



## Dassault Systèmes Announces New Release of Abaqus Unified Finite Analysis from SIMULIA

*This addendum is associated with the 20-May-2008 press release from Dassault Systèmes.*

### **New and enhanced features in Abaqus 6.8 include:**

#### **Modeling and Visualization**

- A new SolidWorks Associative Interface maintains the relationship between SolidWorks and Abaqus models.
- Enhancements to the Pro/ENGINEER Associative Interface provide a bi-directional capability to synchronize model changes between Abaqus and Pro/ENGINEER.
- The Material Library enables the efficient use and management of material properties from multiple sources, including third-party and proprietary databases.
- Modeling improvements accelerate the creation and definition of meshes, fasteners, connectors, cyclic symmetry, and cavity radiation.
- Visualization and output improvements have been made for free-body cuts, beam and truss elements, and contact analyses.

#### **Structural Analysis**

- The Virtual Crack Closure Technique (VCCT) is now a standard feature in Abaqus/Standard. Parallelization and a linear scaling technique accelerate crack initiation evaluation.
- Surface-based cohesive behavior eliminates the need to define cohesive elements, which simplifies the process of analyzing composite delamination.
- A new anisotropic hyperelastic material model enables the simulation of soft tissue interaction with stents and orthopedic implants. This model can also be used to analyze materials such as reinforced rubber and wood.
- Low-cycle fatigue calculations, enabled through the direct cyclic procedure, improve the evaluation of solder joints, powertrain durability, composite laminates, and bone degradation.
- A new unsymmetric dynamic substructure capability allows automotive engineers to capture full vehicle noise and vibration responses due to tire rolling effects and viscoelastic material effects from tires, bushings, isolators, and laminated steel.

#### **Computing Performance**

- High performance computing is enhanced through improvements to the parallel direct sparse solver, which reduce memory usage and accelerate solving large models.
- The general contact algorithm provides enhanced performance for the evaluation of edge-to-edge contact and solid-element surface erosion—important capabilities for filament winding, airbag deployment, ballistic impact, and soil excavation.
- Improved support of subspace-based steady-state dynamics and multiple load case analysis significantly reduce run time for large models with a large number of modes.
- Additional performance improvements have been made to the Lanczos eigensolver, cavity radiation, constraint equation handling, memory usage, and disk management.



### **Multiphysics Capabilities**

- The Coupled Eulerian-Lagrangian (CEL) analysis capability supports parallel processing and enables the efficient analysis of fluids or other materials undergoing extreme deformation, which is useful in applications such as tire hydroplaning, soil excavation, forming, bird strike, or fluid sloshing.
- Sensors and actuators are now available to enable the modeling of feedback control systems used in applications such as robotics, suspension systems, and process modeling.
- Coupled temperature-displacement effects are now supported in the general contact capability, including gap conductance, radiation, and heat generation.

For additional product information, visit: [www.simulia.com/products/unified\\_fea](http://www.simulia.com/products/unified_fea).

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### **About SIMULIA**

SIMULIA is the Dassault Systèmes brand that delivers a scalable portfolio of Realistic Simulation solutions including the Abaqus product suite for Unified Finite Element Analysis, multiphysics solutions for insight into challenging engineering problems, and lifecycle management solutions for managing simulation data, processes, and intellectual property. By building on established technology, respected quality, and superior customer service, SIMULIA makes realistic simulation an integral business practice that improves product performance, reduces physical prototypes, and drives innovation. Headquartered in Providence, R.I., USA, with R&D centers in Providence and in Suresnes, France, SIMULIA provides sales, services, and support through a global network of over 30 regional offices and distributors. For more information, visit [www.simulia.com](http://www.simulia.com).

### **About Dassault Systèmes**

As a world leader in 3D and Product Lifecycle Management (PLM) solutions, Dassault Systèmes brings value to more than 100,000 customers in 80 countries. A pioneer in the 3D software market since 1981, Dassault Systèmes develops and markets PLM application software and services that support industrial processes and provide a 3D vision of the entire lifecycle of products from conception to maintenance to recycling. The Dassault Systèmes portfolio consists of CATIA for designing the virtual product - SolidWorks for 3D mechanical design - DELMIA for virtual production - SIMULIA for virtual testing - ENOVIA for global collaborative lifecycle management, and 3DVIA for online 3D lifelike experiences. Dassault Systèmes is listed on the Nasdaq (DASTY) and Euronext Paris (#13065, DSY.PA) stock exchanges. For more information, visit [www.3ds.com](http://www.3ds.com).

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### **Dassault Systèmes Press Contacts**

Tim Webb (SIMULIA)	<a href="mailto:tim.webb@3ds.com">tim.webb@3ds.com</a>	+1 (401) 276-8105
Derek Lane (DS Americas)	<a href="mailto:derek.lane@3ds.com">derek.lane@3ds.com</a>	+1 (818) 673-2243
Mikiko Igarashi (DS AP)	<a href="mailto:mikiko.igarashi@3ds.com">mikiko.igarashi@3ds.com</a>	+81-3-5442-4138
Arnaud Malherbe (DS EMEA)	<a href="mailto:arnaud.malherbe@3ds.com">arnaud.malherbe@3ds.com</a>	+33 (0)1 55 49 87 73