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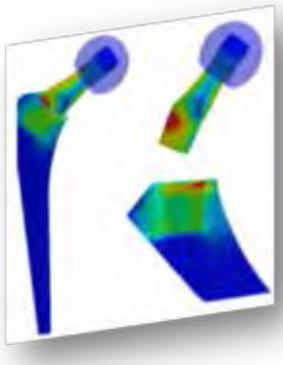
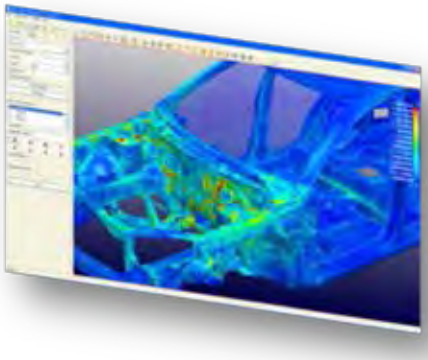
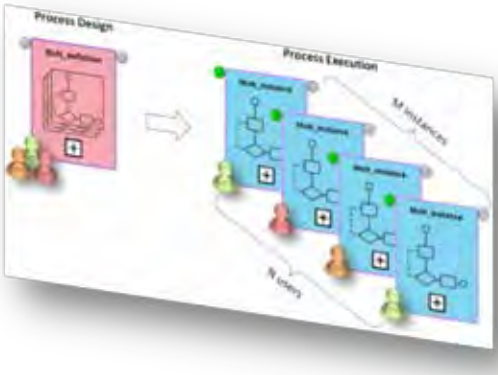




Penquin Computing

BETA CAE Systems S.A



Finite Element Analysis * Hardware * Software * Cloud * Consulting * CAD * CAE Distribution* * Implicit * Explicit *Applications * Press Releases * Events * Training

FEA Information Inc. is a publishing company founded April 2000, incorporated in the State of California July 2000, and first published October 2000. The initial publication, FEA Information News continues today as FEA Information Engineering Solutions. The publication's aim and scope is to continue publishing technical solutions and information, for the engineering community.

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May 5th - 6th -	Gompute User Meeting 2015
June 10th - 12th	BETA CAE 6th International Conference
June 15th – 17th	10th European LS-DYNA Conference
June 24th and 26th	Numerical Simulation Conference 33rd CADFEM Users' Meeting

Among This Month's Articles

- Cray's Next-Generation "Shasta" Supercomputer
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- ESI Software Solutions Benefit the Biomedical Sector
- Lenovo WRITEit® Technology™ Makes Handwriting on PCs and Tablets Better
- Penquin On Demand Including FEA, CFD and FDTD Modeling

Mahindra Tractor: Art Shapiro's son and daughter-in-law Craig & Kyrie, bought a small ranch. Left on the back of the property was a Mahindra tractor that was "as-is". The color was faded from being years in the sun, it was abandoned, and not used in a long time. The key was in it. It took a moment, but started right up, ready to go back to work!

Trivia: Mahindra & Mahindra in 1945 was selected to assemble the Willys Jeep. In 1963 M&M formed a joint venture, with International Harvester.

Pleased to report the Mahindra Tractor is now happy and doing tractor work on the ranch.

Sincerely, Marsha Victory – Trent Eggleston – Suri Bala
FEA Information Engineering Solutions US Edition

http://investors.cray.com/phoenix.zhtml?c=98390&p=irol-newsArticle&ID=2033626

Cray's Next-Generation "Shasta" Supercomputer Chosen for Argonne National Laboratory's "Aurora" System

SEATTLE, WA -- (Marketwired) -- 04/09/15 -- Global supercomputer leader Cray Inc. (NASDAQ: CRAY) today announced that it has been awarded a subcontract from Intel to integrate and deliver two next-generation supercomputers and associated storage at the U.S. Department of Energy's (DOE) Argonne Leadership Computing Facility (ALCF) at Argonne National Laboratory.

The Cray systems will be built and delivered as part of the DOE's initiative to build state-of-the art supercomputers through the joint Collaboration of Oak Ridge, Argonne and Lawrence Livermore National Laboratories (CORAL) program.

The flagship system, to be called "Aurora," will be based on the next-generation Cray supercomputer, code-named "Shasta," the successor to the current, industry-leading Cray® XC™ line of supercomputers. Aurora will utilize Intel's HPC scalable system framework, is expected to have a peak performance of 180 petaflops and is scheduled for delivery in 2018. This marks the first selection for a next-generation Cray Shasta supercomputer.

"The ALCF is focused on providing the computational science community with advanced supercomputing systems capable of achieving important breakthroughs in science and engineering, and the Aurora system is a significant continuation of our mission," said Rick Stevens, Associate Laboratory Director for Argonne National Laboratory. "The scalable architecture of Cray's next-generation Shasta system combined with Intel's advanced processing technologies ensures the Aurora system will be a valuable resource for computational science and engineering."

Cray and Intel will provide ALCF with a second system, to be called "Theta," which will be a Cray XC series supercomputer and is expected to be delivered in 2016.

Theta will be an early production system for Argonne and will have a peak performance of more than 8 petaflops. Cray also has options to provide next-generation, high-performance parallel storage systems for both the Theta and Aurora systems.

"We take great pride in building powerful supercomputers for advancing scientific discovery, and through our collaboration with Intel and Argonne, we expect the Aurora system will provide the DOE user community with the most powerful supercomputer we will have ever built," said Peter Ungaro, president and CEO of Cray. "Aurora also has added significance for us as it will be based on our next-generation Shasta system - the supercomputing heir to our Cray XC series, which is our most successful system ever and a leader in the supercomputing market today. Our Shasta platform will merge the best technologies from our XC line, as well as from our Cray CS line of cluster supercomputers, into a truly adaptive computing framework across both supercomputing and analytics workloads. We are very excited to have been selected by Intel to partner with them to build this unique, ground-breaking system for Argonne."

The next-generation Cray Shasta platform will build upon the advanced supercomputing technologies currently available in the high-end Cray XC and Cray CS™ cluster supercomputers to provide customers with more flexible, reliable and scalable systems for quickly solving the world's toughest computational challenges. Using best-in-class processors, memory and networks, the Shasta systems are the full embodiment of Cray's Adaptive Supercomputing vision and will be designed to provide Cray customers with a path to exascale computing.

Cray's Shasta platform will feature a next-generation system architecture with the flexibility to support multiple infrastructures and software environments. This will allow Shasta systems to be configured to address a broad range of compute and data-intensive workflows, and the systems will be designed to provide configuration options across the price/performance spectrum to address the different requirements of commercial, government, academic and other user organizations. Shasta's adaptive supercomputing infrastructure is designed to support multiple Intel building blocks, such as future Intel® Xeon and Xeon Phi™ processors and Intel® Omni-Path Fabric high speed interconnect technology.

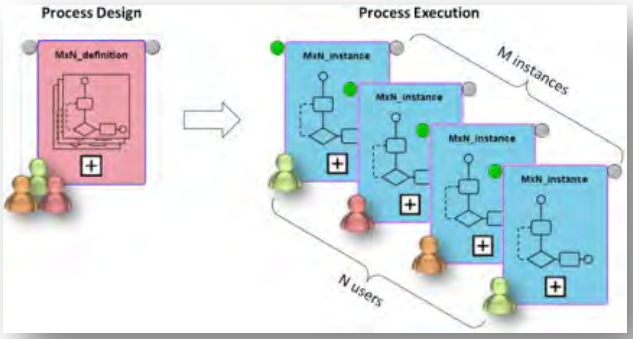
"The Aurora system will represent the pinnacle of supercomputing, providing Argonne with a balanced, power efficient and reliable system based on Intel Architecture that will preserve their existing investments in software applications for years to come," said Raj Hazra, vice president, Data Center Group and general manager, Technical Computing Group at Intel. "We are excited about this new working relationship with Cray to accelerate the path to exascale and drive the next-generation of scientific discoveries at Argonne National Labs."

A range of positive financial outcomes exist with this contract due to multiple options associated with the various deliverables and funding including a separate R&D contract. Delivery for the initial Theta system is expected in 2016. If exercised as anticipated, Cray expects the larger follow-on Aurora system to be delivered in 2018.

About Cray Inc. - Global supercomputing leader Cray Inc. (NASDAQ: CRAY) provides innovative systems and solutions enabling scientists and engineers in industry, academia and government to meet existing and future simulation and analytics challenges. Leveraging more than 40 years of experience in developing and servicing the world's most advanced supercomputers, Cray offers a comprehensive portfolio of supercomputers and big data storage and analytics solutions delivering unrivaled performance, efficiency and scalability. Cray's Adaptive Supercomputing vision is focused on delivering innovative next-generation products that integrate diverse processing technologies into a unified architecture, allowing customers to meet the market's continued demand for realized performance. Go to www.cray.com for more information.

Safe Harbor Statement (Excerpt – complete statement is at www.cray.com) "…This press release contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934 and Section 27A of the Securities Act of 1933, including, but not limited to, statements related to orders for Cray XC and Cray Shasta-based systems, Cray's ability to deliver the systems required by the CORAL program when required and that meet the CORAL program's needs and the planned availability, performance and features of the Cray Shasta system. These statements involve current expectations, forecasts of future events and other statements that are not historical facts …." Cray is a registered trademark of Cray Inc. in the United States and other countries, and XC and CS are trademarks of Cray Inc. Other product and service names mentioned herein are the trademarks of their respective owners.

Cray Media: Nick Davis 206/701-2123
pr@cray.com
Cray Investors: Paul Hiemstra 206/701-2044
ir@cray.com
Source: Cray Inc.



BETA CAE Systems S.A. announces the release of SPDRM v1.1.1.

This version delivers several most anticipated enhancements, along with a number of resolved known issues, to the users of the most advanced Simulation Process Data and Resources Management tool.

About this release

The most noticeable software enhancements and code corrections are listed below.

Enhancements

Process Management: From now on, the modification and execution privileges defined during the design phase and saved in the node definitions are respected.

From now on, the M instances of an MxN node will be automatically assigned (i.e. set execution privilege) to the N users of the selected Execution Roles.

The default contents of the Process Instance List have changed. It is also now possible to select and delete a multi-selection of nodes.

It is now possible to search also among draft node definitions.

A check was added for possible node name conflicts, to avoid the creation of nodes with identical names within the same sub-process.

Data Management:

- It is now possible to lock or unlock simulation models, to avoid their deletion or modification.
- New context menu options have been added to linked directories of DM items.
- The image of the selected component in the history graph is now displayed under the list of its properties and attributes.
- It is now possible to search items based on their creation date, by using the variable "today".

Resources Management: From now on, the values of the default launch options of applications, used by mimetypes and application nodes, are automatically updated when the registered application settings are updated.

Scripting:

- The script function dm.selectDataFromDataTree has been added to enable the selection of one or more files, folders and/or DM items from the data tree window.
- A new argument was added in the script function dm.queryDMItems to enable the definition of the DM Item types for which the specified query will be applied.
- The ability to define whether the associated TMP folders will be deleted or not upon the deletion of a node was added as an additional argument in the script function process.instantiateNode.
- The script function emailer.sendMail has been modified to get multiple recipients and add attached files from the file system.

GUI: The pre-run, main and post-run script areas of application nodes have been rearranged using a tabbed layout, to provide more space for script editing.

Miscellaneous: It is now possible to send emails through the SPDRM Client (Tools > Send Email) by using an outgoing authenticated SMTP mail server.

Known Issues Resolved

Process Management

- Deleting a starting option of an application node from the registered applications console was neglected when the application was called.
- User could modify the properties/settings of a node, although his current role did not belong to the list of modification roles for this node.
- The options "Auto Start" and "Auto Complete" were automatically activated for MxN instances, even for nodes that had been designed to have these options de-activated.
- The information about the version history of nodes was lost when saving them in Drafts.
- A user could replace a node with another version of it, through the "Check Available Versions" option, even without a delete permission on it.
- The option "Check Available Versions" was not available to users whose current role had not been assigned "Design" privilege.

Data Management

- An error could occur during changing the status of a component from "WIP" to "Error".
- When importing a new linked directory under a DM item the previous one was not deleted.
- It was possible to import files and/or subfolders on DM folders, no matter if the user's current role had "Modify" privilege on them. Moreover, in some cases a user was not possible to add subfolders on DM folders, although the folders were owned by him/her.

Resources Management: An error could occur when selecting a user, while the User Management window was minimized.

Scripting

- In some cases, it was not possible to load Python functions help from their source.
- The script function dm.downloadFolderById returned an empty list when the requested folder was empty.
- The script function dm.selectComponentsFromQueryResults could return wrong error code.
- The script function process.getValuesOfNode returned the default values of output slots and variables, instead of the run-time values. Moreover, the type of the returned variable was always of type string, instead of the same type as the one of the source variable.

ANSA Connect

- The status of a component could be switched from "OK" to "WIP" through ANSA script.
- Some rules needed to be removed from the Component section of the data model configuration file since they prevent version spin-up from ANSA v15.1.0 and later.

GUI

- An error could occur when the user changed the Windows theme, while the SPDRM Client was running.

Miscellaneous

- The operation of the switching user or role failed to be aborted, when the "Cancel" button was pressed in the "Unsaved Changes" window, in case there was unsaved work in the "Process Designer'.
- An error could occur when sending email or setting up an SPDRM update notification, if the required server e-mail configuration had not been set properly.

Configuration

Updated configuration files

- Updated data model configuration file (dm_structure_TBM.xml).

Documentation Updates

Updated Documents

- Updated process template (component_build.json).
- Updated ANSA script for parsing the XML file (ParseXML.bsx).

Supported platforms and System Requirements

- The server software of SPDRM is currently available on Linux and MS Windows 64bits.
- The client software of SPDRM is running under 64bit flavours of Linux and MS Windows.
- The software requires a different license key to the rest of the products of BETA CAE Systems.
- This license key should be incorporated into the same license file of other products of BETA CAE Systems, if such is already installed, and requires beta_lm, our proprietary license manager.

Download

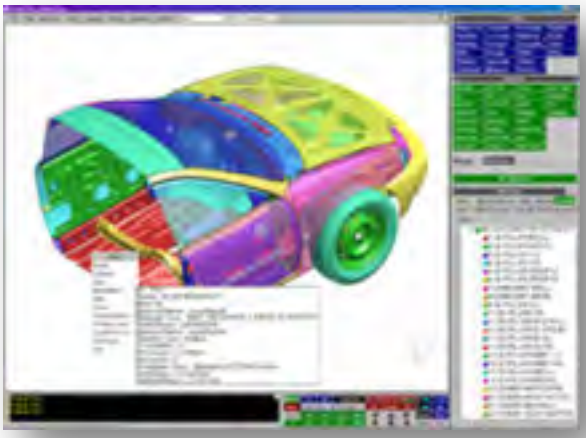
Where to download from: Customers who are served directly by BETA CAE Systems S.A. may download the new software, examples and documentation from their account on our server. They can access their account through the "user login" link at our web site http://www.beta-cae.gr
Contact us if you miss your account details. The [Public] 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 for software distribution details.

What to download: All files required for the installation of this version reside in the folder named "SPDRM_V1.1.1" and are dated as of April 8th, 2015. This package contains the server software on Linux 64bit and MS Windows 64bit, and the client software on Linux and MS Windows 64bit systems.

www.beta-cae.gr/conference06_announcement.htm

www.oasys-software.com/dyna/en/software/primer.shtml



Oasys PRIMER Priorities

- **specifically for pre-processing with LS-DYNA - preparation and modification of LS-DYNA models**
- **provide complete support for every LS-DYNA keyword**
- **common keywords can be created, modified and graphically visualised to help users understand exactly what a model contains and how the various entities are inter-related.**

Oasys PRIMER

The Oasys PRIMER pre-processor is designed to make preparation and modification of LS-DYNA models as fast and as simple as possible, improving user productivity and efficiency and reducing the time spent manipulating and developing models suitable for LS-DYNA.

Our priority with Oasys PRIMER is to provide complete support for every LS-DYNA keyword. The user can be assured that every model read in and written out will lose no data.

Main features:

- Full support for LS-DYNA version R7.1
- Connections function for defining various connections (e.g. spotwelds, bolts) including a Autoweld function that does not require an input file
- Quick-pick menu for on-screen manipulation of entity display characteristics
- Quick-pick menu for on-screen editing of LS-DYNA keywords
- Easy access to part data through the Part Tree navigation menu, and Part Table
- Cross reference viewer menu for tracking how different entities refer to each other
- Airbag Folding including mesh-independent airbag folding
- Seatbelt fitting including automatic seatbelt re-fitting after dummy re-positioning
- Mechanisms
- Keyboard shortcut keys for most of the common functions
- Simple meshing capability.
- Full support for LS-DYNA parameters
- Background image and image/model alignment function

Oasys PRIMER is designed specifically for pre-processing with LS-DYNA. Therefore the user interface is clear, simple and tailored towards LS-DYNA - without any compromises.

All of the common keywords can be created, modified and graphically visualised to help users understand exactly what a model contains and how the various entities are inter-related.

Connection Definition

- The Connections function within Oasys PRIMER allows the user to quickly and easily create spotwelds and bolted connections. These can be created manually, using a spotweld file, or automatically using the Autoweld option.
- The Connection Table allows the user to review the status of the various connections within a model and make modifications.
- Once created the data is stored along with the keyword file allowing the connections to be easily updated. The connection data can also be written out as a separate file for use with other models.

Part Tree & Part Table

- The Part Table functions in Oasys PRIMER allows the user to quickly review or modify properties such as thickness, element type, material type, yield stress, or density of an individual part or a whole series of part.
- The Part Tree enables users to quickly navigate around their models, giving a visual display of the parts that are in each include file and allowing the user to move parts between include files with a simple click-drag function.

Error Checking

- Oasys PRIMER has a large range of checking functions. These include basic mesh quality checks, and over 3000 LS-DYNA specific checks to help reduce the amount of time taken to get a new model up and running.
- The Check Window and Error Tree Viewer allows users to clearly see any errors within a model and quickly locate the items that are causing the errors.

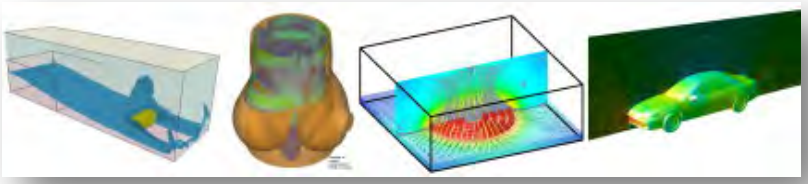
Occupant Set-Up

There are a number of functions available within Oasys PRIMER to aid with setting up and positioning occupant dummies within a model. These include:

- Dummy Positioning
- Mechanism that allows seat position to be quickly adjusted
- Seat Foam Compression which allow users to pre-compress seat foam
- Seatbelt Fitting which allows users to easily fit a seatbelt to a dummy and automatically re-fit the belt if the dummy is repositioned

Airbag Folding

- The Airbag Folding function in Oasys PRIMER allows users to define the folding pattern for 2D and3D airbag.
- It includes a range of fold types such as thick, thin, tuck, spiral and scrunch.
- It also includes distortion and penetration checking to ensure the quality of the final folded airbag.
- Once created the folding pattern data is stored along with the keyword file allowing any updates to be easily carried out.



The incompressible flow solver is based on state of the art Finite Element technology applied to fluid mechanics.

It is fully coupled with the solid mechanics solver. This coupling permits robust FSI analysis via either an explicit technique when the FSI is weak, or using an implicit coupling when the FSI coupling is strong. In addition to being able to handle free surface flows, there is also a bi-phasic flow capability that involves modeling using a conservative level-set interface tracking technique. Basic turbulence models are also supported. This solver is the first in LS-DYNA to make use of a new volume mesher that takes nice surface meshes bounding the fluid domain as input. In addition, during the time advancement of the incompressible flow, the solution is adaptively re-meshed as an automatic feature of the solver. Another important feature of the mesher is the ability to create boundary layer meshes. These anisotropic meshes become a crucial part of the model when shear stresses are to be calculated near fluid walls. For more details, please refer to the associated menu links.

Automatic Volume Mesher

The ICFD solver uses an automatic volume mesher for the fluid domains. This greatly simplifies the pre-processing stage. For this feature a good quality body-fitted surface mesh has to be provided. For FSI simulations, the solver uses an ALE approach for mesh movement. In the cases where FSI simulations result in large displacements the solver can automatically re-mesh to keep an acceptable mesh quality.

Mesh refinement & adaptive meshing tools

- Several tools are provided for local refinement of the volume mesh in order to better capture mesh sensitive phenomenons such as turbulent eddies or boundary layer separation-reattachment. During the geometry set up, the user can define surfaces that will be used by the mesher to specify a local mesh size inside the volume. If no internal mesh is used to specify the size, the mesher will use a linear interpolation of the surface sizes that define the volume enclosure.
- It is also possible to specify several anisotropic elements to be added to the boundary layer in order to better represent close-to-the-wall effects.
- Another possibility would be to activate the adaptive mesh refinement feature. The solver will use an a-posteriori error estimator to compute a new mesh size bounded by the user to satisfy a maximum perceptual global error. This would simplify mesh generation while providing accurate results.

Fluid Structure Interaction

One of the solver's primary objectives is not only to solve the Navier Stokes equations but to solve ully coupled FSI problem where the structural part could be any Lagrangian model of LS-DYNA. The setting up of the mechanical problem is therefore done the same way as for a classic LS-DYNA analysis. All FSI boundaries are Lagrangian and deform with the structure allowing exact imposition of boundary conditions. Both the structural explicit and implicit solvers can be activated resulting in weak or strong FSI analysis. Three coupling directions are available for FSI analysis :

- Two-way coupling. Loads and displacements are transferred across the FSI interface and the full non-linear problem is solved.
- One-way coupling. The solid solver transfers displacements to the fluid solver.
- One-way coupling. The fluid solver transfers stresses to the solid solver.

Free Surface

A large collection of fluid problems involves moving interfaces. Applications include air-water dynamics, breaking surface waves and solid bodies penetrating in fluids. In many such applications, the interplay between the interface dynamics and the surrounding fluid motion is subtle, with factors such as density ratios and temperature jumps across the interface, surface-tension effects, topological connectivity, and boundary conditions playing significant roles in the dynamics.

The solver uses a level set method, a fast and reliable technique in order to track and correctly represent moving interfaces. they rely on an implicit representation of the interface whose equation of motion is numerically approximated using schemes built from those for hyperbolic-conservation laws. The resulting techniques are able to handle problems in which the speed of the evolving interface may sensitively depend on local properties such as curvature and normal direction, as well as complex physics off the front and internal jump and boundary conditions determined by the interface location.

Level set methods are particularly designed for problems in multiple space dimensions in which the topology of the evolving interface changes during the course of events and for problems in which sharp corners and cusps are present.

Bi-Phasic Flow

One of the new additions to the solver is the possibility to approximate two phase flow while preserving a sharp interface even for under resolved problems. This approach will preserve sub-grid features of the interface in areas where the finite element mesh is under-resolved and restore this feature to the solver later in areas of the mesh with better resolution.

Turbulence Models

In the case of flows at high Reynolds number, the choice of the turbulence model is crucial in order to correctly reproduce vortexes, boundary layer laminar to turbulent transitions and other turbulent three dimensional behaviors. Several turbulence models are already available :

- The RANS models. The RANS equations determine mean flow quantities but they require turbulence models to close them. These equations are provided by the different RANS models assuming different hypothesis on the flow. The incompressible solver provides a $k-\varepsilon$ model which is one of the most widely used turbulence models in CFD.
- The LES models. As the power of computer increases LES models have become a popular technique in order to simulate turbulence. Those models are based on the assumption that large eddies contain most of the kinetic energy of the flow and dependon the geometry while the smaller ones are considered more universal and independent of the flow's geometry. Therefore LES models will apply a filter on the flow directly solving large eddies while simulating smaller ones.

Conjugate Heat Transfer:

Heat transfer is a discipline of thermal engineering that concerns the generation, use, conversion, and exchange of thermal energy and heat between physical systems. The ICFD solver offers the possibility to solve and study the behavior of temperature flow in fluids. Potential applications are numerous and include refrigeration, air conditioning, building heating, motor coolants, defrost or even heat transfer in the human body. Furthermore, the ICFD thermal solver is fully coupled with the thermal solver using a monolithic approach which allows to solve complex problems where both heated structures and flows are present and interact together.

Non-Newtonian Flows

Classic fluid mechanics applications involve flows that use a constant viscosity independent of temperature and shear rate. Those fluids are said to follow Newton's law of viscosity and are therefore called Newtonian fluids (Water, most aqueous solutions, oil, air and other gases). However, for some fluids this assumption does not hold.

The flow of Non-Newtonian fluids is also encountered in many branches of engineering (physical chemistry, blood mechanics, hair gel, corn syrup, oobleck) and frequently when simulating flow in pipes. The ICFD solver includes the Power-Law model in order to simulate Non-Newtonian flows.

MPP Scalability

MPP (short for Massively Parallel Processing) is a type of computing available for LS-DYNA that uses many separate CPUs running in parallel each with their own memory to execute a single analysis. In order to solve large implicit CFD analyzes, it is important to provide a good CPU scalability in order to accelerate the analysis and save some computational time. A numerical model of around 2 million degree of freedom was run as a stand alone CFD model. An FSI analysis was also performed on the same model bringing the total number of degrees of freedom to around 3.5 millions. Bearing in mind that the ICFD solver is implicit, the results show good speedup capabilities : of 40 for 128 cpus in the CFD only case and a speedup of 55 for 128 cpus in the case of FSI. For the next development cycle further improvements will be implemented.

For Complete Information – www.lstc.com

E-Mail: forum@dynamore.de

www.dynamore.de/ls-dyna2015

June 15th – 17th 2015, Würzburg, Germany

Agenda online:
www.dynamore.de/15agenda
Agenda flyer (pdf):
www.dynamore.de/15agenda-pdf

REGISTER NOW - Online registration
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Conference website:
www.dynamore.de/15dyna

NEW: The user community has grown and we are pleased to announce that this is the first year that the conference will be two and a half days.

The conference starts on Monday after lunch. It is an ideal place to exchange your experiences and findings with other users of LS-DYNA and the associated products.

- More than 170 technical presentations
- 13 keynote presentations of reknown speakers
- 13 workshops on various topics related to LS-DYNA
- 17 accompanying seminars with a 10% discount for conference participants
- Comprehensive hardware and software exhibition
-

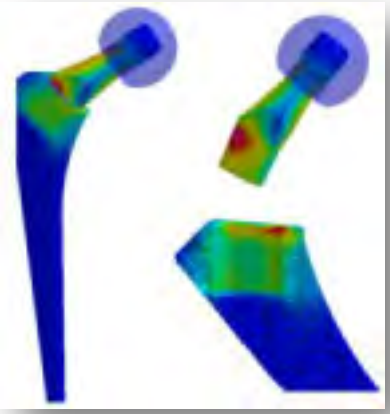
Venue:

- Würzburg is a beautiful historical city and a UNESCO World Cultural Heritage site.
- Easily accessible from Frankfurt International Airport by train or by car.
- The Congress Centrum at the Maritim Hotel Würzburg is centrally located directly on the banks of the river Main, offering a splendid view of the Marienberg fortress.
- Visitors can comfortably explore the baroque inner city with its numerous sights by foot

Contact and registration - DYNAmore GmbH
Industriestr. 2 - D-70565 Stuttgart, Germany
Tel. +49 (0) 7 11 - 45 96 00 – 0 Fax. +49 (0) 7 11 - 45 96 00 – 29

www.esi-group.com/company/press/news-releases/esi-software-solutions-benefit-biomedical-sector

ESI Software Solutions Benefit the Biomedical Sector



Simulation results in Virtual Performance Solution: mechanical stresses for a given load case.

The fitting of total hip prostheses is one of the top five operations in orthopedic surgery today

A recent study helps to precisely understand the challenges related to a hip prosthesis

Paris, France – April 2, 2015 – ESI Group, pioneer & solution provider in Virtual Prototyping for manufacturing industries, and partner of numerous R&D projects in the biomedical sector for many years, announces the results of technical studies recently carried out in France. These studies, performed in collaboration with a hip prosthesis manufacturer, have led to a better understanding of the issues related to the manufacturing, placement and in-vivo mechanical behavior of such prostheses. These studies clearly illustrate the potential for numerical simulation in the medical sector.

The fitting of total hip prostheses is one of the top five operations in orthopedic surgery today; and such surgeries are steadily rising according to statistics from the French Hospital Information Technology Agency (ATIH)*. With patients - especially athletes - needing surgery at an increasingly younger age, and with growing life expectancies, prostheses must last longer. These requirements for increased longevity and comfort raise several new challenges for doctors as well as for prosthesis manufacturers.

For manufacturers, new materials, including ceramics and metal alloys, must be evaluated and the design of prostheses must take into account various issues related to breakage, wear and noise. Doctors, on the other hand, try to mitigate the possible consequences of a micro separation between the prosthesis' femoral head and the cavity in which it is inserted (the 'cup'). This separation can cause micro impacts during daily use and result in premature wear.

For nearly a year the teams at ESI in France have conducted a study to help doctors and manufacturers better understand the phenomena that lead to prosthetic malfunctions. The first study was conducted to accurately simulate the kinematics and the various stresses applied on a hip prosthesis in order to understand the physics taking place in cases of extreme load, experienced in accidental cases. The teams used ESI's integrated CAE platform, Visual-Environment to build models from geometry and material description provided by the manufacturer. They then switched to ESI's Virtual Performance Solution to study an impact equivalent to 9K Newton in 9ms, which is representative of a severe shock, such as a patient heavily falling down the stairs. Using ESI software solutions, the study has allowed doctors and manufacturers to very accurately describe the kinematics and contact areas following a decoaptation (separation of the femoral head and cup) of the prosthesis.

A second study was conducted on behalf of a prosthesis manufacturer, Science et Médecine (SEM), based in Créteil, near Paris, France. The aim was to compare three different designs of modular prostheses fabricated from vanadium alloys, to determine which one was the most resistant in accidental cases. The precise simulation of the fitting process of the prostheses has helped SEM to accurately determine their future positioning, as well as the structural damage expected when regulatory tests are performed.

Numerical simulation is commonly used by SEM to achieve reliable design and ensure the safe use of our medical devices. We are very sensitive to software improvements, especially those incorporating dynamic simulation. The study conducted in partnership with ESI has improved our understanding of the mechanical behavior of our prostheses, for each tested design. The recent developments of simulation tools help us in increasing the reliability of medical devices including those requiring assemblies", explains Mr. Bréard, Research and Development Director, Science et Médecine.

For Fouad El-Khaldi, Industrial Strategy and Innovation Director for ESI Group, this study in the health sector is part of the company's diversification strategy. He explains, ESI has already proven its value in helping companies in the automotive, aerospace, energy and electronics domains. Now many other industries are turning to Virtual Prototyping as they see the benefits of being able to precertify products and anticipate product issues. Obviously, the health sector represents a huge potential market because simulation can solve customization issues and help manufacturers deliver the best solution for each and every patient, in less time and at an affordable cost."

*Source : "Typologie et épidémiologie des prothèses totales de hanche en France", J Caton, P Papin (2012)

For more information about Visual-Environment, please visit http://www.esi-group.com/visual-environment

For more information about Virtual Performance Solution, please visit www.esi-group.com/VPS

For more ESI news, visit: www.esi-group.com/press

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

ESI Group – Media Relations

Céline Gallerne - +33 1 41 73 58 46 - Celine.Gallerne@esi-group.com

About ESI

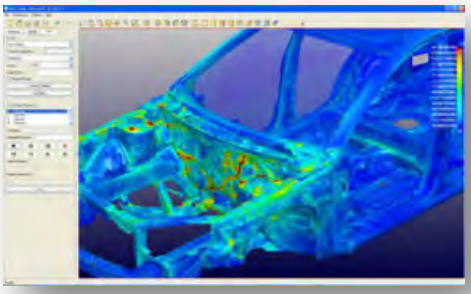
ESI is a world-leading provider of Virtual Prototyping software and services with a strong foundation in the physics of materials and Virtual Manufacturing.

Founded over 40 years ago, ESI has developed a unique proficiency in helping industrial manufacturers replace physical prototypes by virtually replicating the fabrication, assembly and testing of products in different environments. Virtual Prototyping enables ESI's clients to evaluate the performance of their product and the consequences of its manufacturing history, under normal or accidental conditions. By benefiting from this information early in the process, enterprises know whether a product can be built, and whether it will meet its performance and certification objectives, before any physical prototype is built. To enable customer innovation, ESI's solutions integrate the latest technologies in high performance computing and immersive Virtual Reality, allowing companies to bring products to life before they even exist.

Today, ESI's customer base spans nearly every industry sector. The company employs about 1000 high-level specialists worldwide to address the needs of customers in more than 40 countries.

For Complete Information - www.esi-group.com

www.eta.com/inventium/presys



PreSys is an engineering simulation solution for the development of finite element analysis models. It offers an intuitive user interface with many streamlined functions, allowing fewer operation steps with a minimum amount of data entry along the way.

Using PreSys, the user can analyze product designs, view simulation results and analyze/predict how the product will perform in a given circumstance

PreSys works the way you do. The PreSys interface is fully customizable to suit user-specific needs. Also, a model explorer feature provides streamlined data navigation.

Menus, toolbars & many other user interface features can be customized by the user to streamline the guided user interface.

Developed by a leader in the creation & implementation of new CAE tools & methodology, PreSys is ETA's 4th generation Pre/Post Processor. It delivers the capability to handle finite element modeling with ease.

Complete finite element modeling toolset Task manager guides the user through operations

- Surface automeshing
- Boundary condition definition
- Automated solid meshing
- Material library
- Unlimited model size
- Direct interface with LS-DYNA, NEi Nastran, MSC NASTRAN, NISA
- Interactive mesh editing
- Model check and repair tools
- Continuous data error checking

Fully configurable user interface

- Native Windows XP/Vista/7 & 64-bit OS support

Complete results visualization

- Stress/strain contour plotting
- Animation of deformations & stress/strain data
- Graphing tools for complete data analysis
- 3D view application for stand-alone viewing of
- models & results

Interfaces with CAD software via standard formats

- IGES, STEP, SAT, CATIA, DXF, UG NX, ProE,Solidworks & Parasolid
- Import/export capability

Model data displayed in a tree-structure

- Quickly & efficiently access all model entities

Card image view to create/edit non-graphical data

Scripting interface for all commands

Macro capability write/edit/replay

Language

Features

Complete finite element modeling toolset

- Task manager guides the user through operations
- Surface automeshing
- Boundary condition definition
- Automated solid meshing
- Material library
- Unlimited model size
- Direct interface with LS-DYNA, NISA, Moldex3D
- NEi Nastran, MSC NASTRAN
- Interactive mesh editing
- Model check and repair tools
- Continuous data error checking

For Complete Information: www.eta.com

www.gompute.com

Gompute on Demand delivers HPC as a service. Gompute On Demand provides customers with a turnkey environment backed by specialized support to solve computationally intensive workloads.

Security

Gompute on Demand is provided in the form of a private Linux cluster with a private internal network and file system.

The service is capable of complying with the customer's security policies in terms of user identification, data security and system access by using various techniques, e.g. dual factor identification, data encryption, VPN based communication etc.

Gompute owns and operates its own infrastructure and datacenter making it capable of delivering secure solutions to European and American organizations, including government institutions.

Purchasing computing power

Gompute on Demand offers subscription to a private cluster with an HPC environment compatible with the chosen security policy. Users and departments can be organized as needed and seamlessly combined with the application environment tailored to the customer's needs.

Computing resources are added to this private cluster as reserved nodes and/or extra storage. Last minute and advanced reservations are also possible.

Virtual organizations

Gompute supports creation of departmental user groups who share the same resources. Customers may partition their contracted resources in departments to enable separate resource access and accounting of the HPC system or license usage.

Users have the possibility to share their data through private model repositories and collaborate using Gompute's Remote Desktop technology.

Remote Visualization & Collaboration

Gompute on Demand is powered by Gompute's cutting edge technology for remote visualization, letting users access their applications with its original GUI.

Gompute on Demand's remote visualization improves productivity by providing effective collaboration between geographically distributed teams in different continents.
Team members or third party support personnel can share desktops helping in quick decision making and cutting costs.

Supported Applications

Gompute supports both commercial and open source software. Users have the possibility to run both batch jobs and launch their favorite application using its native Graphical User Interface.
A large number of commercial and open-source applications are pre-installed and ready to go.

Gompute's support team is always eager and ready to help you integrate any application, including custom applications.

Third party licenses

Gompute on Demand provides license pools for certain applications, but, customers can make use of their own licenses in different ways:

1. host licenses on their private cluster;
2. fetch the licenses from their own license server;
3. fetch the license from the vendor.

Gompute on Demand assets

Gompute on Demand's hardware assets comprises: compute and visualization nodes, fat nodes for large-mem applications and high performance storage built on a parallel file system.

Private clusters have the option of using low latency interconnects for larger scalability of e.g. MPI based applications.

Gompute on Demand facilities

All computing resources are hosted in Gompute's own data center located in Sweden. This center is designed primarily for high security and large power density.

Gompute Support

Customers of Gompute on Demand have options of both basic mail and extended support. Extended support warranties a response time for resolution of issues.

First level:

helps users to solve basic issues such as: starting an account, checking requirements on the client side, providing users with instructions to run applications, answering questions regarding accounting and billing, etc....

System level:

helps users with login, storage, performance issues, software environment, interaction with the user's IT team, interaction with ISVs for license and installation of application patches, etc,...

Developer level:

customization of the software environment, both web and stand alone clients, as needed, either after a bug report or upon the customer's request .

For Complete Informaion: www.gompute.com

www.lenovo.com

New Lenovo WRITEit® Technology™ Makes Handwriting on PCs and Tablets Better

WRITEit transforms pen writing to a truly useful and practical solution for entering input:

RESEARCH TRIANGLE PARK – April 15, 2015: Lenovo (HKSE: 992) (ADR: LNVGY) today announced WRITEit, an innovative new software application that makes the handwriting experience on select pen-enabled devices better. WRITEit transforms pen writing to a truly useful and practical solution for entering input: It allows users to write nearly anywhere they can type. It works across select Lenovo Windows® 8 devices with digitizer, active pen or AnyPen technology and provides real-time feedback and correction. All these advantages encourage more opportunities for users to write with a pen rather than type on a keyboard, giving them a continuous, faster and more accurate experience.

Freedom to Write Nearly Anywhere

Unlike the handwriting experience on many devices today, WRITEit lets users write their input directly into virtually any text field that accepts typed input, even if the field is in an app without native pen support. This capability takes handwriting from a limited, app-specific novelty to a truly viable means of input. WRITEit opens up a world of new writing possibilities beyond typical note-taking and drawing apps. For example, users can write search terms directly in a browser to quickly search the web instead of using the on-screen keyboard. WRITEit also works well for emails, social media, online forms and more.

WRITEit Right: WRITEit works in the background as users are writing and converts handwriting to text characters in real time. Speedy writers will love the automatic suggestion tool that offers alternatives to unrecognized words, helping to catch typos and getting text right the first time. A collection of gesture commands also makes editing easy.

Quote: "While touch technology has fundamentally changed the way consumers use their PCs and other devices today, handwriting technology has lagged behind, until now with WRITEit," said Mark Cohen, vicepresident, Ecosystem and Monetization Business Group, Lenovo. "Users told us they wanted a more natural, intuitive and accurate handwriting experience, and that's exactly what WRITEit delivers."

Availability1: WRITEit is available for the following pen-enabled devices: ThinkPad® YOGA™, ThinkPad Helix, ThinkPad 10 and YOGA Tablet 2 8-in with Windows featuring AnyPen™ technology. Users of these models can download WRITEit for free starting April 15 here: http://www.getwriteit.com. Lenovo will be bringing WRITEit to future products later this year.

1All offers subject to availability. Products may only be available in selected markets. Lenovo reserves the right to alter product offerings and specifications at any time without notice.

About Lenovo: Lenovo (HKSE: 992) (ADR: LNVGY) is a $39 billion global Fortune 500 company and a leader in providing innovative consumer, commercial, and enterprise technology. Our portfolio of high-quality, secure products and services covers PCs (including the legendary Think and multimode YOGA brands), workstations, servers, storage, smart TVs and a family of mobile products like smartphones (including the Motorola brand), tablets and apps. Join us on LinkedIn, follow us on Facebook or Twitter (@Lenovo) or visit us at www.lenovo.com .

For Complete Information: www.lenovo.com

Including FEA, CFD and FDTD Modeling

- LS-DYNA / LS-PrePost
- OpenFoam
- ANSYS HFSS
- ANSYS Fluent
- Star-CD and Star-CCM+
- Convergent
- Lumerical

Struggling to keep up with HPC needs?

Deploying and managing effective high-performance computing (HPC) environments can be daunting and expensive. You need to stay on top of rapidly changing project and business needs, not worry about compute administration, performance and capacity. An effective cloud-based solution should:

- Provide a flexible, secure and dynamically scalable environment
- Enable users to manage and monitor their own workflows
- Provide real-time transparency into personnel, department, and project resource consumption for planning, administrative and billing purposes

The Penguin Computing advantage

Penguin Computing is a pioneer in open cloud-based solutions that deliver outstanding usability, performance, security and cost effectiveness. We take the complexity and high costs out of high-performance computing by providing on-demand options as well as solutions for more easily building and managing private clouds.

- Start with the compute capacity you need and easily grow it
- Rapidly deploy highly scalable and user-friendly private clouds
- Simplify reporting with intuitive software that can aggregate resource utilization into a single source

About POD

It's simple. POD is an HPC service in the cloud.

HPC that is supported by Penguin's HPC experts with over 20 years of experience each. Use it as much or as little as you need. Metered down to 1/1000th of a core hour. You only pay for core hours and GigaBytes stored - that's it.Simple.

POD is powered by the Scyld Cloud Management Platform. SCMP's storage system is based on the distributed open-source storage system Ceph, which supports file-based, block-based and object-based storage. The management of virtual servers leverages OpenStack, an open-source solution for creating and managing virtual servers in a cloud environment. SCMP exposes web services for managing your HPC cloud accounts and resources.

POD Software Applications and Libraries
https://pod.penguincomputing.com/hpc_applications

Below is a partial list of software applications and libraries that are available to POD customers

FEA, CFD and FDTD Modeling

- LS-DYNA / LS-
- OpenFoam
- ANSYS HFSS
- ANSYS Fluent
- Star-CD and Star-CCM+
- Convergent
- Lumerical

www.beta-cae.gr/conference06_announcement.htm

Already a landmark event in the calendar of CAE professionals, our International conference celebrates this summer its 10th year. Being grateful to the contributors, the participants, and the CAE community that embraced the event, we are, once again, delighted to invite you to the 6th BETA CAE International Conference which will be held from June 10th to June 12th 2015, at the MET Hotel, Thessaloniki, Greece.

Every two years our event brings the CAE Community together and promotes an international exchange of the latest concepts, knowledge, and development requirements on our software products.

During the event, technical papers outlining the latest advances in CAE Strategy, methodology, techniques and applications related to our products are presented.
This stage offers a unique opportunity for the presenters to lead and inspire by presenting their ideas, demonstrating their achievements, and sharing new development requirements. Moreover, the participants will be informed about the latest software trends, implementation concepts and deployment methods.

The closer technical communication with the software developers' team of our products, within the framework of a technical forum, features this three-day conference.

Further discussions, sessions, meetings and events will allow the interaction between participants and organizers. Senior executives of our company, the engineers from the development and services teams and our business agents from around the world will be glad to meet with customers and users, to discuss the applications, the existing functionality, latest enhancements and future development plans of our software products. We expect that this will be a unique opportunity for you to share your success and for us to share our vision.

The attire of the event is business casual.

The language of the event is English.

There is no participation fee.

Speakers will receive free accommodation.

2015 2nd China LS-DYNA User's conference

The 2nd conference will echo the success of the well-participated 1st China User's Conference , 2013.

The conference aims to prompt the interaction and communication between developers and end users.

Hosts:

Livermore Software Technology Corp.
Dalian Fukun Technology Development Corp.

Date: Nov. 9th -11th , 2015
Training: Nov. 12th -13th , 2015

Location:

InterContinental Shanghai Pudong,
Shanghai, China

The conference organizers wholeheartedly welcome your paper submission and attendance.

Paper submission:

Please send your one to two page abstract or full paper to chinaconf@lstc.com .

- Submission can be in Chinese or English.
- Submission of both Chinese and English versions are greatly appreciated but not mandatory.
- Include email address.

Abstract submission deadline:
Aug.10th , 2015
Notice of acceptance deadline:
Sept. 10th , 2015
Full paper submission deadline:
Oct. 10th , 2015
Conference website: http://www.lsdyna.cn
Contact us: chinaconf@lstc.com

In association with:

- ETA, Shanghai, China
- ARUP, Shanghai, China
- Hengstar Technology, Shanghai, China

Participation – Exhibits

Reserve your participation at the 2nd China LS-DYNA Users' Conference.
Contact: chinaconf@lstc.com

The Numerical Simulation Conference
33rd CADFEM Users' Meeting
June 24th and 26th, 2015.

When it comes to numerical simulation in product development, the place to be is the city of Bremen, Germany.

CADFEM GmbH & ANSYS Germany GmbH would like to invite you to the Numerical Simulation Conference between June 24th and 26th, 2015. As a simulation expert, beginner or simply an interested party, you can experience the complete range of simulation technology as a tool for quality, innovation and time-saving in product developments of today and the future.

You can expect a packed and varied agenda at our ANSYS Conference & 33rd CADFEM Users' Meeting – from ANSYS, from CADFEM and from the world of simulation: Technology updates, contributions from users from various sectors and fields of simulation, as well as compact seminars on topical subjects. You can also look forward to the big CAE exhibition, the intensive exchange and dialog with like-minded people and as always an attractive supporting program. Let the conference inspire you to new ideas. Or why not inspire others by making your own contribution to one of the biggest conferences on numerical simulation in Europe. We would like to invite you to send us your papers on the named topics for Thursday, June 25th. If you register before February 2nd, 2015, you will profit from an early-bird discount of 10% either as a speaker or participant. We are looking forward to some great papers, curious trade visitors and exhibitors with some interesting special offers.

Find out everything you need to know about the event at www.usersmeeting.com/en

Gompute User - Gompute User Meeting 2015

Meeting is an event that gathers all aspects related to Simulation and Technical Computing.

- Discover the latest simulation and HPC software developments.
- Learn about how the Gompute software delivers comprehensive HPC and where it is used.
- Meet experienced analysts.
- Learn about the state of the art on commercially available computing services.
- Meet colleagues active in the field of technical computing and simulation.
- Attend workshops on latest techniques in HPC and simulation tools.

At the 2015 Gompute User Meeting, Engineers, Scientific Users, Designers, contractors, Analysts, Academics, Managers and Executives will meet up to share best practices and tips from their simulation experience.

This convention of Comprehensive Technical Computing is free of charge for attendes, and here you can meet engineers and experts of several related fields in order to improve your engineering and simulation skills.

Topics:

- Simulation Tools,
- Simulation techniques,
- Computing hardware,
- Linux for High Performance Computing,
- HPC Cloud,
- Remote Visulization

Venue:
Elite Park Avenue Hotel
Kungsportsavenyen 36-38
Gothenburg, Sweden

www.dynasupport.com/ **LS-DYNA Support**	Answers to basic and advanced questions that might occur while using LS-DYNA. New releases/ongoing developments.
www.dynalook.com/ **Papers**	Papers from LS-DYNA User Conferences with search option.
www.lsoptsupport.com/ **LS-OPT**	LS-OPT, developed by LSTC to interface with LS-DYNA
www.dummymodels.com/ **Dummy Models**	Detailed information on dummy models for LS-DYNA
www.topcrunch.org/ **Benchmarks**	Track the aggregate performance trends of high performance computer systems, with real data
www.dynaexamples.com/keyword-search **LS-DYNA Examples**	Examples for specific LS-DYNA keywords, with search option

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: An integrated suite of solutions which operate either concurrently or standalone within a common environment. It aims at delivering an open collaborative engineering framework. As such, it is constantly evolving to address various disciplines and available solvers.

Visual-Crash is a dedicated environment for crash simulation: It helps engineers get their job done in the smoothest and fastest possible way by offering an intuitive windows-based graphical interface with customizable toolbars and complete session support.

For LS-DYNA users, Visual-Crash DYNA allows to focus and rely on high quality digital models, from start to finish as it addresses the coupling with competitive finite element or rigid body based software. This very open and versatile environment simplifies the work of CAE engineers across the enterprise by facilitating collaboration and data sharing.

Further tools are integrated in Visual-Environment enhancing CAE engineers work tasks most efficiently.

Visual-Mesh generates 1D, 2D and 3D elements for any kind of simulation. Visual-Mesh provides automatic and guided surfaces clean up, application specific mesh generation and intuitive post mesh editing features..

Visual-Viewer is a complete, productive and innovative post-processing environment for CAE applications.

Visual-Viewer delivers a dedicated plotting and animation control solution. It offers a multi page, multi plot environment, allowing to group data into pages and plots. It is designed with a Windows GUI based on an intuitive and sleek user interface.

Visual-Process Executive is an advanced CAE environment for process customization and automation.

VisualDSS is an End-to-End Decision Support System for CAE. Manufacturers widely resort to Simulation-Based Design to gain a competitive edge in product development.

Gompute on demand®/ Gridcore AB Sweden

www.gompute.com **www.gridcore.se**

Gompute is owned, developed and operated by Gridcore AB in Sweden. Founded in 2002, Gridcore is active in three areas: Systems Integration, Research & Development and HPC as a service.

Gridcore has wide experience of different industries and applications, developed a stable product portfolio to simplify an engineer/scientist's use of computers, and has established a large network of partners and collaborations, where we together solve the most demanding computing tasks for our customers. Gridcore has offices in Gothenburg (Sweden), Stuttgart (Germany), Durham NC (USA) and sales operations in The Netherlands and Norway.

The Gridcore developed E-Gompute software for internal HPC resources gives end users (the engineers) an easy-to-use and complete environment when using HPC resources in their daily work, and enables collaboration, advanced application integrations, remote pre/post, accounting/billing of multiple teams, license tracking, and more, accelerating our customers usage of virtual prototyping

.

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	**Gompute** www.gompute.com		info@gompute.com	
	LS-DYNA Cloud Service		Additional software	
	Additional Services			
United States	**Comet Solutions**		steve.brown@cometsolutions.com	
	Comet Software			

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	
Sweden	**GOMPUTE**		info@gridcore.com	
	www.gridcore.se		www.gompute.com	
	LS-DYNA Cloud Service		Additional software	

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	

Australia	**LEAP**			
	www.leapaust.com.au			
	ANSYS Mechanical	ANSYS CFD	ANSYS EKM	Recurdyn
	ANSYS DesignXplorer	ANSYS HPC	FlowMaster	Ensigh
	LS DYNA	DYNAform	Moldex 3D	FE-Safe
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	
	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	**Flotrend**	gary@flotrend.tw		
	www.flotrend.com.tw			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	FCM

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

GOMPUTE
A GRIDCORE COMPANY

HPC on-demand for academic users

Run your LS-DYNA simulations and pay for what you use on a turn-key environment

- For LSTC academic customers.
- Run your simulations from 0.05 €/CCH without reservation
- Remote visualization using LS-PrePost
- Avoid installation and maintenance costs
- Other simulation applications also ready to use
- Global connectivity, remote graphics and collaborative environment
- Large number of cores available

For more information please visit: www.gompute.com

Price for computing-core/hour (CCH). Licenses and account set up are not included. Pricing valid only for universities, academic centers and research institutes. The following are trademarks or registered trademarks of Livermore Software Technology Corporation in the United States and/or other countries: LS-DYNA, LS-OPT, LS-PrePost, LS-TaSC. Gompute is owned and operated by Gridcore AB, 2012

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

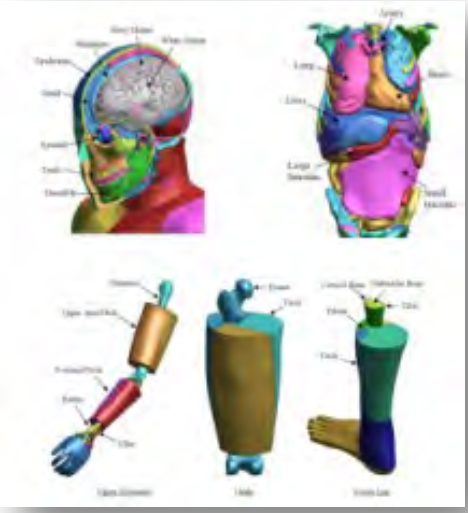
Platform Computation Cloud
CreDist.Inc.
http://www.credist.co.jp /

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

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

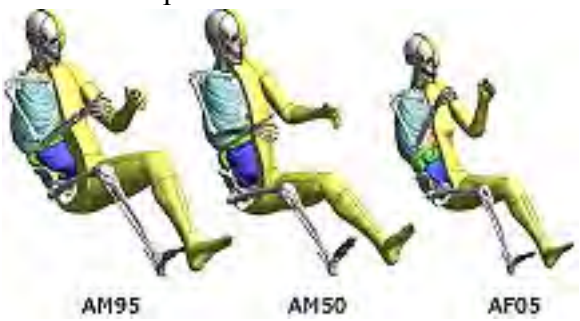
Contact; JSOL Corporation Engineering Technology Division cae-info@sci.jsol.co.jp

TOYOTA - Total Human Model for Safety – THUMS

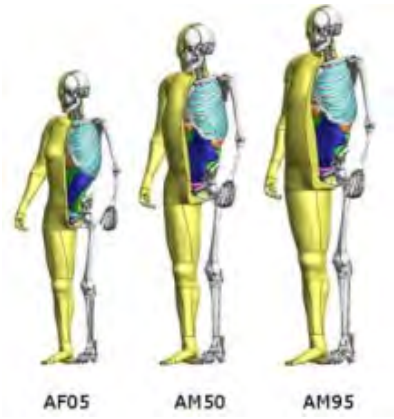


The Total Human Model for Safety, or THUMS®, is a joint development of Toyota Motor Corporation and Toyota Central R&D Labs. Unlike dummy models, which are simplified representation of humans, THUMS represents actual humans in detail, including the outer shape, but also bones, muscles, ligaments, tendons, 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.

 **FACEBOOK**

BETA CAE SYSTEMS SA | CADFEM | Cray Inc.

ESI Group | Lenovo

 **TWITTER**

BETA CAE SYSTEMS SA | Cray Inc. | ESI Group

ETA | CADFEM | Lenovo

 **LINKEDIN**

BETA CAE SYSTEMS SA | CADFEM | Cray Inc.

DYNAmore Nordic | ETA | Oasys

 **NEWS FEEDS** ETA:

YOUTUBE

YOUTUBE Channel	WebSite URL
BETA CAE SYSTEMS SA	www.beta-cae.gr
CADFEM	www.cadfem.de
Cray Inc.	www.cray.com
ESI Group	www.esi-group.com
ETA	www.eta.com
Lancemore	www.lancemore.jp/index_en.html
Lenovo	

Fracture, Damage and Failure Using LS-DYNA - NEW COURSE OFFERING

This course will allow LS-DYNA users to model Fracture, Damage, and Failure. The different methodology to model failure and fracture in LS-DYNA will be presented and discussed. All formulation in LS-DYNA including Lagrangian, Eulerian, SPH, SPG, XFEM, EFG, and the DEM methods etc. will be discussed. Various examples will be presented.

Course Outline

- Chapter-1
  Introduction & Historical Review
  - Brittle Failure
  - Ductile Failure
- Chapter-2
  Fundamental Theoretical Concepts
  - Failure Theories
  - Damage Models
  - Fracture Mechanics
- Chapter-3
  Material Models with Failure & Damage
- Chapter-4
  Fracture & Computational Methods
- Chapter-5 Element Erosion; Advantages & Short Comings
- Chapter-6
  Current Capabilities to Model Failure & Damage
  - Lagrangian
  - Eulerian & ALE
  - SPH
  - SPG
  - XFEM
  - EFG
  - DEM
- Chapter-7
  Current Capabilities to Model Fracture
- Chapter-8
  Damage Verification Examples
- Chapter-9
  Fracture Verification Examples

- Chapter-10
  Other Capabilities
- Chapter-11
  Modeling Delamination and Debonding
  - Cohesive Elements
  - Tied Contact with Failure
- Chapter-12
  Summary and Concluding Remark
- Chapter-13
  References and Other Courses
- Chapter-Appendix-1
  - Failure Strain Versus Tri-axiality for Some Material (will not be discussed)
- Chapter-Appendix-2
  - Finite Element in Fracture Mechanics (will not be discussed)

Workshop

There will be several examples, which are designed to understand and reinforce the lectures and the concepts presented in the course.

Additional Courses Offered On-Line

- Advance Impact Using LS-DYNA
- Blast and Penetration In LS-DYNA
- Fluid Structure Interaction In LS-DYNA
- Implicit In LS-DYNA
- Material Models In LS-DYNA
- User Defined Material In LS-DYNA

Tutorials On the Website

- LS-PRE Tutorial
- LS-POST Tutorial
- Running LS-DYNA Tutorial

Kaizenat is glad to announce 2015 schedule of LS-DYNA classes presented in Bangalore and Pune.

The details about the trainings offered are given below

LS-DYNA Training Schedule	
Topic	**Date**
LS-DYNA Software Training	Apr 15-17
Advanced Crash Analysis	Apr 23-24
LS-DYNA Software Training	May 13-15
Airbag Deployment Application	May 21-22
LS-DYNA Software Training	Jun 10-12
Advanced Material Forming Analysis	Jun 18-19

Information & Agenda:

Classes generally start at 9:30 a.m. and end at 5:00 p.m. Access to computer for workshop exercises and lunch each day are included with the registration. For details on agenda please Click Here and to register for the training please Click Here. For any queries/clarification please contact us @ support@kaizenat.com

LS-DYNA Advanced FEM and Meshfree Methods In Solid and Structural Analyses
MI June 3-4

Intro to LS-PrePost
MI June 22

Intro to LS-DYNA
MI June 23-26

Implicit
CA July 9-10

Composite LS-DYNA
CA July 7-8

Blast in LS-DYNA
CA July 28-29

Penetration in LS-DYNA
CA July 30-31

CAE Associates Announces Online ANSYS Training Courses

As the leader in ANSYS training and ANSYS tutorials, CAE Associates is now offering specialized ANSYS FEA topics in an accessible online format!

With online ANSYS training from CAE Associates, gain the advantage of learning ANSYS from recognized experts without leaving your desk. Our instructors use ANSYS every day to solve practical engineering challenges and will guide you through the most efficient modeling practices to solve your real-world problems.

FEA Best Practices Middlebury, CT
May 7, 2015 2 Days

Drop Test Modeling with ANSYS Workbench/ LS-Dyna Online Training
May 7, 2015 Day 1 - Lecture 10AM - 12PM ET, Day 2 - Workshops 10AM-12 PM ET

Introduction to ANSYS FLUENT
Middlebury, CT
May 11, 2015 2 Days

ANSYS Dynamics (Traditional GUI)
Middlebury, CT
May 14, 2015

Germany	**CADFEM GmbH**	www.cadfem.de
Germany	**DYNAmore**	www.dynamore.de/en
US	**LSTC**	www.lstc.com
US	**ETA**	www.eta.com
US	**Cae Associates**	www.caeai.com
Sweden	**DYNAMORE Nordic**	www.dynamore.se
France	**DynAS+**	www.dynasplus.com
Thailand	**DFE-Tech**	www.dfe-tech.com/training.html
UK	**ARUP**	www.oasys-software.com/dyna/en/training