

VAYA SPACE & UEI • Working Together to Find Solutions

OVERVIEW

Vaya Space is developing the cutting-edge Dauntless rocket, which is unique for its hybrid engine that combines the safety of solid propellants with the control of liquid systems and features a distinctive spiral grain fuel design for enhanced thrust and efficiency. It also focuses on reducing environmental impact while offering reliable and cost-effective space access, all with a design geared toward sustainability.

As Vaya Space prepares for Dauntless launch in 2026 it is essential to have the right backbone for flight computer and stage controller systems for precise navigation, real-time trajectory adjustments, smooth stage separation, and payload deployment which are critical for efficient fuel usage and mission success. They also monitor onboard systems, triggering corrective actions or abort procedures to ensure safety and optimal rocket performance. Vaya Space relies on rugged and reliable flight computer and stage controller solutions to ensure a successful maiden flight.



THE IMMEDIATE CHALLENGES

- 1 Rugged and compact commercial-off-the-shelf (COTS) I/O systems, space operations proven, with the ability to handle the serial and digital signals required for flight computer and stage controller functions.
- 2 Compatible with VxWorks real-time operating system (RTOS) and NASA's core flight software for the development of guidance, navigation, control (GNC) and "six degrees of freedom" (6DOF) craft control algorithms.
- 3 Ability to ship prototype hardware fast to keep up with R&D schedules.

PATHWAYS TO SUCCESS

- Vaya Space selected two UEI DNR-MIL-4 military-grade I/O system solutions – one for the flight computer and one for the stage controller. Each system has vast communication capabilities as well as high-density I/O.
- The DNR-MIL-4 is extremely rugged, able to withstand -40 to 85 °C and 100 g shock, as well as compact at 4.3" x 9.5" x 7.12", making it ideal for Vaya Space's applications.
- Each system runs VxWorks RTOS and is programmable for a full range of GNC and 6DOF functionality.



UEI's DNR-MIL-4 SYSTEM

END RESULT

"UEI'S VAST SELECTION OF I/O CARDS HAS ENABLED VAYA SPACE TO QUICKLY AND EFFICIENTLY FIND THE BEST OFF-THE-SHELF SOLUTION FOR OUR AVIONICS NEEDS. AN ADDED BENEFIT TO USING UEI IS THE ABILITY TO DEVELOP OUR AVIONICS SYSTEMS USING UEI'S LOWER-COST CHASSIS VARIANTS THAT PERFORM IDENTICALLY TO THE FLIGHT UNITS, ENSURING PIECE OF MIND AND A SEAMLESS CONVERSION TO THE DAUNTLESS FLIGHT SYSTEMS."

- RICK POWIS, VAYA SPACE, LEAD ELECTRICAL ENGINEER

GREAT PARTNERSHIP. OUTSTANDING SOLUTIONS.

[WIN] Vaya Space secured proven flight computer and stage controller system solutions that were ideal for their applications, keeping Dauntless on schedule for '26 launch which will mark an important milestone in sustainable and cost-effective approach to orbital launches, potentially revolutionizing access to space.

[WIN] UEI COTS solutions were available in weeks versus months allowing Vaya Space to keep their R&D pace. UEI I/O solutions are a crucial component for rocket systems as they are reliable and rapidly deployable for mission-critical data acquisition, test, and control applications.

[WIN] UEI's 10 Year Availability Guarantee on all COTS hardware removes the worry of obsolescence and ensures systems can operate for years to come.



ASK US HOW UEI CAN DO THE SAME FOR YOUR COMPANY!



uei.sales@ametek.com • (508) 921-4600
249 Vanderbilt Ave, Norwood, MA 02062



ueidaq.com