alike continue to challenge the ceiling for supercomputing—from components to clusters, minor tweaks to significant performance upgrades. As the promising potential of HPC relies on many moving parts, here are the technologies and trends that are laying the groundwork for building even more powerful and accessible supercomputing systems.

Head over to www.nscc.sg/supercomputing-asia-magazine/ to read the full article published in the July 2022 issue of NSCC's Supercomputing Asia Magazine.

*This article was first published in the print version of Supercomputing Asia, July 2022.*
*Credit: Erinne Ong, Writer, Asian Scientist Magazine*

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# THE LAST BYTE...

<SHARED CONTENT>

***Shared articles and news from the HPC world.***

## Singapore's met service to get new supercomputer

***The Meteorological Service Singapore is getting a new Cray supercomputer to improve weather forecasting and tropical climate research.***

The Meteorological Service Singapore (MSS) is getting a new Cray supercomputer to improve weather forecasting and tropical climate research in the city-state and the broader Southeast Asia region. The new supercomputer, to be supplied by Hewlett Packard Enterprise (HPE), will replace MSS' current Cray system and is expected to deliver almost twice as much performance and advanced capabilities across compute, storage, software and networking. Read more at Computer Weekly here.

**Credit: Shutterstock**

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## LUMI again among the fastest and greenest supercomputers in the world

***EuroHPC Joint Undertaking's LUMI supercomputer reached the third spot on the new Top500 list of world's fastest supercomputers.***

LUMI reached a measured High-Performance Linpack (HPL) performance of 309 petaflops on this biannual list. This makes LUMI the fastest supercomputer in Europe. LUMI supercomputer reached the seventh spot on the new Green500 list which biannually ranks supercomputers from the Top500 list in terms of energy efficiency. The GFlops/Watts ratio for LUMI is 51.38, making it one of the greenest supercomputers in the world. Read more at LUMI here.


**Credit: LUMI**

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## Australian supercomputer fourth greenest in world

***Pawsey Supercomputing Research Centre announced its latest supercomputer, Setonix, has been recognised as one of the greenest supercomputers in the world, after ranking in the top5 on the globally recognised Green500 list.***

The ranking puts Setonix in company with exascale supercomputers Frontier in the US and LUMI in Finland, which share the same computing architecture. Setonix was also named the most powerful public research supercomputer in the Southern Hemisphere, ranking 15 in the global Top500 list this week. Read more at HPC Wire here.


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