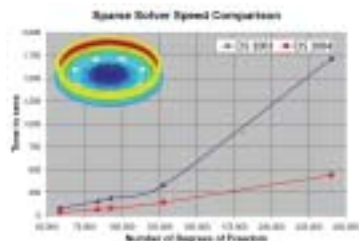


Design analysis

COSMOS, an affiliate of Dassault Systemes, has announced an update to COSMOSDesignSTAR 4.0 software that includes improvements in both the speed and memory management of the solvers, and multi-processor



support for the sparse solver. COSMOSDesignSTAR is equipped with meshing tools that automatically reduce element size in cases where the first pass fails to mesh. It offers users a number of ways to refine the mesh, along with a diagnostic tool that identifies problems in the geometry of the model. The program also simplifies analysis of real-life loads such as shrink fit, rigid connection, and thermal contact resistance.

For more information, circle 124

Electrical power modeling

The MathWorks has released SimPowerSystems 3, a graphical tool to help electrical engineers analyze the generation, transmission, distribution, and consumption of electrical power systems in a Simulink environment. Block



libraries for components and devices commonly found in electrical power networks are provided to make it simple to develop complex, self-contained power systems such as those found in automobiles, aircraft, and manufacturing plants. The latest version uses the same physical modeling architecture as SimMechanics, enabling the simulation of electromechanical components.

For more information, circle 125

Viewing CAD geometry

Actify has released the 2004 version of its product family. SpinFire Reader and SpinFire Professional have a redesigned user interface that works more like a webpage for ease of use and quick learning. Handling of multiple file types has been improved, allowing all information about a design



including 3-D modeling, 2-D snapshots, and spreadsheet and document management to be shared throughout an organization. Redlining tools are also available for 2-D markup, giving the user the ability to link comments, approvals, and notes to specific features in a 2-D format.

For more information, circle 126

Electric and hybrid-electric vehicle design

The RT-LAB electric drive simulator from Opal-RT Technologies Inc. is an integrated software and hardware solution for engineers designing electric and hybrid-electric vehicles. Based on



RT-LAB technology and using PC-based software and hardware components, the simulator provides a hard real-time platform for the simulation of all mechanical, electrical, and control system aspects of vehicle behavior. The platform allows design engineers to accelerate the design process through virtual prototyping with high-fidelity simulation using dynamic models, particularly for hardware-in-the-loop testing.

For more information, circle 127

Welding assembly

ESI Group's SYSWELD 2003 models complex material behavior including metallurgy, and simulates processes such as heat treatment, welding, and welding assembly. The welding assembly advisor technology makes it possible to study multiple welding sequences and clamping conditions, and to



select the optimum sequence leading to minimum distortions. The heat treatment advisor technology permits the simultaneous modeling of complex physical phenomena: heat transfer, phase transformations, and mechanics. The software is also interfaced with PAM-STAMP, the company's sheet-metal-forming simulation software.

For more information, circle 128

Engine simulation software

Wave v5.1 from **Ricardo** builds on the wave v5 suite and adds additional functionality for modeling transient operation, control, co-simulation, and fuel injection. The software features a program that provides users with the ability to perform transient vehicle

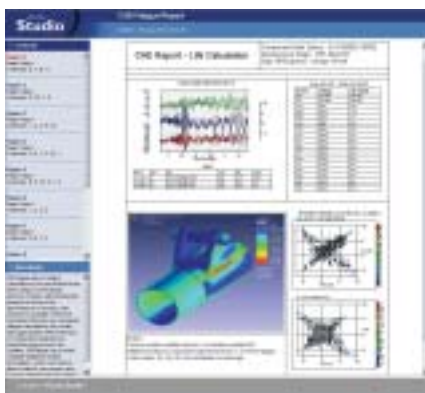


analysis by generating look-up maps of engine performance that are developed using sophisticated multidimensional sparse-data map-filling and interpolation algorithms. Fully interactive time-step coupled calculations between detailed engine and valvetrain models are also possible. Wave v5.1 also features an automated built-in gain calibration tool.

For more information, circle 129

Test and CAE reporting

ICE-flow Studio from **nCode International** enables the development of comprehensive engineering reports easily and quickly. It allows multiple sets of CAE results and/or multichannel test data to be combined interactively on a single page and exported as a report in **Microsoft Word** or **HTML**. Open to data from most CAE and testing systems, it features reports in a pre-defined template that the user can design or



modify quickly. It is seamlessly compatible with other nCode tools including nSoft, FlowBuilder, and SoMat data-acquisition systems. Users can work locally or via the Internet. An optional Studio FE Display plug-in allows users to view multiple finite-element models from NASTRAN, ABAQUS, ANSYS, and other standard formats on the same page.

For more information, circle 130

Visual simulation

SPEOS visual ergonomics simulation software from **Optis** is now able to simulate and analyze the effects of glare from exterior light sources, unwanted reflections of instruments in the windshield, and the effect of contrast on visibility of information. The tool uses a

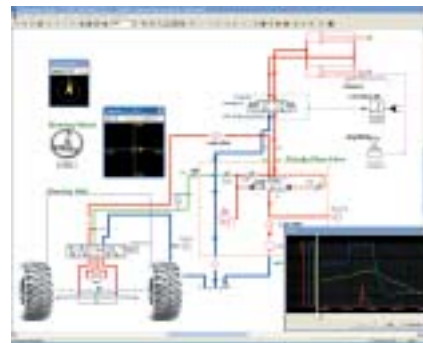


physics-based approach to light propagation and can determine the driver's eye responses to light level, color, and contrast. An additional application can extend the capability to infrared and night vision devices.

For more information, circle 131

Design software

Famic Technologies Inc. offers Automation Studio circuit design, simulation and project documentation software for mobile hydraulics, pneumatics, and electrical control systems found in construction, mining, agriculture, and forestry machinery. The simulation tool validates designs, detects flaws, and performs training and maintenance on such equipment systems as hydrostatic transmissions, power-steering units, and load-sensing pumps. Simple-to-complex circuits can be

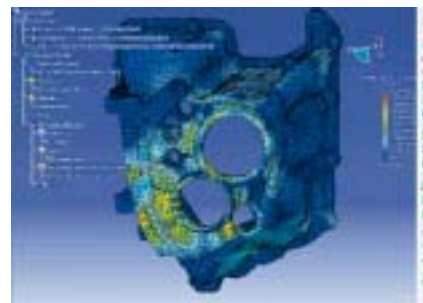


designed by dragging and dropping symbols from the software's libraries onto the workspace. The simulation mode shows valves shifting positions, cylinders moving, and the status of switches changing, while fluid lines change color to indicate fluid pressure functions. Functions can be added to monitor speed, acceleration, flow, and position and to display trends and store numerical data. Automation Studio includes simulation models for servo and proportional valves, variable displacement pumps, pressure regulators, and flow controls.

For more information, circle 132

Virtual product development

MSC.Software Corp. has released SimDesigner 2004 r1 for CATIA V5R11 from **Dassault Systemes**. The SimDesigner product line has two different families that allow components and mechanisms to be tested before they are built: Generative products embed the



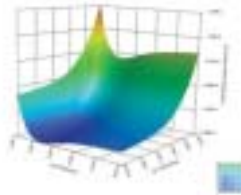
simulation directly into the CATIA V5 environment, and Gateway products provide a smooth path to access corporate simulation resources outside of the design software. The new products replace **MSC.Dynamic Designer** and **MSC.visualNastran**.

For more information, circle 133

Design software

8.0 DesignXplorerVT is an additional tool for DesignXplorer users from ANSYS that provides insight into product designs by integrating simulation activities with parametric CAD models through variational technology. The variational technology automatically generates an explicit approximation of finite-element results expressed as a function of a selected input variable range. It eliminates the number of finite-element analyses that are often required to satisfactorily evaluate finite-element results by providing a response surface, or an explicit approximation function of the finite-element results expressed as a function of all selected input variables.

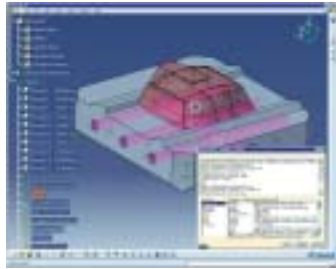
For more information, circle 134



Data retention

Knowledgeware software that is contained within IBM's CATIA V5 prevents the loss of historical data, for example, when employees leave or move between projects. The software offers tools to help capture, verify, distribute, and maintain a client's intellectual capital for the entire lifecycle of a design. It can also discover hidden knowledge assets; capture, share, and reuse designs and employee knowledge across an enterprise; and establish an enterprise-wide vocabulary to ensure that newer employees correctly understand compiled company knowledge. These features can provide a 30% reduction in tooling development time and a 50% reduction in design changes, according to the company.

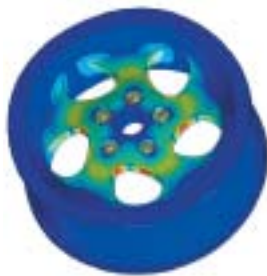
For more information, circle 135



Durability analysis

Fe-safe durability analysis software from ITI Manta for FEA has direct interfaces to leading suites of software. It comes with a full-signal processing suite and a database of material-fatigue properties for users to add their own data. The software calculates where fatigue cracks will occur, when the cracks will initiate, the factors of safety on working stresses, and the probability of survival at different service lives. Methods are included to identify and eliminate non-damaged nodes, and to conduct multi-channel, time-slicing to eliminate non-damaging events. Applications include metallic component, complex assembly, welded fabrication, and press-formed part analysis.

For more information, circle 136



Development solution

A development solution from Metrowerks builds embedded powertrain platforms based on the MPC5500 family of microcontrollers containing PowerPC cores from Freescale Semiconductor, a subsidiary of Motorola, Inc. The MPC5500 family of 32-bit microcontrollers combines RISC core with an integrated set of peripherals and embedded FLASH memory. It provides a clear migration path with code compatibility and software reuse between products, and offers upward compatibility with the MPC5xx family. The solution includes hardware, software-development tools, emulators, a real-time operating system (RTOS), and test/analysis technologies to reduce the time, effort, and costs of purchasing and integrating multiple components. Integrated internal and external technologies include CodeWarrior Development Studio for the MPC5500 family, Version 1; PowerTAP Pro Nexus Class-1-run control emulator; CodeTEST Software Analysis Tools with Nexus Class 3 data trace; OSEKturbo RTOS with deterministic scheduling; ASH WARE eTPU simulation engine; and UNIS Processor Expert GUI initialization.

For more information, circle 137

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