

Cooperation is key in addressing future global challenges

The SupercomputingAsia 2021 (SCA21) conference reflects this spirit of collaboration with a number of initiatives. These include the signing of a Memorandum of Understanding (MOU) that will create a new link between Singapore entities and Finland's CSC-IT Centre for Science, the launch of the inaugural HPC Centre Leaders Forum, and the first EU-ASEAN-Japan Symposium.

Singapore, 02 March 2021 – An MOU that was signed between Singapore entities and Finland's CSC at the SCA21 conference is a reflection of the ongoing collaborative spirit in the HPC community. The MOU was announced by Dr Vivian Balakrishnan, Minister for Foreign Affairs and Minister-in-Charge of the Smart Nation Initiative at the Opening Ceremony of the SCA21 virtual conference, which adopted the theme "Supercomputing in the New Norm – Adapting to COVID-19 and beyond".

"The crisis has underscored the importance of international cooperation in the fight against the virus across the world," said Dr Vivian Balakrishnan in his Opening Speech to officially launch the SCA21 conference. "It is in this spirit of collaboration that I am happy to announce that a Memorandum of Understanding has been signed between the CSC-IT Center for Science in Finland, and the Singapore National Supercomputing Centre, Singapore Advanced Research and Education Network, and the National University of Singapore. This MOU signals our intent to accelerate cross-border collaborations, which will benefit the research communities far beyond our shores."

Singapore's National Supercomputing Centre (NSCC), Singapore Advanced Research & Education Network (SingAREN) and the Quantum Engineering Programme of the National University of Singapore (NUS) signed the MOU with CSC, which is responsible for managing Finland's supercomputing infrastructure. Among other things, the collaboration will explore a new high-speed, high-bandwidth research fibre optic link between Finland and Singapore as well as more secure ways of protecting data transfer by using quantum technology. NSCC and CSC are also studying Finnish green data centre models which have the potential to significantly lower data centre power consumption costs – the largest cost component in most data centres - by leveraging climate and renewable energy sources.

"The MOU and the other collaborative sessions at SCA21 is a reflection of the resolve by the HPC community to continue cooperation as a tool in fighting global challenges like the current pandemic, and to better prepare us to face the challenges to come," said Associate Professor Tan Tin Wee, the Chairperson of the SCA21 Steering Committee, and the Chief Executive of NSCC. "For Singapore, the new collaboration between CSC and the Singapore entities is significant as it could help future-proof Singapore's HPC resources by creating new research links and connectivity to Europe, develop better ways to protect the transfer of data over long distances, and helps us explore new ways to create more efficient and greener data centres."

"We are excited to collaborate with NSCC, SingAREN and NUS in cutting-edge communications technology," said CSC's Managing Director, Mr Kimmo Koski. "This will enable us in Finland and in Singapore to provide our national research and education networks world-leading capabilities in data transmission and information security. Furthermore, we will be collaborating in developing and sharing new competencies in high-performance computing and operation of green data centers."

NSCC had also recently signed an MOU with RIKEN's Center for Computational Science (RIKEN-CCS) and the Research Organization for Information Science and Technology (RIST) from Japan in September last year. This enabled Singapore researchers to access Japan's *Fugaku*, the world's fastest supercomputer. "Such partnerships not only helps Singapore tap on our partners to build resilience for our national HPC resources in times of adversity but also gives us the opportunity to learn from much more established, and larger HPC centres," added A/P Tan Tin Wee.

"We are very happy to have signed an MOU with NSCC to collaborate in activities around *Fugaku*, the world's fastest supercomputer, which will finally be commissioned on 9 March after ten years of R&D," said Prof Satoshi Matsuoka, Director of the RIKEN Center for Computational Science (R-CCS). "MOUs between various HPC centres around the world presents us the opportunity to escalate partnerships to collective activities that involve multiple centres around the world. R-CCS will be quite forthcoming with respect to collaborations for accessing *Fugaku* as well as the portfolio of HPC research that we conduct with the hundreds of researchers at our center."

In the spirit of international cooperation, the SC21 conference, jointly organized by Singapore, Australia and Japan, also played host to the inaugural HPC Centre Leaders Forum. The leaders of supercomputing centres of our region and Europe will gather to discuss opportunities and challenges that each face in designing and operating HPC centres and will share best practices for designing HPC centres of the future. The HPC centres involved are from Japan, Australia, Singapore, Thailand and Finland. These include Finland's CSC, which manages the development of Europe's most powerful pre-exascale supercomputer, the soon-to-be operational *LUMI*¹, and Japan's RIKEN-CCS, which developed *Fugaku*, currently the world's Number One ranked supercomputer according the TOP500 supercomputer list².

"It's a privilege to support the HPC Leaders' Forum and share insights from national HPC centres from across the region as they set the foundation for post-COVID operations. Our shared experiences during a global pandemic support increased strategic regional cooperation. The Leaders' Forum will strengthen bilateral and multilateral partnerships in HPC and the high-impact research supported by our national centres" said Mr Mark Stickells, Executive Director of Australia's Pawsey Supercomputing Centre and HPC Centre Leader Forum representative.

In addition, a new EU-ASEAN-Japan Symposium at SCA21 will be discussing how to promote greater cooperation among various HPC initiatives and collaborations among key opinion leaders of the various regions. Stakeholders within the ASEAN HPC working group, the EU and Japan's HPC initiatives, will discuss capability building, talent development and HPC skill capacity building that will benefit the ASEAN HPC community via programmes like the Enhanced Regional EU-ASEAN Dialogue Instrument (E-READI) and the organisation of a virtual HPC school by Thailand.

In March 2019, at the SupercomputingAsia 2019 (SCA19) conference, Singapore had announced a S\$200 million upgrade of its supercomputer resources and infrastructure. The development of a new supercomputer system by NSCC is now underway with plans to unveil the new system at the next SCA conference, SCA22.

The SCA21 event is being held as a virtual conference from 2-4 March 2021. The annual conference attracts HPC participants from across the Asia Pacific region and globally. Speakers from HPC centres, academia and industry deliver talks on the latest trends and developments in the supercomputing world. Sessions covered in SCA21 also include the Asia Pacific Research Platform (APRP), quantum computing and quantum-safe networks, weather and climate research as well as a HPC in Education track.

¹ LUMI will be one of the world's best known scientific instruments for the lifespan of 2021–2026 - <https://www.lumi-supercomputer.eu/>

² The TOP500 table shows the 500 most powerful commercially available known computer systems, <https://www.top500.org/>

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About the SupercomputingAsia 2021 (SCA21) Conference

Co-organised by HPC centres from Singapore, Japan and Australia, SupercomputingAsia (SCA) 2021 is an annual conference that encompasses an umbrella of notable supercomputing and allied events in Asia. SCA21 will be held as a virtual conference from 2 to 4 March 2021. The key objective of SupercomputingAsia conference is to promote a vibrant and relevant HPC ecosystem in Asia. Delegates will be able to gain access to visionary insights from thought leaders in academia and industry, optimum networking opportunities and the Supercomputing community in Asia. The conference co-organisers include the National Supercomputing Centre (NSCC) Singapore, RIKEN Center for Computational Science (R-CCS), Research Organization for Information Science and Technology (RIST), Pawsey Supercomputing Centre and the National Computational Infrastructure (NCI) Australia. Since SCA18, the SCA conference series has quickly grown to become a key meeting and networking platform for the HPC and supercomputing value chain for Asia and internationally. Partners share new insights, discuss trends and present the latest advances the development of HPC. The conference attracts international delegates including mid- and C-level executives, principal researchers and HPC professionals from academia, industry and the public sector.