

Aitech's Space-rated AI Supercomputer On NASA Atmospheric Re-entry Demonstration

Successful LOFTID Mission First Use of GPGPU in Space

CHATSWORTH, CA, UNITED STATES, May 31, 2023 /EINPresswire.com/ -- With the successful launch and re-entry of NASA's Low-Earth Orbit Flight Test of an Inflatable Decelerator (LOFTID) on November 10, 2022, Aitech's [NVIDIA-based, space-characterized S-A1760 Venus AI supercomputer](#) became the first use of GPGPU technology in space. Aitech is a leading provider of rugged boards and system-level solutions for military, aerospace and space applications.



Six S-A1760 Venus GPGPUs were onboard to help control and record the visible and infrared camera images from each of the six camera pods viewing the LOFTID heatshield. The GPGPU helped ensure recovery of the backup recordings for the mission's captured camera data and provided critical intelligence on the aeroshell/heatshield performance.

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Pratish Shah

Pratish Shah, General Manager U.S. of Aitech, said, “Driving innovation is at the heart of what we do, so being a part of this groundbreaking mission makes all of us at Aitech incredibly proud. Not only have we put the first GPGPU

into space, but we've helped make great strides in more affordable, reusable technology for the entire space industry as well as enable exploration into deeper orbits.”

Using the NVIDIA Jetson TX2i system-on-module (SoM), the S-A1760 Venus is the most powerful and smallest radiation-characterized space AI GPGPU rated for space flight and small satellite constellations used in near earth orbit (NEO) and low earth orbit (LEO) applications. The TX2i features the Pascal architecture with 256 CUDA cores and reaches 1 TFLOPS of processing.

The S-A1760 Venus is a small form factor (SFF) AI supercomputer that boasts a robust set of I/O interfaces including Gigabit Ethernet, UART Serial, USB 2.0, CANbus and discretes as well as DVI/HDMI output. Video capture includes an HD-SDI input with a dedicated H.264 encoder and eight RS-170A (NTSC)/PAL composite channels available simultaneously.

NASA's LOFTID demonstrated a cross-cutting aeroshell – a type of heat shield – for atmospheric re-entry. The inflatable decelerator technology is scalable for both crewed and large robotic missions to Mars, and the results of the November 10th LOFTID demonstration will inform future designs for inflatable heat shields that could be used to land heavier payloads on worlds with atmospheres, including Mars, Venus, Saturn's moon Titan, and Earth.

Aitech has developed cost-effective COTS-based and custom integrated systems for use in various government, commercial and private space programs for four decades. In addition to Level 100 (development), Level 200 (test flight) and Level 500 (beyond LEO) space products, the company offers Level Series 300 space electronics, specifically designed as cost-effective, reliable COTS solutions that bridge the gap between costly radiation hardened EEE parts and those that can be effectively used for lower orbits and shorter duration LEO and NEO space missions.

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

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About Aitech:

With 40 years of experience, Aitech is a global digital electronics manufacturer with expertise in providing reliable, rugged embedded systems for the harshest, most unforgiving environments in military, aerospace and space applications. We enable the world's leading companies to expand their most revolutionary explorations and push the boundaries of innovation across sea, land, air, and space.

We provide COTS products based on multiple open standard architectures, including SOSA, FACE, VPX, CompactPCI, etc., such as single board computers, I/O, memory and graphics boards, PMC/XMCs and sub-system enclosures, with over 100,000 boards and custom integrated systems delivered to take on the most challenging projects in the harshest environments and succeed. As a pioneer in space applications, Aitech offers proven space pedigree with trillions of miles flown in a variety of space missions without a single failure.

At Aitech, we stand behind our product and our customer to secure a better tomorrow.

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