



ANSYS 2019 R2 Strengthens Digital Thread Between Design, Engineering and Manufacturing

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PITTSBURGH, June 4, 2019 /PRNewswire/ -- From ideation to design to manufacturing and operations, [ANSYS](#) (NASDAQ: ANSS) is accelerating, streamlining and simplifying the product life cycle through new functionalities released in [ANSYS 2019 R2](#). With a revolutionary ANSYS® Mechanical™ user experience, simplified simulation of complex electronics and a new ANSYS® Fluent™ workflow that significantly speeds meshing of dirty geometries, ANSYS' pervasive simulation engineering solutions enable digital transformation — speeding customers' innovations and reducing their time to market.

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Digital transformation is impacting every industry. Through groundbreaking digital technologies, hardware and software developers can work together in all phases of the product development cycle and shave years off their product timelines. With new functionalities in ANSYS 2019 R2, including new materials capabilities for structural analysis following the recent acquisition of Granta, ANSYS' simulation solutions accelerate collaboration, validation and verification — creating a reliable digital thread between all operations.

"Design, engineering and manufacturing practices are changing at lightning speed — organizations are leaning on simulation and digitizing their processes to bring cutting-edge products to customers faster than ever," said Shane Emswiler, vice president and general manager for ANSYS electronics, fluids and mechanical business units at ANSYS. "This release empowers customers to do more with multiphysics simulation in less time. ANSYS 2019 R2 automates simulation while making it easier to use."

Highlights of the ANSYS 2019 R2 release include:

New User Experience and More in ANSYS Mechanical

With ANSYS 2019 R2 and the acquisition of DfR Solutions, ANSYS Mechanical cements its industry lead in usability and productivity. ANSYS 2019 R2 introduces a new user interface in ANSYS Mechanical that speeds user adoption and reduces learning times to transform engineers' productivity. The improved interface provides new capabilities around customization, ease of use features and instant search and launch tool.

By adding DfR Solutions' Sherlock to the portfolio, ANSYS now offers a turnkey, end-to-end solution in electronics reliability.

"The recent acquisition of DfR Solutions provides users an easy-to-use solution focused on mechanical reliability for electronic products," said Jim Hunter, manager, Viasat Reliability Engineering. "Electronic product CAD assemblies which previously took weeks to create can now be assembled and solved in under an hour."

Beyond the new interface and acquisition, 2019 R2 includes enhanced SMART fracture modeling, a new topology optimization methodology that reduces the time to prepare the resultant geometry—shortening the digital thread. Also included in ANSYS 2019 R2 is an automatic meshed-based connection for shell and beam models, which is a key offering for oil & gas structures and heavy industrial equipment models.

"ANSYS' meshed-based connection enabled us to generate meshes for models and complicated geometries previously impossible to mesh. Days spent ensuring joint edges were properly imprinted on faces geometrically are now in the past, as the meshed-based connection technology automatically detected and connected the model exactly as intended. By every metric, the mesh quality was superior to previously meshed models," said Wu Zhu, Principal Structural Engineer at Diamond Offshore Drilling. "Diamond Offshore Drilling's mission of responsibly unlocking energy depends on our in-house engineering team swiftly responding to environmental and customer needs. Not only will this new meshing technology save us hours of tedious geometry work, it will allow us to respond to urgent FEA tasks faster."

New Materials Offerings

Following the acquisition of Granta, ANSYS 2019 R2 embeds data on more than 600 materials within ANSYS Mechanical — speeding up the process of setting up models by reducing time spent looking for material properties. The ANSYS GRANTA Materials Data for Simulation data package provides broad coverage of material types and easy access to key data needed for structural analysis.

Powerful New Tools for Simulating Complex Electronics

New offerings in the electronics and electromagnetics suite include important new features for engineers meeting complex design challenges. Accelerated doppler processing in ANSYS® HFSS™ SBR+ expedites the modeling of ADAS radar scenarios related to autonomous vehicles and other near-field radar sensing systems by 100X.

ANSYS 2019 R2 also introduces TAU Flex meshing, a powerful new meshing technology enabling users to efficiently obtain design trend information earlier in the design cycle. The integration of EMIT to the ANSYS HF flow enables a new capability to simulate RF Desense, a major challenge encountered by engineers designing smartphones, tablets and wireless products that include antennas, RF transceivers, digital data sources and sensors.

Additionally, in collaboration with our partner Modelithics, Inc., ANSYS 2019 R2 introduces a new library of HFSS 3D component models for the design of 5G and wireless communication systems.

ANSYS Cloud added to Electronics Suite

ANSYS Cloud delivers easy and instantaneous access to cloud-based high-performance computing directly within ANSYS' structures, fluids and electronics product suites — enabling companies of all sizes to accelerate their digital transformation initiatives with near infinite compute resources, more product performance data and faster time to market. Direct on-demand cloud access from the ANSYS® Electronics Desktop™ in 2019 R2 enables ANSYS® HFSS™ and ANSYS® Siwave™ customers to seamlessly burst into faster, distributed simulation—solving higher fidelity models and more design variations well beyond the capacity of their on-premise compute resources.

New Fluids Workflow Speeds Meshing of Dirty Geometries

In the fluids suite, ANSYS enhanced and extended its new Fluent experience that accelerates digital transformation by enabling users to do more computational fluid dynamics (CFD), in less time, with less training than ever before. The new task-based, fault tolerant workflow meshes dirty, non-watertight geometries twice as fast without scripts or popups. Complex models that previously took days or even weeks can now be meshed in hours.

With ANSYS 2019 R2, users can further speed combustion simulations without sacrificing accuracy through the newly released capabilities. A benchmark example resulted in a reduced mechanism with 36% fewer species than previous methods. Parallel performance gains can cut simulation time in half for full-cycle internal combustion engine simulations that include spray, chemistry and flame propagation physics.

New hybrid meshing capabilities save hours of hands-on time by enabling users to completely mesh complex turbine blade models.

New SPEOS with Live Preview

The new ANSYS SPEOS packages an unprecedented integration that offers an intuitive and comprehensive user interface — increasing customers' productivity by computing GPU-based simulation previews within the ANSYS multiphysics ecosystem. The new ANSYS SPEOS enables a faster and more iterative design potential and is accessible to engineers without computer-aided design (CAD) experience.

With the new SPEOS Live Preview, users explore an interactive version of their SPEOS simulation model and obtain immediate rendering results directly on ANSYS VRXPERIENCE.

"To develop successful head-up display systems, Hyundai Mobis must simultaneously assess the highly complex optical and mechanical performance of many different designs," said Kihyuk Song, Principal Research Engineer, Hyundai Mobis. "With ANSYS SPEOS, we can rapidly test many scenarios to determine the optimal HUD configuration, while reducing our development times.

Revolutionary ANSYS VRXPERIENCE Offerings

The new ANSYS VRXPERIENCE Sound empowers users to improve brand image and the sound quality by listening and modifying the sound coming from a recording or CAE. ANSYS VRXPERIENCE Sound is the premier software and comprehensive solution for sound analysis, sound quality measurement and 3D playback, and is now connected to ANSYS Mechanical.

With the ANSYS 2019 R2 release, ANSYS VRXPERIENCE HMI and ANSYS VRXPERIENCE Perceived Quality enable users to more easily define object animation and lighting approach through finger tracking — creating dynamic and interactive projects faster. Users can easily animate and experiment with virtual prototypes.

Complete Driving Simulation Platform

ANSYS 2019 R2 offers advanced simulation of scenarios for closed loop ADAS and AV testing with its new complete driving simulation platform, ANSYS VRXPERIENCE Driving Simulator Powered by SCANer™. Users can virtually test scenarios in direct connection with ANSYS VRXPERIENCE.

ANSYS VRXPERIENCE Driving Simulator Powered by SCANer provides the capability to prepare advanced scenarios and run simulations including events, surrounding traffic and vehicle dynamic with complete and accurate multi-body vehicle dynamics. With ANSYS VRXPERIENCE Driving Simulator Powered by SCANer, users will reduce physical testing and shorten the time to market by testing the autonomous driving systems in a digital framework.

Streamlined Safety Testing and Analysis

With the ANSYS® medini analyze and SCADE® families, users are enabled with new capabilities that allow them to ensure the digital safety of their embedded systems and software applications. The new ANSYS® SCADE® Test™ model coverage feature divides the testing effort relative to structural coverage achievement — thanks to model-to-code coverage. Unique in the embedded software market space, model-to-code coverage requires only one execution, one acquisition, one level of justification and one review. The software is also 10X faster than previous versions.

ANSYS SCADE Test for SCADE Suite® is ready for qualification under DO-178C and for certification under ISO 26262, IEC 61508, or EN 50128. The resulting qualification credits enable users to avoid lengthy and costly reviews and verification activities when certifying and qualifying their safety-critical products.

The innovations in SCADE® Solutions for ARINC 661 Compliant Applications provide users with up to 40% efficiency improvement in widget and graphical server creation, thanks to the new ARINC 661 Server Creator UI. This user interface allows for a streamlined ARINC 661 widget and server creation and customization process.

"Rail-Mil is currently developing the first communication-based train control system for Poland and has chosen ANSYS to help deliver on this business initiative. This project is aimed at increasing railway system capacity while maintaining existing safety levels," said Slawomir Jasinski, CEO, Rail-Mil Poland. "As we develop onboard systems for trains, the intelligent solutions we use have to be reliable and safe, as any issue could lead to serious consequences. We selected ANSYS SCADE as it is the best software in the market to speed up embedded software development and ensure compliance with EU regulations."

ANSYS® medini analyze fully supports the FMEDA safety analysis on the semiconductor level including verification of safety mechanism coverage

data by fault injection. This enables our customers to comply with ISO 26262:11 2018.

New Features for System Simulation and Digital Twins

ANSYS® Twin Builder™ 2019 R2 enhances Modelica workflow capabilities, making it easier for users to quickly implement and edit Modelica components in their systems designs. Support for undo-redo and a new array connector dialog box are a few of these new capabilities. New solver performance enhancements in the product improve performance by up to 30%.

Multiphysics Performance Improvements

In the multiphysics suite, all multiphysics simulation cases that use System Coupling benefit from performance improvements of 3X for the coupling engine — increasing overall run times by 20% or more. With the update, users can run mixed steady-transient analyses, which increases simulation efficiency when modeling a multiphysics application with fast physical effects on one side and a slower response on the other. The "fast" physics can be run as steady-state and the slower response as transient.

More Comprehensive and Insightful 3D Design Exploration

ANSYS® Discovery™ continues its award-winning momentum to bring simulation upfront in the design process and simulation insight to every engineer. In this release the designer use cases are expanded with live thermal stress and electrical conduction simulation.

Engineers need to evaluate a broad spectrum of product behaviors as they develop their designs, and ANSYS Discovery features industry-leading breadth of phenomena with unparalleled speed and ease of use. This release also delivers more insight from the simulations, through a new interactive legend, improved result controls and enhanced immersive interaction with 3D simulation results. While still in beta, generative design capabilities take a step forward with options for getting results back to surface-based CAD models.

Faster and Easier Additive Manufacturing

ANSYS Additive Prep, built right into ANSYS® SpaceClaim®, makes orienting parts and creating advanced support structures easy. New heat maps give fast feedback on optimal supports, distortion tendency and build time while native support generation tools are fast and easy to use.

About ANSYS, Inc.

If you've ever seen a rocket launch, flown on an airplane, driven a car, used a computer, touched a mobile device, crossed a bridge or put on wearable technology, chances are you've used a product where ANSYS software played a critical role in its creation. ANSYS is the global leader in engineering simulation. Through our strategy of Pervasive Engineering Simulation, we help the world's most innovative companies deliver radically better products to their customers. By offering the best and broadest portfolio of engineering simulation software, we help them solve the most complex design challenges and create products limited only by imagination. Founded in 1970, ANSYS is headquartered south of Pittsburgh, Pennsylvania, U.S.A., Visit www.ansys.com for more information.

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