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| Hewlett Packard Enterprise Accelerates Space Exploration with First Ever In-Space Commercial Edge Computing and Artificial Intelligence Capabilities *Astronauts and researchers can process data at the edge and speed time-to-insight from months to minutes with launch of HPE’s Spaceborne Computer-2, an edge computing system for the International Space Station* |

**San Jose, Calif. – February 11, 2021 –** [Hewlett Packard Enterprise (HPE)](http://www.hpe.com) today announced it is accelerating space exploration and increasing self-sufficiency for astronauts by enabling real-time data processing with advanced commercial edge computing in space for the first time. Astronauts and space explorers aboard the [International Space Station (ISS)](https://www.nasa.gov/mission_pages/station/main/index.html) will speed time-to-insight from months to minutes on various experiments in space, from processing medical imaging and DNA sequencing to unlocking key insights from volumes of remote sensors and satellites, using HPE’s Spaceborne Computer-2 (SBC-2), an edge computing system.

Spaceborne Computer-2 is scheduled to launch into orbit on the 15th Northrop Grumman Resupply Mission to Space Station (NG-15) on February 20 and will be available for use on the International Space Station for the next 2-3 years. The NG-15 spacecraft has been named “SS. Katherine Johnson” in honor of Katherine Johnson, a famed Black, female NASA mathematician who was critical to the early success of the space program.

**Breaking Barriers to Achieve Reliable Computing in Space**

The upcoming launch of Spaceborne Computer-2 builds on the proven success of its predecessor, [Spaceborne Computer](https://www.hpe.com/us/en/newsroom/blog-post/2017/08/hewlett-packard-enterprise-sends-supercomputer-into-space-to-accelerate-mission-to-mars.html), a proof-of-concept that HPE developed and launched in partnership with NASA in 2017 to operate on the International Space Station (ISS) for a one-year mission. The goal was to test if affordable, commercial off-the-shelf servers used on earth, but equipped with purposefully-designed software-based hardening features, can withstand the shake, rattle and roll of a rocket launch to space, and once there, seamlessly operate on the ISS.

The proof-of-concept addressed the need for more reliable computing capabilities on the ISS, or low Earth orbit (LEO), that were previously impossible to achieve due to the ISS’s harsh environment of zero gravity and high levels of radiation that can damage IT equipment required to host computing technologies.

Additionally, gaining more reliable computing on the ISS is just the first step in NASA’s goals for supporting human space travel to the Moon, Mars and beyond where reliable communications is a mission critical need.

HPE successfully accomplished its one-year mission with Spaceborne Computer and is now set to launch, through a sponsorship from the ISS U.S. National Laboratory, an even more advanced system, called Spaceborne Computer-2, which is set to launch this month and be installed on the ISS for the next 2-3 years for wider use.

**Accelerating Space Exploration with State-of-the-Art Edge Computing and AI Capabilities**

Spaceborne Computer-2 will offer twice as much compute speed with purpose-built edge computing capabilities powered by the HPE Edgeline Converged Edge system and HPE ProLiant server to ingest and process data from a range of devices, including satellites and cameras, and process in real-time.

Spaceborne Computer-2 will also come equipped with graphic processing units (GPUs) to efficiently process image-intensive data requiring higher image resolution such as shots of polar ice caps on earth or medical x-rays. The GPU capabilities will also support specific projects using AI and machine learning techniques.

The combined advancements of Spaceborne Computer-2 will enable astronauts to eliminate longer latency and wait times associated with sending data to-and-from earth to tackle research and gain insights immediately for a range of projects, including:

* **Real-time monitoring of astronauts’ physiological conditions** by processing X-Ray, sonograms and other medical data to speed time to diagnosis in-space.
* **Making sense of volumes of remote sensor data:** There are hundreds of sensors that NASA and other organizations have strategically placed on the ISS and on satellites, which collect massive volumes of data that require a significant amount of bandwidth to send to earth to process. With in-space edge computing, researchers can process on-board image, signal and other data related to a range of events, such as:
	+ Traffic trends by having a wider look at number of cars on the road and even in parking lots
	+ Air quality by measuring level of emissions and other pollutants in the atmosphere
	+ Tracking objects moving in space and in the atmosphere from planes to missile launches

 *“The most important benefit to delivering reliable in-space computing with Spaceborne Computer-2 is making real-time insights a reality. Space explorers can now transform how they conduct research based on readily available data and improve decision-making,” said Dr. Mark Fernandez, solution architect, Converged Edge Systems at HPE, and principal investigator for Spaceborne Computer-2. “We are honored to make edge computing in space possible and through our longstanding partnerships with NASA and the International Space Station U.S. National Laboratory, we are look forward to powering new, exciting research opportunities to make breakthrough discoveries for humanity.”*

**Proven in Space, Available on Earth: HPE Addresses the Harshest, Outer Edge Environments with Enterprise-Grade Solutions**

HPE is delivering the same edge computing technologies targeted for harsh, remote environments on earth such as oil and gas refineries, manufacturing plants or on defense missions, to space. Spaceborne Computer-2 includes the [HPE Edgeline Converged EL4000 Edge System](https://support.hpe.com/hpesc/public/docDisplay?docId=c05381844&docLocale=en_US), a rugged and compact system designed to perform in harsher edge environments with higher shock, vibration and temperature levels and purpose-built to process computing power at the edge to collect and analyze volumes of data from remotely scattered devices and sensors in space.

As a result of HPE’s proven success in delivering its computing technologies to space, organizations such as [OrtbitsEdge](https://orbitsedge.com/press-releases/f/orbitsedge-oem-agreement-with-hewlett-packard-enterprise), which provides protective hardening features for space computing initiatives, plans to integrate the HPE Edgeline Converged Edge Systems with its hardening solution, SatFrame, to enable commercial space companies to deploy computing in orbiting satellites and accelerate exploration.

Coupled with the HPE Edgeline Converged Edge Systems, Spaceborne Computer-2 will also feature the HPE ProLiant DL360 server, an industry-standard server, for additional high-performing capabilities to target a range of workloads, including edge, HPC, AI, etc.

*“Edge computing provides core capabilities for unique sites that have limited or no connectivity, giving them the power to process and analyze data locally and make critical decisions quickly. With HPE Edgeline, we deliver solutions that are purposely engineered for harsh environments. Here on Earth, that means efficiently processing data insights from a range of devices - from security surveillance cameras in airports and stadiums, to robotics and automation features in manufacturing plants,” said Shelly Anello, General Manager, Converged Edge Systems at HPE. “As we embark on our next mission in edge computing, we stand ready to power the harshest, most unique edge experience of them all: outer space. We are thrilled to be invited by NASA and the International Space Station to support this ongoing mission, pushing our boundaries in space and unlocking a new era of insight.”*

**Tackling Bigger Research with Edge-to-Cloud Capabilities**

Through a collaboration with *Microsoft Azure Space*, researchers around the world running experiments on Spaceborne Computer-2 have the opportunity to burst to the Azure cloud for computationally intense processing needs that require that can also seamlessly transmit results back to SBC-2. Examples being considered by Microsoft Research include:

* **Modeling and forecasting dust storms on Earth to improve future predictions on Mars** that can cover the entire red planet and decrease output of solar power generation that is critical to enabling mission essential energy needs
* **Assessing liquid usage and environmental parameters involved in growing plants in space to support food and life sciences** by collecting data from hydroponics processes and comparing them with large data sets on Earth
* **Analyzing lightning strike patterns that trigger wildfires** by processing a vast amount of data collected from 4K video-streaming cameras that capture lightning strikes happening across earth
* **Advanced analysis of medical imaging using ultrasound** on the ISS to support astronaut healthcare

**Call for Submission: Spaceborne Computer-2 Open for Research**

Submissions for research considerations on Spaceborne Computer-2 are open now. To learn more on how to submit a proposal to leverage the system to run experiments, please visit [www.hpe.com/info/spaceborne](http://www.hpe.com/info/spaceborne)

**About Hewlett Packard Enterprise**

Hewlett Packard Enterprise is the global edge-to-cloud platform-as-a-service company that helps organizations accelerate outcomes by unlocking value from all of their data, everywhere. Built on decades of reimagining the future and innovating to advance the way we live and work, HPE delivers unique, open and intelligent technology solutions, with a consistent experience across all clouds and edges, to help customers develop new business models, engage in new ways, and increase operational performance. For more information, visit: [www.hpe.com](http://www.hpe.com)