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CLEVELAND, OHIO, UNITED STATES, November 22, 2021 /EINPresswire.com/ -- ZIN Technologies Inc. (ZIN), a leader in space power systems, designed, built, and tested the Power Processing Unit (PPU) for NASA's Evolutionary Xenon Thruster - Commercial (NEXT-C), the in-space propulsion system for NASA's Double Asteroid Redirection Test (DART). The DART Mission, which is set to launch on November 23 at 10:20 pm PST from Vandenberg Space Force Base, aims to alter the trajectory of a non-threatening binary asteroid system called Didymos via kinetic impact deflection. The test will inform NASA how to deflect a hazardous asteroid on a collision course with Earth, should one be discovered in the future.

ZIN and Aerojet Rocketdyne provided the NEXT-C solar powered ion propulsion system under contract to the NASA Glenn Research Center. The NEXT-C system consists of a Gridded Ion Thruster and Power Processing Unit (PPU). The NEXT-C PPU, which ZIN designed, manufactured, and flight qualified, converts up to 7 kW of solar input power to the high-voltage, precisely regulated outputs required by the thruster. "ZIN's NEXT-C PPU enables NASA missions like DART by providing a high-efficiency solution to the complex problem of powering an ion thruster," said James Bontempo, ZIN's NEXT-C Lead Engineer. "The NEXT-C PPU creates the high-voltage that accelerates the xenon ions in the thruster, which is the key to achieving high specific impulse. This allows customers like DART to get the most propulsion per kilogram of propellant mass."

The NEXT-C system is approximately three times more powerful than its NASA Solar Technology Application Readiness (NSTAR) predecessor, making it the most powerful ion thruster that NASA has flown. The NEXT-C propulsion system boasts significant improvements to specific impulse, efficiency, and throttling range. It enables future deep space missions due to a reduced need for on-board propellant while accommodating of a broad range of solar input power. When the propulsion system is successfully operated on DART, NEXT-C will be considered for a variety of long-term space science missions that could include destinations such as asteroids, comets, and planets.

The DART spacecraft will launch on a SpaceX Falcon 9. ZIN also provides integrated services for the preparation and launch of the DART spacecraft as a major subcontractor under NASA's

Launch Services Program (LSP). After separation from the launch vehicle, DART will begin its nearly year-long journey to Didymos. Traveling at a speed of roughly 15,000 miles per hour, enabled by the NEXT-C propulsion system, the DART spacecraft will impact the asteroid in the fall of 2022. NASA will subsequently observe and measure the changes in orbit imparted on the binary asteroid system by DART.

“ZIN is a proud partner with NASA, Johns Hopkins Applied Physics Laboratory (APL) and Aerojet Rocketdyne on this important mission to advance Earth’s planetary defense capabilities,” stated Daryl Laisure, CEO of ZIN. “The PPU is mission critical hardware and a testament to the incredible team responsible for the successful delivery contributing to this important technology demonstration mission.”

About ZIN Technologies, Inc.

ZIN Technologies, Inc. is an award-winning AS 9100 registered small-disadvantaged business (SDB) headquartered in Northeast Ohio. Established in 1957, ZIN is a leader in providing advanced engineering services and product development solutions for NASA, DoD and private industry. ZIN provides engineering and scientific expertise to manage and develop mission critical space flight systems. These system lifecycles span from concept-level definition, design, and development to system-level assembly, integration, test, launch, and operations. ZIN has developed space flight hardware for the Space Shuttle, MIR, International Space Station (ISS), and is currently developing for the Lunar Gateway Habitation and Logistics Outpost (HALO) and Power and Propulsion Element (PPE) in support of the Artemis program. For more information, please visit www.zin-tech.com.

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