ANSYS AND AIR RACE E PIONEER NEXT-GENERATION ELECTRIC AIRCRAFT

News / Manufacturer

Engineering teams are developing cleaner, faster and highly advanced electric aircraft using Ansys simulation solutions. Through a new sponsorship with Air Race E, Ansys technologies will help accelerate the design of innovative all-electric race planes competing in the 2021 Air Race E World Championship, a series of international air racing competitions that are spurring the future technology developments needed to drive more sustainable aviation.

Flying as fast as 400 km/h (250 mph) on a tight oval racing circuit around demanding corners creates tremendous engineering challenges for electric aircraft. The power electronics and battery management system must safely and optimally handle the rapid discharge of significant battery energy during a race. This presents considerable thermal management issues, requiring extensive external and internal aerodynamic and aerothermal configuration redesign. Additionally, the electric powertrain must be integrated and optimized to deliver a race-winning performance. Ansys' portfolio of simulation solutions will provide key insights for each Air Race E racing team.

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Ansys solutions will help team engineers significantly improve batteries and battery management systems to deliver more power with less weight penalty, create small electric machines that are reliable and efficient, design electric powertrains equipped with power electronics to overcome thermal and high voltage challenges, and perform safe system-wide integration. Air Race E serves as a testbed for furthering the development and adoption of these clean technologies for urban air mobility and commercial airplanes.

"Lacking historical design precedent for these highly sophisticated electric aircraft, simulation remains the only way to safely develop innovative technologies under incredibly tight deadlines," said Jeff Zaltman, founder and CEO, Air Race Events. "Partnering with Ansys, Air Race E teams will leverage leading-edge simulation technology to design new aircraft, achieve world-class performance levels and cross the finish line at incredible speeds. These advances will help usher in the next chapter of electric aviation."

"Together, Air Race E and Ansys are accelerating the journey to sustainable aviation, empowering Air Race E teams to cost-effectively develop new aircraft that will shape the future of electric flight," said Shane Emswiler, senior vice president, Ansys. "Ansys' portfolio of physics-based and system-level simulation technologies will enable the design of cutting-edge electric systems to increase the efficiency of each aircraft, maximize power output throughout the demanding races and redefine what is possible in electric aviation."

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