National Supercomputing Centre (NSCC) Singapore e-newsletter

NEWSBYTES
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ASPIRE 2A

In this issue…

CORPORATE NEWS

NSCC Singapore Launches ASPIRE 2A and ASPIRE 2A+ supercomputers

NSCC Singapore's new supercomputers were launched by Deputy Prime Minister and Chairman of the National Research Foundation (NRF), Mr Heng Swee Keat on Friday, 25 October 2024. The launch coincided with the announcement of a $270m grant to develop the next supercomputer and further develop High Performance Computing (HPC) capabilities in Singapore.

*DPM Mr. Heng Swee Keat (2nd from left) officiated the launch of the new supercomputers alongside (L-R) , Prof. Tan Chorh Chuan, Permanent Secretary (National Research and Development), A*STAR Chairman; Mr. Quek Gim Pew, NSCC Singapore's Steering Committee Chairman; and Dr. Terence Hung, NSCC Singapore's Chief Executive.*

The new systems, managed by NSCC Singapore, are designed to accelerate advancements in research here, in key areas such as climate and weather research, materials and chemical sciences, genetics and healthcare, advanced modelling and simulation, and big data analytics. ASPIRE 2A+ will further enhance capabilities in fields such as large language models, generative artificial intelligence (AI), quantum simulations as well as advanced materials research, biomedical, and health sciences as part of the AI for Science initiative.

Prof. Dale Barker, Director, CCRS presenting the results of the V3 climate change study to DPM Heng during the launch event.

ASPIRE 2A and ASPIRE 2A+ are already delivering impactful results. A notable example is the Third National Climate Change Study (V3), conducted by the National Environment Agency's Centre for Climate Research Singapore (CCRS). NSCC Singapore's supercomputers were instrumental in producing Southeast Asia's highest-resolution climate projections, downscaling global climate models from 100 km to 2 km over Singapore. This simulation, which analysed over 3,000 years of climate data in just four years, provided policymakers and businesses with essential insights to prepare for extreme weather, heat stress, and rising sea levels, safeguarding Singapore's infrastructure and economy.

Dr Terence Hung guiding DPM Heng on a tour of NSCC Singapore's Dara Centre. Photo Credit: MDDI

At the launch, DPM Heng also announced a S$270 million grant to build Singapore's next supercomputer and further develop HPC capabilities to support national research initiatives. The grant, provided by NRF, will fund the development of NSCC Singapore's next-generation supercomputer to meet the growing demand for HPC resources and unlock new research opportunities.

Beyond infrastructure, the grant will also support talent and skills development within Singapore's HPC ecosystem, enabling NSCC Singapore to expand initiatives that will equip local researchers and scientists with enhanced capabilities. These efforts will focus on developing advanced algorithms, optimising large-scale HPC and AI projects, and improving research efficiency.

The launch of ASPIRE 2A and ASPIRE 2A+ marks a significant milestone in strengthening the country's strategic supercomputing infrastructure, underscoring Singapore's commitment to building a robust supercomputing ecosystem that advances research and improves lives. With these new systems, Singapore is well-positioned to stay competitive and meet the challenges of an increasingly complex and rapidly evolving technological landscape.

Find out more in the Press Release.

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New NSCC Singapore and Singtel AI Infrastructure collaboration to support local research with HPC resources

A Memorandum of Understanding (MoU) was signed between NSCC Singapore and Singtel at the launch of RE:AI to look at an AI-powered R&D platform for local academia and the research community.
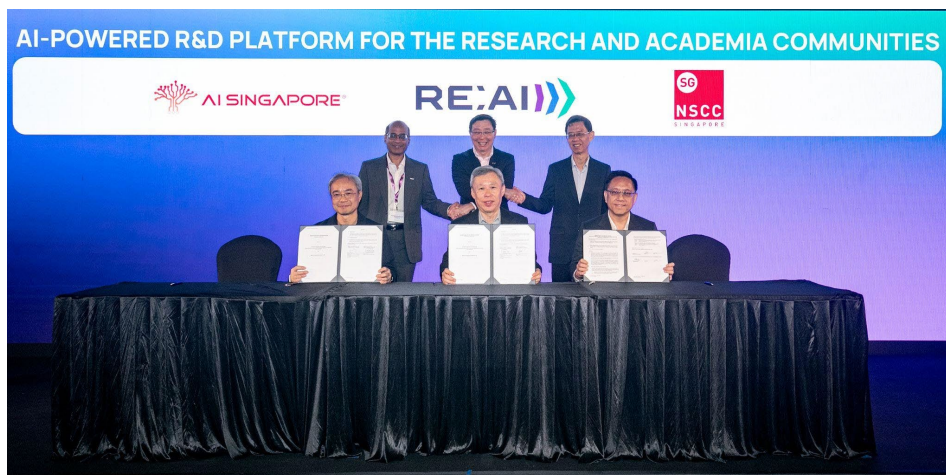
Singtel's new AI Cloud Service was launched at RE:AI with the signing of five MoUs to democratise AI across various sectors.

NSCC Singapore, in partnership with Singtel RE:AI, Singtel's new Artificial Intelligence Cloud Service (AI Cloud) offering, will explore making a diversity of high performance computing technologies available for the research community and collaborate on Singtel's *Paragon* platform to deliver seamless user experiences across different systems.

Through this partnership, NSCC Singapore will explore AI cloud resource solutions to accelerate AI innovation and operational efficiency, enabling scalable, optimised solutions for AI and machine learning workloads for the Singapore research community.

Find out more in the Press Release.

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Building HPC capabilities in Singapore – NSCC Singapore's October Workshop Roundup

NSCC Singapore organised two workshops to engage users of varying HPC experiences.

Attendees at the Introductory Workshop for ASPIRE 2A

NSCC Singapore recently hosted an Introductory Workshop for ASPIRE 2A as well as an ASPIRE 2A Advanced Workshop for Parallel Profiling and Debugging.

The introductory workshop for ASPIRE 2A provided new users with insights into the overall setup of the supercomputer. Participants were guided through the hands-on onboarding process and learned how to submit job requests to the system. For experienced users, the advanced workshop focused on debugging and profiling parallel applications using ARM Allinea and other tools from the Cray Programming environment. Attendees were also taught how to maximise application efficiency with performance reports and fixed an application crash using debugging tools.

NSCC Singapore regularly holds training and engagement workshops for users and the HPC community in Singapore. Be sure to check our Events page for updates on upcoming user workshops!

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SupercomputingAsia 2025 (SCA25) Call for Papers: Accepting Submissions till 8 November 2024 (AoE)

SCA25 is an annual international conference encompassing an umbrella of notable supercomputing events with the key objective of promoting a vibrant and relevant HPC ecosystem in Asia. Co-organised by HPC centres from Australia, Japan, Thailand and Singapore, the SCA25 will be held from 10 to 13 March 2025 as an in-person conference in Singapore.

The SCA25 Technical Conference will be held in conjunction with the event as a key conference track. Led by our Technical Programme Chair, Dr. Dhabaleswar K. Panda, Professor and Distinguished Scholar of Computer Science and Engineering at Ohio State University (OSU), USA, the Technical Conference aims to provide a platform for researchers and experts from academia and industry to present their latest research findings in the field of HPC.

We encourage submissions on a broad range of topics, including but not limited to:
- Applications and Algorithms
- Programming Models and System Software
- Data, Storage and Visualisation
- Architectures and Networks

For detailed information on submission procedures and conference tracks, please visit the official SCA25 Call for Papers website.

The registration for the SCA25 conference in Singapore will start soon. Register your interest to learn more and to be kept updated on development here – SupercomputingAsia 2025 (SCA25).

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Be part of the 2025 ACM ASEAN School on HPC and AI

Hosted by NSCC Singapore and co-located with SCA25, the 2025 Association for Computing Machinery (ACM) ASEAN School on HPC and AI will take place from 10 to 15 March 2025 in Singapore.

Sponsored by ACM, in collaboration with ACM Special Interest Group on High Performance Computing (SIGHPC) and ACM Special Interest Group on AI (SIGAI), the ACM ASEAN School on HPC and AI is designed for recent postdocs, PhD students in computer science and related fields, and outstanding MSc students. Sixty accepted participants will spend a week in Singapore, attending formal lectures, invited talks, a lecture by Turing Laureate Jack Dongarra, and other enriching activities. The school covers accommodation and catering during school hours.

Upon completing the program, attendees will receive a complimentary one-year ACM student membership. With the membership, students will receive electronic subscriptions to Communications of the ACM, ACM's flagship magazine, and XRDS: Crossroads, the ACM Magazine for Students. Students will also receive access to online books, videos and courses from leading provider Skillsoft on today's most sought-after job skills.

The application will close on 15 November 2024 (end-of-day AoE). Accepted candidates will be informed by 30 November 2024.

For more information, please visit the website here.

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Shared articles and news from the HPC world.

New Smart Nation 2.0 initiatives include S$120 million set aside for AI adoption

Smart Nation (SN) 2.0 will include a sum of S$120 million set aside for AI adoption and the setting up of a new agency to tackle online harms.

The next lap of the Smart Nation initiative was announced on Tuesday (1 Oct) by Prime Minister Lawrence Wong at Punggol Digital District. There are three key goals for SN 2.0 – trust, growth and community, and direct digital developments to benefit Singaporeans. New initiatives include getting AI into the classroom through teachers and modules, equipping more Singaporeans with digital skills, and utilising technology to enhance community connections.

Credit: The Business Times

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Advancing research collaboration in new energy and smart manufacturing technologies

Nanyang Technological University (NTU) and Hyundai Motor Group are advancing their research collaboration in the field of new energy and smart manufacturing technologies.

Under the first agreement, NTU and Hyundai will collaboratively develop alternative energy sources, to contribute to Singapore's ambition to achieve carbon neutrality. Key areas of focus include hydrogen production technologies and advanced energy systems.

A second agreement was also signed with the Hyundai Motor Group Innovation Center Singapore (HMGICS) and the Agency for Science, Technology, and Research (A*STAR) to establish a tripartite corporate lab for innovative manufacturing domains including AI, robotics and 3D printing.

Credit: NTU

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FPT and National University of Singapore (NUS) join forces in driving AI innovation and fostering talent development

Areas of collaboration include setting up a state-of-the-art AI Lab, advancing AI innovation and training AI professionals.

The NUS School of Computing has entered a partnership with Financing and Promoting Technology (FPT) Corporation, a leading global technology corporation headquartered in Vietnam, to advance the field of AI. This collaboration plans a joint investment of US$50 million, to be contributed by FPT Corporation, NUS, and other key players in the local and regional AI ecosystems over the next five years, aiming to drive pioneering research in AI and enhance talent development.

Credit: NUS

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Powering Innovation
Supercomputing in Asia

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