

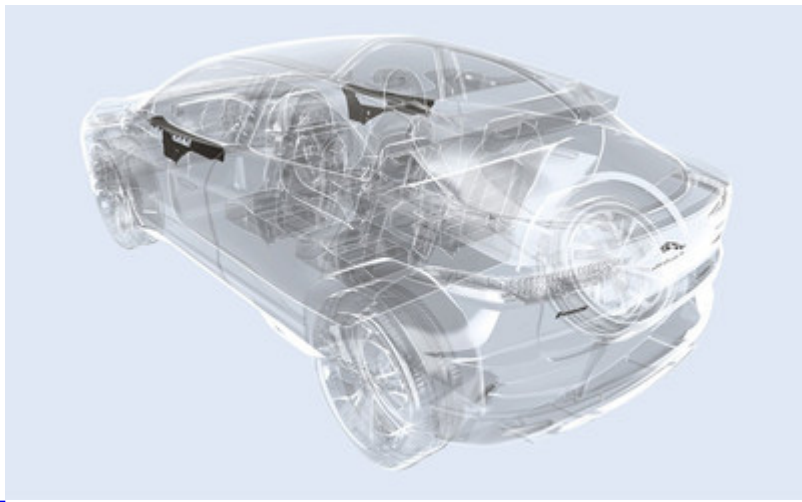


Winners of Altair Enlighten Award Feature Weight-saving Design Innovations That Cut Automotive CO2 Emissions

August 4, 2021

Industry's only award dedicated to vehicle lightweighting and sustainability honors greatest advancements in reducing the carbon footprint, mitigating water and energy consumption, and promoting material reuse and recycling

TROY, Mich., Aug. 4, 2021 /PRNewswire/ -- [Altair](#), the global leader converging simulation, HPC, and AI, proudly announces the winners of the 9th annual Altair Enlighten Award. Presented in partnership with the Center for Automotive Research (CAR), the award recognizes the automotive industry's most impressive sustainable engineering initiatives, focusing on lightweighting and the use of innovative materials, technologies, and techniques to cut CO2 emissions.



"The 2021 Enlighten Award once again shines a light on the inspiring work of automotive engineers worldwide. Now more than ever, sustainability and emissions reduction are critical challenges not just for the automotive sector, but society as a whole," said James R. Scapa, founder, chairman, and chief executive officer, Altair. "By enabling unprecedented convergence of simulation, data analytics, and high-performance computing, Altair is proud to continue to celebrate and power lightweighting initiatives around the globe as automotive organizations transform pioneering ideas into production-ready solutions more quickly and efficiently."

The full list of winning projects, runners-up, and honorable mentions include:

Sustainable Product – Vehicle

- **Winner: Ford Motor Company, 2021 Ford Mustang Mach-E** – The all-electric Ford Mustang Mach-E emits zero CO2 while driving, and its sustainable credentials are further supported by a 100 percent vegan interior that eliminates the use of animal products.

Sustainable Product – Component

- **Winner: Magna International, 2019 RAM 1500 Active Air Deflector and Grille Shutters** – Using lightweight, cost-effective, and 78 percent recyclable plastics, the RAM 1500 Active Air Deflector and Grille Shutters reduce drag by nine percent for better fuel economy. Aero products on the RAM 1500 have reduced CO2 emissions by 641.9 thousand metric tons since January of 2015.
- **Runner-up: SAIC GM Wuling Automobile Co, Ltd., for the Wuling Victory** – To help achieve both lightweighting and safety goals, the Victory design features increased use of high strength steel, ultra-strength steel, and hot forming process on body in white. The whole vehicle weight is reduced by 61.5 kg, enabling an improvement in fuel consumption of 0.2L/100km.

Sustainable Process

- **Winner: Faurecia, NAFILean Stiff** – NAFILean Stiff is a polypropylene compound that uses 20 percent bio-sourced contents and is 100 percent recyclable. NAFILean Stiff is the latest innovation of the NAFILean family. Implemented since 2013 in 17 production vehicles since 2013, the NAFILean Family stands to benefit a fleet of 14 million vehicles. Delivering a 21

percent reduction in weight, it has offered a savings of 100,000 tons in CO2 emissions (assuming a 10-year lifetime at 15,000km/year for 14 million vehicles), and an additional 811 million km travelled with the same quantity of fuel.

- **Runner up: Henkel, PALLUMINA™ Metal Pretreatment Process**– Used in the production of the 2021 Toyota Tacoma and Tundra, PALLUMINA provides significant sustainability advantages compared to conventional processes, including eliminating the use of heavy metal phosphates, reducing sludge generation up to 90 percent, and decreasing the use of water up to 50 percent.

Lightweighting Enabling Technology

- **Winner: ArcelorMittal, FORTIFORM® 980GI Next Generation Steel** – Combining high ductility for complex shapes with higher levels of strength for improved safety, FORTIFORM® 980GI offers potential weight savings of up to 20 percent.
- **Runner-up: JAC Group, JAC SOL A5, Fastback Sports Car** – JAC Group established an integrated, simulation-driven design process for body structural design. Applying a multi-disciplinary approach that also embraced safety, noise, vibration, harshness (NVH) and durability, a reduction in whole vehicle weight of 106.3 kg was achieved.
- **Honorable Mention: U.S. Steel, Body-in-White Assembly using U.S. Steel 980 XG3™ Gen3 AHSS** –Combining strength and formability without compromising weldability, U.S. Steel 980 XG3™ realizes weight savings of approximately 10 percent with potential improvement in safety performance compared to previous program body in white.

Module Lightweighting

- **Winner: Stellantis, 2021 Jeep® Grand Cherokee Composite Tunnel Reinforcement (partners: Stellantis, BASF, L&L Products)** – The industry-first Jeep Grand Cherokee Composite Tunnel Reinforcement is designed to carry a critical load path and achieves a 40 percent weight savings on the component itself, and a further 20 percent on the subsystem. The total weight savings per vehicle is 2.08 kg and is combined with lower costs for both the component and initial tooling.
- **Runner-up: Rassini Suspensiones, Lightweight Multi-Material Leaf Spring** – The Lightweight Multi-Material 'Hybrid' Leaf Spring uses GFRP composite materials and HP-RTM manufacturing technology which enables a 30 percent weight savings over the previous product generation. Because the design is widely applicable to light duty trucks, and medium and heavy commercial vehicles, the potential total annual market is estimated at nine million leaf springs.

Future of Lightweighting

- **Winner: American Axle & Manufacturing, Electric Drive Unit (eDU)** – AAM's eDU saves more than 25 percent in mass compared to similar units on the market. Integrating the electric machine, gearbox, and inverter in a compact package, it also demonstrates a higher power-to-weight ratio than competitor products.
- **Runner-up: Shiloh Industries, Aluminum Curvilinear Laser Welded Blank** – Representing the industry's first ever aluminum curvilinear laser welded blank, this one-part, one-stamping solution eliminates four original parts. In a typical liftgate, for example, this results in a 16 percent weight reduction. At 5.3 kg per vehicle, that would mean a total savings of three million kg of aluminum per annum, based on a 300,000-vehicle production volume. In addition, potential cost savings of \$18 per vehicle are realized.
- **Honorable Mention: Dura Automotive Systems, Dura Modular EV Battery Tray** – A modular and scalable design that can be tailored to multiple platforms and vehicles of all types and sizes, the Dura Modular EV Battery Tray delivers a 10 percent weight savings over the surrogate design and a reduction in CO2 emissions of 3.8 tons over the program life.

"Our mission is to deliver world-class research and analysis on key issues facing the automotive industry and their impact on society and sustainability. Lightweighting is central to the quest for greater fuel economy and electrification, which in turn is vital to the future of the whole sector," said Carla Bailo, president and chief executive officer, CAR. "We are delighted to collaborate with Altair in celebrating another stellar array of truly innovative projects."

Winners will be formally announced in an awards ceremony at 8 a.m. ET on August 4, 2021. To attend MBS and view the awards ceremony, visit <https://www.cargroup.org/mbs/>. Media partners for the 2021 Altair Enlighten Award include [SAE International](#), [Automotive Engineering](#), and [Automobil Industrie](#). For more information about the Enlighten Award, visit <https://www.altair.com/enlighten-award/>.

About Altair (Nasdaq: ALTR)

Altair is a global technology company that provides software and cloud solutions in the areas of simulation, high-performance computing (HPC), and artificial intelligence (AI). Altair enables organizations across broad industry segments to compete more effectively in a connected world while creating a more sustainable future. To learn more, please visit www.altair.com.

Media Contacts

Corporate

Jennifer Ristic
+1.216.849.3109
jristic@altair.com

Altair Europe/The Middle East/Africa

Evelyn Gebhardt
+49 7031 6208 0

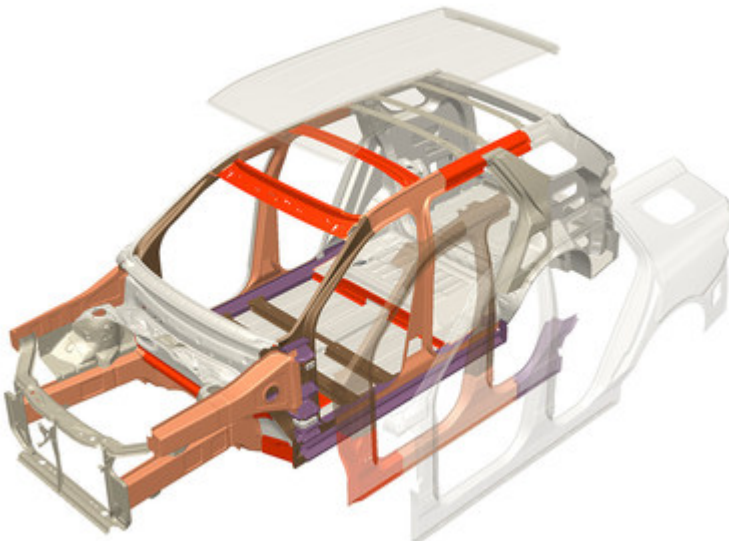
gebhardt@altair.de

Investor Relations

The Blueshirt Group

Monica Gould +1 212.871.3927

ir@altair.com





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