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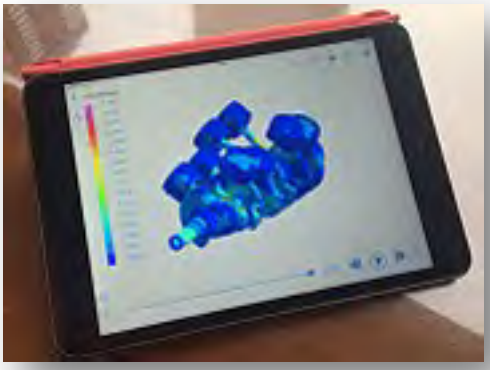
BETA CAE System announces the release of v16.0.4 of its software suite.

Cray Awarded Contract to Upgrade Cray Systems at Germany's National Meteorological Service

ESI Virtual Performance Solution results, shared using ESI-Player, on a tablet -



Dr. Yanbin Liu, Memorial March 31, 2106

FEA Information Inc.

A publishing company founded April 2000 – published monthly since October 2000.

The publication's focus is engineering technical solutions/information.

FEA Information Inc. publishes:

FEA Information Engineering Solutions

FEA Information Engineering Journal

FEA Information China Engineering Solutions

Livermore Software Technology, Corp. (LSTC) Developer of LS-DYNA One Code Methodology.

LS-DYNA provides fully integrated, strongly coupled, solvers for extensive multiphysics capabilities. Integrated, at no additional cost. Optimized for shared and distributed memory for Unix, Linux, & Windows Based platforms.

FEA Information Engineering Solutions – Dedicated To:

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LSTC
Livermore Software Technology Corp.

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DELL

FEA Information News Sections

RESCALE - Webinar: How to Run LS-DYNA in the cloud with Rescale

http://info.rescale.com/webinar-rescale-ls-dyna-in-the-cloud

Wednesday, May 18th. 8 AM PST / 11 AM EST

Rescale will host a webinar to demonstrate how to set up and run LS-DYNA simulations using Rescale's on-demand, HPC platform. Existing LS-DYNA users will see how they can easily purchase on-demand licenses through the Rescale platform to accelerate their LS-DYNA workflow in the cloud.

Airbag Folding and Morphing One Day Class – 14th Int'l LS-DYNA Conference

LSTC One Day Class - Sign up at www.ls-dynaconferences.com for

BETA CAE Systems and Hankook AAC - invite you to the 2016 BETA CAE Open

No participation fee for the event - May 10, 2016 at the InterContinental Seoul COEX

Register by email no later than May 1, 2016 to ansa@ansameta.com

USA/LS-DYNA software Training - Toulouse, France - taught by Tom Littlewood

Hosted by DynaS+ at Toulouse France - October 26 - 28, 2016

Livermore Horses, Livermore, CA

A beautiful day for Leila to take our pony, Sir Cody for a wonderful outing.

Sincerely,

Marsha Victory Trent Eggleston Marnie Azadian Suri Bala Dilip Bhalsod Yanhua Zhao

Dr. Yanbin Liu beloved colleague/friend The B/E Aerospace Simulation Group

Dr. Yanbin Liu

A great loss to his wife, children and the engineering community of a fine, loving, and good person.

He will be missed.

https://www.gofundme.com/yanbinliu

In honor of our beloved colleague and friend who suffered a tragic and untimely death on March 31, 2016, we are establishing this fund to assist his family with funeral and related expenses during this difficult time.

Yanbin died during a snorkeling accident in the Cayman Islands while on vacation with his wife Mei and daughters Cindy and Miranda. Some of the details were captured in a report by the Cayman Islands News Service. If you read the report, please scroll-down and read the detailed comment posted 4/3/2016 by Dong, Yanbins' brother-in-law.

We appreciate any support you can provide.

100% of all proceeds will go to Yanbin's wife, Mei Xiang. https://www.gofundme.com/yanbinliu

Sincerely,

Amir, Andre, Courtney, Frank, Neng, Patrick, Peter, and Randy

The B/E Aerospace Simulation Group

BETA CAE System announces the release of v16.0.4 of its software suite.

www.beta-cae.com/news/20160414_announcement_ansa_meta_v16.0.4.htm

BETA CAE System announces the release of v16.0.4 of its software suite.

About this release

- This maintenance release focuses on the correction of identified issues for the BETA CAE suite 16.0x branch and is addressed to those who wish to continue to use the v16.0x branch -and not upgrade to v16.1x-with its issues resolved.
- The core corrections have been also propagated to the imminent new release v16.1.2 of the v16.1x branch.

The most important additions and fixes are listed below:

Known issues resolved in ANSA

- General: ANSA_TRANSL.py script could not be loaded when its directory path contained single quotes.
- Topo: The scripting function MidSurfAuto would be applied on the first solid when more than one was declared in the function.
- Shell Mesh: Grids: Saving the Database after applying Manual or Auto Paste on areas with Solids belonging to Volumes could lead to unexpected termination.
- Volume Mesh: When using the Cavity Hexa dominant function, the projection on the seats could fail.
- Safety: Some optional arguments of the script function SafetyRaster() did not work properly, resulting in erroneous function behavior.
- Morph: Direct Morphing: In certain cases, upon element selection for Crossec Morph tool, unexpected termination could occur.
- Box Morphing: A frozen nested element loaded in a cylindrical box might be morphed when the inner radius was modified.

- Optimization: In Optimization task, when a Design Variable's range of values was of TYPE: INT and RANGE: LIST, the DOE report tool might not separate and report correctly the values of the list.
- Solver Decks: Laminates: In the Laminate tool, selecting a Laminate Property, defined on meshed geometry and containing Layers with rosettes, could lead to unexpected termination.
- Fluent: Using periodic boundary conditions during output could display an erroneous message in the Info window. When more than one periodic boundary condition existed in the model, the output would be blockaded. A Set containing the Unmatched Faces would be created when a Periodic boundary condition is not well defined.
- Radioss: The Keyword /LINE/SURF/ would be erroneously output as /LINE/LINE.

For more details about the new software features, enhancements and corrections please, refer to the Release Notes document.

Enhancements and known issues resolved in μETA

Enhancements in μETA

Supported interfaces

- ADINA 10.2 Contact results from OP2 files are now supported.
- NASTRAN intermediate Stress results from OP2 files are now supported.

Known issues resolved in μETA

General

- μETA batch execution could release the license when the server had the idle option activated.
- The performance issue for result mapping in huge models has been resolved.
- NVH: Responses calculated from the FRF Assembly tool for multiple frequency ranges might not be correct.
- 2D Plots: Curves were not saved correctly in PamView format.
- μETA viewer: μETA Viewer 64-bit ActiveX control might not be installed correctly.

For more details about the new software features, enhancements and corrections please, refer to the Release Note Documents

BETA CAE System announces the release of v16.0.4 of its software suite.

Compatibility and Supported Platforms:

- ANSA files saved by all the first and second point releases of a major version are compatible to each other. New major versions can read files saved by previous ones but not vice versa.
- µETA Project files saved from version 16.0.4 are compatible and can be opened by µETA version 16.0.0 or later. To be readable by µETA versions earlier than v16.0.0, they have to be saved selecting the option "Version <16.0.0".
- Support for 32-bit platform has been discontinued for all operating systems.

Where to download from:

- Customers who are served directly by BETA CAE Systems, or its subsidiaries, may download the new software, examples and documentation from their account on our server. They can access their account through the "user login" link at our web site.
- Contact us if you miss your account details. The [PublicDir] link will give you access to the public downloads area.
- Customers who are served by a local business agent should contact the local support channel channel for software distribution details.

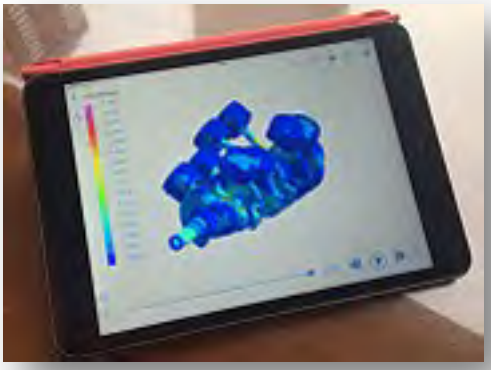
What to download

- All files required for the installation of this version reside in the folder named "BETA_CAE_Systems_v16.0.4" and are dated as of April 14, 2016. These files should replace any pre-releases or other files downloaded prior to that date.
- The distribution of this version of our pre- and post-processing suite is packaged in one, single, unified installation file, that invokes the respective installer and guides the procedure for the installation of the required components.
- For the installation of the software on each platform type, the.sh installer file residing in the folder with respective platform name, for Linux and MacOS or the respective .msi installer file for Windows, 64bit, have to be downloaded.
- In addition to the above, optionally, the µETA Viewer is available to be downloaded for each supported platform.
- The tutorials and the example files reside in the folder named "TUTORIALS". This folder includes the complete package of the tutorials and example files, and a package with only the updated ones.
- The Abaqus libraries required for the post-processing of Abaqus .odb files are included in the installation package and can be optionally unpacked.
- Earlier software releases are also available in the sub-directory called "old" or in a folder named after the product and version number.

ESI Virtual Performance Solution results, shared using ESI-Player, on a tablet

www.esi-group.com/company/press/news-releases/esi-unleashes-further-productivity-and-time-gains-latest-release-its-multi-domain-platform-visual

ESI unleashes further productivity and time gains with the latest release of its multi-domain platform Visual-Environment 11.5



To complement this release, ESI launches ESI-Player

ESI Virtual Performance Solution results, shared using ESI-Player, on a tablet -

Paris, France – March 3, 2016 – ESI Group, pioneer and world-leading solution provider in Virtual Prototyping for manufacturing industries, announces the latest version of its multi-domain simulation platform, Visual-Environment 11.5. ESI Visual-Environment manages simulation processes in a single unified environment — from pre- and post-processing to meshing, viewing results, automating tasks – across multiple domains. By relying on a single core compute model, Visual-Environment eliminates tedious data exchange, hence helping industrial manufacturers reduce product development cost and time. The latest version Visual-Environment 11.5 now supports Modelica®-based systems modeling and simulation, and virtual product assembly. Meanwhile, the new ESI-Player application enables engineers to visualize their ESI result files anywhere at any time.

Venu Kommanaboyina, Section Manager at Renault Nissan Technology & Business Center in India, comments: *"The implementation of CAE automation with Visual-Environment platform in RNTBCI enables drastic reduction of manual effort in all operation activities by 90%. It also enables quick turnaround as there is no lead time between pre-processing, solver run, post-processing and report generation. In addition to direct benefits like cost savings, it minimizes human error and enables engineers to concentrate on improving vehicle performance without considering underlying CAE technology, as the technology is standardized and controlled centrally by dedicated CAE experts. The platform Visual-Environment makes possible easier data, knowledge and technology management. Using the same integrated framework, ESI's concept of Virtual Integration Platform provides RNTBCI with many opportunities in knowledge-based engineering and data mining."*

ESI Virtual Performance Solution results, shared using ESI-Player, on a tablet

In Visual-Environment 11.5, the system modeling and simulation module based on Modelica® enables systems modeling architects and engineers to manage the traceability between requirements and models, and to virtually connect complex systems, accounting for different physics. Visual-Environment 11.5 integrates the Modelica® Standard Library and is compatible with third party libraries and ESI specific Modelica® libraries. Users benefit from advanced functionalities enabling the storage and management of mechatronic models, control models and data across organizations. Systems engineers can thus work collaboratively to successfully manage emerging programs, as well as ensuring consistency and maturity of the technologies in place.

Also new in ESI Visual-Environment 11.5 is the integration of a module dedicated to manufacturing assembly: Visual-Assembly. By taking into account manufacturing effects upfront in the design process, Visual-Assembly enables the prediction of Stamp-Weld Assembly simulation chains to control and validate distortion and product performances. Benefits of this new solution include reduced costs in both design and manufacturing by dramatically reducing physical prototyping and testing, while guaranteeing quality achievements.

To complement this release, ESI launches ESI-Player: a new, light application for Windows, iOS mobiles and iOS tablets. ESI-Player enables engineers to easily share simulation results across multiple teams and different devices. ESI-Player Windows version can be downloaded from ESI's customer platform, myESI, while the iOS app can be downloaded from Apple's AppStore.

Join ESI's customer portal myESI to get continuously updated product information, tips & tricks, view the online training schedule and access selected software downloads: https://myesi.esi-group.com.

Connect with ESI on LinkedIn, Twitter, Facebook, and YouTube.

ESI Group – Media Relations

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Cray to Upgrade Cray Systems at Germany's National Meteorological Service

http://investors.cray.com/phoenix.zhtml?c=98390&p=irol-newsArticle&ID=2154051

Cray Awarded Contract to Upgrade Cray Systems at Germany's National Meteorological Service

Cray's Complete Line of Supercomputers and Cluster Systems Now Available With New Intel(R) Xeon(R) Processor E5 2600 v4 Product Family

SEATTLE, WA -- (Marketwired) -- 04/05/16 -- Global supercomputer leader Cray Inc. (NASDAQ: CRAY) today announced the Company has signed a contract to upgrade and expand the Cray® XC™ supercomputers and Cray® Sonexion® storage systems at Germany's National Meteorological Service - the Deutscher Wetterdienst (DWD). Located in Offenbach, Germany, DWD is one of the world's premier numerical weather prediction centers.

The upgraded Cray systems will allow DWD to continue to improve its highly-complex models for providing more accurate weather forecasts for a wide array of weather responsibilities. With the significant increase in compute performance and storage capacity, the researchers and scientists at DWD will be able to apply more advanced supercomputing technologies towards its mission of meeting the meteorological requirements arising from all areas of economy and society in Germany.

"Supercomputers are absolutely vital to our mission of providing important meteorological services for the protection of life and property," said Dr. Jochen Dibbern, Member of the Executive Board at DWD. "Our Cray supercomputers are critical tools for our researchers and scientists, and it's imperative that we equip our users with highly advanced supercomputing technologies."

"We are honored that DWD has once again turned to Cray to deliver the additional compute power and storage capacity necessary for running more complex numerical weather predictions," said Dominik Ulmer, Cray's vice president of operations for the Europe, Middle East and Africa (EMEA) region. "As the clear leader in building supercomputers for the world's top numerical weather prediction centers, we take great pride in knowing that important weather forecasts across the globe are run on Cray supercomputers. We are proud of our partnership with DWD and we are pleased it will continue."

Cray to Upgrade Cray Systems at Germany's National Meteorological Service

In January 2013, Cray announced it was awarded a contract to provide DWD with two Cray® XC30™ supercomputers and two Cray Sonexion storage systems. Under the terms of this new contract, Cray will upgrade and expand the supercomputers at DWD to Cray® XC40™ systems, which will include the new Intel® Xeon® processor E5-2600 v4 product family.

As part of this upgrade, DWD will also receive additional Cray Sonexion 2000 scale-out Lustre storage capacity, and a future 12-node Cray® CS400™ system with the next-generation of the Intel® Xeon Phi™ processor.

The Cray XC series of supercomputers, along with the Cray® CS™ line of cluster supercomputers and the Cray® CS-Storm™ systems, are now available with the new Intel Xeon E5-2600 v4 product family. The new processors enable peak performance boosts of up to 30 percent for new and existing Cray XC and Cray CS systems over previous generations.

DWD joins a growing list of Cray customers that will add the new Intel Xeon processors to their Cray XC supercomputers. These customers include the Swiss National Supercomputing Centre (CSCS) in Lugano, Switzerland, the European Centre for Medium-Range Weather Forecasts (ECMWF), and the Met Office, both of which are located in the United Kingdom. Additionally, the Cray CS400 cluster supercomputer at the Alfred Wegener Institute in Bremerhaven, Germany will also include the new Intel Xeon processors.

"DWD's selection of Cray's new family of supercomputers, powered by the new Intel Xeon processor E5-2600 v4 product family, will enable significant improvement in their weather prediction models," said Hugo Saleh, director of marketing, High Performance Computing Platform Group, Intel. "Combining Cray supercomputers with Intel's new Xeon processor E5-2695 v4 and Intel® Xeon Phi™ processor, both elements of the Intel® Scalable System Framework, will enable DWD researchers and scientists to improve the resolution of regional and worldwide weather forecasts enabling for more accurate prediction and safeguarding against inclement weather."

Consisting of product and multiple years of service, the contract to upgrade and expand the Cray systems at DWD is valued at about $11 million. Product deliveries are expected in 2016.

For more information on the Cray XC supercomputers, Cray CS cluster supercomputers, and Cray Sonexion storage systems, please visit the Cray website at www.cray.com.

About Cray Inc. Safe Harbor Statement: – Please visit site for full information

This press release contains forward-looking statements

Cray Media: Nick Davis - pr@cray.com
Cray Investors: Paul Hiemstra - ir@cray.com -

CAE Associates - Blog –- Moving Forward with Reverse Engineering

https://caeai.com/blog/moving-forward-reverse-engineering

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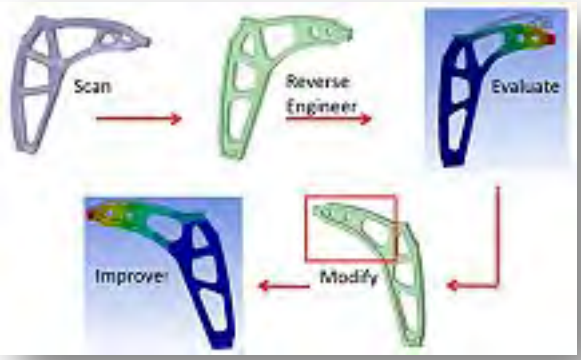


April 8, 2016 By: Patrick Cunningham

Picture yourself in a Dan Brown novel. A mysterious person steps into your office and hands you an odd looking widget covered with dust. He tells you that this item was discovered recently in a pyramid somewhere and he believes it holds ancient engineering secrets. He needs you to reverse engineer it and save the world. Typical day at the office, right?

I've found myself in this situation many times, though usually without the drama and intrigue. Whether it was an evaluation of a competitor's product, or the brain child of a long retired designer, I needed to reverse engineer it so I could understand it and improve on it.

In the past, my process went something like this:

1) Get a ruler and some calipers and start measuring.

2) Create a geometry model in my CAD tool based on those measurements.

3) Import the geometry into an FEA or CFD analysis tool and evaluate it.

4) Identify aspects of the design I could improve on.

5) Modify the geometry and re-evaluate until I was happy with the new design.

This approach could be very time consuming in the geometry creation stage, as well as in the modification stage. The geometry could be defined parametrically, provided I had an idea of what aspects of the design I would be studying. Without that knowledge, the design iterations had to be updated manually. There was also the issue of measuring things I could not see or reach. In those situations, I had to make my best guess and hope that my analysis was close enough to the original design to be accurate.

CAE Associates - Blog –- Moving Forward with Reverse Engineering

Recently, scanning technology has become better and more readily available. Scanned geometry data is typically in STL form where the topology is made up of triangular faceted faces. The STL data can be converted to a solid model using CAD tools, but still requires a significant amount of cleanup before it can be used to create a finite element model. Changing the geometry is also difficult with most CAD tools because the STL model is imported and there is no parametric feature history. With scan data, we have a more accurate way to reproduce the geometry but still no easy way to change it and perform design studies.

More recently, direct modeling CAD programs with reverse engineering tools have been introduced. Check out CAE Associates' ANSYS SpaceClaim demonstration for more information. These tools are really good at extracting topology from complex STL files to create accurate and….wait for it….parametric solid models! Direct modeling tools allow you to morph solid model geometry with ease. The method is interactive so you can modify virtually any aspect of the model with the click of the mouse. You control the design intent based on the design modifications you want to explore. The geometry changes can be controlled parametrically so that you can automate your design studies and fully evaluate the design sensitivities.

Consider the example shown in the figure above. With a direct modeling tool, STL data from a scan can be used as the baseline to create a solid model. That solid model can be used to create a finite element or CFD model where we can evaluate the design. The analysis of the original gives us an idea of what characteristics of the design need to change to improve the performance. At this point, a direct modeler again comes to the rescue by allowing us to easily modify those characteristics. We then plug the modified design into the finite element solver in order to evaluate the design change. This can be accomplished as a manual design study or automated by taking advantage of the parametric definition of the design modifications in the direct modeler.

Is anyone out looking for ways to reverse engineer? The tools you need are out there!

Patrick Cunningham

TRAINING NOTICE : USA software in Europe with T. LITTLEWOOD

DynaS+

METI-09 : Underwater Shock Analysis with USA / LS-DYNA

Heading

METI-09
Underwater Shock Analysis with USA / LS-DYNA

Goal

To be able to achieve underwater explosions calculations with USA software and understand the theory of the software

Location

Toulouse, FRANCE

Dates

From 26th to 28th of October, 2016

Trainer

Tom LITTLEWOOD – LSTC

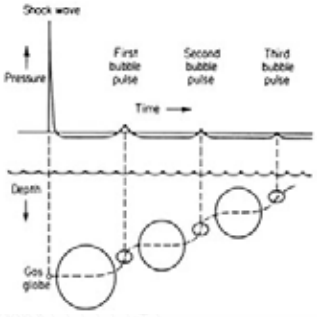
Registration information

Please contact Mr Thomas BEAL
t.beal@dynasplus/com or +33638759799

English training, written support in English

Contents of training METI-09

1. Background
2. Doubly Asymptotic Approximation (DAA) Field Solver
3. Nonreflecting Boundary (NRB) Solver
4. Cavitating Acoustic Fluid (CAFÉ) Field Solver (Time Permitting)
5. Miscellaneous Topics



TRAINING NOTICE : USA software – October 2016 3

DynaS+ **METI-09 : Underwater Shock Analysis with USA / LS-DYNA**

Detailed contents — METI-09

I. Background

1- Review of physics of underwater explosion (UNDEX) phenomena,
2- Overview of USA with respect to UNDEX physics
3- Available manuals and other resources

II. Doubly Asymptotic Approximation (DAA) Field Solver

1- Fluid-structure interaction and DAA background,
2- USA/LS-DYNA execution procedure and required inputs,
3- Fluid boundary mass model development
4- Fluid Boundary mass modeling procedures
5- Selection of the DAA Approximation
6- Time-integration of DAA solution with LS-DYNA

III. Nonreflecting Boundary (NRB) Solver

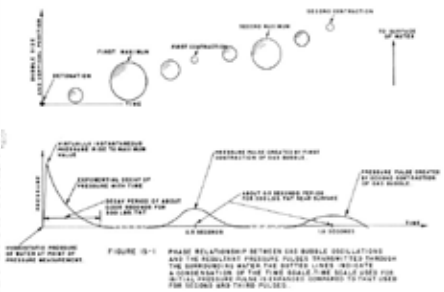
1 - LS-DYNA acoustic fluid volume elements
2 - Review of *mat_acoustic, stability and meshing requirements
3 - Discussion and examples of boundary_acoustic_coupling_mismatch
4 - Boundary conditions and initial conditions
5 - Using USA to initialize and load the *mat_acoustic domain
6 - Exercises

IV. Cavitating Acoustic Fluid (CAFÉ) Field Solver (Time Permitting)

1- What is USA CAFÉ solver and how does it differ from LS-DYNA *mat_acoustic
2- Usage procedure with LS-DYNA
3- USA CAFÉ instructions
4- Examples and exercises

V. Miscellaneous Topics

1- In-fluid natural frequency analysis with USA / LS-DYNA
2- Exercise
3- Hydrostatic loading with DAA, NRB, and CAFÉ solutions
4- Exercise
5- Resilient mounts and user material models
6- Shared memory and massively parallel solutions



TRAINING NOTICE : USA software – October 2016 4

Dell Delivers Hyper-converged Infrastructure Portfolio

www.dell.com/learn/us/en/uscorp1/press-releases/2016-04-05-dell-delivers-industrys-broadest-hci-portfolio

Dell Delivers Industry's Broadest Hyper-converged Infrastructure Portfolio for Flexible, Scalable and Streamlined IT

- Dell's hyper-converged infrastructure portfolio offers customers the industry's only single source for the broadest portfolio of the most trusted hyper-converged infrastructure solutions
- Dell to resell EMC hyper-converged offerings including VCE VxRail™ Appliance Family, VCE VxRack™ Node and VCE VxRack™ System 1000 FLEX
- Dell introduces flexible Dell VMware Virtual SAN Ready Nodes based on Dell PowerEdge servers
- Dell XC Series improves performance as the industry's first Nutanix-powered systems with the latest Intel processors
- Dell adds VMware Virtual SAN support for the Dell Hybrid Cloud Platform with VMware

Dell today announced expansions to the industry's broadest hyper-converged infrastructure portfolio to help customers accelerate and simplify IT deployment and management to meet their goals now while also preparing for the future. New additions, from VCE® VxRail™ appliances and VxRack™ systems to flexible VMware Virtual SAN Ready Nodes and next generation Dell XC Series hyper-converged appliances, help Dell offer the widest variety of world class hyper-converged solutions from reference architectures to purpose-built engineered solutions.

Hyper-converged infrastructures, which combine full-featured storage, compute and networking functions into a single solution or appliance, typically for virtualized environments, continue to gain momentum as organizations reap the benefits of faster time-to-value and more efficient operations from flexible, scalable, streamlined IT. According to research and analyst firm IDC, the worldwide hyper-converged systems market is expected to grow at a nearly 60 percent compound annual growth rate (CAGR) through 2019, reaching more than $3.9 billion in sales.1

Dell Delivers Hyper-converged Infrastructure Portfolio

"As businesses become more data-driven and workloads become increasingly diverse, we are seeing a strong increase in demand for hyper-converged solutions and expect the market to generate nearly $4 billion by 2019," said, Matt Eastwood, senior vice president of IDC's Enterprise Infrastructure and Datacenter Group. "Today we are seeing customers wanting a variety of entry points for hyper-converged infrastructure. Dell was early in this market, has strong growth, and has the right vision and broad approach for how this category of infrastructure continues to transform."

"Dell's hyper-converged infrastructure approach is consistent with our overall philosophy, which focuses on enabling customer outcomes versus pushing a one-size-fits-all agenda," said Marius Haas, chief commercial officer and president, Enterprise Solutions, Dell. "Our hyper-converged portfolio spans a broad range of the most trusted and differentiated purpose-built appliances, integrated systems, factory installed solutions and flexible reference architectures, allowing Dell to offer systems that can be deployed and scale in minutes or help customers flexibly build their own systems with existing IT. This expansion, added to our Blueprint program, enables Dell to offer customers prescriptive choices to meet their own particular demands and, ultimately, best support their desired business outcomes."

Extensive Dell Hyper-converged Infrastructure Portfolio Supports Customer Flexibility and Choice

Through Dell's focus on supporting customers with IT needs today while preparing for the future, the company has become the IT partner of choice for organizations of all sizes seeking the most appropriate IT solutions to achieve their own unique goals. Dell has built the industry's broadest hyper-converged infrastructure portfolio to address multiple customer criteria for solution deployment success. This includes options that offer customers the flexibility to prescriptively build their own solutions, start small with scalable appliances, or deploy full stack, pre-built engineered solutions. Dell's hyper-converged infrastructure portfolio enables precise alignment with an organization's unique IT environment, workloads, and performance and scalability requirements.

Starting today, new additions to Dell's hyper-converged portfolio include the resale of hyper-converged offerings from VCE, the Converged Platforms Division of EMC, now available from Dell:

- VCE VxRail Appliance Family – These are the only hyper-converged infrastructure appliances jointly engineered with VMware and are fully integrated, preconfigured, and pre-tested for VMware environments. Combining EMC rich data services and leading systems management capabilities with VMware's leading hyper-converged software in a single product family, VCE VxRail Appliances are available in a broad set of configurations for small to mid-sized deployments, starting with a list price of $60,000 (US) and scaling to match a variety of workloads with a range of configurations including all-flash options.

Dell Delivers Hyper-converged Infrastructure Portfolio

- VCE VxRack Node and VxRack System 1000 FLEX– VCE VxRack Systems represent a transformational way for customers to move from physical Storage Area Networks (SANs) to hyper-converged engineered systems with the ability to scale up to thousands of nodes with multiple hypervisor support. The VxRack Node is a software-defined storage building block with EMC® ScaleIO® software, enabling quick deployment and flexible scalability. The VxRack System 1000 FLEX is a rack-scale, hyper-converged infrastructure offering that delivers high performance compute, software-defined storage and networking.
- Dell also announced the Dell Reference Architecture for EMC Converged Infrastructure that provides customers flexibility in deploying a rack-scale architecture using Dell PowerEdge servers.

Other new additions to Dell's broadened hyper-converged infrastructure demonstrate the range of offerings from flexible building blocks to appliances and full stack solutions:

- Dell VMware Virtual SAN Ready Nodes – Customers can innovate faster and reduce project risk by building their VMware-based hyper-converged solutions with Virtual SAN Ready Nodes from Dell. These building blocks are ready-to-order, validated configurations that can be factory integrated with Dell PowerEdge servers and VMware hyper-converged software. A wide range of configurations meet the demands of diverse workloads.
- Dell XC Series of Hyper-Converged Appliances– Dell XC Series appliances are now the industry's first Nutanix-powered hyper-converged infrastructure solutions to incorporate the latest Intel®Xeon®Processor E5-2600 v4 Broadwell Product Family. This provides faster performance to the portfolio of fully configurable 1U and 2U appliances, helping to speed customer access to data and applications in highly scalable deployments for use cases ranging from VDI to private cloud. The XC Series also now has certified integration with the SAP NetWeaver® technology platform running on Linux.
- Dell Hybrid Cloud Platform for VMware adds Virtual SAN – This reference architecture integrates the best of Dell and VMware technology. Dell Active System Manager's integration with VMware vCenter, vRealize and Virtual SAN creates a full-featured and highly optimized private and hybrid cloud platform with end-to-end automation capabilities from private to public cloud. New VMware Virtual SAN support provides prescriptive guidance for building clouds using hyper-converged software with a system that connects VMware vRealize directly to a physical infrastructure.

Dell Delivers Hyper-converged Infrastructure Portfolio

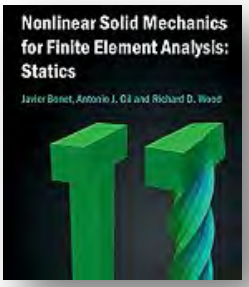
Availability

- VCE VxRail, VCE VxRack Node, Dell VMware Virtual SAN Ready Nodes (customer build), and the latest Dell XC Series appliances are available globally today from Dell and Dell PartnerDirect channel partners.
- Dell Reference Architecture for EMC Converged Infrastructure, VMware Virtual SAN support with Dell Hybrid Cloud Platform for VMware, and Dell VMware Virtual SAN Ready Nodes (factory installed) have planned global availability in the second quarter of 2016.
- The VCE VxRack System 1000 FLEX is available today direct from Dell in the US. Global and channel availability are planned for the second quarter of 2016.

About Dell:

- Dell Inc. listens to customers and delivers innovative technology and services that give them the power to do more. For more information, visit www.dell.com.
- Dell is a trademark of Dell Inc. Dell disclaims any proprietary interest in the marks and names of others.
- EMC2, EMC, the EMC logo, and ScaleIO are registered trademarks or trademarks of EMC Corporation in the United States and other countries.
- VCE, VxRack and VxRail are registered trademarks or trademarks of VCE Company LLC.
- 1 Source: IDC Worldwide Hyperconverged Systems 2015-2019 Forecast (IDC #255614, April 2015)

BOOK - Nonlinear Solid Mechanics for Finite Element Analysis: Statics



Nonlinear Solid Mechanics for Finite Element Analysis: Statics Hardcover – September 16, 2016

by Javier
Bonet (Author),
Antonio J. Gil (Author),
Richard D. Wood (Author)

Designing engineering components that make optimal use of materials requires consideration of the nonlinear static and dynamic characteristics associated with both manufacturing and working environments. The modeling of these characteristics can only be done through numerical formulation and simulation, which requires an understanding of both the theoretical background and associated computer solution techniques. By presenting both the nonlinear solid mechanics and the associated finite element techniques together, the authors provide, in the first of two books in this series, a complete, clear, and unified treatment of the static aspects of nonlinear solid mechanics. Alongside a range of worked examples and exercises are user instructions, program descriptions, and examples for the FLagSHyP MATLAB computer implementation, for which the source code is available online. While this book is designed to complement postgraduate courses, it is also relevant to those in industry requiring an appreciation of the way their computer simulation programs work.

Book Description

This book provides a clear and complete postgraduate introduction to the theory and computer programming for the complex simulation of material behavior. It will also appeal to those in industry wishing to appreciate the way their computer simulations work.

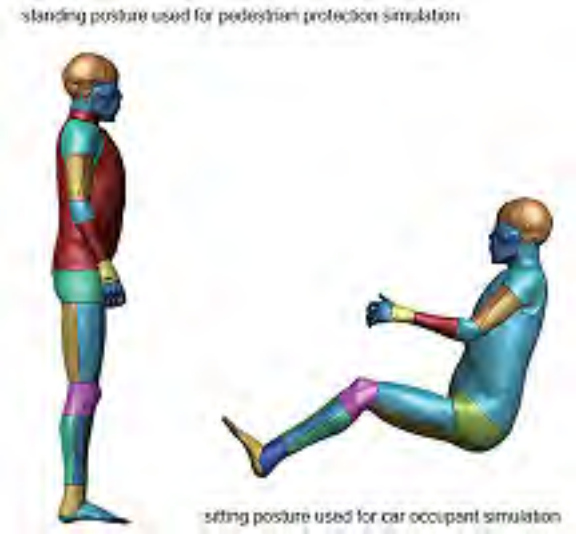
Excerpts About the Authors:
Javier Bonet is a Prof. of Engineering & Head of the College of Engineering at Swansea University, Dir. of the Welsh 'Sêr Cymru' Nat'l Research Network in Adv. Engineering & Materials, - Deputy Vice-Chancellor, Research and Enterprise, at the University of Greenwich.

Antonio J. Gil is an Associate Professor in the Zienkiewicz Centre for Computational Engineering at Swansea University..

Richard D. Wood is an Honorary Research Fellow in the Zienkiewicz Centre for Computational Engineering at Swansea University.

The 2016 THUMS USA Users' Meeting

http://ls-dyna.jsol.co.jp/en/thums/thums_um2016.html



JSOL is delighted to announce The 2016 THUMS USA Users' Meeting.

THUMS, the Total Human Model for Safety for use with LS-DYNA® is being rapidly adopted by users worldwide. A Finite Element model (FEM) jointly developed by Toyota Motor Corporation and Toyota Central R&D Labs., Inc.The model aims to simulate "human body kinematics" and "injury on human body" in response to a large impact in a car crash and so on.

We invite you to join us and share in THUMS technical information.
"The 2016 THUMS USA Users' Meeting" Being held after, The 14th LS-DYNA® International Users' Conference

Organizer: JSOL Corporation
Date: June 15th(Wed), 2016
Location: Detroit (Michigan, USA)
Participation: THUMS users. Customers who are interested in THUMS.
Venue: Edward Village Michigan
(Formerly Adoba Hotel
Dearborn / Detroit)
600 Town Center Dr.
Dearborn, MI 48126
URL: www.hotel-dearborn.com/
Reg. Fee: Free
Expected number of participants: Apprx. 50

What is THUMS? A Finite Element model (FEM) jointly developed by Toyota Motor Corporation and Toyota Central R&D Labs., Inc.The model aims to simulate "human body kinematics" and "injury on human body" in response to a large impact in a car crash and so on.

The Total Human Model for Safety ("THUMS") is the human body model for injury analysis.. The geometries of the structurally complex human body parts including the head, torso, joints and organs are represented by FE meshes. Their material properties refer the list in papers or documents and are compared with component tests listed in papers or documents for validation.THUMS is used by engineers the world over and contribute to the safety improvement of human body.

ESI Cloud Based Virtual Engineering Solutions

www.esi-group.com/software-solutions/cloud-solutions/esi-cloud

ESI Cloud offers designers and engineers cloud-based computer aided engineering (CAE) solutions across physics and engineering disciplines.

ESI Cloud combines ESI's industry tested virtual engineering solutions integrated onto ESI's Cloud Platform with browser based modeling,

With ESI Cloud users can choose from two basic usage models:

- An end-to-end SaaS model: Where modeling, multi-physics solving, results visualization and collaboration are conducted in the cloud through a web browser.
- A Hybrid model: Where modeling is done on desktop with solve, visualization and collaboration done in the cloud through a web browser.

Virtual Performance Solution:

ESI Cloud offers ESI's flagship Virtual Performance Solution (VPS) for multi-domain performance simulation as a hybrid offering on its cloud platform. With this offering, users can harness the power of Virtual Performance Solution, leading multi-domain CAE solution for virtual engineering of crash, safety, comfort, NVH (noise, vibration and harshness), acoustics, stiffness and durability.

In this hybrid model, users utilize VPS on their desktop for modeling including geometry, meshing and simulation set up. ESI Cloud is then used for high performance computing with an integrated visualization and real time collaboration offering through a web browser.

The benefits of VPS hybrid on ESI Cloud include:

- Running large concurrent simulations on demand
- On demand access to scalable and secured cloud HPC resources
- Three tiered security strategy for your data
- Visualization of large simulation data sets
- Real-time browser based visualization and collaboration
- Time and cost reduction for data transfer between cloud and desktop environments
- Support, consulting and training services with ESI's engineering teams

ESI Cloud Based Virtual Engineering Solutions

www.esi-group.com/software-solutions/cloud-solutions/esi-cloud

VPS On Demand

ESI Cloud features the Virtual Performance Solution (VPS) enabling engineers to analyze and test products, components, parts or material used in different engineering domains including crash and high velocity impact, occupant safety, NVH and interior acoustics, static and dynamic load cases. The solution enables VPS users to overcome hardware limitations and to drastically reduce their simulation time by running on demand very large concurrent simulations that take advantage of the flexible nature of cloud computing.

Key solution capabilities:

- Access to various physics for multi-domain optimization
- Flexible hybrid model from desktop to cloud computing
- On demand provisioning of hardware resources
- Distributed parallel processing using MPI (Message Passing Interface) protocol
- Distributed parallel computing with 10 Gb/s high speed interconnects

Result visualization

ESI Cloud deploys both client-side and server-side rendering technologies. This enables the full interactivity needed during the simulation workflow along with the ability to handle large data generated for 3D result visualization in the browser, removing the need for time consuming data transfers. Additionally ESI Cloud visualization engine enables the comparisons of different results through a multiple window user interface design.

Key result visualization capabilities:

- CPU or GPU based client and server side rendering
- Mobility with desktop like performance through the browser
- 2D/3D VPS contour plots and animations
- Custom multi-window system for 2D plots and 3D contours
- Zooming, panning, rotating, and sectioning of multiple windows

Collaboration

To enable real time multi-user and multi company collaboration, ESI Cloud offers extensive synchronous and asynchronous collaboration capabilities. Several users can view the same project, interact with the same model results, pass control from one to another. Any markups, discussions or annotations can be archived for future reference or be assigned as tasks to other members of the team.

Key collaboration capabilities:

- Data, workflow or project asynchronous collaboration
- Multi-user, browser based collaboration for CAD, geometry, mesh and results models
- Real-time design review with notes, annotations and images archiving and retrieval
- Email invite to non ESI Cloud users for real time collaboration

By Marnie Azadian

FEA Information Engineering Solutions Particpants' Sponsoring the conference

Booth	Company	URL
100	Engineering Technologies Associates (ETA)	www.eta.com
101	ARUP	www.oasys-software.com/dyna/en/
105	Rescale	www.rescale.com
107	JSOL	www.jsol.co.jp/english/cae
201	BETA CAE Systems USA, Inc.	www.beta-cae.gr
301	Predictive Engineering Associates	www.predictiveengineering.com
304	CRAY	www.cray.com
305	ESI North America	www.esi-group.com
400	LSTC & DYNAmore	www.lstc.com www.dynamore.de
401	FEA Information Inc.	www.feainformation.com

FEA Information Inc. and co-sponsors are hosting the on June 12th.

Appetizers, Soda/Beer/Wine will be served.

Come and join us for fun and an opportunity to socialize with your fellow conference attendees.

US	DYNAMAX	Bruce Zhang	bruce@dynamax-inc.com
Canada	MFAC	Chris Gailbrath	galb@mfac.com
France	DynAS+	Vincent Lapoujade	v.lapoujade@dynasplus.com
Germany	DYNAmore Gmbh	Uli Franz	Uli.franz@dynamore.de
Germany	CADFEM GmbH	Uli Stelzman	ustelzmann@cadfem.de
China	Dalian Fukun Tech. Dev. Corp	Yanhua Zhao	yanhua@lstc.com
China	Hengstar	Honsheng Lu	hongsheng@hengstar.com
China	Arup		
India	Kaizenat Technologies Pvt. Ltd.	Ramesh Venkatesan	ramesh@kaizenat.com
India	Oasys Ltd. India	Lavendra Singh	Lavendra.singh@arup.com
S. Korea	THEME Engineering	Woosik Chung	wschung@kornet.net
S. Korea	KOSTECH	Hyung-Joo Lee (James Lee)	leehjoo@kostech.co.kr
Sweden	DYNAmore Nordic	Marcus Redhe	marcus.redhe@dynamore.se
UK	Oasys, Ltd.		

One Day Pre Conference - Airbag Folding and Morphing Class

Sunday, June 12th - Limited Space - fee $300
Reserve now! Contact class@lstc.com
Subject line: Airbag Folding and Morphing
Registration on line will be available Monday, March 7th

Airbag Folding and Morphing

Airbags come in different shapes and sizes and are utilized to prevent injury to occupants in a vehicle. Some of the bags are currently standard in Vehicles are, Driver, Passenger, Side, Roof Rail and Knee Airbags. Bags have to meet both performance and packaging criteria to be fit into interior trim compartments. Folding of these bags into tight spaces without affecting their behavior is important for both OEMs and Airbag manufacturers. Folding can be carried out using PreProcessors or by running a LS-Dyna simulation. Simulation based folding is gaining foothold in complex folding patterns and crush folding of bags. LS-Prepost has both Pre-Processor based folding and has recently added an interface for Simulation based folding called DynFold.

Folding using either of these methods can cause some elements to shrink or get severely distorted. To avoid this and to make sure the bag shape and volume is retained LS-Dyna utilizes reference geometry. By changing the reference geometry of the bag its volume and shape can be changed. This can help in making quick studies on bag deployment and interaction with the Occupant. LS-Prepost has morphing capabilities that have been adapted to change the Shape of reference geometries.

Length of class will be 1 day. Introduction of folding methods followed by hands-on workshops. Prior knowledge of LS-DYNA and LS-PREPOST will help students focus on learning folding techniques.

This class will introduce

- Preprocessor Based Folding
  - Thin, Thick, Tuck and Spiral Folding Patterns
- DynFold for Simulation Based folding
  - SPC, Rollers, Tuck folds, Crush Folding, Zig-Zag folding
- Morphing methods
  - RRAB and PAB

BETA CAE Open Meetings 2016 - White Papers – Case Studies

www.beta-cae.com/ourevents.htm

Recent white papers:

- ANSA & µETA for Fatigue analyses
- The µETA ASAM ODS Browser
- Multivariant / Multidiscipline Modeling
- Modeling for Nastran Embedded Fatigue

Case Studies:

- Honda R&D: Exterior Acoustics full vehicle model generation
- Opel: ANSA in Pedestrian Safety Analysis
- Selected cases from the
- Automotive Industry

BETA CAE Open Meeting Korea
May 10, 2016
InterContinental Seoul COEX
Seoul, S. Korea
hosted by Hankook AAC

BETA CAE Open Meeting Turkey
June 3, 2016
Byotell - Istanbul, Turkey
hosted by A-Z Tech

BETA CAE Open Meeting - Italy
June 28, 2016
NH Torino Lingotto Tech
Torino, Italy
hosted by BETA CAE Italy

BETA CAE Open Meeting NA
October 11, 2016
The Inn at St. John's
Plymouth, MI, USA
hosted by BETA CAE Systems USA

BETA CAE Open Meeting Japan
November 8, 2016
Nagoya, Japan
hosted by TOP CAE Corp.

BETA CAE Open Meeting Beijing China
November 22, 2016
Beijing, China
hosted by Beijing E&G Software

BETA CAE Open Meeting Shanghai China
November 25, 2016
Shanghai, China
hosted by Shanghai Turing Info. Tech.

LS-DYNA Recommendations - LS-DYNA Group

Author: James Kennedy, KBS2 jmk@kbs2.com

Please note below is a short excerpt of an internet thread – an excerpt does not reflect the full information, or explanation. Further solutions or corrections may have been posted after this excerpt.

Question: The simulation runs till the ball impacts the plate and then gives a error message as " Negative Volume in solid element #.... cycle..." and it gives error termination.

If an element becomes so distorted that the volume of the element is calculated as negative, the simulation has become numerical unstable and will not yield a reasonable result.

Some notes that should be helpful for the above

Interior Contact for Foams, Honeycombs and Rubbers to Eliminate Negative Volumes
http://blog2.d3view.com/?p=375

Internal Contact for Solids using *SET_SEGMENT_GENERAL
http://blog2.d3view.com/?p=388

Contact Surface Generation for Solid Elements
http://blog2.d3view.com/?p=243

Negative Volumes in Foams (or other soft materials)
http://ftp.lstc.com/anonymous/outgoing/jday/faq/negative_volume_in_brick_element.tips

Negative Volumes in Brick Elements
http://www.dynasupport.com/howtos/element/negativ-volumes-in-brick-elements

Sincerely,
James M. Kennedy
KBS2 Inc.
April 14, 2016

Author: Albert Oswald albert.oswald@werbos.de Conference Contact: forum@dynamore.de

Announcement and invitation to present a paper

14th GERMAN LS-DYNA® FORUM 2016

October 10 - 12 2016, Bamberg, Germany

Conference website - www.dynamore.de/forum2016-e

DYNAmore kindly invites you to participate at the 14th German LS-DYNA Forum and encourages you to actively contribute to the conference agenda by submitting a presentation about your experience with the LSTC product range. Participation without a presentation is also worth-while to exchange your knowledge and discuss new solution approaches with other users.

Besides presentations from users, there will be also selected keynote lectures of renowned speakers from industry and universities as well as developer presentations from LSTC and DYNAmore. The popular workshops on various topics will also be continued.

We hope that we have stimulated your interest and are looking forward to receiving your abstract and to seeing you in Bamberg.

Attending

In user presentations from industry and academia you will learn more about the software packages LS-DYNA®, LS-OPT®, LS-TaSC™ und LS-PrePost® as well as their application possibilities for virtual product design.

Presenting

Communicate your work with international colleagues to share knowledge and to stimulate discussions with other users about new solution approaches.

Exhibiting and sponsoring - If you want to contribute, please request additional exhibitor and sponsoring information.

Venue - Welcome Kongresshotel Bamberg Mußstraße 7, 96047 Bamberg, Germany

Conference language - German and English

Participant fees

Industry speaker:	€ 360 -
Academic speaker:	€ 260
Industry:	€ 510 [1] / € 580
Academic:	€ 360 [1] / € 410

[1] Registration before 27 June 2016.
All prices excluding VAT.

Important dates

Presentation submission:	30 May
Author notification:	17 June
Two-page abstract:	5 Sept.
Conference dates:	10-12 Oct.

To Submit A Presentation:

Please send us title, author(s) and short description of approximately 300 words
E-Mail to forum@dynamore.de
or submit it online - www.dynamore.de/forum2016

Contact and registration - DYNAmore GmbH, Industriestr. 2, D-70565 Stuttgart, Germany
E-Mail: forum@dynamore.de

14th International LS-DYNA Users Conference

Welcome The conference will host a forum for engineers, professors, students, consultants, industry leaders, and interested parties to exchange their ideas, and listen to the latest in industry and academic presentations..

Corporate Participation: Platinum, Gold, Silver, Bronze

Conference Dates

Sunday, June 12th

- **Pre Conference Classes**
- Registration
- Exhibition Area,
- Reception

Monday, June 13th

- Registration,
- Conference,
- Banquet

Tuesday, June 14, 2016.

- Registration,
- Conference
- Closing session - about 3pm

Wednesday, June 15 & Thursday, June 16

- 1& 2-day Training at U-M Dearborn

Contact Information

Abstracts & papers:
papers@lstc.com

Participation, Registration:
Marsha Victory
vic@lstc.com

Oasys LS-DYNA 9th Annual Update Meetings in India

Pune – Tuesday, 26th April 2016 – The Le Méridien Pune, Raja Bahadur Mill Road,Pune-411001

Bangalore – Thursday, 28th April 2016 – The Zuri Whitefield, ITPL Road, Whitefield, Bangalore- 560 048.

Oasys Ltd and Arup India Pvt Ltd are pleased to announce the 9th Oasys LS-DYNA Update meetings in India for the year 2016. First meeting shall be held at Pune on Tuesday 26th April 2016 at The Le Méridien and second meeting shall be held at Bangalore on Thursday 28th April 2016 at The Zuri Whitefield.

Each of these is a full day free of charge event covering both LS-DYNA and Oasys software and is a perfect opportunity to find out about current and future developments and how the software are being used in the engineering community.

The presentations will mainly cover LS-DYNA updates by LSTC, Oasys suite updates by Arup & technical lectures by Arup, LSTC and Industry.

Detailed agenda is available on our website http://www.oasys-software.com/dyna/en/events/ .

Registration

Please send your registration to this event by email to india.support@arup.com with your name(First Name, Last Name), company/affiliation, telephone number and your choice for the location of event.

Last date for registration is 18th April,2016.

Venue

Pune will be held at The Le Méridien hotel, which is situated in the heart of the city.

The Le Méridien hotel Hotel
Raja Bahadur Mill Road, Sangamvadi, Pune, Maharashtra-411001 India
Tel: 91-20- 6641 1111

Bangalore will be held at The Zuri, Whitefield, which is quite close to international Tech park, Bangalore.

The Zuri Whitefield
ITPL Road, Whitefield, Bangalore - 560 048
India
Tel: +91-806-665-7272

If you plan to stay over before or after the event, we are pleased to confirm that we have negotiated a special rate for attendees of the Oasys LS-DYNA Update meeting. Please contact us for assistance.

Contact Details: If you have any queries regarding this event you can contact:

Mr. Asif Ali - Arup India Pvt Ltd
Plot No. 39, Ananth Info Park, HiTec City-Phase 2
Madhapur, Hyderabad-500081,India
Tel: +91 (0) 40 44369797/8
Email: india.support@arup.com

AUTOMOTIVE NEWS & EVENTS

Dilip Bhalsod

The purpose of this section is to provide a place, for our automotive readers, to share news and events relative to their company and/or products.

The criteria for submitting information is as follows:

- It has to be public information
- Published on the Internet
- Be automotive informational, or human interest.
- We do not accept financial quarterly information

We would welcome the opportunity to share information about your company with our readership.

You may send Title to your information and the accompanying URL to agiac99@aol.com - Subject Line please

use " Automotive News"

Submissions should be received by the 15th of each month, of the month you want your article placed

Submission publications is at the sole discretion of FEA Information Inc.

Daimler Trucks launches fleet test with electric truck from Fuso

Daimler Trucks launches fleet test with electric truck from Fuso – Stuttgart

Canter E-Cell Costumer Test 2016: Fuso Canter E-Cell; AC Synchron-Motor with 110 kW/150 PS; 1-Gear-Transmission;
Gross Vehicle Weight: 6000 kg;
Painting: natural white

- Municipality of Stuttgart and Logistics Company Hermes to test five battery-powered Fuso Canter E-Cell in tough everyday working environment
- Fuso as leading producer of partially and fully electric light-duty trucks with some 3500 hybrid trucks in service
- Investment in the amount of 40 Million Euro in the development of electric driving by Mitsubishi Fuso Truck & Bus Corporation so far
- Growing relevance of electric trucks for urban short-radius distribution
- Dr Wolfgang Bernhard: "In urban short-radius distribution, a switch to electric trucks will become technically feasible and economically viable within a few years' time. With this fleet test, we are making a small yet important contribution to urban mobility in Stuttgart. Daimler Trucks is pushing ahead with the further development of this technology. Together with the Municipality of Stuttgart and the Hermes Company, we are taking a key step towards market maturity today."
- Result of the fleet test in Portugal: Light-duty truck Fuso Canter E-Cell saves 1000 euros over 10,000 kilometres and cuts operating costs by up to 64 percent

Stuttgart – Daimler Trucks, the world's leading truck producer, is launching the first fleet test for emission-free, electric trucks in Germany today. Dr Wolfgang Bernhard, Member of the Board of Management of Daimler AG, responsible for Daimler Trucks & Daimler Buses, and Marc Llistosella, President and CEO of the Mitsubishi Fuso Truck and Bus Corporation (MFTBC) and Head of Daimler Trucks Asia, handed over the five battery-powered Fuso Canter E-Cells to Stuttgart's mayor, Fritz Kuhn, and the Hermes Logistics Company today.

Daimler Trucks launches fleet test with electric truck from Fuso

Daimler Trucks' Fuso brand is the leading producer of partially and all-electric light-duty trucks. The Daimler Truck branch invested in 2014 and 2015 in total 2.5 Billion Euro in research and development with the focus on connectivity, safety and drive efficiency. Within the efficiency topic electric mobility of course plays a major role. The Mitsubishi Fuso Truck & Bus Corporation (MFTBC) invested 40 Million Euro in the development of electric driving so far.

Over the next twelve months, the Municipality of Stuttgart will test four 6-tonne Fuso Canter E-Cell in a tough everyday working environment. Two vehicles with hydraulic tipper bodies are to be deployed in road construction and landscaping. Two vehicles with box bodies will be assigned to municipal furniture transport and waste disposal operations. Another Canter E-Cell will carry out parcel deliveries in urban traffic for the Hermes Company.

Electrically powered trucks predestined for urban short-radius distribution

Dr Bernhard noted at the handover ceremony: "Today's combustion engine is highly efficient, eco-friendly and, above all, clean. In long-distance transport it will remain the only option for a long time to come. In urban short-radius distribution, a partial switch to electric trucks will become technically feasible and economically viable within a few years' time. With this fleet test, we are making a small yet important contribution to urban mobility in Stuttgart. Daimler Trucks is pushing ahead with the further development of this technology. Together with the Municipality of Stuttgart and the Hermes Company, we are taking a key step towards market maturity today."

Marc Llistosella emphasized: "We at Fuso have acquired extensive experience in the development of local emission-free commercial vehicles. I am firmly convinced that the Canter E-Cell will now proof its strengths in the German climate and in the topographically very demanding area of urban Stuttgart. The Canter E-Cell offers our customers transport services which are not only environment-friendly, but also economical. Our test in Lisbon revealed savings of around 1000 euros per 10,000 kilometres in comparison to diesel trucks."

Stuttgart's mayor, Fritz Kuhn, observed: "Sustainable mobility is a key issue for cities and electric mobility is an important element. This is where the Municipality of Stuttgart is showing the way. We've decided to make a change to our fleet: all new cars purchased by the Municipality will be electric. I think this sends out a very strong signal. So we're also very happy to test the four Canter E-Cell vehicles in day-to-day city traffic."

"Daimler and Hermes are united by a long and joint tradition in the promotion of alternative drives", explains Dirk Rahn, Managing Director Operations at Hermes Logistics Group Germany. "As a pioneer in the industry, we as a company were among the first to test the early electric vehicles under real-world conditions. We are similarly proud today to be using the new electric 6-tonne truck for our parcel deliveries. The project is part of our long-term climate protection programme, under which we intend to systematically halve the CO2 emissions of our fleet by 2020.

Daimler Trucks launches fleet test with electric truck from Fuso

Results of the first fleet test in Portugal: Canter E-Cell cuts operating costs by up to 64 percent

In the course of an initial fleet test in Portugal, the Canter E-Cell has already proven its merits in short-range delivery operations and urban transport. During the year-long test from June 2014 to June 2015, eight vehicles were in service with customers in Lisbon. With ranges of over 100 kilometres, the vehicles exceeded the average daily distance covered by many trucks in light-duty short-radius distribution. On the basis of the prevailing costs of diesel and electricity during the test period in Portugal, operating costs were lowered by up to 64 percent in comparison to a conventional diesel truck.

Canter E-Cell developed at the hybrid centre of excellence in Kawasaki: Fuso is pushing ahead with the further development of this drive technology while the current customer trials are still in progress. Fuso's engineers are already working on the next generation of the Canter E-Cell – with the firm goal of making it even more suitable for everyday use and more economical. At the centre of excellence for hybrid vehicles in Kawasaki, Japan, Daimler Trucks possesses more than 40 years of experience in the development of alternative drive systems. The engineers at the "Global Hybrid Center" were also responsible for developing the battery-electric, local emission-free Canter E-Cell, in close cooperation with the colleagues at the Tramagal plant. The electrically powered light-duty truck was premiered at the IAA Commercial Vehicles show in 2010. The current test fleet was manufactured on a prototype production line at the Fuso plant in Tramagal, Portugal.

Fuso leads the field in partially electric light-duty trucks with the Canter Eco Hybrid

uso is the leading manufacturer of partially electric light-duty trucks. Some 3500 Fuso Canter Eco Hybrids are in service with customers around the world. The handling strategy for the Canter Eco Hybrid is based on the vehicle starting up and moving off in quiet, electric mode. Then, at a speed of around 10 km/h, the diesel engine cuts in. Below this speed, it also runs at idle to supply power to the ancillary assemblies. Another strength of the Canter Eco Hybrid is its load capacity. The additional weight resulting from the hybrid drive amounts to only around 150 kilograms. This means a load capacity of up to 4.8 tonnes for the 7.5-tonne model as a chassis with cab.

Daimler Trucks Asia's headquarters and the largest plant are located in Kawasaki, near Tokyo. The second plant, at which trucks of the BharatBenz and Fuso brands are produced, is in Chennai, India. Some 170,000 trucks and buses of the Fuso and BharatBenz brands are produced annually in Kawasaki and Chennai for the Japanese and Indian market as well as for the export. They are sold in more than 150 countries. As such, Daimler Trucks Asia accounts for over 30 percent of Daimler's global truck sales. Fuso is the Daimler Group's best-selling truck brand.

2017 Ford Shelby GT350 Mustang

New Standard Features, Fresh Colors for 2017 Ford Shelby GT350 Mustang

DEARBORN, Mich., April 6, 2016 – Ford Performance is adding more standard features to the new Shelby® GT350 Mustang on sale this June. These new offerings are the best of what customers have been asking for from the most track-capable, race-ready Mustang ever built.

Track Package is now standard on the Shelby GT350 Mustang for the 2017 model year, giving all customers the features they want along with the option to add even more – no longer do buyers have to choose between the Track Package and additional features.

"Ford Performance is always listening to customer feedback," said Dave Pericak, global director, Ford Performance. "At the end of last year we started offering a back seat option for Shelby GT350R due to customer demand. Now, we have adjusted the packages available to continue to provide more of what customers want on the Shelby GT350 Mustang."

The 2017 Shelby GT350 also brings three new colors and the choice of either an available Electronics Package or a Convenience Package.

New features for 2017 Shelby GT350 Mustang:

- Standard Track Package featuring aluminum tower-to-tower brace; high-downforce decklid spoiler; engine oil, transmission and differential coolers; MagneRide™ damping system
- Three new colors – Ruby Red Metallic, Lightning Blue and Grabber Blue – replace Deep Impact Blue and Competition Orange
- Two new available packages – Electronics Package includes SYNC® 3, voice-activated navigation and nine-speaker audio system; Convenience Package includes the same options, and replaces manual Recaro seats with leather-trimmed power sport seats
- Available audio system upgrade from seven to nine speakers with Electronics Package, Convenience Package and R-Electronics Package

AEROSPACE NEWS & EVENTS

Marnie Azadian

The purpose of this section is to provide a place, for our automotive readers, to share news and events relative to their company and/or products.

The criteria for submitting information is as follows:

- It has to be public information
- An internet URL
- Be technical, informational, or human interest.
- We do not accept financial quarterly information

We would welcome the opportunity to share information about your company with our readership.

You may send Title to your information and the accompanying URL to Marnie Azadian at agiac99@aol.com - Subject Line please use "Aerospace News"

Submissions should be received by the 15th of each month, of the month you want your article placed. For example: We would need the title of the news or event by December 15th, 2015 to be featured in the December 2015 FEA newsletter.

Submission publications is at the sole discretion of FEA Information Inc.

NASA to Attach, Test First Expandable Habitat on International Space Station

This artist's concept depicts the Bigelow Expandable Activity Module attached to the International Space Station's Tranquility module.

Credits: Bigelow Aerospace

The first human-rated expandable structure that may help inform the design of deep space habitats is set to be installed to the International Space Station Saturday, April 16. NASA Television coverage of the installation will begin at 5:30 a.m. EDT.

The Bigelow Expandable Activity Module (BEAM) will be attached to the station's Tranquility module over a period of about four hours. Controllers in mission control at NASA's Johnson Space Center in Houston will remove BEAM from the unpressurized trunk of SpaceX's Dragon spacecraft, using the robotic Canadarm2, and move it into position next to Tranquility's aft assembly port. NASA astronauts aboard the station will secure BEAM using common berthing mechanism controls. Robotic operations begin at 2:15 a.m. and are expected to be complete by 6:15 a.m.

BEAM launched aboard Dragon on April 8 from Cape Canaveral Air Force Station in Florida. At the end of May, the module will be expanded to nearly five times its compressed size of 7 feet in diameter by 8 feet in length to roughly 10 feet in diameter and 13 feet in length.

Astronauts will first enter the habitat about a week after expansion and, during a two-year test mission, will return to the module for a few hours several times a year to retrieve sensor data and assess conditions.

Expandable habitats are designed to take up less room on a rocket, but provide greater volume for living and working in space once expanded. This first test of an expandable module will allow investigators to gauge how well the habitat performs overall and, specifically, how well it protects against solar radiation, space debris and the temperature extremes of space. Once the test period is over, BEAM will be released from the space station, and will burn up during its descent through Earth's atmosphere.

NASA to Attach, Test First Expandable Habitat on International Space Station

BEAM is an example of NASA's increased commitment to partnering with industry to enable the growth of the commercial use of space. The BEAM project is co-sponsored by NASA's Advanced Exploration Systems Division and Bigelow Aerospace.

The International Space Station serves as the world's leading laboratory for conducting cutting-edge microgravity research and is the primary platform for technology development and testing in space to enable human and robotic exploration of destinations beyond low-Earth orbit, including asteroids and Mars.

For coverage times and to watch the BEAM installation live, visit:
http://www.nasa.gov/nasatv

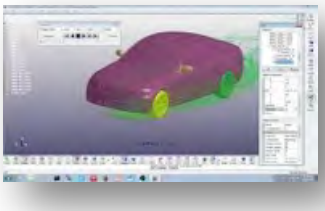
For more information about BEAM, visit:
http://www.nasa.gov/beam

For more information about the International Space Station, visit:
http://www.nasa.gov/station

Cheryl Warner - Headquarters, Washington
202-358-1100
cheryl.m.warner@nasa.gov

Dan Huot - Johnson Space Center, Houston
281-483-5111
daniel.g.huot@nasa.gov
Last Updated: April 12, 2016
Editor: Karen Northon

https://www.youtube.com/user/980LsDyna



ICFD Post treatment with LSPP4.3

Electromagnetism (EM) Playlist:

- Sheet Forming on conical die
- LS-DYNA CFD & EM thermal coupling
- Resistive heating problem
- 15 videos are available

Tutorial video Available for viewing

ICFD Post treatment with LSPP4.3 - Duration: 21 minutes.•216 views
•1 month ago

ICFD and DEM coupling - Duration: 8 seconds.•351 views
•4 months ago

ICFD coupled with DEM (LS-DYNA) - Duration: 40 seconds.•431 views
•6 months ago

Electric Kettle simulation using Ls-Dyna - Duration: 42 seconds.•609 views
•8 months ago

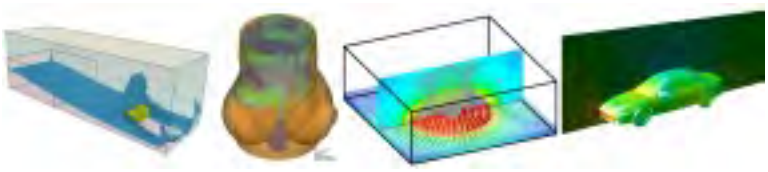
FAQs

LSTC provide a huge number of FAQs at the ftp site ftp.lstc.com/outgoing/support/FAQ . Many thanks to Jim Day of LSTC for making this information available.

Some specific popular FAQs include:

consistent units
ftp://ftp.lstc.com/outgoing/support/FAQ/consistent_units
An overview of Contact
ftp://ftp.lstc.com/outgoing/support/FAQ/contact.overview
Soft Contact
ftp://ftp.lstc.com/outgoing/support/FAQ/contact.soft1
General guidelines for Crash Analysis
ftp://ftp.lstc.com/outgoing/support/FAQ/guidelines.pdf
Hourglass Control
ftp://ftp.lstc.com/outgoing/support/FAQ/hourglass_condensed
Dealing with Instabilities
ftp://ftp.lstc.com/outgoing/support/FAQ/instability.tips
Dealing with long run times
ftp://ftp.lstc.com/outgoing/support/FAQ/long_run_times
Mass Scaling
ftp://ftp.lstc.com/outgoing/support/FAQ/mass_scaling
Negative Volume in Brick Elements
ftp://ftp.lstc.com/outgoing/support/FAQ/negative_volume_in_brick_element.tips
Quasi-static simulations
ftp://ftp.lstc.com/outgoing/support/FAQ/quasistatic
Restarting Analyses
ftp://ftp.lstc.com/outgoing/support/FAQ/restart
Modeling spinning bodies
ftp://ftp.lstc.com/outgoing/support/FAQ/spin
Spring Back
ftp://ftp.lstc.com/outgoing/support/FAQ/springback
Stress vs Strain for plasticity models
ftp://ftp.lstc.com/outgoing/support/FAQ/stress_vs_strain_for_plasticity_models
User-defined materials
ftp://ftp.lstc.com/outgoing/support/FAQ/user_defined_materials.faqFAQs

LS-DYNA Support Site
www.dynasupport.com



LS-DYNA Support

At this site you will find answers to basic and advanced questions that might occur while using LS-DYNA, information about new releases and ongoing developments**.**

March 03, 2016 LS-DYNA R8.1.0 (R8.105896) released

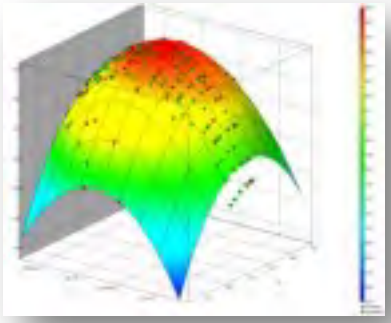
Feb 22, 2016 Recent Changes History Variables for Certain Material Models

Jan 22, 2016 - Rich document History Variables for Certain Material Models

TUTORIALS - http://www.dynasupport.com/tutorial

Getting started with LS-DYNA

LS-DYNA is used to solve multi-physics problems including solid mechanics, heat transfer, and fluid dynamics either as separate phenomena or as coupled physics, e.g., thermal stress or fluid structure interaction. This manual presents very simple examples to be used as templates (or recipes). This manual should be used side-by-side with the LS-DYNA Keyword User s Manual . The keyword input provides a flexible and logically organized database. Similar functions are grouped together under the same keyword. For example, under the keyword, *ELEMENT, are included solid, beam, and shell elements. The keywords can be entered in an arbitrary order in the input file. However, for clarity in this manual, we will conform to the following general block structure and enter the appropriate keywords in each block. 1. define solution control and output parameters 2. define model geometry and material parameters 3. define boundary conditions



LS-OPT

LS-OPT, the graphical optimization tool that interfaces perfectly with LS-DYNA,

Allows the user to structure the design process, explore the design space and compute optimal designs according to specified constraints and objectives. The program is also highly suited to the solution of system identification problems and stochastic analysis.

The graphical tool LS-OPTui interfaces with LS-DYNA and provides an environment to specify optimization input, monitor and control parallel simulations and post-process optimization data, as well as viewing multiple designs using LS-PREPOST.

Optimization

- Size-/Shape optimization
- Constraints, mixed continuous/discrete variables, multiple load cases, etc.
- Multi-Objective optimization (Pareto Frontier)
- Reliability based design optimization

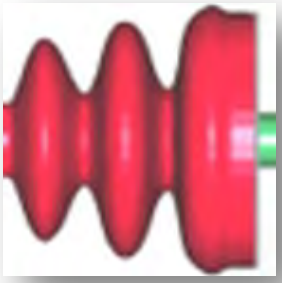
LS-TaSC - LS-TaSC 3.1 released

Topology Optimization

A tool for the topology optimization of non-linear problems involving dynamic loads and contact conditions. It can be used to find a concept design for most structures analyzed using LS-DYNA.

LS-DYNA EXAMPLES

www.dynaexamples.com



LS-DYNA Examples

The site presents approximately 200 LS-DYNA examples from various training classes. The input files and several class notes are available for download.

The download is free of charge, a login is not required. The majority of content has been contributed by LSTC/DYNAmore. The content is prepared for educational purposes. Hence, material properties and other parameters might be non-physic for simplification.

Among the files and Sections:

LS-DYNA Keyword Search If you are looking for an example containing some specific LS-DYNA keyword you may use the site search in the header section of this page.

Show Cases This folder contains several LS-DYNA examples focusing on specific load cases or keywords.

Metal Forming The examples in this section are from the introductory class on metal forming from LSTC. You may access the examples separately by the menu on the left. The examples are prepared for LS-DYNA 970 and upwards.

ALE The examples in this section are from the ALE (Arbitrary Lagrangian Eulerian Method) class of M'hamed Souli. M'hamed Souli is Professor at the University in Lille France. Both authors are key developers for the powerful capabilities of the Eulerian Methods in LS-DYNA. You may access the examples separately by using the menu on the left. The examples run with LS-DYNA 970 and upwards.

Thermal The examples in this section present examples about the thermal capabilities of LS-DYNA. The examples are provided by Dr. Art Shapiro. Art is working since decades on topics reated to DYNA3D, LS-DYNA and TOPAZ. He is the key developer for the thermal capabilites of LS-DYNA. Art is one of the co-founders of LSTC. You may access the examples separately by using the menu on the left.

LS-DYNA CONFERENCE PUBLICATIONS

www.dynalook.com

DYNAlook

DYNAlook

The site presents papers from European and International LS-DYNA User Conferences and papers provided by other users. 1604 papers are available.

The papers are from LS-DYNA Conferences and are accessible via the search functionality.

13th International LS-DYNA Conference Detroit, 2014	**12th International LS-DYNA Conference** Detroit, 2012	**11th International LS-DYNA Conference** Detroit, 2010
10th Eurpoean LS-DYNA Conference Wurzburg 2015	**9th European LS-DYNA Conference** Manchester, 2013	**8th European LS-DYNA Conference** Straßburg, 2011 …

ATD –DUMMY MODELS

www.dummymodels.com

DUMMY Model Support - Currently, the manuals of models developed by DYNAmore are available.

This site provides detailed information on dummy models for LS-DYNA. In the near future the models developed by LSTC will be added. The LSTC dummy and barrier are models are no fee and included with the LS-DYNA license.

To license the models we kindly ask to contact your local LS-DYNA distributor. Any kind of proposal or enhancements for the models and this site is very welcome.

Among the Dummy Models on this site you can find:

Side Impact Dummies

ES2/ES2re -
DYNAmore

World SID 50%
DYNAmore

US-SID
DYNAmore

Rear Impact Dummies

BioRID-II V3.
DYNAmore

Child Dummies

P-1.5
DYNAmore
P-3.0
DYNAmore

LSTC ATD MODELS

www.lstc.com/models

LSTC Models Overview

Free or low cost FE models are important to LS-DYNA users in various fields. Therefore, LSTC is developing models with the help and support of our customers. Some of the models are joint developments with our partners.

LSTC's Models are available at no cost to licensees of LS-DYNA who are current with their annual license fees (Annual License) or maintenance fees (Paid-up License). Models are fully unencrypted and accessible. LSTC endeavors to make the models as complete, accurate, reliable, and easy to use as possible.

This section of our site was created to keep users informed about our models. It will be updated periodically to reflect changes to existing models and announce newly released models.

Feedback about the models is welcome and will be used to improve future releases. To submit questions, suggestions, or feedback about LSTC's models, please send an e-mail to: atds@lstc.com.

For news and updates about our dummy models, please join our models news mailing list.
www.lstc.com/products/models/mailinglist

Barrier Models

LSTC offers several Offset Deformable Barrier (ODB) and Movable Deformable Barrier (MDB) models:

- ODB modeled with shell elements
- ODB modeled with solid elements
- ODB modeled with a combination of shell and solid elements
- MDB according to FMVSS 214 modeled with shell elements
- MDB according to FMVSS 214 modeled with solid elements
- MDB according to ECE R-95 modeled with shell elements
- AE-MDB modeled with shell elements
- IIHS MDB modeled with shell elements
- IIHS MDB modeled with solid elements
- RCAR bumper barrier
- RMDB modeled with shell and solid elements

AEROSPACE WORKING GROUP

http://awg.lstc.com/tiki/tiki-index.php

The LS-DYNA® Aerospace Working Group (AWG) is a partnership of federal agencies, corporations, and universities working together to develop and publish aerospace test cases and modeling guidelines for finite element analyses with LS-DYNA®.

The actions of the AWG serve to support the use, development, and reliability of LS-DYNA® for aerospace numerical analyses.

Some participants are partially or fully funded by the Federal Aviation Administration (FAA) in the National Aviation Research Plan 'Aircraft Catastrophic Failure Prevention Research' program, or by the National Aeronautics and Space Administration (NASA), or associated with the participants as LS-DYNA® users.

Engine Related Impact Failure (ERIF) - Arizona State University (ASU)

- Boeing
- Central Connecticut State University (CCSU)
- Federal Aviation Administration (FAA)
- General Electric Aviation
- George Mason University (GMU)
- Honda Aircraft Engine
- Honeywell
- Livermore Software Technology Corporation (LSTC)
- National Aeronautics and Space Administration (NASA)
- Ohio State University (OSU)
- Pratt & Whitney
- Pratt & Whitney Canada
- Rolls-Royce
- University of Akron
- Williams International

Cabin Interior (CI)

- B/E Aerospace
- Boeing
- Bombardier
- Central Connecticut State University
- Cessna
- Federal Aviation Administration (FAA)
- Humanetics
- National Aeronautics and Space Administration (NASA)
- Wichita State University
- Zodiac Aerospace

Participant's Training Classes

Webinars

Info Days

Class Directory

Participant Class Directory

Arup **(corporate)**	www.oasys-software.com/dyna/en/training
BETA CAE Systems S.A. **(corporate)**	www.beta-cae.com/training.htm
DYNAmore **(corporate)**	www.dynamore.de/en/training/seminars
ESI-Group **(corporate)**	https://myesi.esi-group.com/trainings/schedules
ETA **(corporate)**	www.eta.com/support2/training-calendar
LSTC **(corporate)**	www.lstc.com/training
LS-DYNA OnLine **(Al Tabiei)**	www.LSDYNA-ONLINE.COM

ARUP Visit the website for complete listings/changes/locations

www.oasys-software.com/dyna/en/training

To enrol on any of these courses please email Dyna Support at dyna.support@arup.com.

Date	Training Class
Scheduled on request	Oasys PRIMER - An Introduction
Scheduled on request	Oasys PRIMER - Automatic Assembly of Multiple Crash Cases
Scheduled on request	Oasys PRIMER - Spotwelds and Connections
Scheduled on request	Oasys PRIMER - Seat and Dummy Positioning
Scheduled on request	Oasys PRIMER & D3PLOT - An Introduction to JavaScripting

BETA CAE Visit the website for complete listings/changes/locations

www.beta-cae.com/training.htm

Basic and advanced training courses can be scheduled upon request. A variety of standard or tailored training schedules, per product or per discipline, are being offered to meet customers needs.

A number of recommended training courses offered are described below. The list is not exhaustive and more courses can be designed according to your needs.
Please, contact ansa@beta-cae.gr for further details.

Recommended Training Courses (Complete information on website)

- SPDRM
- ANSA / μETA Basics
- ANSA / μETA for CFD
- ANSA / μETA for Crash & Safety simulation
- ANSA / μETA for Durability simulation
- ANSA / μETA for NVH analyses
- Multi-Body Dynamics
- Laminated Composites
- Morphing and Optimization
- Automation
- Additional special sessions

Submitted: Albert Oswald

DYNAmore Visit the website for complete listings / changes / locations

www.dynamore.de/seminars

Seminars, information & support days in April - May

Download full seminar brochure (pdf): www.dynamore.de/seminars-2016

We are pleased to offer you a selection of seminars and free-of-charge information & support days in April - May 2016.

Trainings

Contact Definitions in LS-DYNA	5 April (L) / 15 April
PRIMER as Preprocessor for LS-DYNA	14 April
Introduction to LS-DYNA	19-21 April / 10-11 May (T)
User Materials in LS-DYNA	22 April
LS-OPT – Optimization and Robustness	26-28 April / 2-4 May (L)
Modeling Metallic Materials	10-11 May
Introduction to Nonlinear Implicit Analysis	12 May (T)
Damage and Failure Modeling	12-13 May
Smoothed Particle Hydrodynamics (SPH)	23-24 (V)
Metal Forming with LS-DYNA	30-31 May

Information days (free of charge)

Webinar: New Multiphysics Features in LS-DYNA	4 April
Webinar: LS-OPT: Optimization/DOE/Robustness	11 April
Webinar: New Features in LS-DYNA R8.1	13 April
Information day: Welding and Heat Treatment	14 April (Z)

Support days (free of charge)

· LS-DYNA	15 April / 20 May

If not otherwise stated, the event location is Stuttgart (S), Germany. Other event locations are:
L = Linköping, Sweden; V = Versailles, France; Z = Zurich, Switzerland; T = Turin, Italy

Overview and registration: www.dynamore.de/seminars

If the offered seminars do not fully suit your needs, we are pleased to meet your individual requirements by arranging tailored on-site training courses on your company premises.

DYNAmore hopes that our offer will meet your needs and would be very pleased to welcome you at one of the events.

https://myesi.esi-group.com/trainings/schedules

Basic OpenFOAM training for application engineers
2 Mar 2016 to 3 Mar 2016
CFD & Multiphysics
Pune, India

VA One: Coupled FEA/SEA Training
3 Mar 2016 to 4 Mar 2016
Vibro-Acoustics
Farmington Hills, Detroit, MI

VPS - Getting started with CRASH simulation
7 Mar 2016
Crash, Impact & Safety
Seoul, Korea

LSTC Visit the website for complete listings/changes/locations

www.lstc.com/training

March

- **MI Intro LS-PrePost**
- **MI Intro LS-DYNA**

May

- **CA Intro LS-PrePost**
- **CA Intro LS-DYNA**
- **MI Contact**
- **MI Composite**

LS-DYNA On Line Visit the website for complete listings/changes/locations

www.LSDYNA-ONLINE.COM

For Information contact: courses@lsdyna-online.com or 513-3319139

Composite Materials In LS-DYNA

This course will allow first time LS-DYNA users to use composite materials. The most important elements to start using all the composite material models in LS-DYNA will be presented in the 8 hours.

Foam & Viscoelastic Materials in LS-DYNA

Objective of the course: Learn about several foam material models in LS-DYNA to solve engineering problems. Detailed descriptions are given of the data required to use such material in analysis. Examples are used to illustrate the points made in the lectures

Plasticity, Plastics, and Viscoplastics Materials in LS-DYNA

Objective of the course: Learn about several plasticity based material models in LS-DYNA to solve engineering problems. Detailed descriptions are given of the data required to use such material in analysis. Examples are used to illustrate the points made in the lectures.

Rubber Materials in LS-DYNA

Objective of the course: Learn about several rubber material models in LS-DYNA to solve engineering problems. Detailed descriptions are given of the data required to use such material in analysis. Examples are used to illustrate the points made in the lectures.

BETA CAE Systems S.A. **www.beta-cae.gr**

BETA CAE Systems S.A.– ANSA

An advanced multidisciplinary CAE pre-processing tool that provides all the necessary functionality for full-model build up, from CAD data to ready-to-run solver input file, in a single integrated environment. ANSA is a full product modeler for LS-DYNA, with integrated Data Management and Process Automation. ANSA can also be directly coupled with LS-OPT of LSTC to provide an integrated solution in the field of optimization.

BETA CAE Systems S.A.– μETA

Is a multi-purpose post-processor meeting diverging needs from various CAE disciplines. It owes its success to its impressive performance, innovative features and capabilities of interaction between animations, plots, videos, reports and other objects. It offers extensive support and handling of LS-DYNA 2D and 3D results, including those compressed with SCAI's FEMZIP software

Solutions for:

Process Automation - Data Management – Meshing – Durability - Crash & Safety NVH - CFD - Thermal analysis - Optimization - Powertrain Products made of composite materials - Analysis Tools -

Maritime and Offshore Design - Aerospace engineering - Biomechanics

CRAY **www.cray.com**

THE CRAY® XC™ SERIES: ADAPTIVE SUPERCOMPUTING ARCHITECTURE

The Cray® XC™ series delivers on Cray's commitment to an adaptive supercomputing architecture that provides both extreme scalability and sustained performance. The flexibility of the Cray XC platform ensures that users can precisely configure the machines that will meet their specific requirements today, and remain confident they can upgrade and enhance their systems to address the demands of the future.

Cray® XC40™ and XC40-AC™ supercomputers are enabled by a robust Intel® Xeon® processor road map, Aries high performance interconnect and flexible Dragonfly network topology, providing low latency and scalable global bandwidth to satisfy the most challenging multi-petaflops applications.

While the extreme-scaling Cray XC40 supercomputer is a transverse air-flow liquid-cooled architecture, the Cray XC40-AC air-cooled model provides slightly smaller and less dense supercomputing cabinets with no requirement for liquid coolants or extra blower cabinets. A reduced network topology lowers costs, and the system is compatible with the compute technology, OS, ISV and software stack support of high-end XC40 systems.

MAXIMIZE PRODUCTIVITY WITH CRAY CS SERIES SUPERCOMPUTERS

Understanding the need for nimble, reliable and cost-effective high performance computing (HPC), we developed the Cray® CS™ cluster supercomputer series. These systems are industry-standards-based, highly customizable, and expressly designed to handle the broadest range of medium- to large-scale simulation and data analytics workloads.

All CS components have been carefully selected, optimized and integrated to create a powerful HPC environment. Flexible node configurations featuring the latest processor and interconnect technologies mean you can tailor a system to your specific need — from an all-purpose cluster to one suited for shared memory, large memory or accelerator-based tasks.

Innovations in packaging, power, cooling and density translate to superior energy efficiency and compelling price/performance. Expertly engineered system management software instantly boosts your productivity by simplifying system administration and maintenance.

Maximize your productivity with flexible, high-performing Cray CS series cluster supercomputers.

CRAY www.cray.com

CRAY® SONEXION® SCALE-OUT LUSTRE®STORAGE SYSTEM

Brought to you by Cray, the world's leading experts in parallel storage solutions for HPC and technical enterprise, the Cray® Sonexion® 2000 system provides a Lustre®-ready solution for popular x86 Linux® clusters and supercomputers through Cray Cluster Connect™. As a leader in open systems and parallel file systems, Cray builds on open source Lustre to unlock any industry-standard x86 Linux compute cluster using InfiniBand™ or 10/40 GbE utilizing proven Cray storage architectures.

The Cray Sonexion 2000 system provides 50 percent more performance and capacity than the Sonexion 1600 system in the same footprint.

Simplify

- Through its fully-integrated and pre-configured design, Cray Sonexion storage gets customers deployed faster and reduces the total number of components to manage.
- The Sonexion system's compact design reduces the total hardware footprint of petascale systems by 50 percent over component-based solutions.

Scale

- Performance scales from 7.5 GB/s to 1.7 TB/s in a single file system.
- Capacity scales in modular increments; the Sonexion 2000 system stores over two usable petabytes in a single rack. Fewer drives and components reduce capital costs as capacity grows.

Protect

- New software-based GridRAID offers higher levels of data protection and up to 3.5 times faster rebuild times than traditional RAID6 and MD-RAID storage.
- Cray ensures quality, reliability and stability at scale through exhaustive thermal and real-world stress testing, system hardening and availability, and tight hardware and software integration.

OPEN ARCHIVE AND TIERED STORAGE SYSTEM FOR BIG DATA AND SUPERCOMPUTING

Cray Tiered Adaptive Storage (TAS), powered by Versity, is designed to meet the expansive data preservation and access needs driven by big data, where data needs to migrate fluidly from high performance storage to deep tape archives, while always being accessible to users.

CRAY www.cray.com

With Cray TAS you can:

- Deploy tiered storage and archives faster
- Feel confident preserving and protecting data into the future, using Linux®
- Simplify managing data using familiar tools for years to come

CRAY® URIKA-XA™ EXTREME ANALYTICS PLATFORM

Pre-integrated, open platform for high performance analytics delivers valuable business insights now and into the future

The flexible, multi-use Cray® Urika-XA™ extreme analytics platform addresses perhaps the most critical obstacle in data analytics today — limitation. Analytics problems are getting more varied and complex but the available solution technologies have significant constraints. Traditional analytics appliances lock you into a single approach and building a custom solution in-house is so difficult and time consuming that the business value derived from analytics fails to materialize.

In contrast, the Urika-XA platform is open, high performing and cost effective, serving a wide range of analytics tools with varying computing demands in a single environment. Pre-integrated with the Apache Hadoop® and Apache Spark™ frameworks, the Urika-XA system combines the benefits of a turnkey analytics appliance with a flexible, open platform that you can modify for future analytics workloads. This single-platform consolidation of workloads reduces your analytics footprint and total cost of ownership.

Based on pioneering work combining high-performance analytics and supercomputing technologies, the Urika-XA platform features next-generation capabilities. Optimized for compute-heavy, memory-centric analytics, it incorporates innovative use of memory-storage hierarchies and fast interconnects, which translates to excellent performance at scale on current as well as emerging analytics applications.

Additionally, the enterprise-ready Urika-XA platform eases the system management burden with a single point of support, standards-based software stack and compliance with enterprise standards so you can focus on extracting valuable business insights, not on managing your environment.

CRAY www.cray.com

THE URIKA-GD™ GRAPH DISCOVERY APPLIANCE IS A PURPOSE-BUILT SOLUTION FOR BIG DATA RELATIONSHIP ANALYTICS.

The Urika-GD™ appliance enables enterprises to:

- Discover unknown and hidden relationships and patterns in big data
- Build a relationship warehouse, supporting inferencing/deduction, pattern-based queries and intuitive visualization
- Perform real-time analytics on the largest and most complex graph problems

The Urika-GD system is a high performance graph appliance with a large shared memory and massively multithreaded custom processor designed for graph processing and scalable I/O.

With its industry-standard, open-source software stack enabling reuse of existing skill sets and no lock in, the Urika-GD appliance is easy to adopt.

The Urika-GD appliance complements an existing data warehouse or Hadoop® cluster by offloading graph workloads and interoperating within the existing enterprise analytics workflow.

Realize rapid time to powerful new insights.

DatapointLabs **www.datapointlabs.com**

Testing over 1000 materials per year for a wide range of physical properties, DatapointLabs is a center of excellence providing global support to industries engaged in new product development and R&D.

The compary meets the material property needs of CAE/FEA analysts, with a specialized product line, TestPaks®, which allow CAE analysts to easily order material testing for the calibration of over 100 different material models.

DatapointLabs maintains a world-class testing facility with expertise in physical properties of plastics, rubber, food, ceramics, and metals.

Core competencies include mechanical, thermal and flow properties of materials with a focus on precision properties for use in product development and R&D.

Engineering Design Data including material model calibrations for CAE Research Support Services, your personal expert testing laboratory Lab Facilities gives you a glimpse of our extensive test facilities Test Catalog gets you instant quotes for over 200 physical properties.

ETA – Engineering Technology Associates **www.eta.com**
etainfo@eta.com

Inventium Suite™

Inventium Suite™ is an enterprise-level CAE software solution, enabling concept to product. Inventium's first set of tools will be released soon, in the form of an advanced Pre & Post processor, called PreSys.

Inventium's unified and streamlined product architecture will provide users access to all of the suite's software tools. By design, its products will offer a high performance modeling and post-processing system, while providing a robust path for the integration of new tools and third party applications.

PreSys

Inventium's core FE modeling toolset. It is the successor to ETA's VPG/PrePost and FEMB products. PreSys offers an easy to use interface, with drop-down menus and toolbars, increased graphics speed and detailed graphics capabilities. These types of capabilities are combined with powerful, robust and accurate modeling functions.

VPG

Advanced systems analysis package. VPG delivers a unique set of tools which allow engineers to create and visualize, through its modules--structure, safety, drop test, and blast analyses.

DYNAFORM

Complete Die System Simulation Solution. The most accurate die analysis solution available today. Its formability simulation creates a "virtual tryout", predicting forming problems such as cracking, wrinkling, thinning and spring-back before any physical tooling is produced

ESI Group **www.esi-group.com**

Visual-Environment is an integrative simulation platform for simulation tools operating either concurrently or standalone for various solver. Comprehensive and integrated solutions for meshing, pre/post processing, process automation and simulation data management are available within same environment enabling seamless execution and automation of tedious workflows. This very open and versatile environment simplifies the work of CAE engineers across the enterprise by facilitating collaboration and data sharing leading to increase of productivity.

Visual-Crash DYNA provides advanced preprocessing functionality for LS-DYNA users, e.g. fast iteration and rapid model revision processes, from data input to visualization for crashworthiness simulation and design. It ensures quick model browsing, advanced mesh editing capabilities and rapid graphical assembly of system models. Visual-Crash DYNA allows graphical creation, modification and deletion of LS-DYNA entities. It comprises tools for checking model quality and simulation parameters prior to launching calculations with the solver. These tools help in correcting errors and fine-tuning the model and simulation before submitting it to the solver, thus saving time and resources.
Several high productivity tools such as advanced dummy positioning, seat morphing, belt fitting and airbag folder are provided in **Visual-Safe,** a dedicated application to safety utilities.

Visual-Mesh is a complete meshing tool supporting CAD import, 1D/2D/3D meshing and editing for linear and quadratic meshes. It supports all meshing capabilities, like shell and solid automesh, batch meshing, topo mesh, layer mesh, etc. A convenient Meshing Process guides you to mesh the given CAD component or full vehicle automatically.

Visual-Viewer built on a multi-page/multi-plot environment, enables data grouping into pages and plots. The application allows creation of any number of pages with up to 16 windows on a single page. These windows can be plot, animation, video, model or drawing block windows. Visual-Viewer performs automated tasks and generates customized reports and thereby increasing engineers' productivity.

ESI Group **www.esi-group.com**

Visual-Process provides a whole suite of generic templates based on LS-DYNA solver (et altera). It enables seamless and interactive process automation through customizable LS-DYNA based templates for automated CAE workflows.

All generic process templates are easily accessible within the unique framework of Visual-Environment and can be customized upon request and based on customer's needs.

Visual*DSS* is a framework for Simulation Data and Process Management which connects with Visual-Environment and supports product engineering teams, irrespective of their geographic location, to make correct and realistic decisions throughout the virtual prototyping phase. Visual*DSS* supports seamless connection with various CAD/PLM systems to extract the data required for building virtual tests as well as building and chaining several virtual tests upstream and downstream to achieve an integrated process. It enables the capture, storage and reuse of enterprise knowledge and best practices, as well as the automation of repetitive and cumbersome tasks in a virtual prototyping process, the propagation of engineering changes or design changes from one domain to another.

Latest Release is Visual-Environment v11.0

JSOL Corporation **www.jsol.co.jp/english/cae/**

HYCRASH

Easy-to-use one step solver, for Stamping-Crash Coupled Analysis. HYCRASH only requires the panels' geometry to calculate manufacturing process effect, geometry of die are not necessary. Additionally, as this is target to usage of crash/strength analysis, even forming analysis data is not needed. If only crash/strength analysis data exists and panel ids is defined. HYCRASH extract panels to calculate it's strain, thickness, and map them to the original data.

JSTAMP/NV

As an integrated press forming simulation system for virtual tool shop the JSTAMP/NV meets the various industrial needs from the areas of automobile, electronics, iron and steel, etc. The JSTAMP/NV gives satisfaction to engineers, reliability to products, and robustness to tool shop via the advanced technology of the JSOL Corporation.

JMAG

JMAG uses the latest techniques to accurately model complex geometries, material properties, and thermal and structural phenomena associated with electromagnetic fields. With its excellent analysis capabilities, JMAG assists your manufacturing process

Livermore Software Technology Corp. **www.lstc.com**

LS-DYNA

A general-purpose finite element program capable of simulating complex real world problems. It is used by the automobile, aerospace, construction, military, manufacturing, and bioengineering industries. LS-DYNA is optimized for shared and distributed memory Unix, Linux, and Windows based, platforms, and it is fully QA'd by LSTC. The code's origins lie in highly nonlinear, transient dynamic finite element analysis using explicit time integration.

LS-PrePost: An advanced pre and post-processor that is delivered free with LS-DYNA. The user interface is designed to be both efficient and intuitive. LS-PrePost runs on Windows, Linux, and Macs utilizing OpenGL graphics to achieve fast rendering and XY plotting.

LS-OPT: LS-OPT is a standalone Design Optimization and Probabilistic Analysis package with an interface to LS-DYNA. The graphical preprocessor LS-OPTui facilitates definition of the design input and the creation of a command file while the postprocessor provides output such as approximation accuracy, optimization convergence, tradeoff curves, anthill plots and the relative importance of design variables.

LS-TaSC: A Topology and Shape Computation tool. Developed for engineering analysts who need to optimize structures, LS-TaSC works with both the implicit and explicit solvers of LS-DYNA. LS-TaSC handles topology optimization of large non-linear problems, involving dynamic loads and contact conditions.

LSTC Dummy Models:

Anthropomorphic Test Devices (ATDs), as known as "crash test dummies", are life-size mannequins equipped with sensors that measure forces, moments, displacements, and accelerations.

LSTC Barrier Models: LSTC offers several Offset Deformable Barrier (ODB) and Movable Deformable Barrier (MDB) model.

Oasys Ltd. LS-DYNA Environment **www.oasys-software.com/dyna**

The Oasys Suite of software is exclusively written for LS-DYNA® and is used worldwide by many of the largest LS-DYNA® customers. The suite comprises of:

Oasys PRIMER

Key benefits:

- Pre-Processor created specifically for LS-DYNA®
- Compatible with the latest version of LS-DYNA®
- Maintains the integrity of data
- Over 6000 checks and warnings – many auto-fixable
- Specialist tools for occupant positioning, seatbelt fitting and seat squashing (including setting up pre-simulations)
- Many features for model modification, such as part replace
- Ability to position and depenetrate impactors at multiple locations and produce many input decks automatically (e.g. pedestrian impact, interior head impact)
- Contact penetration checking and fixing
- Connection feature for creation and management of connection entities.
- Support for Volume III keywords and large format/long labels
- Powerful scripting capabilities allowing the user to create custom features and processes

www.oasys-software.com/dyna

Oasys D3PLOT

Key benefits:

- Powerful 3D visualization post-processor created specifically for LS-DYNA®
- Fast, high quality graphics
- Easy, in-depth access to LS-DYNA® results
- Scripting capabilities allowing the user to speed up post-processing, as well as creating user defined data components

Oasys T/HIS

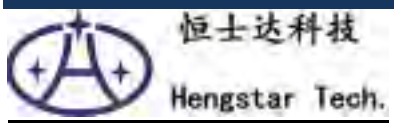
Key benefits:

- Graphical post-processor created specifically for LS-DYNA®
- Automatically reads all LS-DYNA® results
- Wide range of functions and injury criteria
- Easy handling of data from multiple models
- Scripting capabilities for fast post-processing

Oasys REPORTER

Key benefits:

- Automatic report generation tool created specifically for LS-DYNA®
- Automatically post-process and summarize multiple analyses
- Built-in report templates for easy automatic post-processing of many standard impact tests



Shanghai Hengstar

www.hengstar.com

Center of Excellence: Hengstar Technology is the first LS-DYNA training center of excellence in China. As part of its expanding commitment to helping CAE engineers in China, Hengstar Technology will continue to organize high level training courses, seminars, workshops, forums etc., and will also continue to support CAE events such as: China CAE Annual Conference; China Conference of Automotive Safety Technology; International Forum of Automotive Traffic Safety in China; LS-DYNA China users conference etc.

On Site Training: Hengstar Technology also provides customer customized training programs on-site at the company facility. Training is tailored for customer needs using LS-DYNA such as material test and input keyword preparing; CAE process automation with customized script program; Simulation result correlation with the test result; Special topics with new LS-DYNA features etc..

Distribution & Support: Hengstar distributes and supports LS-DYNA, LS-OPT, LS-Prepost, LS-TaSC, LSTC FEA Models; Hongsheng Lu, previously was directly employed by LSTC before opening his distributorship in China for LSTC software. Hongsheng visits LSTC often to keep update on the latest software features.

Hengstar also distributes and supports d3View; Genesis, Visual DOC, ELSDYNA; Visual-Crash Dyna, Visual-Process, Visual-Environment; EnkiBonnet; and DynaX & MadyX etc.

Consulting

As a consulting company, Hengstar focus on LS-DYNA applications such as crash and safety, durability, bird strike, stamping, forging, concrete structures, drop analysis, blast response, penetration etc with using LS-DYNA's advanced methods: FEA, ALE, SPH, EFG, DEM, ICFD, EM, CSEC**.**.

Lenovo www.lenovo.com

Lenovo is a USD39 billion personal and enterprise technology company, serving customers in more than 160 countries.

Dedicated to building exceptionally engineered PCs, mobile Internet devices and servers spanning entry through supercomputers, Lenovo has built its business on product innovation, a highly efficient global supply chain and strong strategic execution. The company develops, manufactures and markets reliable, high-quality, secure and easy-to-use technology products and services.

Lenovo acquired IBM's x86 server business in 2014. With this acquisition, Lenovo added award-winning System x enterprise server portfolio along with HPC and CAE expertise.

www.penguincomputing.com

Penguin Computing provides customized build-to-order server solutions for enterprises and institutions with special hardware requirements. We complement our hardware and software solutions with Penguin Computing on Demand (POD)—a public HPC cloud that provides supercomputing capabilities on-demand on a pay-as-you-go basis.

Penguin is a one-stop shop for HPC and enterprise customers, providing solutions for a wide array of computing needs and user profiles:

HPC and cloud solutions optimized for industry-specific uses

High-powered workstations for individual power users

Highly power-efficient server platforms for enterprise computing

Private and public cloud solutions, including hybrid options.

Focus

Penguin Computing is strictly focused on delivering Linux-optimized enterprise solutions. We use a thorough, proven hardware qualification and testing process to ensure that our solutions deliver optimal performance and robustness.

Penguin's in-house development team is dedicated to providing a complete highly interoperable software stack that is tuned for Penguin hardware. As a result our solutions are easy-to-use and "just work." Our integrated approach even extends to our hybrid compute solutions, which combine local and cloud computing resources, taking ease-of-use and cost-effectiveness to the next level. Penguin customers can reduce capital expenditures by right-sizing clusters for average resource utilization and easily and quickly offload excess workload into the cloud.

Penguin also offers a full range of services and support that is backed by a seasoned team of Linux, HPC and application experts.

Canada	**Metal Forming Analysis Corp MFAC** galb@mfac.com www.mfac.com			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	
	eta/DYNAFORM	INVENTIUM/PreSys		
United States	**CAE Associates Inc.** info@caeai.com www.caeai.com			
	ANSYS Products	CivilFem	Consulting ANSYS Consulting LS-DYNA	
United States	**DYNAMAX** sales@dynamax-inc.com www.dynamax-inc.com			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models		LSTC Barrier Models	

United States	**ESI-Group N.A** www.esi-group.com			
	QuikCAST	SYSWELD	PAM-RTM	PAM-CEM
	VA One	CFD-ACE+	ProCAST	Visual-Process
	VisualDSS	Weld Planner	Visual-Environment	IC.IDO
United States	**Engineering Technology Associates – ETA** www.eta.com		etainfo@eta.com	
	INVENTIUM/PreSy	NISA	VPG	LS-DYNA
	LS-OPT	DYNAform		
United States	**Livermore Software Technology Corp**		sales@lstc.com	
	LSTC www.lstc.com			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	TOYOTA THUMS	
United States	**Predictive Engineering** www.predictiveengineering.com		george.laird@predictiveengineering.com	
	FEMAP	NX Nastran	LS-DYNA	LS-OPT
	LS-PrePost	LS-TaSC	LSTC Dummy Models	
			LSTC Barrier Models	

France	**DynaS+**		v.lapoujade@dynasplus.com	
	www.dynasplus.com		Oasys Suite	
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	DYNAFORM	VPG	MEDINA	
	LSTC Dummy Models		LSTC Barrier Models	

Germany	**CADFEM GmbH**	lsdyna@cadfem.de	
	www.cadfem.de		
	ANSYS	LS-DYNA	optiSLang
	ESAComp	AnyBody	
	ANSYS/LS-DYNA		

Germany	**DYNAmore GmbH**		uli.franz@dynamore.de	
	www.dynamore.de			
	PRIMER	LS-DYNA	FTSS	VisualDoc
	LS-OPT	LS-PrePost	LS-TaSC	DYNAFORM
	Primer	FEMZIP	GENESIS	Oasys Suite
	TOYOTA THUMS		LSTC Dummy & Barrier Models	

The Netherlands	**Infinite Simulation Systems B.V**		j.mathijssen@infinite.nl	
	www.infinite.nl			
	ANSYS Products	CivilFem	CFX	Fluent
	LS-DYNA	LS-PrePost	LS-OPT	LS-TaSC

Italy	**EnginSoft SpA**		info@enginsoft.it	
	www.enginsoft.it			
	ANSYS	MAGMA	Flowmaster	FORGE
	CADfix	LS-DYNA	Dynaform	Sculptor
	ESAComp	AnyBody	FTI Software	
	AdvantEdge	Straus7	LMS Virtual.Lab	ModeFRONTIER

Russia	**STRELA**		info@dynarussia.com	
	LS-DYNA	LS-TaSC	LS-OPT	LS-PrePost
	LSTC Dummy Models		LSTC Barrier Models	
Sweden	**DYNAmore Nordic**		marcus.redhe@dynamore.se	
	www.dynamore.se		Oasys Suite	
	ANSA	µETA	LS-DYNA	LS-OPT
	LS-PrePost	LS-TaSC	FastFORM	DYNAform
	FormingSuite		LSTC Dummy Models	
			LSTC Barrier Models	
Switzerland	**DYNAmoreSwiss GmbH**		info@dynamore.ch	
	www.dynamore.ch			
	LS-DYNA		LS-OPT	LS-PrePost
	LS-TaSC		LSTC Dummy Models	
			LSTC Barrier Models	
UK	**Ove Arup & Partners**		dyna.sales@arup.com	
	www.oasys-software.com/dyna		TOYOTA THUMS	
	LS-DYNA		LS-OPT	LS-PrePost
	LS-TaSC	PRIMER	D3PLOT	T/HIS
	REPORTER	SHELL	FEMZIP	HYCRASH
	DIGIMAT	Simpleware	LSTC Dummy Models	
			LSTC Barrier Models	

China	**ETA – China**		lma@eta.com.cn	
	www.eta.com/cn			
	Inventium	VPG	DYNAFORM	NISA
	LS-DYNA	LS-OPT	LSTC Dummy Models	LS-PrePost
			LSTC Barrier Models	LS-TaSC
China	**Oasys Ltd. China**		Stephen.zhao@arup.com	
	www.oasys-software.com/dyna			
	PRIMER D3PLOT	HYCRASH	T/HIS REPORTER	SHELL
	LS-DYNA	LS-OPT	LSTC Dummy Models	LS-PrePost
	DIGIMAT	FEMZIP	LSTC Barrier Models	LS-TaSC
China	**Shanghai Hengstar Technology**		info@hengstar.com	
	www.hengstar.com			
	LS-DYNA	LS-TaSC	LSTC Barrier Models	D3VIEW
	LS-PrePOST	LS-OPT	LSTC Dummy Models	
	Genesis	VisualDoc		ELSDYNA
	Visual-Crahs DYNA	Visual-Proeces		DynaX & MadyX
	Enki Bonnet	Visual Environement		

India	**Oasys Ltd. India**		lavendra.singh@arup.com	
	www.oasys-software.com/dyna			
	PRIMER	D3PLOT	T/HIS	
			LS-OPT	LSTC Dummy Models	LS-PrePost
			LS-DYNA	LSTC Barrier Models	LS-TaSC

India	**CADFEM Eng. Svce**		info@cadfem.in	
	www.cadfem.in			
	ANSYS	VPS	ESAComp	optiSLang
	LS-DYNA	LS-OPT	LS-PrePost	

India	**Kaizenat Technologies Pvt. Ltd**		support@kaizenat.com	
	http://kaizenat.com /			
	LS-DYNA	LS-OPT	LSTC Dummy Models	LS-PrePost
	Complete LS-DYNA suite of products		LSTC Barrier Models	LS-TaSC

Distribution/Consulting	Asia Pacific	Distribution/Consulting

Japan	**CTC**	LS-dyna@ctc-g.co.jp		
	www.engineering-eye.com			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	CmWAVE	
Japan	**JSOL**			
	www.jsol.co.jp/english/cae		Oasys Suite	
	JSTAMP	HYCRASH	JMAG	
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	TOYOTA THUMS	
Japan	**FUJITSU**			
	http://jp.fujitsu.com/solutions/hpc/app/lsdyna			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	CLOUD Services	
Japan	**LANCEMORE**	info@lancemore.jp		
	www.lancemore.jp/index_en.html			
	Consulting			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models		
Japan	**Terrabyte**	**English:**		
	www.terrabyte.co.jp	www.terrabyte.co.jp/english/index.htm		
	Consulting			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	AnyBody	

Korea	**THEME**	wschung@kornet.com		
	www.lsdyna.co.kr		Oasys Suite	
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	Planets
	eta/DYNAFORM	FormingSuite	Simblow	TrueGRID
	JSTAMP/NV	Scan IP	Scan FE	Scan CAD
	FEMZIP			

Korea	**KOSTECH**	young@kostech.co.kr		
	www.kostech.co.kr			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	FCM
	eta/DYNAFORM	DIGIMAT	Simuform	Simpack
	AxStream	TrueGrid	FEMZIP	

Taiwan	**APIC**			
	www.apic.com.tw			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	FCM

POD (Penguin Computing on Demand) offers software including LSTC's LS-DYNA
www.penguincomputing.com/services/hpc-cloud

Penguin HPC clusters are optimized for engineering workloads and offer:

- Instant access to an HPC Cloud Cluster
- High performance InfiniBand bare-metal compute
- Free support from HPC experts
- No charges for network transfers
- Cost-effective, pay-per-use billing model
- Secure environment for private data
- Detailed billing reports for user groups and projects

Self Registration Portal – featuring rich--documentation, wiki, FAQ, pricing and more.
https://pod.penguincomputing.com/

POD Software Applications and Libraries (visit site for complete listing)
FEA, CFD and FDTD Modeling

- **LS-DYNA** / LS-PrePost LS-DYNA is an advanced general-purpose multiphysics simulation software package. Its core-competency lie in highly nonlinear transient dynamic finite element analysis (FEA) using explicit time integration. LS-PrePost is an advanced pre and post-processor that is delivered free with LS-DYNA.
- **OpenFoam:** OpenFOAM (Open source Field Operation And Manipulation) is a C++ toolbox for the development of customized numerical solvers, and pre-/post-processing utilities for the solution of continuum mechanics problems, including computational fluid dynamics (CFD).

- **ANSYS HFSS:** ANSYS HFSS software is the industry standard for simulating 3-D full-wave electromagnetic fields. Its gold-standard accuracy, advanced solver and compute technology have made it an essential tool for engineers designing high-frequency and high-speed electronic components.
- **ANSYS Fluent** ANSYS Fluent software contains the broad physical modeling capabilities needed to model flow, turbulence, heat transfer, and reactions for industrial applications.
- **Star-CD** and **Star-CCM+:** STAR-CCM+ is CD-adapco´s newest CFD software product. It uses the well established CFD solver technologies available in STAR-CD, and it employs a new client-server architecture and object oriented user interface to provide a highly integrated and powerful CFD analysis environment to users.
- **Convergent:** CONVERGE is a Computational Fluid Dynamics (CFD) code that completely eliminates the user time needed to generate a mesh through an innovative run-time mesh generation technique.
- **Lumerical:** Simulation tools that implement FDTD algorithms.

Cloud computing services
for
JSOL Corporation LS-DYNA users in Japan

JSOL Corporation is cooperating with chosen cloud computing services

JSOL Corporation, a Japanese LS-DYNA distributor for Japanese LS-DYNA customers.

LS-DYNA customers in industries / academia / consultancies are facing to the increase use of LS-DYNA more and more in recent years.

In calculations of optimization, robustness, statistical analysis, larger amount of LS-DYNA license in short term are required.

JSOL Corporation is cooperating with some cloud computing services for JSOL's LS-DYNA users and willing to provide large in short term license.

This service is offered to the customers by the additional price to existence on-premises license, which is relatively inexpensive than purchasing yearly license.

The following services are available

(only in Japanese).

HPC OnLine

NEC Solution Innovators, Ltd.
http://jpn.nec.com/manufacture/machinery/hpc_online/

Focus
Foundation for Computational Science
http://www.j-focus.or.jp

Platform Computation Cloud
CreDist.Inc.
http://www.credist.co.jp /

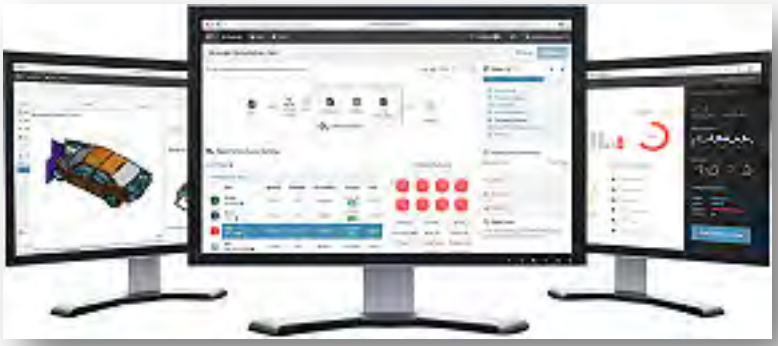
PLEXUS CAE
Information Services International-Dentsu, Ltd. (ISID) https://portal.plexusplm.com/plexus-cae/

SCSK Corporation
http://www.scsk.jp/product/keyword/keyword07.html

Contact; JSOL Corporation Engineering Technology Division cae-info@sci.jsol.co.jp

Rescale Cloud Simulation Platform

www.rescale.com



Rescale: Cloud Simulation Platform

The Power of Simulation Innovation
We believe in the power of innovation. Engineering and science designs and ideas are limitless. So why should your hardware and software be limited? You shouldn't have to choose between expanding your simulations or saving time and budget.

Using the power of cloud technology combined with LS-DYNA allows you to:
· Accelerate complex simulations and fully explore the design space
· Optimize the analysis process with hourly software and hardware resources
· Leverage agile IT resources to provide flexibility and scalability

True On-Demand, Global Infrastructure
Teams are no longer in one location, country, or even continent. However, company data centers are often in one place, and everyone must connect in, regardless of office. For engineers across different regions, this can cause connection issues, wasted time, and product delays.

Rescale has strategic/technology partnerships with infrastructure and software providers to offer the following:
· Largest global hardware footprint – GPUs, Xeon Phi, InfiniBand
· Customizable configurations to meet every simulation demand
· Worldwide resource access provides industry-leading tools to every team
· Pay-per-use business model means you only pay for the resources you use
· True on-demand resources – no more queues

ScaleX Enterprise: Transform IT, Empower Engineers, Unleash Innovation
The ScaleX Enterprise simulation platform provides scalability and flexibility to companies while offering enterprise IT and management teams the opportunity to expand and empower their organizations.

ScaleX Enterprise allows enterprise companies to stay at the leading edge of computing technology while maximizing product design and accelerating the time to market by providing:

- Collaboration tools
- Administrative control
- API/Scheduler integration
- On-premise HPC integration

Industry-Leading Security

Rescale has built proprietary, industry-leading security solutions into the platform, meeting the needs of customers in the most demanding and competitive industries and markets.

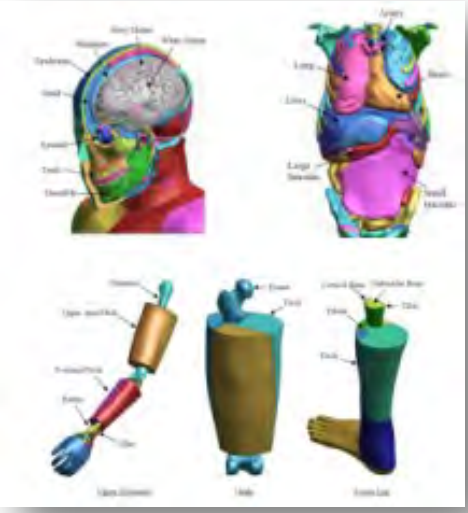
- Manage engineering teams with user authentication and administrative controls
- Data is secure every step of the way with end-to-end data encryption
- Jobs run on isolated, kernel-encrypted, private clusters
- Data centers include biometric entry authentication
- Platforms routinely submit to independent external security audits

Rescale maintains key relationships to provide LS-DYNA on demand on a global scale. If you have a need to accelerate the simulation process and be an innovative leader, contact Rescale or the following partners to begin running LS-DYNA on Rescale's industry-leading cloud simulation platform.

LSTC - DYNAmore GmbH JSOL Corporation

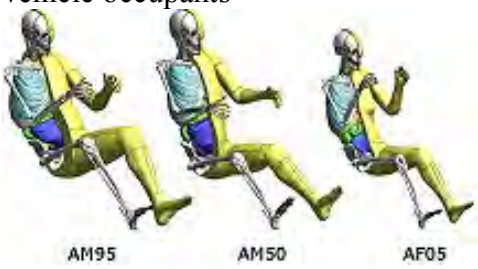
Rescale, Inc. - 1-855-737-2253 (1-855-RESCALE) - info@rescale.com - 944 Market St. #300, San Francisco, CA 94102 USA

TOYOTA - Total Human Model for Safety – THUMS

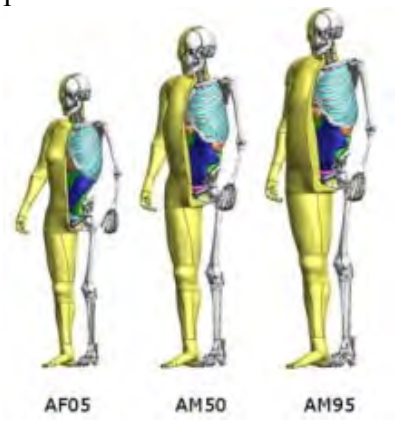


The Total Human Model for Safety, or THUMS®, is a joint development of Toyota Motor Corporation and Toyota Central R&D Labs. Unlike dummy models, which are simplified representation of humans, THUMS represents actual humans in detail, including the outer shape, but also bones, muscles, ligaments, tendons, and internal organs. Therefore, THUMS can be used in automotive crash simulations to identify safety problems and find their solutions.

Each of the different sized models is available as sitting model to represent vehicle occupants



and as standing model to represent pedestrians.



The internal organs were modeled based on high resolution CT-scans.

THUMS is limited to civilian use and may under no circumstances be used in military applications.

LSTC is the US distributor for THUMS. Commercial and academic licenses are available.

For information please contact:
THUMS@lstc.com

THUMS®, is a registered trademark of Toyota Central R&D Labs.

LSTC – Dummy Models

LSTC Crash Test Dummies (ATD)

Meeting the need of their LS-DYNA users for an affordable crash test dummy (ATD), LSTC offers the LSTC developed dummies at no cost to LS-DYNA users.

LSTC continues development on the LSTC Dummy models with the help and support of their customers. Some of the models are joint developments with their partners.

e-mail to: atds@lstc.com

Models completed and available (in at least an alpha version)

- Hybrid III Rigid-FE Adults
- Hybrid III 50th percentile FAST
- Hybrid III 5th percentile detailed
- Hybrid III 50th percentile detailed
- Hybrid III 50th percentile standing
- EuroSID 2
- EuroSID 2re
- SID-IIs Revision D
- USSID
- Free Motion Headform
- Pedestrian Legform Impactors

Models In Development

- Hybrid III 95th percentile detailed
- Hybrid III 3-year-old
- Hybrid II
- WorldSID 50th percentile
- THOR NT FAST
- Ejection Mitigation Headform

Planned Models

- FAA Hybrid III
- FAST version of THOR NT
- FAST version of EuroSID 2
- FAST version of EuroSID 2re
- Pedestrian Headforms
- Q-Series Child Dummies
- FLEX-PLI

LSTC – Barrier Models

Meeting the need of their LS-DYNA users for affordable barrier models, LSTC offers the LSTC developed barrier models at no cost to LS-DYNA users.

LSTC offers several Offset Deformable Barrier (ODB) and Movable Deformable Barrier (MDB) models:

•ODB modeled with shell elements
•ODB modeled with solid elements
•ODB modeled with a combination of shell and solid elements

•MDB according to FMVSS 214 modeled with shell elements
•MDB according to FMVSS 214 modeled with solid elements
•MDB according to ECE R-95 modeled with shell elements
•AE-MDB modeled with shell elements

•IIHS MDB modeled with shell elements
•IIHS MDB modeled with solid elements
•RCAR bumper barrier

•RMDB modeled with shell and solid elements

e-mail to: atds@lstc.com.

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