LSTC — Livermore Software Technology Corp.
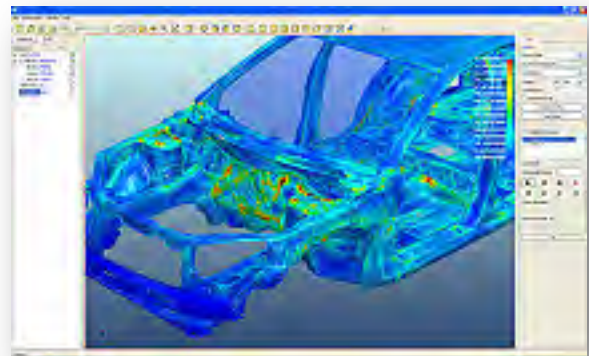
DYFK

DYNA MORE

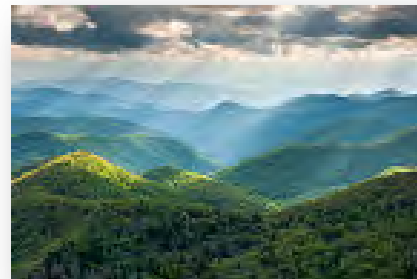**Want to own your own drone?**
Booth 105 - Rescale

ETA PRESYS

Cray / Petroleum Geo-Services (PGS)

LENOVO - Hyperconvergence a New Terrain?

FEA Information Inc.

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

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

FEA Information Inc. publishes:

FEA Information Engineering Solutions

FEA Information Engineering Journal

FEA Information China Engineering Solutions

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

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

FEA Information Engineering Solutions – Dedicated To:

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

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AEROSPACE NEWS & EVENTS

Automotive & Aerospace Will Return January 2016

LS-DYNA Resources

Participant Training Courses

Participant   Solutions

Distribution/Consulting

Cloud/On Demand/ Subscription

Models - THUMS - ADT - Barrier

Social Media

FEA Information Blog - 14th International LS-DYNA Conference

- · List of booth numbers, contacts for FEA Participants that are attending
- · List of Reception Sponsors

Booth 105 - Rescale

Want to own your own drone? Now is your chance to do so.

The Rescale Team is having a drone drawing at the 14th International LS-DYNA conference. One lucky attendee will go home with his, or her, own personal drone.

To enter the drawing, stop by their booth #105 to say hello and leave your business card. The drawing will be at the conference.

De-Long Ge –

Arup China

One-Step Metal forming application and support

De-Long has extensive experience in metal-forming analysis and implicit methods in LS-DYNA. De-Long is actively promoting One-Step forming applications among Chinese industrial Clients.

For any inquiry regarding One-Step forming in LS-DYNA, please feel free to contact De-Long at the address below:

De-Long Ge
Advanced Technology + Research
de-long.ge@arup.com

Arup
Room 3008 30/F Jing Guang Centre
Hu Jia Lou
Chaoyang District Beijing 100020 P.R.China
t +86 10 5960 1188 d+86 10 5960 1145
f +86 10 5960 1111 m+86 15901440772

De-Long joined Arup in 2014 after graduating from Shanghai Jiao Tong University with a MEng in Material Processing Engineering. He is now based in Arup Beijing office where he is responsible for software sales, training and support (Oasys Suites, LSPP and LS-DYNA in particular).

If you are interested in participation for the 2016 FEA Information Engineering Solutions please contact Marsha Victory mv@feainformation.com

Sincerely,

Marsha Victory   Trent Eggleston   Marnie Azadian
Suri Bala   Dilip Bhalsod   Yanhua Zhao
   FEA Information Engineering Solutions US Edition

FEA Information Blog   - 14th International LS-DYNA Conference

By Marnie Azadian

First, I just found out about a not to miss give away- a drone! If you want to have your very own drone, as most engineers do, stop by the Rescale booth #105 and say hello to the Rescale team - leave your business card for the Rescale Raffle to win a drone.

Rescale is a cloud service, hosting LS-DYNA.   www.rescale.com

FEA Information Engineering Solutions Particpants Sponsoring the conference

Booth	Company	URL	Contact
100	Engineering Technologies Associates (ETA)	www.eta.com	
101	ARUP		
105	Rescale	www.rescale.com	
107	JSOL		
201	BETA CAE Systems USA, Inc.		
301	Predictive Engineering Associates		George Laird
304	CRAY	www.cray.com	Greg Clifford clifford@cray.com
305	ESI North America		
400	LSTC & DYNAmore	www.lstc.com www.dynamore.de	Noi Sims noi@lstc.com
401	FEA Information Inc.	www.feainformation.com	Marnie Azadian Agiac99@aol.com

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

Appetizers, Soda/Beer/Wine will be served.

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

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

One Day Pre Conference - Airbag Folding and Morphing Class

    Sunday, June 12th -   Limited Space - fee $300

    Reserve now! Contact class@lstc.com

      Subject line: Airbag Folding and Morphing

    Registration on line will be available Monday, March 7th

Airbag Folding and Morphing

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

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

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

This class will introduce

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

Recent white papers:
- · ANSA & µETA for Fatigue analyses
- · The µETA ASAM ODS Browser
- · Multivariant / Multidiscipline Modeling
- · Modeling for Nastran Embedded Fatigue

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

**BETA CAE Open Meeting
in Brazil**
March 17, 2016
hosted by Grupo SMARTtech

**BETA CAE Nordic Open Meeting
 Gothenburg, Sweden**
April 5, 2016
Lindholmen Conference Center &
Science Park
Gothenburg, Sweden
hosted by BETA CAE Nordic

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

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

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

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

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

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

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

Announcement and invitation to present a paper

14th GERMAN LS-DYNA® FORUM 2016

October 10 - 12 2016, Bamberg, Germany

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

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

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

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

Attending

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

Presenting

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

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

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

Conference language - German and English

Participant fees

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

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

Important dates

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

To Submit A Presentation:

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

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

Intel® and XENON® drive high performance innovation at Futuris©

Vita Calabrese,   Marketing Manager, XENON Systems Pty Ltd.   - **3 Dec 2015**
www.xenon.com.au/ For questions or information contact: vitac@xenon.com.au

Futuris went looking for a high performance computing solution and after careful review of international and local technology providers and consulting partners, it chose XENON® Systems.

Background

Whether it's an SUV, a city runaround, a hybrid, or a luxury model you're after, there's never been a greater range of cars available to the consumer. Each brand has numerous models, and each model is specced differently according to the purpose and the driver's desired look and drive. In Australia alone there are currently around 65 SUVs to choose from!

Choosing a car is a highly emotive decision. While we may pick a car based on its affordability, brand, aesthetic or handling, a large part of our decision will fall down to the interior. There's no point in having a beautiful car that just isn't comfortable or doesn't match our personal style.

And let's not forget safety – there are, of course, industry and governmental standards, but some automotive brands prioritise safety specifically as part of their brand promise.

Now imagine trying to design a car interior, for comfort, safety and aesthetic for hundreds of cars, and just picture a team of highly skilled computer aided design engineers running thousands of simulations for each possible design outcome.

Welcome to Futuris – the company that designs and manufactures automotive seating and interiors at design and manufacturing facilities across China, Asia-Pacific and North America. Headquartered in Melbourne, its products are renowned among the best in the world.

"Futuris has a reputation for high quality and innovation, and to support this, our team has challenging engineering goals. We engaged XENON® and Intel® to support us as we weren't just trying to keep ahead of industry, we wanted to push the design limits. To do that, we needed a high performance computing system that packed a punch – and that's exactly what we've got now." Simon Albery at Futuris Group.

The challenge

With so many car models around the world, the combination of design options is almost endless. There is also more focus than ever on interior detail relating to specific load cases, for example, injury management, such as whiplash, or customer comfort with foam fabrics over others.

"Today's global vehicle producers want design partners who are quick, innovative, reliable and responsive to change. They expect high quality and cost-competitive products and services all delivered from a flexible and proactive business partner."

Today's global vehicle producers want design partners who are quick, innovative, reliable and responsive to change. They expect high quality and cost-competitive products and services all delivered from a flexible and proactive business partner.

Technology features heavily in enabling Futuris' success, particularly for design simulation process efficiency, as it saves time and money upfront. The company uses software applications to simulate events for the development of seats and interiors.

Collaboration also plays a strong role in the company's success, as Darren Flett, Senior CAE Engineer at Futuris, says, "Vehicle manufacturers don't just hand us the design once it's complete and ask us to deliver an interior, they engage us very early on. There's a lot of communication and collaboration between OEMs and Futuris – we're very tightly integrated. It's our work inside their work, then their work overlaid again – and then repeat that many times."

Last year, the business acknowledged that a combination of team growth, ageing architecture and code – consisting of standalone high-end workstations – were holding back job scheduling and efficient processing of simulations during one of its three engineering phases – analysis processing.

Recognising this, Futuris' Port Melbourne Computer Aided Engineering Department – which acts as the global support team – sought a solution to be even more responsive, effective and able to compute with greater efficiency.

Solution:

Futuris went looking for a high performance computing solution and after careful review of international and local technology providers and consulting partners, it chose XENON® Systems.

XENON® presented a turnkey solution meaning it was completely pre-installed, preconfigured, tested before delivery.

The XENON® team worked with Senior CAE Engineer Darren Flett to seamlessly integrate the required business solution.
Photographer: Marc Floreani

The XENON® solution is based on a Linux cluster architecture with a management and storage node and five compute nodes tied together by XENON®'s customized cluster solution. All nodes leverage Intel®'s Grantley platform with Haswell dual Intel® Xeon® E5-2667v3 processors. These processors were chosen for their high single core performance as well as their high throughput with 8 physical cores per CPU. The high speed Infiniband interconnect ties the cluster together into a high performance machine, which maximises the throughput and minimises the run time for the finite element simulations and model turn-around time for the engineers.

Once installed, XENON® and Futuris then embarked on highly specialised integration of the Linux cluster into a Windows environment (users pre- and post-process their jobs on Windows workstations as normal and submit them from Windows workstations transparently to the Linux cluster). Performance of the main application (LSDYNA) was then further improved using the local SSDs in each compute node, optimal choice of MPI libraries, optimised model decomposition/parallelisation and job configuration. This concluded with very specific integration based on Futuris' business workflows all delivered within a four month timeframe.

As a Melbourne-based company, the convenience of being on hand proved invaluable and the teams worked together collaboratively.

Darren Flett says, "we reviewed international solutions based overseas, but data transfer alone was costly and inefficient.

We were actually somewhat hesitant about a turnkey solution given the highly specialised nature of our work, however, XENON®'s business case and previous HPC projects re-assured us it was the best option for our requirements.

It also came at lower cost and was faster to get up and running. We certainly didn't go out looking for a Melbourne-based partner but the convenience is undeniable."

Outcomes: The Futuris cluster is a turnkey HPC cluster solution containing various critical Intel® components which translates overall to a more streamlined simulation process with the following benefits:

- Intel® platform and processors enable a high performance system for finite element modeling (LS-DYNA)

- Futuris enjoys significant speed-up with Intel® Haswell processors and Grantley chipset compared to previously used workstations. Increasing the calculation speed of the finite element model runs by 65%, significantly reducing simulation time.

- This gain is further increased by the customisable job scheduler allowing system utilisation to be maximized

- The solution is a highly efficient and cost-effective Linux-based system integrated into a Windows environment.

- It's a turn-key solution: fully pre-tested, pre-installed, and pre-configured, which meant less disruption to the business.

- It was customised for the particular project; and, was seamlessly integrated into Futuris' workflow after installation, thus granting more flexibility for the future.

The system is highly secure and sits behind all the company's security firewalls. Despite this, the engineering team still enjoys the exact same performance whether they're in North America or Asia – the scheduling and processing experience is not compromised. A key learning included how sensitive the CAE application is to configuration. The two teams had built this in as part of the planning process initially, and during the integration part of the project this was reviewed in great detail to ensure no variation when the team cut over to the Intel®/XENON® System.

Rapid solution times enable faster solution convergence, and feedback from Futuris' automotive customers has been extremely positive.

"We are now pushing the boundaries of car seat design simulation and this puts us at the forefront of innovation in our field today. What's more, the design is open for us to add extra modules and compute nodes, making the investment with Intel® and XENON® extremely valuable," concluded Darren Flett.

So, the next time you hop in the car for a carton of milk, or to drive to work, take a look at your car interior and notice the detail, as you can bet the team at Futuris certainly has.

to read the full story in pdf format

For questions or additional information contact:
vitac@xenon.com.au

14th International LS-DYNA Users Conference

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

Corporate Participation: Platinum, Gold, Silver, Bronze

Conference Dates

Sunday, June 12th
- **Pre Conference Classes**
- Registration
- Exhibition Area,
- Reception

Monday, June 13th
- Registration,
- Conference,
- Banquet

Tuesday, June 14, 2016.
- Registration,
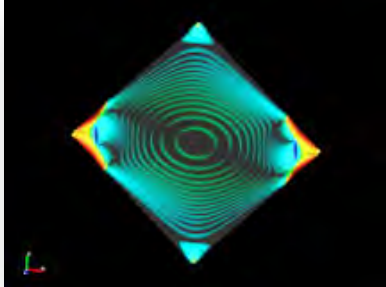- Conference
- Closing session - about 3pm

Wednesday, June 15 & Thursday, June 16
- 1& 2-day Training at U-M Dearborn

Contact Information

Abstracts & papers:
papers@lstc.com

Participation, Registration:
Marsha Victory
vic@lstc.com

LANCEMORE Updates

Created through LS-DYNA by Lancemore FEA team.

Stress analysis   -   No.450

Stress analysis of square plate being subjected to compressive load

Here we are showing a collection of sample models   LS-DYNA is useful not only for the nonlinear structural analysis, but also for analyzing FSI (Fluid Structural Interaction) and supporting the implicit method function. It also covers a wide range of fields including particle method, vibration and acoustic analysis, and we are expecting that the range will keep on expanding in the future.

The sample models have been created and collected below for the purposes of letting you know what LS-DYNA can do and demonstrating our knowledge and abilities to create models. We are hoping that our models come in useful for you. If you wish to create a particular model, please contact us. We will offer the best cost-effective solutions. Thank you for your interest in our models!

Updates

08/February/2016 Sample No.450 was added to the Models page
07/February/2016 Sample No.449 was added to the Models page
06/February/2016 Sample No.445 - 448 were added to the Models page
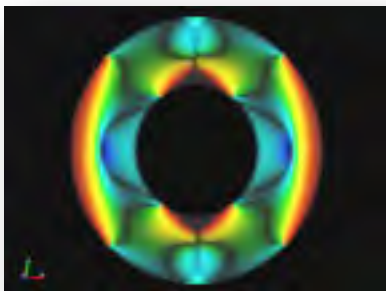
Stress analysis   -   No.449

Stress analysis of ring being subjected to compressive load

Why PreSys?

A solver and CAD-neutral Finite Element modeling and analysis solution

ETA's PreSys™ is a solver and CAD-neutral Finite Element modeling and analysis solution. A price/performance leader, the tool delivers precise modeling results with advanced graphics capabilities. With fewer steps, a customizable interface, streamlined functions and scripting access, the user can simulate and analyze designs quicker than ever. PreSys™ also offers vertical application toolsets which drill-down to application-specific requirements, including drop testing and fluid-structure interaction analysis.
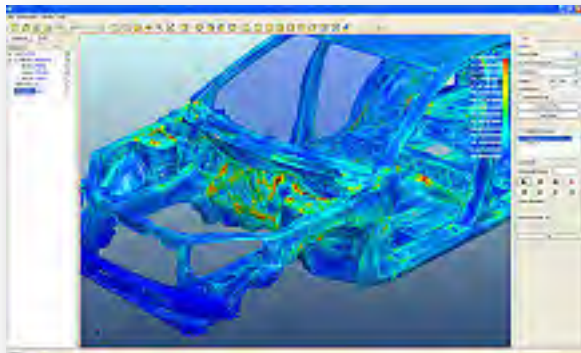
The top 10 reasons to use PreSys™ for your FE Pre and Post Processing software.

- Configurable User InterfacePost-Processing
- Solver and CAD Neutral
- Vertical Application Toolsets
- Automeshing and Mesh Enhancement Tools
- Costs 50% Less than Competing Products

- A Scalable Solution
- Process Oriented Task Panel
- Expert-Level Data Viewing
- Developed by Engineers, For Engineers
- Software Heritage and a Strong Product Roadmap

Configurable User Interface
The PreSys user interface can be configured in many different ways, for maximum flexibility. Just a few of the many ways users can customize the interface to their specific needs are:

- Localization is supported for English, Chinese, Japanese, German and Italian.
- Toolbars may be displayed or hidden for specific tasks, and the content of each toolbar can be easily edited, allowing the user to create their own streamlined toolbars. Users can also select the style of toolbar and load new icons sets, if they desire.

- Drop Down Menus are available for each command within PreSys. New Menus can be created, existing menus edited through an 'Customization' menu.
- The Display Area can be modified to is where all graphical data is displayed.
- The various regions of the PreSys interface can be turned on/off to meet the needs of the user. Command Window and Message Window regions of the interface can be hidden, as can the model explorer feature.

Solver and CAD Neutral

Engineers may have different commercial finite element solvers at their disposal to solve various classes of problems. In addition, they may need to interact with multiple CAD systems, as they interface with not only their internal CAD users, but with customers' or suppliers' CAD systems.

PreSys provides users with a way to accept various CAD and solver formats. Native CAD data import is supported for CATIA, Unigraphics, Pro/Engineer, Solidworks, as well as IGES, STEP, SAT and VDA formats. PreSys users can make use of these data sources for development of their FE models. PreSys also allows users to modify and export the CAD data in the native formats.

Finite element solvers each contain basic node/grid, element, material and property information. The solver-specific information allows unique capabilities of solvers such as NASTRAN, LS-DYNA, RADIOSS, PAM-CRASH, NISA, and ABAQUS, to be implemented in models.

PreSys uses an innovative template system to not only create solver-specific entities, but translate these entities between the various solver formats. This allows users to re-use model data created for other simulations in their current model. For instance, users may have access to NASTRAN models, which could then be imported to PreSys and re-used for development of an LS-DYNA simulation model.

Vertical Application Toolsets

As the capabilities of the finite element solver group has expanded in terms of scope and application, the need for specialized toolsets has become more obvious.

The PreSys, provides access to vertical application toolsets, adding specialized modeling capabilities to users who are focused on specific types of simulation. For instance, engineers who need to build complex vehicle crash simulations can access a complete library of dummy models and impact barriers through the VPG Safety product.

Automeshing and Mesh Enhancement Tools

Automeshing tools dominate the typical finite element model creation techniques. Automeshing has become an afterthought, because of the availability of automated meshing tools. With this acceptance also comes a risk that the mesh will not meet the needs of the specific application. In other words, the quality of the mesh and the ability to detect problems and easily repair them is a concern for all users of finite element analysis.

PreSys contains one of the industry's most advanced shell meshing algorithms, as well as a complete hex and tetra meshing toolset, as well as beams, springs and all element types supported in popular FE solvers.

The latest features of PreSys include automated remeshing of user-specified regions, as well as a mesh-to-surface function that allows users to use their FE model to generate CAD surface data.

Costs 50% Less than Competing Products
ETA has contained the development costs for the entire Inventium product line. Using cost and product feature benchmarking has allowed us to meet the goal of providing the most comprehensive set of finite element modeling tools, the most complete post processing tools, as well as a price which is up to 50% lower than the comparable software products. In other words, we provide all of the features you expect at an unbelievable price.

PreSys is a easy to learn software, designed with minimum hardware requirements in mind. No special graphics cards, processors, or memory are required. This keeps to total cost of ownership at a level not met by our competitors.

A Scalable Solution
PreSys can be implemented by users of all sizes – from a single user environment to enterprise level installations. The proprietary license manager allows users to manage licenses for multiple users, using a networked license configuration. This allows users to share the licenses over a network, allowing for minimum investment and maximum flexibility.

Node-locked licenses are available for users who need to keep their software investment secure, and available to specified users.

Inventium's suite architecture also allows users to add functionality which can easily be enabled and managed through the license manager. This is just another way which ETA's software products allow you to add tools in a cost effective, flexible manner, throughout your organization.

\

Process Oriented Task Panel

PreSys developers realized that the occasional or new user may spend a great amount of time understanding the model development process or looking for the tools that are needed to complete a task. To eliminate this problem, PreSys offers a Task Panel. Each function has a Task Panel which guides the user through the options available, and the data required for PreSys to complete the task. This reduces user fatigue and streamlines the modeling process.

As a result of implementing the Task Panel, new users can learn PreSys in a minimum amount of time and be productive almost immediately.

Expert-Level Data Viewing

A unique feature of PreSys is the ability to view the data in the format of the solver input file. Users can access this Card View to see the data, options and content of each of the model entities. This provides expert user the ability to quickly access and modify any of the advanced parameters found in the solvers.

This Card View also allows users to create non-graphical data, which typical FE modeling software has difficulty creating and displaying.

Developed by Engineers, For Engineers

A great deal of specialized knowledge has been acquired by engineers, applying finite element
.

modeling techniques to a wide range of problems. That knowledge of how to create a finite element model – and just as importantly, how not to create a finite element model, are captured in the PreSys Product.

ETA is not just a developer of software, but a user of the same software tools. These tools have the real world application feel. They are not created in a vacuum, where the software developer has no direct interaction with the end user, but they interact daily with end users who drive the efficiency of the tools, and demand features that are useful.

The result – a complete software toolset for FE modeling that meets the needs of real users.

Software Heritage and a Strong Product Roadmap

ETA has been developing FE modeling software and specialized engineering software such as PreSys for over 20 years. This deep understanding of engineers and their software needs has led ETA to develop cost effective, industry leading solutions.

With this track record of innovation, customer focus and reliability, users can invest in the Inventium and PreSys solutions with confidence that not only their current, but future needs will be met with cost effective and efficient products

Acquisition of Mineset Inc., a big data visual analytics and machine-learning specialist

A disruptive approach to amplify ESI Group's virtual engineering solutions

- · Providing transformative processes for design and manufacturing
- · Leveraging big data synergies with existing virtual prototyping technologies
- · Offering major analytics and pattern recognition value-creation opportunities

Alain de Rouvray, ESI Group's Chairman and CEO, comments: "This acquisition complements the recent integration of Picviz Labs (now 'INENDI') and its technology for big data mining. Combining INENDI's data correlation detection with Mineset's pattern recognition, and linking both to ESI Group's Virtual Prototyping solutions, provides a new transformative process and source of value creation, particularly in the traditional Virtual Engineering domain.

While the exponential growth of the Information and Communication Technologies ('ICT') finds an accelerated usage in all economic domains, it also generates massive amounts of data ('big data'). This trend imposes a critical pressure on industrialists confronted with the need to link virtual simulation models to the real world data of the Internet of Things ('IoT'). To innovate effectively and competitively, it has become mandatory to generate a multitude of virtual models and to compare them between themselves and versus real world information. Making immediate sense of the exponential

flux of big data has become an imperative. This is well aligned with the motivation for the disruptive value potential that ESI is now poised to offer in response to the requests of its customers and partners. This combination of talent and technology, building on other recent acquisitions, will contribute to revolutionize the field of simulation results analytics, with extensions such as predictive maintenance and cyber-security. We trust that it will position ESI to usher in with confidence the age of the Internet of Everything ('IoE')"

Based in Milpitas, California, Mineset Inc. is a subsidiary of Silicon Graphics International Corp.(SGI), a global leader in high-performance solutions for compute, data analytics and data management. Its team of world-class experts has developed a visual analytics platform that tightly integrates advanced visualization with machine-learning technology. Available through an easy-to-use Cloud-based web browser interface, the product has been specifically designed for non-programming professionals in order to efficiently address a broad user base.

Providing transformative processes for design and manufacturing

Mineset's technology and its human-in-the-loop iterative analytics with an intuitive user interface will be integrated within ESI Group's overall Virtual Engineering offer and adapted to each specific application in the product-design process.

Significantly improving decision-making processes, big data analytics, pattern recognition and machine-learning technology will enhance ESI Group's solutions with new capabilities in terms of simulation result analysis, discovery of hidden correlations, fault detection, predictive maintenance and design optimization. This will thus contribute to the delivery of better simulation and modeling results and, subsequently, to a reduction in production and maintenance times.

Leveraging big data synergies with existing virtual prototyping technologies

This advanced visual analytics platform will directly complement the ESI Group offering initiated following the integration of PicViz Labs in April 2015. Now branded as INENDI, (an acronym for INvestigate, ENvision and DIscover the unknown) that offering addresses pattern recognition applied to virtual engineering, cybersecurity, and Internet of Things (IoT) solutions. Disruptive applications such as ADAS (Advanced Driver Assistance Systems) and Autonomous Driving represent typical and promising use cases. These segments constitute a large new market opportunity for ESI Group, notably in the US where SGI and Mineset's technology are already well recognized.

"Mineset technology was developed with the vision to further data analytics and visualization with machine learning," said Jorge Titinger, president and CEO of SGI. "We are excited to see ESI Group take this technology to the next level, delivering transformational solutions to help customers design better products and further machine learning."

Offering major analytics and pattern recognition value-creation opportunities

ESI is directly acquiring 100% of Mineset Inc.'s capital and will integrate the entire development team, which comprises 10 experts. This transaction will offer a substantial return on investment in the midterm, through the enhancement of ESI's Virtual Engineering solutions with machine-learning based capabilities to foster knowledge discovery, reliable model based prediction, and confident decision making. The operation has been entirely financed through bank debt.

About Mineset Inc. / SGI: **SGI** is a global leader in high-performance solutions for compute, data analytics and data management that enable customers to accelerate time to discovery, innovation, and profitability. Visit www.sgi.com for more information.

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.

LENOVO - Hyperconvergence a New Terrain?

http://blog.lenovo.com/en/blog/hyperconvergence-a-new-terrain-hire-an-expert-guide-for-the-journey/

Blog by February 2016 Kathy White

Blue Ridge Mountains - journeys into new terrain, the key is good planning.

Transforming your data center with hyperconverged clusters – LENOVO can help.

As a recent transplant to North Carolina, I'm in awe of the Blue Ridge Mountains and the intrigue and beauty of the Appalachian Trail. The 2,200 mile long trail is traversed by thousands of eager hikers every year, with varying degrees of success. Not unlike other journeys into new terrain, the key is good planning, preparation and sometimes the help of an experienced guide.

Your own journey into transforming your data center with hyperconverged clusters can be equally thrilling and rewarding to your business. Careful planning, adequate preparation and the help of experts who've been down this path before can make all the difference.

Here's how Lenovo can help: choose from a plethora of services ranging from initial planning and deployment to infrastructure management with continuous automated systems monitoring.

Deployment for HX Series Nutanix Clusters – Onsite production deployment of the Lenovo Converged HX Series Nutanix clusters running your choice of Nutanix Acropolis Hypervisor or VMware vSphere

Health Check for HX Series Nutanix Clusters – A full review of your Nutanix cluster, including the infrastructure and the hypervisor layer covering Nutanix Acropolis Hypervisor or VMware vSphere. You'll get a detailed report of the assessment with actionable recommendations to optimize performance.

Workload Deployment and Optimization of HX Series Nutanix Clusters – Lenovo Services professionals will help you properly prepare, plan, execute and operationalize migrating your existing workloads to Nutanix clusters, running Nutanix Acropolis Hypervisor or VMware vSphere.

Infrastructure Management Services for Servers – By increasing operating efficiency through continuous system monitoring, health checks and timely infrastructure upgrades, you can enhance workforce productivity and gain the flexibility you need to drive innovation.

Consider letting the Lenovo Services professionals augment your team in its journey to a transformed data center. We can help you quickly get your new invisible infrastructure up and running at optimal performance, then help you keep it that way. Leaving you more time to hike other trails.

CRAY - PGS Powers Their Infrastructure with Cray Supercomputing and Storage
www.cray.com/features/petroleum-geo-services

Cray will provide Petroleum Geo-Services (PGS) with a five-petaflop Cray® XC40™ supercomputer and Cray® Sonexion® 2000 Lustre® file system.

With the Cray supercomputer, our imaging capabilities will leapfrog to a whole new level. We are using this technology investment to secure our market lead in broadband imaging and position ourselves for the future. With access to the greater compute efficiency and reliability of the Cray system, we can extract the full potential of our complex GeoStreamer® imaging technologies, such as SWIM and CWI.

-- Guillaume Cambois, Executive Vice President Imaging & Engineering, PGS

PGS The search for hydrocarbons is a high risk/reward process. Energy companies have typically led the way in the commercial HPC space in creating and implementing new technologies as a means to reduce risk and optimize rewards. The energy industry is facing massive increases in compute and storage requirements as an integral component of their core business, and companies are searching for technology partnerships to help them achieve their goal of providing energy for the world. PGS chose Cray as a partner to provide their customers with the information needed to help find and produce hydrocarbons faster, safer and more efficiently.

Cray will provide PGS with a Cray XC40 supercomputer and Cray Sonexion 2000 Lustre

storage system. This five-petaflop supercomputer will be one of the largest systems Cray has delivered to a commercial customer, and among the largest supercomputers deployed in the commercial sector.

The new Cray XC40 supercomputer and Sonexion storage system will be integrated into the PGS workflow and advance their computational capabilities necessary to run highly complex seismic processing and imaging applications. These applications include imaging algorithms for the PGS Triton survey, which is the most advanced seismic imaging survey ever conducted in the deep waters of the Gulf of Mexico.

ABOUT PETROLEUM GEO-SERVICES

Petroleum Geo-Services is a focused marine geophysical company providing a broad range of seismic and reservoir services, including acquisition, imaging, interpretation, and field evaluation. The PGS MultiClient data library is among the largest in the seismic industry, with modern 3D coverage in all significant offshore hydrocarbon provinces of the world. PGS operates on a worldwide basis with headquarters at Oslo, Norway. For more information visit www.pgs.com.

AUTOMOTIVE NEWS & EVENTS

Dilip Bhalsod

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

The criteria for submitting information is as follows:

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

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

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

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

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

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The diesel future begins in the Mercedes-Benz E-Class: More economical and powerful, more lightweight and compact

Stuttgart. The new four-cylinder diesel unit OM 654 marks the debut of a ground-breaking family of engines from Mercedes-Benz. Exemplary efficiency and emissions ensure that the premium diesel is future-proof while underlining the key role to be played by the diesel engine in achieving the challenging global climate targets. The first all-aluminium four-cylinder diesel engine from Mercedes-Benz celebrates its world premiere in the new E-Class E 220 d in spring 2016.

"The new family of engines embodies over 80 years of Mercedes-Benz diesel know-how. The new premium diesels are more efficient and powerful, lighter and more compact - and they are designed to meet all future global emissions standards," says Prof. Dr. Thomas Weber, member of the Daimler Board of Management with responsibility for Group Research and Head of Mercedes-Benz Cars Development. "In our opinion, the diesel engine is indispensable in trucks and cars if we want to further reduce the CO_2 emissions from traffic."

In its road map towards sustainable mobility, Mercedes-Benz attaches key importance to the optimisation of modern internal combustion engines alongside hybrid and electric vehicles. In particular, the economical, clean and, especially in Europe, highly popular diesel engine makes an important contribution to the further reduction of fleet consumption.

Mercedes-Benz is on the right track. In two decades since 1995, the average consumption of the passenger car fleet has fallen by almost half from 9.2 l/100 km (230 g CO_2 /km) to 5.0 l/100 km (125 g CO_2/km). Already today, Mercedes-Benz Cars has 68 models that emit less than 120 g/km – and 108 models with the efficiency label A+ or A.

The modular family of engines will find broad application across the entire range of Mercedes-Benz cars and vans. There are plans for several output variants as well as longitudinal and transverse installation in vehicles with front-, rear- and all-wheel drive. This, too, makes the new engine so significant, because the improvements in efficiency have a direct impact on Mercedes-Benz's fleet consumption.

Another of the objectives behind the new generation of engines was to reduce the number of variants as far as possible. The engine's compact dimensions allow even more flexibility in adapting to different vehicle models. The interfaces between drive unit and vehicle have been standardised across all model series. More especially, all the elements of the exhaust aftertreatment system are now configured directly on the engine itself and no longer on the vehicle.

The new four-cylinder engine OM 654 is celebrating its world premiere as the 220 d in the new E-Class in spring 2016. The bottom line is that the new engine delivers around 13 percent lower fuel consumption and CO2 emissions along with a further increase in output (143 kW instead of 125 kW).

The most important innovations of the new engine:

- first all-aluminium construction of a four-cylinder diesel engine
- steel pistons with stepped combustion bowls, NANOSLIDE® cylinder coating, fourth-generation common rail injection
- all exhaust treatment technologies configured directly on the engine
- significantly lighter and more compact: 168.4 kg vs. 203.8 kg (-17%), two-litre displacement instead of 2.15 litres, cylinder spacing 90 mm vs. 94 mm
- lower noise level and outstanding vibration comfort thanks to a raft of measures

Exhaust emissions: all set for the future

The new diesel engine is designed to meet future emissions legislation (RDE – Real Driving Emissions). In contrast to the current NEDC measurement cycle, the WLTP (Worldwide harmonized Light vehicles Test Procedure) cycle is aimed at ensuring that the figures for standard and real-world consumption are close together in future. In addition, it is planned in Europe to introduce a measuring procedure for Real Driving Emissions (RDE). This, too, is actively supported by Mercedes-Benz.

All components of relevance for efficient emissions reduction are installed directly on the engine. Supported by insulation measures and improved catalyst coatings, there is absolutely no need for engine temperature management during cold starting or at low load. In addition to the advantages in terms of emissions, this results in fuel savings, especially on short journeys. Thanks to the near-engine configuration, exhaust aftertreatment has a low heat loss and optimal operating conditions.

The new engine is equipped with multiway exhaust gas recirculation (EGR). This combines cooled high-pressure and low-pressure EGR. It makes it possible to significantly further reduce the untreated emissions from the engine across the entire engine map, with the centre of combustion being optimised for fuel economy.

The exhaust gas from the turbocharger is sent first to a diesel oxidation catalyst. It next passes the downdraft mixer, in which AdBlue® is added by means of a water-cooled dosing module. Thanks to a specially developed mixing area, the AdBlue® evaporates over the shortest possible distance in the exhaust gas stream and is distributed very uniformly on the surface of the downstream sDPF (particulate filter with coating to reduce nitrogen oxides). Positioned behind the sDPF is an SCR catalyst for further catalytic reduction of the nitrogen oxides. Only then does the treated exhaust gas enter the exhaust system.

Ford F-150 with 2.7-Liter EcoBoost Wins PickupTrucks.com Fuel Economy Challenge

Feb 15, 2016 | DEARBORN, Mich.

· 2016 Ford F-150 2.7-liter EcoBoost® V6 beat four competitors, including Ram 1500 3.0-liter EcoDiesel V6, in head-to-head mileage, payload and performance tests conducted by PickupTrucks.com

· F-150 recognized for ideal combination of best-in-class gas mileage, great capability and strong driving performance

· Revolutionary 2.7-liter EcoBoost is a hit with truck customers – representing 30 percent of F-150 retail sales

DEARBORN, Mich., Feb. 15, 2016 – The 2016 Ford F-150 with 2.7-liter EcoBoost® V6 engine has been named winner of PickupTrucks.com's Texas Truck Showdown Max MPG fuel economy challenge.

Ford F-150 beat out four competitors, including Chevrolet Silverado 1500 5.3-liter V8 and Ram 1500 3.0-liter EcoDiesel V6, thanks to its ideal combination of great gas mileage, capability and strong driving performance.

"In the end, we were impressed with the F-150 for its capability, fuel efficiency and composure when pushed hard, said Mark Williams, editor of PickupTrucks.com. "For a small V-6 engine, it's very impressive how well it almost eliminates the typical compromises half-ton customers have become accustomed to."

A hit with customers, sales of F-150 with 2.7-liter EcoBoost are 30 percent of the nameplate's retail performance, fulfilling Ford's great expectations for this revolutionary

engine. Combined sales of 2.7-liter and 3.5-liter EcoBoost engines account for 60 percent of F-150 sales.

When equipped with the available 2.7-liter EcoBoost with standard Auto Start-Stop, F-150 4x2 has best-in-class EPA-estimated gasoline fuel economy ratings of 19 mpg city, 26 mpg highway and 22 mpg combined (actual mileage will vary).

The engine produces 325 horsepower and 375 lb.-ft. of torque with a maximum payload rating of 2,250 pounds and maximum tow rating of 8,500 pounds – ideal for meeting mid-range capability requirements and the needs of more than 90 percent of light-duty truck customers.

"We designed Ford F-150 to be a game changer," said Doug Scott, Ford truck group marketing manager. "We're proud that customers and third parties recognize the all-new F-150 as the toughest, smartest, most capable and most efficient F-150 ever."

AEROSPACE NEWS & EVENTS

Marnie Azadian

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

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

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

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NASA, University Study Shows Rising Seas Slowed by Increasing Water on Land

New measurements from a NASA satellite have allowed researchers to identify and quantify, for the first time, how climate-driven increases of liquid water storage on land have affected the rate of sea level rise.

A new study by scientists at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California, and the University of California, Irvine, shows that while ice sheets and glaciers continue to melt, changes in weather and climate over the past decade have caused Earth's continents to soak up and store an extra 3.2 trillion tons of water in soils, lakes and underground aquifers, temporarily slowing the rate of sea level rise by about 20 percent.

The water gains over land were spread globally, but taken together they equal the volume of Lake Huron, the world's seventh largest lake. The study is published in the Feb. 12 issue of the journal Science.

Each year, a large amount of water evaporates from the oceans, falls over land as rain or snow, and returns to the oceans through runoff and river flows. This is known as the global hydrologic, or water, cycle. Scientists have long known small changes in the hydrologic cycle -- by persistent regional changes in soil moisture or lake levels, for instance -- could change the rate of sea level rise from what we would expect based on ice sheet and glacier melt rates. However, they did not know how large the land storage effect would be because there were no instruments that could accurately measure global changes in liquid water on land.

"We always assumed that people's increased reliance on groundwater for irrigation and consumption was resulting in a net transfer of water from the land to the ocean," said lead author J.T. Reager of JPL, who began work on the study as a graduate student at UC Irvine. "What we didn't realize until now is that over the past decade, changes in the global water cycle more than offset the losses that occurred from groundwater pumping, causing the land to act like a sponge -- at least temporarily. These new data are vital for understanding decadal variations in sea level change. The information will be a critical complement to future long-term projections of sea level rise, which depend on melting ice and warming oceans."

The 2002 launch of NASA's Gravity Recovery and Climate Experiment (GRACE) twin satellites provided the first tool capable of quantifying land liquid water storage trends. By measuring the distance between the two GRACE satellites to within the width of a strand of human hair as they orbit Earth, researchers can detect changes in Earth's gravitational pull that result from regional changes in the amount of water across Earth's surface. With careful analysis of these data, JPL scientists were able to measure the change in liquid water storage on the continents, as well as the changes in ice sheets and glaciers.

NASA, University Study Shows Rising Seas Slowed by Increasing Water on Land

"These results will lead to a refinement of global sea level budgets, such as those presented in the Intergovernmental Panel on Climate Change (IPCC) reports, which acknowledge the importance of climate-driven changes in hydrology, but have been unable to include any reliable estimate of their contribution to sea level changes," said JPL senior water scientist Jay Famiglietti, senior author of the paper and a professor at the University of California, Irvine.

Famiglietti also noted the study is the first to observe global patterns of changes in land water storage, with wet regions getting more wet and dry areas getting drier.

"These patterns are consistent with earlier observations of changing precipitation over both land and oceans, and with IPCC projections of changing precipitation under a warming climate," he said. "But we'll need a much longer data record to fully understand the underlying cause of the patterns and whether they will persist."

NASA uses the vantage point of space to increase our understanding of our home planet, improve lives and safeguard our future. NASA develops new ways to observe and study Earth's interconnected natural systems with long-term data records. The agency freely shares this unique knowledge and works with institutions around the world to gain new insights into how our planet is changing.

For more on NASA's sea level rise research:
https://sealevel.nasa.gov/
More information on the GRACE mission can be found at:
http://grace.jpl.nasa.gov/mission/grace/
For more on how NASA studies Earth:
http://science.nasa.gov/earth-science/
Written by Carol Rasmussen
NASA Earth Science News Team
Sean Potter
Headquarters, Washington
202-358-1536
sean.potter@nasa.gov
Alan Buis
Jet Propulsion Laboratory, Pasadena, Calif.
818-354-0474   alan.buis@jpl.nasa.gov
Brian Bell
University of California, Irvine
949-824-8249   bpbell@uci.edu
Last Updated: Feb. 12, 2016
Editor: Karen Northon

309th AMARG Wing Refurbishment Key to Special Operations Forces Combat Talon II Mission

Rick Barrett, an AMARG sheet metal expert, removes a truss mount's lower attach bolts as part of the required OW-13 inspection on a C-130E outer wing. The refurbished wing will be sent to Robins AFB, Ga. in support of the M-130H programmed maintenance depot effort. (Air Force photo)

(Source: Air Force Materiel Command; issued Feb 19, 2016)

DAVIS-MONTHAN AFB, Arizona --- Teamwork and ongoing process improvement efforts at the 309th Aerospace Maintenance and Regeneration Group resulted in an early shipment of the first of seven refurbished outer wing sets for the MC-130H Combat Talon IIs operated by Air Force Special Operations Command.

The 309th AMARG is based at Davis-Monthan Air Force Base, Arizona, and is a geographically separated unit within the Ogden Air Logistics Complex at Hill AFB, Utah.

The MC-130H, a specialized, low density/high-demand platform, is currently undergoing accelerated programmed depot maintenance at Robins AFB, Georgia. And, since the aircraft is limited in number, minimizing downtime for maintenance is critical.

"Cognizant of the aircraft's availability situation, and the quick-turn required, the air logistics complex at Robins is performing a total of 12 wing swaps alongside the H-model's PDM," said Chuck Foley, the MC-130H program manager lead at the Warner Robins Air Logistics Complex.

According to Foley, the Special Operations Forces/Personnel Recovery and Rotary System Program Office at Robins was aware of the 309th AMARG's capabilities, and knew that the Group had successfully produced a number of overflow C-130 PDMs for the depot in the past, so they offered AMARG the opportunity to refurbish seven of what would eventually be swappable C-130 outer wing sets to support the MC-130H PDM line.

Six of the seven wing sets scheduled for refurbishment at AMARG were selected from C-130E trainers with low flying hours assigned to Sheppard Air Force Base, Texas, with a single set reclaimed from storage here.

"ALC personnel from the 560th Aircraft Maintenance Squadron will upgrade the refurbished outer wing sets and modify them according to Special Operations Forces and MC-130H specifications, making AMARG's outer wing refurbishments and their timely production a key factor in the MC-130H sustainment program," Foley said.

"There's always a learning curve expected with a first, but in this case, due to an acceleration of the PDM line, we had to cut out the curve," Foley said regarding the first C-130E outer wing set to undergo inspection and repair here. Despite that, AMARG got the first set done and delivered 2 weeks in advance of our projected delivery date to Robins -- with zero defects. We appreciate that this was no easy task."

David Lang, assigned to the 577th Commodities and Reclamation Squadron and proficient sheet metalist, leads AMARG's specialized team of sheet metal, fuels and nondestruction wing inspection and repair workers.

With a strong adherence to the core values of the Air Force and application of the Air Force Sustainment Center's "AFSC Way" business model, Lang's team accepted the challenge and implemented a gated production process with each set of wings moving through four gates -- from inspection to fuel line plumbing, nondestruction inspection to shipment in approximately 111 calendar days.

"The first outer wing set was inducted in August with what would soon be a no-kidding delivery date to Robins by Nov. 30," said Lang. "We invested 3,800 hours of work on the first set and there was no time for an 'ease into it' factor. Our day was nonstop, but our entire team had a can-do spirit and gave AMARG that extra effort to get the job done right and on time."

Also written into the C-130's statement of work between agencies are two "quick-look" inspections to be performed by Robins' aeronautical engineers. One inspection is performed at the time the wing set is inducted, and the other is an acceptance inspection prior to leaving AMARG.

"These important quick-look inspections are performed on-site here at AMARG and allow the engineers from Robins to identify and address any specific outer wing work before the work begins and before a completed set is shipped to Robins," said Foley.

In a simultaneous reclamation project, workers from the 577th Commodities and Reclamation Squadron were removing an outer wing set from a stored MC-130H aircraft. The reclaimed Talon II wing set would accompany the refurbished set to Robins, providing the depot with immediate transferable MC-130H wing parts.

"By accelerating the removal and shipment of the reclaimed Talon II wing in tandem with the refurbed wings, AMARG saved us a month of wait time for Talon II wing parts and gave the depot a head start," said Foley.

"AMARG is a key player in the Robins AFSOC PDM acceleration," Foley said.

The combined shipment of two outer wing sets (one refurbished C-130E set and one reclaimed MC-130H set) departed AMARG in a well-executed overland truck withdrawal on Nov. 23 and arrived at Robins as planned, on Monday morning, Nov. 30.

"I just can't put into words how important Lang and his team have been to this program, they are superstars and did an outstanding job! If Lang hadn't had the right, refreshing attitude, none of this would have worked," explained Foley.

Speaking on behalf of the Special Operations Forces/Personnel Recovery and Rotary System Program Office, "we're extremely impressed with the exemplary quality of these wings," Foley said, with an agreeing head nod from Joe Barlow, also a program manager at Robins.

"From the work loaders and planners to the shippers, and all of the key players under the watch of Shirley Mercier, the 577th Commodities and Reclamation Squadron director, they know the importance of our promise to the warfighter and that it's one we never break," Foley continued.

Committed to continuing support to meet Special Operations Forces' wartime demands, Lang's team has already inducted their second set of wings and though their learning curve on the first set was abbreviated, they realize that with each successive set they'll build an even more impressive knowledge base.

"These aircraft have performed incredibly well in a variety of missions around the world," said Lang, "it's our privilege to step into an assignment like this, share our experience and excel while keeping the active fleet flying."

-ends-

https://www.youtube.com/user/980LsDyna
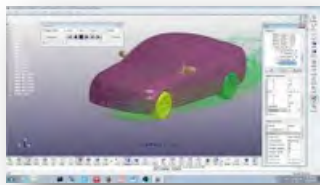
ICFD Post treatment with LSPP4.3

Tutorial video Available for viewing

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

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

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

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

FAQs

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

Some specific popular FAQs include:

consistent units
> ftp://ftp.lstc.com/outgoing/support/FAQ/consistent_units

An overview of Contact
> ftp://ftp.lstc.com/outgoing/support/FAQ/contact.overview

Soft Contact
> ftp://ftp.lstc.com/outgoing/support/FAQ/contact.soft1

General guidelines for Crash Analysis
> ftp://ftp.lstc.com/outgoing/support/FAQ/guidelines.pdf

Hourglass Control
> ftp://ftp.lstc.com/outgoing/support/FAQ/hourglass_condensed

Dealing with Instabilities
> ftp://ftp.lstc.com/outgoing/support/FAQ/instability.tips

Dealing with long run times
> ftp://ftp.lstc.com/outgoing/support/FAQ/long_run_times

Mass Scaling
> ftp://ftp.lstc.com/outgoing/support/FAQ/mass_scaling

Negative Volume in Brick Elements
> ftp://ftp.lstc.com/outgoing/support/FAQ/negative_volume_in_brick_element.tips

Quasi-static simulations
> ftp://ftp.lstc.com/outgoing/support/FAQ/quasistatic

Restarting Analyses
> ftp://ftp.lstc.com/outgoing/support/FAQ/restart

Modeling spinning bodies
> ftp://ftp.lstc.com/outgoing/support/FAQ/spin

Spring Back
> ftp://ftp.lstc.com/outgoing/support/FAQ/springback

Stress vs Strain for plasticity models
> ftp://ftp.lstc.com/outgoing/support/FAQ/stress_vs_strain_for_plasticity_models

User-defined materials
> ftp://ftp.lstc.com/outgoing/support/FAQ/user_defined_materials.faqFAQs
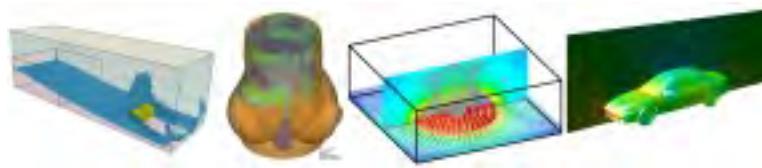
LS-DYNA Support

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

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

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

2015 Changes

The Support Website has the direct pdfs for the following October Updates

- History Variables for Certain Material Models

- LS-DYNA Manual R 8.0 - Vol III

- LS-DYNA Manual R 8.0 - Vol II

- LS-DYNA Manual R 8.0 - Vol I
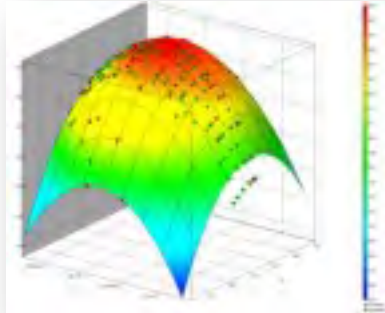
LS-OPT

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

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

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

Optimization

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

LS-TaSC - LS-TaSC 3.1 released

Topology Optimization

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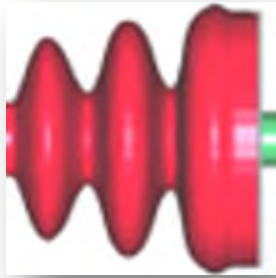
LS-DYNA Examples

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

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

Among the files and Sections:

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

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

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

ALE The examples in this section are from the ALE (Arbitrary Lagrangian Eulerian Method) class of M'hamed Souli. M'hamed Souli is

Professor at the University in Lille France. Both authors are key developers for the powerful capabilities of the Eulerian Methods in LS-DYNA. You may access the examples separately by using the menu on the left. The examples run with LS-DYNA 970 and upwards.

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

DYNAlook

DYNAlook

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

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

2015 will be published soon.

13th International
LS-DYNA Conference
Detroit, 2014

12th International
LS-DYNA Conference
Detroit, 2012

9th European
LS-DYNA Conference
Manchester, 2013

8th European LS-DYNA
Conference
Straßburg, 2011 …

www.dummymodels.com

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

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

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

Among the Dummy Models on this site you can find:

Side Impact Dummies

Rear Impact Dummies

ES2/ES2re -
DYNAmore

BioRID-II V3.
DYNAmore

World SID 50%
DYNAmore

Child Dummies

US-SID
DYNAmore

P-1.5
DYNAmore
P-3.0
DYNAmore

LSTC Models Overview

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

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

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

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

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

Barrier Models

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

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

AEROSPACE WORKING GROUP
http://awg.lstc.com/tiki/tiki-index.php

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

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

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

Engine Related Impact Failure (ERIF) - Arizona State University (ASU)
- Boeing
- Central Connecticut State University (CCSU)
- Federal Aviation Administration (FAA)
- General Electric Aviation
- George Mason University (GMU)
- Honda Aircraft Engine
- Honeywell
- Livermore Software Technology Corporation (LSTC)
- National Aeronautics and Space Administration (NASA)

- Ohio State University (OSU)
- Pratt & Whitney
- Pratt & Whitney Canada
- Rolls-Royce
- University of Akron
- Williams International

Cabin Interior (CI)

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

Participant's Training Classes

Webinars

Info Days

Class Directory

Participant Class Directory

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

ARUP   Visit the website for complete listings/changes/locations

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

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

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

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

www.beta-cae.com/training.htm

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

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

Recommended Training Courses (Complete information on website)

- SPDRM
- ANSA / μETA Basics
- ANSA / μETA for CFD
- ANSA / μETA for Crash & Safety simulation
- ANSA / μETA for Durability simulation

- ANSA / μETA for NVH analyses
- Multi-Body Dynamics
- Laminated Composites
- Morphing and Optimization
- Automation
- Additional special sessions

Submitted: Albert Oswald

DYNAmore   Visit the website for complete listings / changes / locations

www.dynamore.de/seminars

Seminars, information & support days in March-April

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

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

Trainings

Implicit Analysis with LS-DYNA	3-4 March
Introduction to Passive Safety Simulation	10-11 March
Introduction to LS-PrePost	14 March / 18 April
Introduction to LS-DYNA	15-17 March / 19-21 April
Damage and Failure Modeling	15-16 March (G)
CPM for Airbag Modeling	18 March
ALE and Fluid-Structure Interaction	21-22 March (V) / 12-13 April
Contact Definitions in LS-DYNA	15 April
EM - Electromagnetism in LS-DYNA	5 April
ICFD – Incompressible Fluid Solver in LS-DYNA	6-7 April
CESE – Compressible Fluid Solver in LS-DYNA	8 April
PRIMER as Preprocessor for LS-DYNA	14 April
User Materials in LS-DYNA	22 April
LS-OPT – Optimization and Robustness	26-28 April

Information days (free of charge)

Welding and Heat Treatment	7 March / 14 March (Z)
PRIMER (Preprocessor for LS-DYNA)	8 March
Multiphysics with LS-DYNA	4 April
LS-OPT: Optimization/DOE/Robustness	11 April

Support days (free of charge)

LS-DYNA	15 April / 20 May
Occupant Safety	18 March

- If not otherwise stated, the event location is Stuttgart, Germany. Other event locations are:
  G = Göteborg, Sweden;   V = Versailles, France;   Z = Zurich, Switzerland
- Overview and registration: www.dynamore.de/seminars
- If the offered seminars do not fully suit your needs, we are pleased to meet your individual requirements by arranging tailored on-site training courses on your company premises.
- DYNAmore hopes that our offer will meet your needs and would be very pleased to welcome you at one of the events.

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

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

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

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

LSTC   Visit the website for complete listings/changes/locations

www.lstc.com/training

March

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

May

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

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

  On Line www.LSDYNA-ONLINE.COM

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

Composite Materials In LS-DYNA

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

Foam & Viscoelastic Materials in LS-DYNA

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

Plasticity, Plastics, and Viscoplastics Materials in LS-DYNA

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

Rubber Materials in LS-DYNA

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

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

BETA CAE Systems S.A.– ANSA

BETA CAE Systems S.A.– µETA

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.

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® 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.

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.

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

The Urika-GD™ appliance enables enterprises to:

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

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

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

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

Realize rapid time to powerful new insights.

DatapointLabs   **www.datapointlabs.com**

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

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

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

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

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

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

Inventium Suite™

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

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

PreSys

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

VPG

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

DYNAFORM

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

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

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

Visual-Crash DYNA provides advanced preprocessing functionality for LS-DYNA users, e.g. fast iteration and rapid model revision processes, from data input to visualization for crashworthiness simulation and design. It ensures quick model browsing, advanced mesh editing capabilities and rapid graphical assembly of system models. Visual-Crash DYNA allows graphical creation, modification and deletion of LS-DYNA entities. It comprises tools for checking model quality and simulation parameters prior to launching calculations with the solver. These

tools help in correcting errors and fine-tuning the model and simulation before submitting it to the solver, thus saving time and resources. Several high productivity tools such as advanced dummy positioning, seat morphing, belt fitting and airbag folder are provided in **Visual-Safe,** a dedicated application to safety utilities.

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

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

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

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

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

Visual*DSS* is a framework for Simulation Data and Process Management which connects with Visual-Environment and supports product

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

Latest Release is Visual-Environment v11.0

JSOL

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.

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
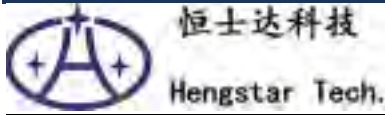
Shanghai Hengstar

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..

www.hengstar.com

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.

Distribution/Consulting	US/Canada	Distribution/Consulting	

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 Process	Visual-
VisualDSS	Weld Planner	Visual-Environment	IC.IDO

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

INVENTIUM/PreSy	NISA	VPG	LS-DYNA
LS-OPT	DYNAform		

United States   **Livermore Software Technology Corp**   sales@lstc.com

LSTC   www.lstc.com

LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
LSTC Dummy Models	LSTC Barrier Models	TOYOTA THUMS	

United States   **Predictive Engineering**   george.laird@predictiveengineering.com
www.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		

Distribution/Consulting	Europe	Distribution/Consulting

Germany

DYNAmore GmbH uli.franz@dynamore.de

www.dynamore.de

PRIMER	LS-DYNA	FTSS	VisualDoc
LS-OPT	LS-PrePost	LS-TaSC	DYNAFORM
Primer	FEMZIP	GENESIS	Oasys Suite
TOYOTA THUMS		LSTC Dummy & Barrier Models	

The Netherlands

Infinite Simulation Systems B.V j.mathijssen@infinite.nl

www.infinite.nl

ANSYS Products	CivilFem	CFX	Fluent
LS-DYNA	LS-PrePost	LS-OPT	LS-TaSC

Italy

EnginSoft SpA info@enginsoft.it

www.enginsoft.it

ANSYS	MAGMA	Flowmaster	FORGE
CADfix	LS-DYNA	Dynaform	Sculptor
ESAComp	AnyBody	FTI Software	
AdvantEdge	Straus7	LMS Virtual.Lab	ModeFRONTIER

Russia	**STRELA**		info@dynarussia.com	
	LS-DYNA	LS-TaSC	LS-OPT	LS-PrePost
	LSTC Dummy Models		LSTC Barrier Models	

Sweden	**DYNAmore Nordic**		marcus.redhe@dynamore.se	
	www.dynamore.se		Oasys Suite	
	ANSA	µETA	LS-DYNA	LS-OPT
	LS-PrePost	LS-TaSC	FastFORM	DYNAform
	FormingSuite		LSTC Dummy Models	
			LSTC Barrier Models	

Switzerland	**DYNAmoreSwiss GmbH**	info@dynamore.ch	
	www.dynamore.ch		
	LS-DYNA	LS-OPT	LS-PrePost
	LS-TaSC	LSTC Dummy Models	
		LSTC Barrier Models	

UK	**Ove Arup & Partners**		dyna.sales@arup.com	
	www.oasys-software.com/dyna		TOYOTA THUMS	
	LS-DYNA		LS-OPT	LS-PrePost
	LS-TaSC	PRIMER	D3PLOT	T/HIS
	REPORTER	SHELL	FEMZIP	HYCRASH
	DIGIMAT	Simpleware	LSTC Dummy Models	
			LSTC Barrier Models	

Distribution/Consulting			Asia pacific		Distribution/Consulting

China   **ETA – China**   lma@eta.com.cn

www.eta.com/cn

Inventium		VPG	DYNAFORM		NISA
LS-DYNA		LS-OPT	LSTC Dummy Models		LS-PrePost
			LSTC Barrier Models		LS-TaSC

China   **Oasys Ltd. China**   Stephen.zhao@arup.com

www.oasys-software.com/dyna

PRIMER	D3PLOT	HYCRASH	T/HIS	REPORTER	SHELL
LS-DYNA		LS-OPT	LSTC Dummy Models		LS-PrePost
DIGIMAT		FEMZIP	LSTC Barrier Models		LS-TaSC

China   **Shanghai Hengstar Technology**   info@hengstar.com

www.hengstar.com

LS-DYNA	LS-TaSC	LSTC Barrier Models	D3VIEW
LS-PrePOST	LS-OPT	LSTC Dummy Models	
Genesis	VisualDoc		ELSDYNA
Visual-Crahs DYNA	Visual-Proeces		DynaX & MadyX
Enki Bonnet	Visual Environement		

India   **Oasys Ltd. India**   lavendra.singh@arup.com

www.oasys-software.com/dyna

PRIMER	D3PLOT	T/HIS		
		LS-OPT	LSTC Dummy Models	LS-PrePost
		LS-DYNA	LSTC Barrier Models	LS-TaSC

India   **CADFEM Eng. Svce**   info@cadfem.in

www.cadfem.in

ANSYS	VPS	ESAComp	optiSLang
LS-DYNA	LS-OPT	LS-PrePost	

India   **Kaizenat Technologies Pvt. Ltd**   support@kaizenat.com

http://kaizenat.com /

LS-DYNA	LS-OPT	LSTC Dummy Models	LS-PrePost
Complete LS-DYNA suite of products		LSTC Barrier Models	LS-TaSC

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

Distribution/Consulting	Asia Pacific	Distribution/Consulting	

Korea **THEME** wschung@kornet.com

www.lsdyna.co.kr

		Oasys Suite	
LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
LSTC Dummy Models	LSTC Barrier Models	eta/VPG	Planets
eta/DYNAFORM	FormingSuite	Simblow	TrueGRID
JSTAMP/NV	Scan IP	Scan FE	Scan CAD
FEMZIP			

Korea **KOSTECH** young@kostech.co.kr

www.kostech.co.kr

LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
LSTC Dummy Models	LSTC Barrier Models	eta/VPG	FCM
eta/DYNAFORM	DIGIMAT	Simuform	Simpack
AxStream	TrueGrid	FEMZIP	

Taiwan **APIC**

www.apic.com.tw

LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
LSTC Dummy Models	LSTC Barrier Models	eta/VPG	FCM

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

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

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

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

·   **ANSYS HFSS:**   ANSYS HFSS software is the industry standard for simulating 3-D full-wave electromagnetic fields. Its gold-standard accuracy, advanced solver and compute technology have made it an essential tool for engineers designing high-frequency and high-speed electronic components.

·   **ANSYS Fluent**   ANSYS Fluent software contains the broad physical modeling capabilities needed to model flow, turbulence, heat transfer, and reactions for industrial applications.

·   **Star-CD** and **Star-CCM+:**   STAR-CCM+ is CD-adapco´s newest CFD software product. It uses the well established CFD solver technologies available in STAR-CD, and it employs a new client-server architecture and object oriented user interface to provide a highly integrated and powerful CFD analysis environment to users.

·   **Convergent:** CONVERGE is a Computational Fluid Dynamics (CFD) code that completely eliminates the user time needed to generate a mesh through an innovative run-time mesh generation technique.

·   **Lumerical:**   Simulation tools that implement FDTD algorithms.

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

JSOL Corporation is cooperating with chosen
cloud computing services

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

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

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

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

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

The following services are available

(only in Japanese).

HPC OnLine

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

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

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

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

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

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

www.rescale.com

Rescale: Cloud Simulation Platform

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

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

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

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

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

ScaleX Enterprise allows enterprise companies to stay at the leading edge of computing technology while maximizing product design and accelerating the time to market by providing:
· Collaboration tools
· Administrative control
· API/Scheduler integration
· On-premise HPC integration

Industry-Leading Security
Rescale has built proprietary, industry-leading security solutions into the platform, meeting the needs of customers in the most demanding and competitive industries and markets.
· Manage engineering teams with user authentication and administrative controls
· Data is secure every step of the way with end-to-end data encryption
· Jobs run on isolated, kernel-encrypted, private clusters
· Data centers include biometric entry authentication
· Platforms routinely submit to independent external security audits

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

LSTC   - DYNAmore GmbH   JSOL Corporation

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

## TOYOTA - Total Human Model for Safety – THUMS

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

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

and as standing model to represent pedestrians.
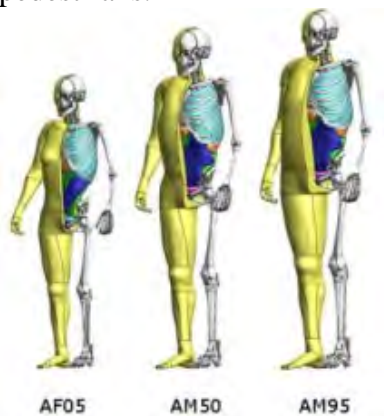
The internal organs were modeled based on high resolution CT-scans.

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

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

For information please contact:
THUMS@lstc.com

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

LSTC – Dummy Models

LSTC Crash Test Dummies (ATD)

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

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

 e-mail to: atds@lstc.com

Models completed and available (in at least an alpha version)
- Hybrid III Rigid-FE Adults
- Hybrid III 50th percentile FAST
- Hybrid III 5th percentile detailed
- Hybrid III 50th percentile detailed
- Hybrid III 50th percentile standing
- EuroSID 2
- EuroSID 2re
- SID-IIs Revision D
- USSID
- Free Motion Headform
- Pedestrian Legform Impactors

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

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

LSTC – Barrier Models

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

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

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

•MDB according to FMVSS 214 modeled with shell elements
•MDB according to FMVSS 214 modeled with solid elements

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

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

•RMDB modeled with shell and solid elements

e-mail to: atds@lstc.com.

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	