

Raspberry Pi, the tiny single board computer that has proved to be such a sensation in recent years, is set to hit a new milestone by returning to the International Space Station (ISS) with better specs.

The UK-designed computer was first put into space by British European Space Agency (ESA) astronaut Tim Peake in December 2015 in the Principia mission.

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The computers have been programmed by 54,000 students in 26 countries for tasks like [looking back at Earth from space and monitoring what crew members are doing on ISS](#).

ESA flagged two challenges in what it calls called Mission Zero and Mission Space Lab. The former required young people to write a program in the Python language and this year gives users the chance to vote for the names of the computers.

Mission Zero invites people to write a Python program to take a humidity reading onboard the ISS that's displayed to the astronauts with a personalised message. Mission Space Lab lets teams of young people run scientific experiments on the Astro Pi units aboard the ISS.

"The challenge is to design and write a program for a scientific experiment that enhances our understanding of either Life on Earth or Life in Space," [says ESA](#).

The new ESA Pi units are a Raspberry Pi 4 Model B with 8GB of memory, and include Raspberry Pi High Quality Camera, one of [Google's Coral Machine Learning Accelerator](#), a color and luminosity sensor, and a passive infrared sensor.

Also included are a gyroscope, accelerometer, magnetometer, and sensors to measure humidity, temperature and pressure. Plus there's a LED matrix for visual feedback.

"The new hardware makes it possible for teams to design new types of experiments," [says ESA](#).

The new hardware will let crew take sharper snaps of Earth in full colour. It also allows for a higher quality optical filter used with an IR-sensitive camera.

"Using the Machine Learning Accelerator, teams will also be able to develop machine learning models enabling high-speed, real-time processing," it says.

The Astro Pi units will be shuttled to space in December and should be in use by 2022.