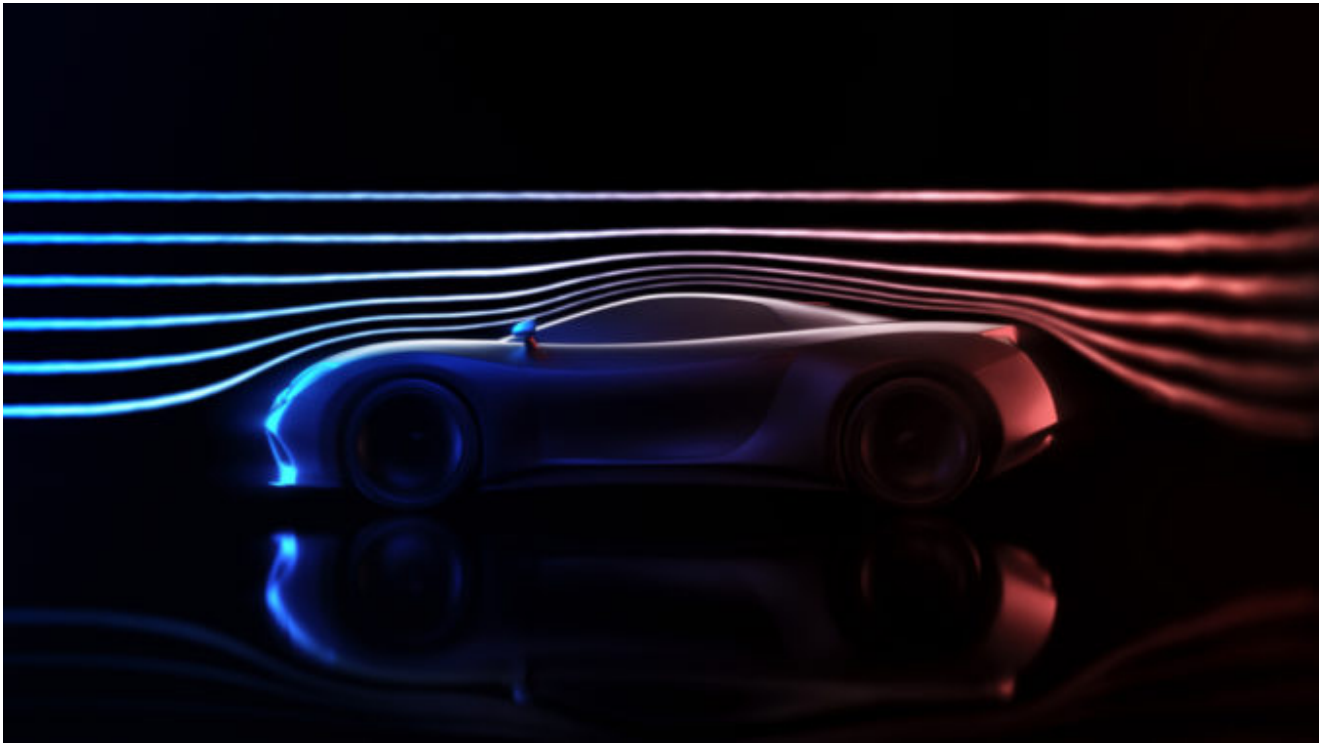


# OSC Enables On-Demand HPC for Automotive Engineering Firm

[hpcwire.com/2021/06/18/osc-enables-on-demand-hpc-for-automotive-engineering-firm/](https://www.hpcwire.com/2021/06/18/osc-enables-on-demand-hpc-for-automotive-engineering-firm/)

June 18, 2021



By Oliver Peckham

June 18, 2021

In motorsports, vehicle designers are constantly looking for the tiniest sliver of time to shave off through some clever piece of engineering – but as the low-hanging fruit gets snatched up, those advances are getting more and more difficult to achieve. Now, D2H Advanced Technologies – an engineering firm with efforts in sports like NASCAR – is working with the Ohio Supercomputer Center (OSC) to use supercomputing to supercharge its design work.

Much of this is computational fluid dynamics (CFD) work, studying how air flows through and around the various components of a motorsports vehicle. “Every millimeter cell around the car, we get the pressure, the velocity, vorticity, all of these parameters we need to tell what’s going on so that we can then go and make changes to the car,” said Darren Davies, CEO of

D2H Advanced Technologies. “Our models are an order of magnitude larger and more refined – amongst the most complicated and most detailed CFD models that anybody runs, commercial or industrial.”

The engineers are utilizing OSC’s on-demand HPC resources (fittingly, run through a portal called OSC OnDemand). OSC OnDemand includes clusters running Intel Xeon CPUs. Its latest deployment – a cluster called Pitzer – includes 658 Dell EMC PowerEdge nodes with Intel Xeon 8268 and 6148 CPUs. Using these heavy-duty HPC environments allowed D2H to reduce the number of real-world wind tunnel tests, which are costly in terms of time and money.

“They had already tested a vehicle in the wind tunnel,” Davies said of one recent manufacturer. “The planning and execution of the tests took months, and I would estimate that it cost them between \$30,000 and \$40,000. They gave us the same problem in CFD on OSC and we turned it around within a few days at a cost in the low single-figure thousands of dollars, proving that CFD testing would have been much faster and better value, without detracting at all from the accuracy of the results.”

Initially, D2H had only planned on using OSC’s resources as a backup, following a suggestion from a new hire who hailed from OSC’s home turf – but field results quickly led D2H to elevate OSC to a leading role.

“Over the last year, OSC has stretched ahead, and comfortably so,” Davies said. “The true on-demand service with low wait times is unique. We don’t have that anywhere else. And that’s what keeps OSC ahead of everyone else right now. ... It’s still good for us to have two providers, but right now, OSC is the stronger proposition and is our ‘go to’ provider of HPC resources.”

Tags: [automotive engineering](#), [OSC](#), [OSC OnDemand](#)

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## **Do You Believe in Science? Take the HPC Covid Safety Pledge**

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September 28, 2022

ISC 2022 was back in person, and the celebration was on. Frontier had been named the first exascale supercomputer on the Top500 list, and workshops, poster sessions, paper presentations, receptions, and booth meetings we [Read more...](#)

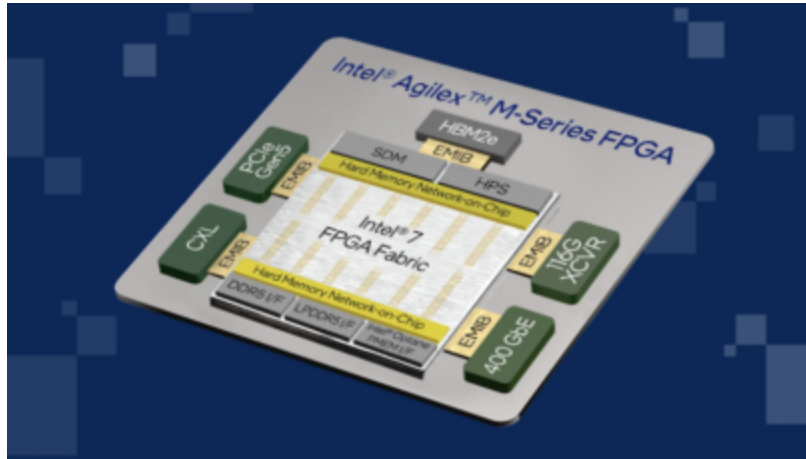


## **HPE to Build 100+ Petaflops Shaheen III Supercomputer**

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September 27, 2022

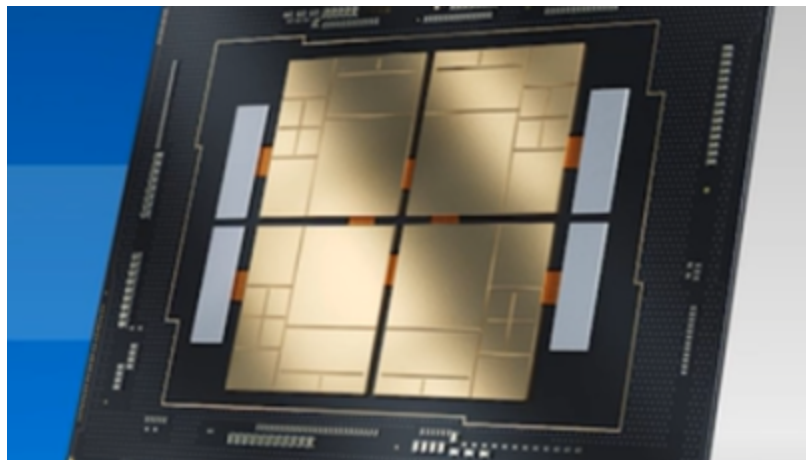
The King Abdullah University of Science and Technology (KAUST) in Saudi Arabia has announced that HPE has won the bid to build the Shaheen III supercomputer. Shaheen III, slated for full operation next year, is expected [Read more...](#)



## Intel's New Programmable Chips Next Year to Replace Aging Products

September 27, 2022

Intel shared its latest roadmap of programmable chips, and doesn't want to dig itself into a hole by following AMD's strategy in the area. "We're thankfully not matching their strategy," said Shannon Poulin, corporate vice president for the datacenter and AI group at Intel, in response to a question posed by HPCwire during a press briefing. The updated roadmap pieces together Intel's strategy for FPGAs... [Read more...](#)



## Intel Ships Sapphire Rapids – to Its Cloud

September 27, 2022

Intel has had trouble getting its chips in the hands of customers on time, but is providing the next best thing – to try out those chips in the cloud. Delayed chips such as Sapphire Rapids server processors and Habana Gaudi 2 AI chip will be available on a platform called the Intel Developer Cloud, which was announced at the Intel Innovation event being held in San Jose, California. [Read more...](#)



## **More Details on ‘Half-Exaflop’ Horizon System, LCCF Emerge**

September 26, 2022

Since 2017, plans for the Leadership-Class Computing Facility (LCCF) have been underway. Slated for full operation somewhere around 2026, the LCCF’s scope extends far beyond that of the large supercomputer — Horizon [Read more...](#)

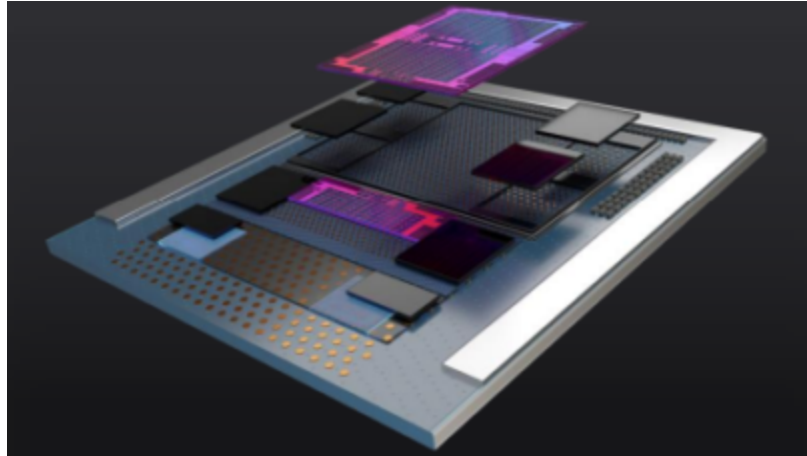


## **Nvidia Shuts Out RISC-V Software Support for GPUs**

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September 23, 2022

Nvidia is not interested in bringing software support to its GPUs for the RISC-V architecture despite being an early adopter of the open-source technology in its GPU controllers. Nvidia has no plans to add RISC-V support for CUDA, which is the proprietary GPU software platform, a company representative... [Read more...](#)

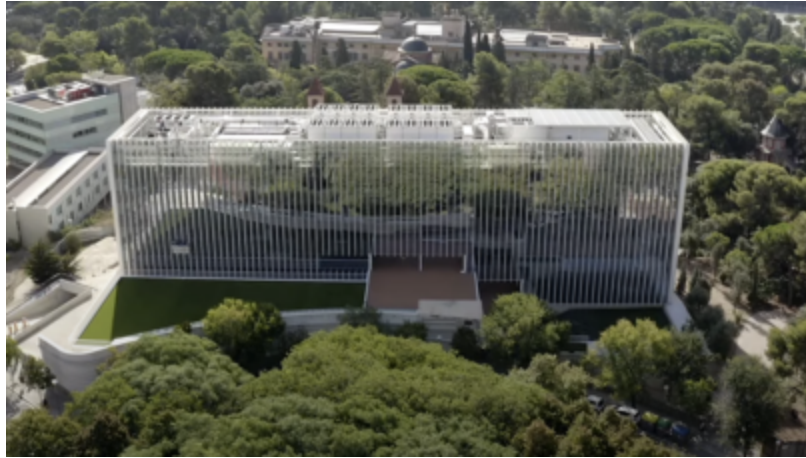


## **AMD Opens Up Chip Design to the Outside for Custom Future**

June 15, 2022

AMD is getting personal with chips as it sets sail to make products more to the liking of its customers. The chipmaker detailed a modular chip future in which customers can mix and match non-AMD processors in a custom chip package. "We are focused on making it easier to implement chips with more flexibility," said Mark Papermaster, chief technology officer at AMD during the analyst day meeting late last week. [Read more...](#)





## **Nvidia, Intel to Power Atos-Built MareNostrum 5 Supercomputer**

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June 16, 2022

The long-troubled, hotly anticipated MareNostrum 5 supercomputer finally has a vendor: Atos, which will be supplying a system that includes both Nvidia and Intel. [Read more...](#)



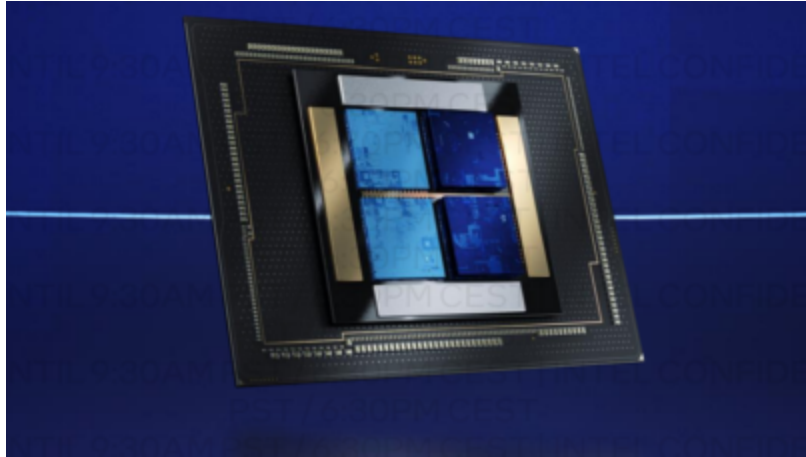
## **UCle Consortium Incorporates, Nvidia and Alibaba Round Out Board**

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August 2, 2022

The Universal Chiplet Interconnect Express (UCle) consortium is moving ahead with its effort to standardize a universal interconnect at the package level. The consortium has [Read more...](#)





## **Intel Reiterates Plans to Merge CPU, GPU High-performance Chip Roadmaps**

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May 31, 2022

Intel reiterated it is well on its way to merging its roadmap of high-performance CPUs and GPUs as it shifts over to newer manufacturing processes and packaging technologies in the coming years. The company is merging the CPU and GPU lineups into a chip (codenamed Falcon Shores) which Intel has dubbed an XPU. Falcon Shores... [Read more...](#)



## **Using Exascale Supercomputers to Make Clean Fusion Energy Possible**

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September 2, 2022

Fusion, the nuclear reaction that powers the Sun and the stars, has incredible potential as a source of safe, carbon-free and essentially limitless energy. But [Read more...](#)



## **The Final Frontier: US Has Its First Exascale Supercomputer**

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May 30, 2022

In April 2018, the U.S. Department of Energy announced plans to procure a trio of exascale supercomputers at a total cost of up to \$1.8 billion dollars. Over the ensuing four years, many announcements were made, many deadlines were missed, and a pandemic threw the world into disarray. Now, at long last, HPE and Oak Ridge National Laboratory (ORNL) have announced that the first of those... [Read more...](#)



## **Is Time Running Out for Compromise on America COMPETES/USICA Act?**

You may recall that efforts proposed in 2020 to remake the National Science Foundation (Endless Frontier Act) have since expanded and morphed into two gigantic bills, the America COMPETES Act in the U.S. House of Representatives and the U.S. Innovation and Competition Act in the U.S. Senate. So far, efforts to reconcile the two pieces of legislation have snagged and recent reports... [Read more...](#)



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## **India Launches Petascale ‘PARAM Ganga’ Supercomputer**

March 8, 2022

Just a couple of weeks ago, the Indian government promised that it had five HPC systems in the final stages of installation and would launch nine new supercomputers this year. Now, it appears to be making good on that promise: the country’s National Supercomputing Mission (NSM) has announced the deployment of “PARAM Ganga” petascale supercomputer at Indian Institute of Technology (IIT)... [Read more...](#)

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