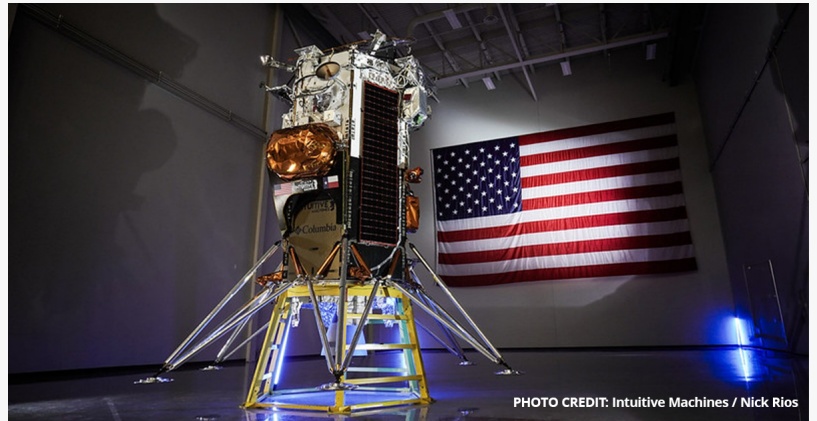


Aitech Provides Space-Rated Systems to Intuitive Machines for Successful IM-1 Mission to the Moon

System-level solutions provide IM-1 mission with reliable communication and data processing in orbit

CHATSWORTH, CA, UNITED STATES, February 29, 2024 /EINPresswire.com/ -- Aitech, a leading provider of rugged boards and system-level solutions for military, aerospace, and space applications, has provided a complete avionics computer system to Intuitive Machines for the IM-1 Mission, that successfully landed on the Moon February 22, 2024. The [space-rated system](#) developed by Aitech includes its SP0-S space-rated single board computer, S740 radiation tolerant communications PMC board, and S730, a rugged space-rated SpaceWire card.



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Highlights



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*Ralph Grundler, Space
Director of Aitech*

- Intuitive Machines' Nova-C class lunar lander named Odysseus successfully landed on the south pole region of the Moon, delivering NASA science payloads as part of the agency's CLPS initiative
- The IM-1 Mission is intended to help lay the foundation for a sustainable human presence on lunar surface
- Aitech space-rated computing system facilitates critical data processing for Intuitive Machines' lunar lander

Intuitive Machines is part of NASA's Commercial Lunar Payload Services (CLPS) initiative, which is a key part of NASA's Artemis lunar exploration efforts. IM-1 is one of the

missions NASA has chosen to take its scientific instruments to the moon over the next few years

to help lay the foundation for human missions and a sustainable human presence on the lunar surface.

CLPS mission objectives include demonstrating precision landing, observing how rocket plumes and space weather interact with the lunar surface, as well as testing certain communication and navigation node capabilities for future autonomous navigation technologies.

Aitech provided the complete conduction-cooled hardware for the Nova-C avionics system for use as both a payload controller and image data processor. Intuitive Machines utilized this dual SP0-S setup to respectively run both VxWorks RTOS and Linux to execute its time-critical software while processing video data streams down to a NAND flash storage module. This unique dual SBC system leverages RS-422, SpaceWire cameras, and NAND flash storage in an all-in-one space-rated avionics system.

Ralph Grundler, Space Director of Aitech, said, "We aim to support the most demanding space applications with computing and connectivity electronics systems, while continuously anticipating and exceeding the needs and expectations of the space industry for not only Lunar but also LEO, GEO and Deep Space applications. The Nova-C class lunar lander's system is an example of how Aitech is developing rugged space system solutions capable of providing reliable performance for the most unforgiving environments."

Aitech's space-rated SP0-S is a radiation-tolerant 3U CompactPCI SBC developed to handle high-performance processing and enhanced memory storage in orbit. Aitech's SP0-S architecture supports up to seven additional cards on the CompactPCI backplane providing clock, arbitration, and interrupt servicing, including additional SP0-S SBCs as peripheral processors, as seen in the Nova-C lunar lander.

The S740 radiation tolerant communications PMC is designed with 16 input and 16 output differential channels of RS-422 and utilizes the onboard FPGA logic to interface to the external spacecraft sensors and devices. To reduce bottlenecks, the S740 is designed with a protected onboard PCI Bus DMA controller for input and output data packet buffering.

The radiation-tolerant S730 SpaceWire PMC Card offers three SpaceWire ports with initiator and target capability and has provisions to add on RS422 serial interfaces and 32 GPIOs for complete system communication.

For more information please call 888-Aitech-8 (888-248-3248), <https://bit.ly/Space-Ind> or e-mail sales@aitechsystems.com.

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