LSTC
Livermore Software Technology Corp.

DYFK

DYNAMORE
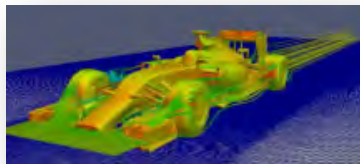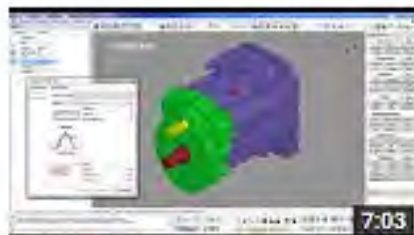
Peter "Steve MacDonald"
1944-2015

Lenovo

LS-DYNA YouTube

ANSA Tutorials - How To Guides

7:03
ANSA Feature Creation & Feature Modification

6:08
Introduction to the ANSA Batch Meshing

5:34
Geometry Clean-up in ANSA
by BETA CAE Systems SA

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.

DYNAmore GmbH – LSTC's Master Distributor in the EU

DYNAmore is dedicated to sales, support, training engineers with LS-DYNA to solve non-linear mechanical problems numerically. Employs 85 engineers in Europe. Co-develops the LSTC software and provide engineering services.

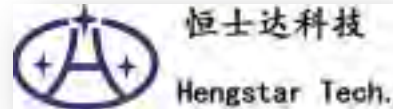**FEA Information Engineering Solutions – Dedicated To:**

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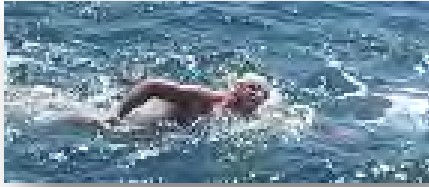
MSC's Dominic Gallello

Dominic swam the 4 mile wide Bosphurus Straits in an hour and 34 minutes, finishing 7th in his age category. There's 4 miles separating Europe and Asia near Istanbul and every year, about 2,000 swimmers take to the water to cross it. Dominic covered the distance in an impressive hour and 34 minutes

Peter "Steve MacDonald"
1944-2015

We are sad to report the loss of President, CEO and Co-founder, Peter "Steve" MacDonald.

During his leadership, Steve directed the course of CD-adapco - we are pleased that his vision is being carried on by Sharron L. MacDonald,   Interim President and CEO of CD-adapco worldwide.

CD-adapco will continue development and customer service thereby continuing Steve's personal, professional business vision and business model.

Sincerely, Marsha Victory – Trent Eggleston –– Marnie Azadian –
Suri Bala - Dilip Bhalsod – Yanhua Zhao

FEA Information Engineering Solutions US Edition

LS-DYNA: Observations on Composite Modeling
(Previous: LS-DYNA: Observations on Implicit Analysis)

A series of informal articles about one engineer's usage of LS-DYNA to solve a variety of non-crash simulation problems.

By: George Laird, PhD, PE
Principal Mechanical Engineer, Predictive Engineering
George.Laird@PredictiveEngineering.com

My academic background is in micro-mechanics and I have a good understanding of how many angels can dance on the head of a pin. A lot of my academic work was on fracture mechanics from a theoretical aspect and whenever I got into the laboratory, it was often a crazy chase in trying to correlate real-world fracture behavior to numerical models. I find the same behavior in composites. Ask ten composite experts and one can get 20 opinions. We have a myriad of theories that I don't even want to start mentioning. My favorite reference to the uncertainties of composite analysis is that of the World Wide Failure Exercise (WWFE) where brave scientists were given raw composite data and had to make failure predictions without having access to the experimental data. Given that they couldn't curve fit or pick their preferred layups or whatever, the reality was that theory could match experiment within 20%. This really isn't as bad as it sounds since experimental data has a typical range of 10%.

Why Is This Important?

In the modeling of structures, the question of "how accurate is this analysis?" is always in the back of our minds. This is especially true for our clients. In composite modeling, the theorists would have us chasing our tails from one theory to the next in search of the 5% match-up between model and data. Reality is much simpler given the precision of experimental data (10%) and the accuracy of failure theories (<20%). So let's not get too wrapped in making our failure model more complex than it needs to be. At the end of the day, when the fiber snaps it is pretty much game over and then we are quibbling about second order strengths.

Work With Something You Understand

Let's get back to fundamentals. Figure 1 shows some test data for some 0/90 glass-epoxy coupons. This is classical behavior for high-strength fiber-reinforced composites. In our practice (outside of the automotive world), when one talks about composites, it has to do with composites having fiber volume fractions greater than 40% in a resin matrix having a failure strain typically under 5%. In the fiber direction, the strength is well described by rule-of-mixtures and in the transverse direction it is pretty hopeless. Let me explain. When on pulls on a unidirectional (UD) sample transverse to the fiber, one is pulling on the matrix that has to flow around rigid cylinders. Around each cylinder a stress concentration of 3x exists. Thus, if your pure resin properties are around 5% strain to failure, you're lucky to get 2%. Thus we have this huge ratio of strengths in UD samples to the order of 10 to 1 or as high as 20 to 1.

In essence, all composites experience little bits of matrix cracking during loading but as long as the fibers hold, it is not a big deal. Think of it as high-cycle fatigue in metals where we are quite comfortable with dislocations moving and piling up until cracks forms until after a few millions of cycles we have micro-voids coalescing into cracks, composites pretty much do the same thing with micro-cracking of the matrix.

Practical Modeling of Composites in LS-DYNA

Although we could use UD data for our individual lamina going into our laminate, it can lead to the model being more complex than perhaps necessary. If one wanted to model a laminate using a 0/90 tape and your schedule was to lay six layers of this tape. If you modeled it classically as a UD, you would have twelve layers and twelve integration points. Upon axial loading in the 0-degree direction, all the 90 degree layers would experience matrix cracking such that the load is transferred onto the 0-degree fibers. Basically, the 90-degree layers do nothing. Keep in mind that LS-DYNA is also having to carry along the solution for twelve integration points and if you are running implicit (ELFORM=16), four in-plane integration points. All of a sudden, you're looking around for more CPU-cores. Our approach is to keep it simple and use smeared properties for the 0/90 tape and thus reduce layers and integration points by half.

For composites, we have focused on *MAT_54 (*MAT_ENHANCED_COMPOSITE_DAMAGE). It has plenty of knobs to twist if you want to tune it for gentle damage control while at the same time, if you just want to model progressive damage (lamina-by-lamina failure) it is really simple. There are some tricks and I have provided a couple of references to shed some light on using this material model. The core concept is that strength is by-stress values and lamina failure is by-strain values. If you don't provide strain failure values, your multi-lamina laminate will never erode but continue to hang around. With strain values, once all the laminae have failed, the element erodes. Once you play around with it and do some reading, it is a very elegant and practical formulation.

What We Recommend

Figure 2 shows two projects that we have done using *MAT_54 coupled with *PART_COMPOSITE. The container model was quite challenging with multiple laminate and sandwich schedules and static (implicit) and dynamic (explicit) load cases. The electronics enclosure was much simpler with just Kevlar-carbon and glass laminates. The material model was developed from manufacture's data with 0/90 and 45/45 tapes smeared into one lamina representations. For failure strains we set all the failure strains to the same value (DFAILT = DFAILM = (-)DFAILC). Although super-simple we feel it

keeps us within the 20% accuracy bracket of composite reality. For the sandwich materials, LSTC support had a really useful suggestion to break up the foam core into multiple layers; thereby providing multiple integration points through the core without the hassle of defining a custom integration rule. For example, our 20 mm thick sandwich core was divided into four 5 mm thick layers. A little note on implicit is that we have found that convergence is much better with dynamics turned on since it tends to stabilize the solution as lamina fail within the laminate.

Interpreting Composite Results

All we can say it is tricky and very tribal; meaning that it seems to provide a steady stream of revenue for composite consultants. If one ignores a lot of this chatter and sticks to basics it is not that hard. The utility of modeling with progressive damage is that it captures the true stress-deflection response of the structure. As load is applied and fibers break, the load is shifted onto the remaining lamina and the stiffness of the composite is updated. Standard linear analysis completely ignores changes in laminate/sandwich stiffness due to ply failure. It is one of the great advantages of a nonlinear approach. Although one can argue that given force based loading and that most composite structures fail under bending, it is a moot point since once the outer fibers fail, the remaining plies quickly follow.

I would counter and say that given complex structures with integrated metallic components (frames, closures, panels, etc.) and varied composite schedules, it is hard to predict where the load path might end up and if the load is displacement based, progressive damage is the better method.

Of course "careful interpretation" means different things to different analysts but here is our short list:

o   Be aware that all holes have a stress concentration of 3x

o   Classical plate theory assumes no out-of-plane deformation and constant strain through thickness (e.g., see *CONTROL_SHELL, LAMSHT=1)

o   Where ever the composite ends in a free edge or is joined to another composite or metallic component, be nervous and make sure you understand its behavior

o   Contour your global failure indices and ensure they are logical

Lastly, if you material model is logical and matches the experimental stress-strain behavior and you understand the loading on your structure (another source of uncertainty), most likely your model will be within 20%. And just remember that all models are wrong.

Some Reference Materials
From LSTC, we have your core reference:
http://ftp.lstc.com/anonymous/outgoing/jday/composites/mat_comp.pdf

And Google'able items:
 "Composite Damage Material Modeling for Crash Simulation: MAT54 & the Efforts of the CMH-17 Numerical Round Robin" by Wade et al.

AWG LS-DYNA Modeling Guidelines

Crashworthiness Analysis with Enhanced Composite Material Models in LS-DYNA – Merits and Limits" by Schweizerhof et al.
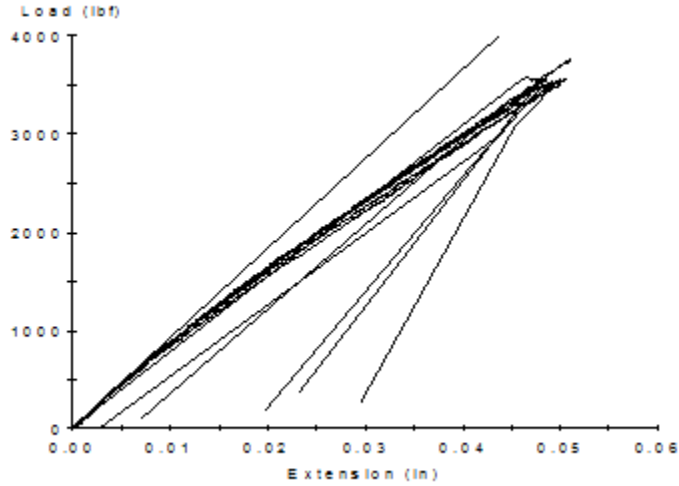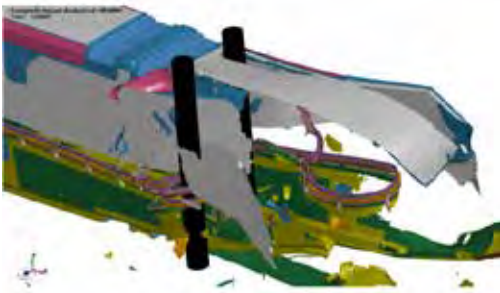
Figure 1: Tensile test data of 0/90 glass-epoxy coupons (50% fiber)

Composite Cargo Container

Typical Usage o Composite

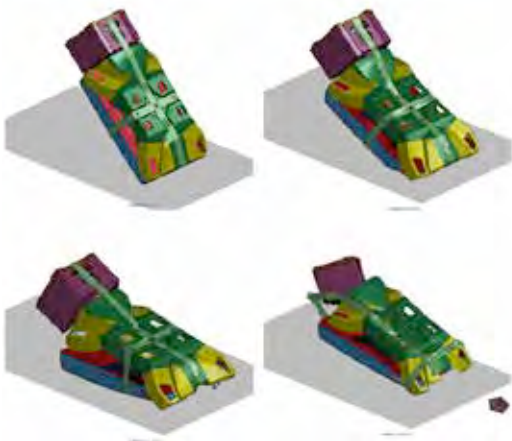Kevlar-Carbon Composite Portable Satellite Receiver

Figure 1: Examples of LS-DYNA composite modeling

www.cray.com

Cray's GPU-Packed Cluster Supercomputer Advances Swiss Weather Forecasts

SEATTLE, WA -- (Marketwired) -- 09/15/15 -- Global supercomputer leader Cray Inc. (NASDAQ: CRAY) today announced that the Swiss National Supercomputing Centre (CSCS) has installed a Cray® CS-Storm™ cluster supercomputer to power the operational numerical weather forecasts run by the Swiss Federal Office of Meteorology and Climatology (MeteoSwiss). This is the first time a GPU-accelerated supercomputer has been used to run production numerical weather models for a major national weather service.

The two-cabinet, Cray CS-Storm system at CSCS is providing the meteorologists at MeteoSwiss with a new supercomputing platform designed to meet the computational challenges of delivering more detailed forecasts. With a powerful combination of NVIDIA® Tesla® K80 GPU accelerators, the flagship of the NVIDIA Tesla Accelerated Computing Platform, and Intel® Xeon® processors, the Cray CS-Storm has a peak performance of up to 15 teraflops per node. The system also uses liquid cooling to deliver a

room neutral design, where no additional load is placed on room cooling.

Located in Lugano, Switzerland, CSCS develops and provides key supercomputing capabilities required to solve important problems to science and society. The Centre enables world-class research with a scientific user lab that is available to domestic and international researchers in the industry and business sectors. The new Cray CS-Storm system is located at CSCS and is being used by MeteoSwiss, the Swiss national weather and climate service, to run advanced simulations and a higher number of daily forecasts -- up to eight a day.

"To guarantee more detailed weather forecasts, the simulations will be based on a grid spacing of 1.1 kilometers, which runs recurrently every three hours," said Peter Binder, Director General of MeteoSwiss. "This grid spacing makes it possible to predict with more detail the precipitation distribution and the risk of storms or valley wind systems in the Swiss mountains."

"High-quality weather forecasts always depend upon processing power," said CSCS Director Thomas Schulthess. "The GPUs and the reengineered code allow us to increase the simulation performance 40 times but remain within the same energy and facility footprint of the supercomputer that we installed for MeteoSwiss in 2012. Moreover, thanks to the GPU technology we spend three times less on power compared to a system built entirely with conventional processors."

"Today's weather and climate models are ingrained with massive amounts of data and science that have increasingly demanding compute requirements," said Barry Bolding, Cray's senior vice president and chief strategy officer. "With an eight-to-two ratio of GPU accelerators to CPUs, the Cray CS-Storm system for MeteoSwiss is a powerful tool for running production models at a much higher resolution and granularity. This groundbreaking use of the Cray CS-Storm system to run data-intensive, operational weather forecasts is a milestone in supercomputing."

The Cray CS-Storm system is one of the most powerful single-node cluster architectures available today, and is designed to support highly scalable applications in areas such as energy, manufacturing, earth sciences, life sciences, financial services, machine learning and geospatial intelligence. The system leverages the supercomputing architecture of the Cray® CS400™ system, and includes the Cray Advanced Cluster Engine cluster management software and the complete Cray Programming Environment on CS.

More information on the Cray CS-Storm system is available at www.cray.com.

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

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Remote Visualization

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Updates added to the LANCEMORE LS-DYNA Models page

September 21, 2015
Sample No.424
Multi-Stage Deep Drawing Analysis / All Results
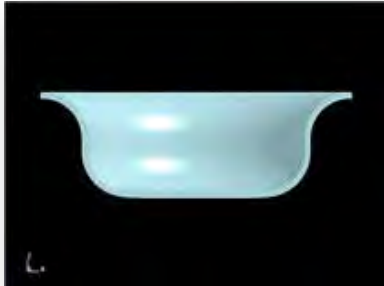
September07, 2015 - Sample No.413-423

No.413
Multi-Stage Deep Drawing Analysis / 1st stage

No.423
Multi-Stage Deep Drawing Analysis / 11th stage

LS-DYNA Analysis Models: Here we are showing a collection of sample models created through LS-DYNA by Lancemore FEA team. The sample models have been created and collected 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

BERLIN – September 2, 2015: Lenovo

Lenovo Introduces Its Best Entertainment Tablets Yet

Designed as the ultimate video tablets, the new series offers a best-in-class multimedia experience while retaining its signature multimode design.

Lenovo today unveiled the latest line-up of its award-winning YOGA tablets, the YOGA Tab 3 Pro and YOGA Tab 3.

The series premier offering – YOGA Tab 3 Pro – boasts a built-in 70" projector and is optimized for Netflix. The YOGA Tab 3 Pro features four front-facing powerful JBL® speakers to reproduce high-octane sound, and for the first time ever, a virtualized Dolby Atmos®[1] experience over built-in speakers that creates a sensation of sound moving in all three dimensions around the listener. The tablet comes loaded with a Netflix app to deliver personalized recommendations and content, right from the home screen of the tablet, in high-quality optimized HD. The YOGA Tab 3 Pro also features Dolby Digital Plus, which Netflix streams with its HD content, allowing for crisper dialogue and immersive sound on Netflix.

Additionally, the YOGA Tab 3 8" and 10" models are also great for entertainment and tout

a new rotating camera with nifty gesture control, perfect for taking photos and videos at nearly any angle. With one of the largest battery capacities around, users can binge watch their favorite shows and stay connected via LTE support.[2]

"Today's tablet market is largely dominated by general-purpose devices. At Lenovo, we strive to deliver tablets that closely match consumers' needs to enhance their tablet experience; we know from research that a tablet today is a consumption device and most frequently used for watching videos of all sorts. The latest YOGA Tab 3 series represents the epitome of entertainment for users on the go and home alike, realizing a whole new level of visual and auditory experience never before possible on a tablet platform. We are giving them flexibility to access their on-demand content anytime and anywhere, without being tethered to their couch," said Jeff Meredith, General Manager and Vice President, Tablet Business Unit, Lenovo.

"We are excited for the fantastic viewing experience Netflix members will have on the YOGA Tab 3 Pro," said Neil Hunt, Chief Product Officer at Netflix. "Lenovo has raised the bar for watching videos on a tablet, providing 1080p image quality and audio comparable to a home entertainment system through Dolby Digital Plus. We're also thrilled to have the Netflix widget pre-installed on these tablets so members can quickly and seamlessly start watching their favorite TV shows and movies."

"Great sound is essential for any entertainment experience – no matter how audiences are consuming content. With the Lenovo Tab 3 Pro, Dolby and Netflix are able to deliver premium Dolby Audio surround sound with HD video, wherever and whenever fans want," said John Couling, Senior Vice President E-Media Business Group, Dolby Laboratories. "We are thrilled to continue working with Lenovo and Netflix to bring Dolby Audio enabled superior movie and TV shows to the Android tablet for the first time. Netflix has long been a Dolby supporter and we are proud to continue to bring groundbreaking entertainment experiences to fans everywhere."

YOGA Tab 3 Pro: The Ultimate Video Tablet

The experience of watching Hollywood blockbusters, playing video games and browsing the Web is vastly improved on the YOGA Tab 3 Pro with its new 70" screen. The tablet flaunts a better optimized projector placement and is now 180-degree rotatable to beam life-sized images onto a wall or ceiling and project significantly brighter and cinematic pictures up to 70" wide. At 299 pixels per inch, the onboard 10.1" QHD (2560x1600) screen is considerably sharper, and renders richer colors with its Smart Display technology.

Tablet users can immerse themselves in a cinematic sound without headphones through its powerful inbuilt JBL sound bar and Dolby Atmos technology – an industry first for tablets. To achieve even greater clarity and a louder output, the sound bar is also fitted with 4 front-facing speakers, which are fine-tuned with Wolfson Master Hi-Fi technology.

Sleek and exquisite, the YOGA Tab 3 Pro is carefully assembled with premium materials such as aluminum and a leather-like fabric back, while maintaining its ultra-slim design. Splash proof and perfectly balanced for an uncompromised holding experience, the tablet truly shines in a sea of lesser tablets, given its versatility and long battery life to deliver all the power a user needs for all day use.

Loaded with Smart Window 2.0 for enhanced multitasking,[3] users can now do more things, faster. The YOGA Tab 3 Pro allows you to run a background app as well as two windows on top, with the added benefit of phone apps layout to easily fit everything on one screen. Email, news, YouTube – enjoy it all at once!

Lenovo YOGA Tab 3 Pro is available in Puma Black, and the 8" and 10" YOGA Tab 3 comes in Slate Black.

YOGA Tab 3: Photo excellence; big sound and battery

Available in 8" and 10" screen sizes, the YOGA Tab 3 is the best go-anywhere video tablet with a long battery life and LTE support to let users stay connected anywhere, anytime. Both models are primed for video and multimedia applications and unparalleled portability, equipped with an HD (1,280 x 800) display, front-facing stereo speakers with Dolby Atmos sound, and yet weighing as little as 466g.

Through the 180-degree rotating camera, users can unleash creative selfies and invigorating photos at previously unachievable angles and unique perspectives. Built-in gesture control also makes capturing the perfect shot easier than ever before. Simply open and close a hand to take a photo. With the highest-capacity battery in its class, these tablets also have a staggering all-day battery life.

Pricing and Availability: The Lenovo YOGA Tab 3 series will be unveiled during IFA 2015 in Berlin. The YOGA Tab 3 8" retails at €199 (WiFi) and €249 (LTE) from October, YOGA Tab 3 10" at €299 (WiFi) and €349 (LTE) from November and YOGA Tab 3 Pro at €499 from November, available at all Lenovo Retail Partners.

For the latest Lenovo news, subscribe to Lenovo RSS feeds or follow Lenovo on Twitter and Facebook.

About Lenovo - Lenovo (HKSE: 992) (ADR: LNVGY) is a $46 billion global Fortune 500 company and a leader in providing innovative consumer, commercial, and enterprise technology. Our portfolio of high-quality, secure products and services covers PCs (including the legendary Think and multimode YOGA brands), workstations, servers, storage, smart TVs and a family of mobile products like smartphones (including the Moto brand), tablets and apps. Join us on LinkedIn, follow us on Facebook or Twitter (@Lenovo) or visit us at www.lenovo.com.

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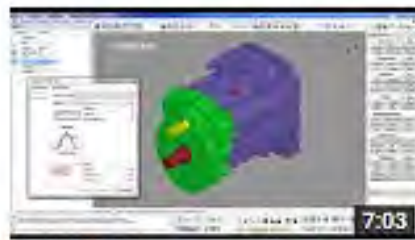
7:03	6:08	5:34
ANSA Feature Creation & Feature Modification	Introduction to the ANSA Batch Meshing	Geometry Clean-up in ANSA by BETA CAE Systems SA

ANSA - the advanced CAE pre-processing software for complete model build up

ANSA is 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 the users' preference due to its wide range of features and tools that meet their needs. The list of productive and versatile features is long and the alternative tasks and processes to be completed using them are countless.

Environment

All software features are accommodated in an integrated environment, with highly customisable GUI. The software is available for all contemporary popular operating systems in 32bit and 64bit architecture with multi-core CPU usage. The accelerated graphics, the rapid confirmations and function access, the GUI customisation options, the model browser and lists handling, the filtering and modification operations, and the integrated search engine comprise a user friendly environment that ensures outstanding performance and productivity.

BETA CAE Systems Announcement
The release of the new version of the license management software BETA LM Tools v6.4

BETA CAE Systems S.A. announces the release of the new version of the license management tool BETA LM Tools v6.4. This release focuses on the improvement of the performance and effectiveness of the tool.

Known Issues Resolved - The communication between the License Manager and the Client could be unexpectedly lost, forcing to (save and) exit. This issue has been noticed in certain cases due to full credit usage and high amount of license requests.

Several performance fixes and upgrades have been made to ensure uninterrupted communication between the License Server and clients.

Compatibility - BETA LM Tools 6.4 does not require a new host key. Existing license files are compatible with the new license manager.

The new version is compatible with all the previously released BETA CAE Systems software.

Future versions of BETA CAE Systems software will continue to be compatible with the previous version of BETA LM Tools.

Improvements apply to all versions of BETA CAE Systems Software with performance being further increased for software released after the 14th of September 2015.
Download

Customers who are served directly by BETA CAE Systems, or its subsidiaries, may download the new software, examples and documentation from their account on our server. They can access their account through the "user login" link at our web site. Contact us if you miss your account details.

Customers who are served by a local business agent should contact the local support channel for software distribution details.

– copyright JSOL   For full information visit   www.j-octa.com/event/uc2015 /

J-OCTA 10th anniversary
J-OCTA Users Conference 2015

JSOL will hold and welcomes you to the "J-OCTA Users Conference".   We look forward to your participation

At the conference, we will have lectures from leading professionals of the material properties simulation field, with J-OCTA used in the laboratory of a university or corporate environment.

Additionally, a new function and development road map of J-OCTA will be announced from JSOL. We are confident that the conference will achieve technical information sharing and improvement of knowledge.

Organizer: JSOL Corporation
Dated   Friday: Nov.27, 2015
Venue: Room 406, Tokyo Conference Ctr.
            SHINAGAWA (Tokyo, Japan)
www.tokyo-cc.co.jp/eng/access_shinagawa.html

Participation Fee: JSOL Product User : Free
·   Non User : 10,000(JPY)

Opening Remarks
Status and roadmap of J-OCTA
   Dr. Taku Ozawa, JSOL Corporation

Keynote Speech 1
Onsager principle and its applications to flow-diffusion phenomena in soft matter.
   Dr. Masao Doi, Professor, Beihang Univ
.

Applications of FMO program ABINIT-MP to manufacturing   fields
   Dr. Yuji Mochizuki, Professor Rikkyo University

Keynote Speech 2
Evaluating the strength and properties of structural materials from atomistic and electronic   simulations
   Prof. Hajime Kimizuka, Osaka Univ.

Large scale molecular dynamics simulations of rubbers for tires using K computer
   Dr. Masato Naito,
   Sumitomo Rubber Industries, Ltd.

OCTA/COGNAC updates, and introduction of some applications
   Dr. Takeshi Aoyagi , Asahi Kasei Corp.

Introduction of J-OCTA V2.0
   Mr. Kousuke Ohata, JSOL Corporation

Molecular dynamics analysis of physical properties of refrigerant-lubricant oil mixtures and reactive coarse-grained molecular dynamics simulations of epoxy resins
   Dr. Taisuke Sugii, , Hitachi, Ltd.

Molecular Dynamic Simulation of Slurry Coating Process
   Mr. Kei Morohoshi, Toyota Motor Corp

14TH International LS-DYNA Users Conference Welcome Reception Sunday, June 12, 2016

I am pleased to announce that FEA Information Inc., D3View and the following FEA Information Participating LS-DYNA distributors will be hosting the Welcome Reception for the 14th International LS-DYNA Conference June 12-14, 2016

We will be announcing the distributors and their individual attendees at the Sunday night reception, that begins at 6 pm.   This will give you an opportunity to meet and know our FEA Information LS-DYNA's global representatives. We will be adding additional co-sponsors to our list each month. **Please join us in 2016**

Welcome From China:
- Shanghai Hengstar Technology Co., Ltd.
- Dalian Fukun

From Korea:
- THEME

- KOrea Simulation TECHnology Co.,Ltd

/ **From Sweden:**
- DYNAmore Nordic AB

 From Germany:
- DYNAmore GmbH
- CADFEM GmbH

From India:
- Kaizenat Technologies Pvt. Ltd.
- Arup India Pvt Ltd

From the US
- Dynamax
- LSTC

June 12-14, 2016

Royal Dearborn Hotel & Convention Center Dearborn, MI

The presenter (1) of the accepted paper will receive a complimentary (no fee) registration, when they register using the "LSTC Conference Registration," at the Royal Dearborn Hotel.

Corporate Participation: Platinum, Gold, Silver, Bronze

Conference Dates
Sunday, June 12, 2016:
    Registration Exhibition Area, Reception
Monday, June 13, 2016:
    Registration Exhibition Area Banquet
Tuesday, June 14, 2016:
    Registration Exhibition Area Closing
Wednesday & Thursday, June 15 & 16, 2016:
    Training Classes

Contact Information
Abstracts & papers:
    papers@lstc.com
Participation, Registration:
    Marsha Victory vic@lstc.com

Abstract Submisson
• Deadline: November 30, 2015
• Length: Approx. 300 words, include figures
• Format: 7" x 8½", MS Word template provided

Notification: December 31, 2015

Paper Submission
• Deadline: March 05, 2016
• Length: 3,000 word maximum
• Format: 8½" x 11" paper, single-spaced
        MS Word template provided

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..

Conference Call For Papers
Applying LS-DYNA and its strongly coupled integrated solvers:

• Acoustics
• Aerospace
• Automotive
— Crashworthiness
— Durability
— NVH
• Ballistics and Penetration
• Biomechanics
• Civil Engineering
• Electromagnetics
• Fluid Dynamics
— Compressible
— ALE (Lagrangian, Eulerian)
— CESE
— Incompressible
• Granular Flow
• Heat Transfer
• Impact and Drop Testing
• Manufacturing Processes
• Metal Forming
• Modeling Techniques
• Nuclear Power
• Occupant Safety
• Particle Method
— Airbag Particle Method
— Discrete Elements
— Element Free Galerkin
— Smooth Particle Hydrodynamics
• PrePost Processing
• Seismic Engineering
• Ship Building

Conference Schedule & Training

Sunday, June 12, 2016:

- Registration for early arrivals,
- Training opportunities during day
- Exhibitors open in evening,
- Reception

Monday, June 13:

- 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

Conference Sponsorship and Booth Information

For information on Sponsorships and Booths please contact Marsha vic@lstc.com

Previous Sponsors and Exhibitors: If you would like the same booth that you hosted, at the last conference, please let me know so I can quickly reserve your booth placement.

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
- · An internet URL
- · Be technical, informational, or human interest.
- · We do not accept financial quarterly information

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

You may send Title to your information and the accompanying URL to Dilip Bhalsod at 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. 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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Mercedes-Benz plant Tuscaloosa, Alabama, USA: The company invests $1.3 billion in the expansion of the SUV production at its US site. The rendering shows the plant area including the planned expansion (white surfaces). This includes a new Body Shop and major enhancements to the SUV Assembly Shop.

Mercedes-Benz Tuscaloosa Plant: Mercedes-Benz invests $1.3 Billion in the expansion of its SUV production

Tuscaloosa, Alabama, USA / Stuttgart, Germany

Sep 18, 2015

MBUSI (Mercedes-Benz U.S. International, Inc.) to produce future SUV generations including hybrid versions

- SUV production to be expanded – 300 new jobs
- New Body Shop, major enhancements to SUV Assembly Shop and upgraded logistics and IT systems
- Implementation of state-of-the-art technologies and end-to-end digitization of production processes in line with the smart factory approach
- Markus Schäfer, Member of the Divisional Board Mercedes-Benz Cars, Manufacturing and Supply Chain Management: "In the next years we invest $1.3 billion in the expansion of our SUV production and turn the Mercedes-Benz plant Tuscaloosa into a high-tech location. In this way we can produce the next SUV generations even more flexibly, efficiently and in proven top quality."
- Jason Hoff, President and CEO of MBUSI: "With this expansion and modernization of our plant, we will create 300 new jobs and continue the success story of Mercedes-Benz in Tuscaloosa."

Tuscaloosa, Alabama, USA / Stuttgart, Germany – Mercedes-Benz expands the SUV production in the US and will create 300 new jobs. "In the next years we invest $1.3 billion into the expansion of our SUV production and turn the Mercedes-Benz plant Tuscaloosa into a high-tech location," says Markus Schäfer, Member of the Divisional Board Mercedes-Benz Cars, Manufacturing and Supply Chain Management. "In this way we can produce the next SUV generations even more flexibly, efficiently and in proven top quality."

The Mercedes-Benz plant Tuscaloosa will also assemble the next SUV generations including the hybrid versions. The plant expansion in this context includes a new Body Shop, major enhancements to the SUV Assembly Shop as well as upgraded logistics and IT systems. State-of-the-art technologies and an end-to-end digitization of production processes enable a highly flexible production. As part of the global production network, Tuscaloosa is connected to all Mercedes-Benz Cars locations around the world, allowing a location-independent access to data and process management. Every single installation and every robot, for example, can create a seamless integration of the supply base into the Mercedes-Benz plant operations.

be controlled and updated to new software programmes. Big Data applications will be used for intelligent analyses and for an improvement of the production processes.

"With this expansion and modernization of our plant, we will create 300 new jobs and continue the success story of Mercedes-Benz in Tuscaloosa," said Jason Hoff, President and CEO of MBUSI. "Our entire team is proud to reinforce the State of Alabama's growing reputation as a leader in high-quality automotive manufacturing."

The new 1.3-million square foot (125,000 square meters) Body Shop will use the latest lightweight technologies with innovative joining processes and employ a modular approach to manufacturing. MBUSI's current SUV Assembly Shop will be expanded by 139,930 square feet (13,000 square meters) and receive a larger, more flexible "marriage" station, where the body is merged with the powertrain, allowing for production of a wider range of vehicles.

About the Mercedes-Benz Tuscaloosa plant:
The Mercedes-Benz Tuscaloosa plant (Mercedes-Benz U.S. International - MBUSI) was the first major automaker to open a passenger car facility in Alabama. To date, Mercedes-Benz has made a $4.5 billion capital investment in the Tuscaloosa operations. The plant was founded in 1995 and started production of the GLE (Formerly M-Class) in 1997, which is now being built in the 3rd generation. The plant added the R-Class in 2005, the GL in 2006, and the new C-Class sedan for the North American market in 2014. In August 2015, production of R-Class vehicles was moved to the U.S. contract manufacturer AM-General in Mishawaka, Indiana to free production capacities to be used for the SUV series. The latest expansion is geared towards the next SUV generations including the hybrid versions.

MBUSI produced more than 232,000 vehicles in 2014 and is on track to exceed 300,000 vehicles in 2015. To date, more than 2.2 million vehicles have rolled off the plant's line for customers around the world.

About Mercedes-Benz Cars Operations :
Mercedes-Benz Cars Operations is responsible for passenger car production at 26 locations around the world as part of a flexible and efficient production network involving more than 70,000 employees. This includes the central functions of planning, logistics and

quality. Mercedes-Benz Cars produced more than 1,754,000 Mercedes-Benz and smart passenger cars last year, marking the fourth record in a row.

The network is based on the product architectures of front-wheel drive (compact cars) and rear-wheel drive (for example the S-Class, E-Class, and C-Class) as well as the SUV and sports car architectures. In addition, there is a powertrain production network (engines, transmissions, axles and components). Each of these production networks is grouped around a lead plant that serves as a center of competence for the ramp-up of new products, technology and quality assurance.

The focus of day-to-day work is on the continuous improvement and refinement of state-of-the-art production methods, which allow future high-tech vehicles to be produced in a way that is efficient, flexible and environmentally friendly, according to the typical Mercedes-Benz quality standards. All of this revolves around the employees and their expertise, whose work is systematically supported by ergonomic workplace design and intelligent automation. In addition to its own production plants, Mercedes-Benz is increasingly leveraging partnerships and utilizing capacities at contract manufacturers as part of its growth strategy

Toyota's Hydrogen-Powered Mirai Fuel Cell Vehicle Drives the Future of Mobility at the 2015 Excellence in Journalism Conference

Toyota will showcase the Mirai at the nation's premier gathering of influential Hispanic journalists. The Toyota Mirai is a zero emission fuel cell vehicle capable of powering a home for up to a week.

September 17, 2015
New York, Sept. 17, 2015 -- After a development process spanning more than 20 years, Toyota's long-awaited hydrogen fuel cell vehicle, the Mirai, will be featured at the Excellence in Journalism (EIJ15) Conference at the Orlando World Center Marriott, Sept. 18-20, in Orlando, Fla. Top news professionals from broadcast, print and digital will have the opportunity to experience the Mirai first hand. The conference is being convened jointly by the Society of Professional Journalists (SPJ), the Radio Television Digital News Association (RTDNA), and the National Association of Hispanic Journalists (NAHJ).

The Mirai will be the conference's only automotive interactive display hosted at the Orlando Marriott World Center's impressive central Atrium. Conference attendees and resort guests will have the opportunity to receive a

personalized walk-through from a Mirai product specialist and learn about the unique powertrain and other components that make this vehicle a truly innovative automotive breakthrough. The Mirai can be fueled with hydrogen in around 5 minutes and boasts an EPA estimated range of 312 miles per fill. It has an estimated fuel economy of 67 miles per gallon equivalency and the only emission is water vapor. The Toyota Mirai is also capable of powering a small home for up to a week during an emergency.

Toyota also will sponsor the Hall of Fame Luncheon, where NAHJ will honor Telemundo journalist and MSNBC host José Díaz-Balart with the NAHJ Presidential Award of Visibility for his commitment to journalism, the pursuit of the truth and his accurate and fair representation of Latinos in news coverage.

"As a long-time supporter of the National Association of Hispanic Journalists, it gives us great pleasure to share with this wonderful group the latest in automotive innovation as we help facilitate discourse on how Latinos are adding their much-needed voices to the journalism landscape in this country," stated Patricia Salas Pineda, group vice president of Toyota's Hispanic Business Strategy Group. "As the top-selling automotive brand in the Hispanic market for more than 10 years, we have a close relationship with the Hispanic community and NAHJ, and are pleased to be part of the conversation regarding diversity of ideas, voices and points of view in news reporting."

Mekahlo Medina, NAHJ national president, commented, "We are pleased to have Toyota as a long-time partner to carry forward our mission of advancing and recognizing the achievements of Hispanics in the news industry."

EIJ15 will be a forum for novice and veteran communicators and storytellers to explore and shape today's complex media environment, to learn about new products and services, and to connect with opportunities to advance their careers. For more information on EIJ15, visit http://excellenceinjournalism.org/. Follow the conversation with #VayamosJuntos, @ToyotaLatino and #EIJ15.

About Toyota - Toyota (NYSE:TM), the world's top automaker and creator of the Prius and the Mirai fuel cell vehicle, is committed to building vehicles for the way people live through our Toyota, Lexus and Scion brands. Over the past 50 years, we've built more than 25 million cars and trucks in North America, where we operate 14 manufacturing plants (10 in the U.S.) and directly employ more than 42,000 people (more than 33,000 in the U.S.). Our 1,800 North American dealerships (1,500 in the U.S.) sold more than 2.67 million cars and trucks (more than 2.35 million in the U.S.) in 2014 – and about 80 percent of all Toyota vehicles sold over the past 20 years are still on the road today.

Media Contacts - Luis Rosero
Director, Hispanic Business Strategy Group
Toyota Motor Sales, USA, Inc.
Phone – 212.715.7493
Mobile – 646.512.1406
Luis_Rosero@Toyota.com

DEARBORN, Mich., Sept. 18, 2015

– Developers can now leverage Ford's all-new SYNC® 3 technology including advanced voice recognition and touch screen user interface to create apps that enhance the in-car user experience.

Ford Enhances SYNC AppLink for App Developers with New Capabilities and Tools for In-Car Experience Innovation
- App developers will now be able to leverage Ford's all-new SYNC® 3 technology to enhance the in-car user experience
- Ford now offers access to real-time vehicle information enabling creation of innovative app experiences
- New tools available for developers include a SYNC 3 technology development kit and vehicle data simulator software development kit – allowing testing and development without access to a vehicle

"Ford challenges developers to find new and exciting ways to improve the in-vehicle user experience," said Doug VanDagens, Ford global director, Connected Services Solutions. "For the first time, Ford is giving developers the resources to help make vehicle-specific apps with new capabilities and tools to design experiences based on real-time vehicle information."

SYNC AppLink™ enables drivers to voice-control smartphone apps from the driver's seat, and it allows for phone apps to appear on the SYNC screen as they appear on the phone. The AppLink experience is now enhanced on the SYNC 3 platform with its eight-inch capacitive touch screen with custom graphics. Developers have more than a dozen design templates to help develop a look and feel for their apps.

The latest set of AppLink application programming interfaces gives developers several new capabilities, including:
- In-vehicle notifications: Developers can send push notifications to drivers through vehicle audio systems and displays – similar to users' experiences on their smartphones

- Voice pass-through: Offers the ability for app developers to take advantage of increasingly popular cloud-based voice-activated services for in-app experiences
- Vehicle information access: Real-time information from various vehicle sensors allows for customization and personalization of app experiences

At the Ford Developer Conference Sept. 19, developers can access an all-new vehicle data simulator program that mimics the in-car experience using a technology development kit in various drive cycles. Available data includes average fuel economy, battery voltage, external temperature, fuel level, safety belt status, acceleration, driver braking, GPS, speed, tire pressure, vehicle identification number, odometer and engine rpm.

Since Ford rolled out the automotive industry's first developer program in 2013, more than 13,000 developers have registered and more than 24,000 software development kits have been downloaded. There are more than 90

AppLink-compatible smartphone apps now running on iOS and Android devices around the world.

The AppLink application programming interface has been integrated into some of the world's most popular smartphone apps – including Pandora, Spotify, Glympse, Sina Weibo and QQ Music.

Through its developer program, Ford hopes to grow the app ecosystem even further – especially in new categories such as health and wellness, connected home and productivity.

AEROSPACE NEWS & EVENTS

Marnie Azadian

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

The criteria for submitting information is as follows:

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

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

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

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

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

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Lockheed Martin Awarded Desert Hawk 3 Contract from U.K. Ministry of Defence

Desert Hawk named as a Core U.K. Equipment Programme; system achieves full operational capability

LONDON, Sept. 17, 2015 -- The U.K. Ministry of Defence has awarded Lockheed Martin (NYSE: LMT) a contract to support the Desert Hawk 3 programme and establish the small unmanned aerial system (UAS) as a Core Defence Capability.

"Desert Hawk has served the U.K. military well in providing intelligence, reconnaissance and surveillance to tactical warfighters," said Jay McConville, Lockheed Martin director of business development for Unmanned Solutions. "We look forward to continuing this record of success through the award of the Desert Hawk Core Support Programme, and we continue to enhance its capabilities based on user feedback. Desert Hawk's maturity and proven performance, as well as the enhanced capabilities now available, make it a crucial asset on the modern battlefield."

Desert Hawk 3 has flown more than 30,000 hours, mostly under austere conditions, to support critical mission needs such as enhanced situational awareness, security and counter-IED operations, threat detection, route reconnaissance and battle damage assessment.

Defence Minister Philip Dunne said: "Desert Hawk has proved its worth on operations in Afghanistan, providing our Armed Forces with vital intelligence and allowing our commanders to stay one step ahead of the enemy. We recognise that unmanned and remotely-piloted air systems are increasingly important in today's operational environment, and our protected Defence budget and GBP160 billion investment in equipment has allowed us to bring Desert Hawk into our core programme."

The battery-powered Desert Hawk 3 is designed for portability, ruggedness, rapid employment and reliability. The hand-launched system weighs only 8 lbs. (3.6 kg) and can fly for up to 90 minutes with a 2-lb. (0.91 kg) payload. Recently the U.K. Desert Hawk 3 was upgraded to a digital data link achieving Ministry of Defence Full Operational Capabilty on schedule.

Lockheed Martin recently upgraded Desert Hawk 3 to the Desert Hawk 3.1 configuration by providing simplified launch, deep stall landing, all- environment capability, longer endurance, updated sensor payloads and operation using Lockheed Martin's mobile ground control system. Desert Hawk 3.1 is a modification kit to a Desert Hawk 3 configuration.

With five decades of experience in unmanned and robotic systems for air, land and sea, Lockheed Martin's unmanned systems are engineered to help our military, civil and commercial customers accomplish their most difficult challenges today and in the future.

For additional information, visit our website: http://www.lockheedmartin.com/us/products/desert-hawk.html.

About Lockheed Martin
Headquartered in Bethesda, Maryland, Lockheed Martin is a global security and aerospace company that employs approximately 112,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The Corporation's net sales for 2014 were $45.6 billion.

(Source: China Military Online; issued Sept 15, 2015)

PLA Air Force's J-11B Fighter Equipped With China-Made Engines

CHANGCHUN --- The PLA Air Force J-11B fighters have been equipped with China-made engines, according to Yang Dechun, a pilot assigned to a division under the PLA Air Force.

The PLA Air Force held an aviation open-day activity in Changchun, northeast China's Jilin province, on September 10, 2015, during which a J-11B fighter of the PLA Air Force conducted three demonstration flights.

Yang Dechun introduced that, "first, the J-11B fighter flew over the reviewing stand at low altitude and high speed, which reflects its low-altitude penetration capability and successful penetration can ensure its own survival, and then, it quickly ascended and then conducted a 2.5-circle roll flight during ascending, which showcases the J-11B fighter's lateral turning flight performance."

"After that, the J-11B fighter made an ultimate hover demonstration at an altitude of 300 meters, which exhibits its horizontal maneuvering performance, and such a performance can allow the J-11B fighter to win the flight-attitude superiority in a short period of time," Yang Dechun continued.

"Finally, it flew over the reviewing stand again at low altitude and low speed, which shows its slow flight performance," Yang Dechun added.

The configuration of J-11B fighter is greatly upgraded as compared with the previous fighter models, for example, the very simple human machine interface in its cockpit possesses very powerful functions and can help pilot perform all-weather combat missions against air, sea and ground targets, Yang Dechun introduced.

Yang Dechun expressed that J-11B fighter's fire-control system can carry China's current most advanced short-range and medium-range air-to-air missiles, and in addition, it can also carry the new-type air-to-ground ammunition, allowing it to make a certain breakthrough in enhancing its air-to-ground attack capability.

Above all, the J-11B fighters have been equipped with China-made engines, and "Our pilots feel most proud that the J-11B fighters are equipped with completely China-made engines," Yang Dechun said.

The biggest wish of the pilots of the PLA Air Force is that their fighters are equipped with more and better engines so as to allow the PLA Air Force's combat capability to be further upgraded, added Yang Dechun.

The purpose of this section is to provide an area, for LSTC and DYNAmore engineers, to share their on line resources. All distributors should use the LS-DYNA Corporate Tutorial & Content site, if they have videos to be shared in this area.

Corporate Tutorials, Videos and Content

www.youtube.com/user/lstcanddynamore - **This channel is to offer information on the general-purpose finite-element program LS-DYNA and LS-DYNA's, fully integrated, strongly coupled, solvers for extensive multiphysics capabilities. All LS-DYNA Solvers are strongly coupled and integrated, at no additional fees.**

The criteria for submitting information is as follows:

- · The information has to reside on line,
- · URL would be either LSTC, DYNAmore or the LS-DYNA Corporate Tutorial and Content Site.
- · Once uploaded to the Corporate You Tube Channel, you may send the URL to the information you would like to share.

Submit the title to your information, accompanying URL, and your photo (optional) to Marnie Azadian at agiac99@aol.com Subject Line please use "Resource - FEA News Section"

Submissions will be published in the monthly news, received prior to the 15th of any month.

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

YouTube Channel Multiphysics – LS-DYNA

LS-DYNA Multiphysics   **- Facundo Del Pin**   fdelpin@lstc.com

LS-DYNA for ground vehicle aerodynamics

This simulation shows the extensive multiphysics capabilities of
 LS-DYNA.

.
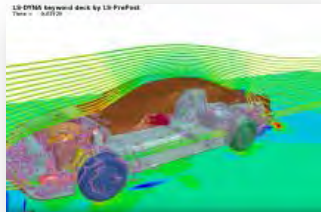
CFD analysis using LS-DYNA for the Pontiac Grand Prix sedan
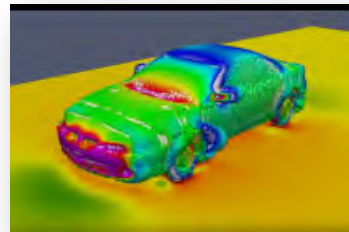
Air flow around Sedan Model (engine included)
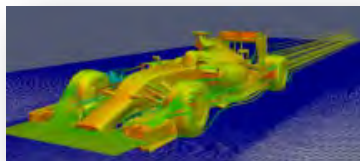
LS-DYNA CFD Simulation of F1 Ferrari 2014

LS-DYNA scalable CFD solver provides accurate results for the simulation of turbulent flows around vehicles

For a 30-day no cost, demonstration license of LS-DYNA contact sales@lstc.com

- · **LS-DYNA's One Code Methodology uses fully integrated, strongly coupled, solvers for extensive multiphysics capabilities. LS-DYNA Solvers are strongly coupled and integrated, at no additional fees.**
- · Optimized for shared and distributed memory with the following platforms: Unix, Linux, & Windows Based platforms

www.youtube.com/user/lstcanddynamore

LSTC & DYNAmore

LS-DYNA Corporate YouTube Channel

Welcome to the LSTC & DYNAmore Corporate YouTube Channel - This channel is to offer information on the general-purpose finite-element program LS-DYNA and LS-DYNA's, fully integrated, strongly coupled, solvers for extensive multiphysics capabilities. All LS-DYNA Solvers are strongly coupled and integrated, at no additional fees.

LS-DYNA Simulation of a Bottle Drop Test
Published on Aug 20, 2015

Finite element simulation of a bottle drop test using LS-DYNA. The fluid is modelled with the SPH method. A brittle glass like material was defined for the bottle. Three different drop angles (0/30/60) have been simulated.

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
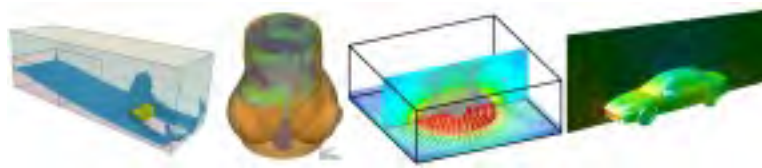
LS-DYNA Support

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.

2015 Recent Changes

July 14, 2015
History Variables for Certain Material
Models

May 29, 2015
Contact Energy Discrete Beam
Mar 20, 2015

Jun 08, 2015
Some guidelines for implicit analyses
using LS-DYNA

Jan 15, 2015
LS-DYNA R7.1.2 (R7.95028)
released
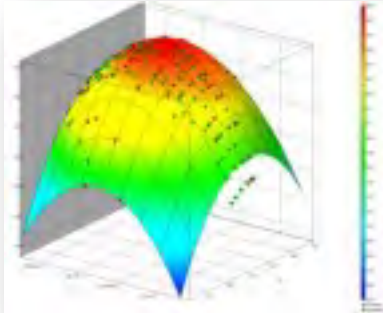
LS-OPT

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

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.
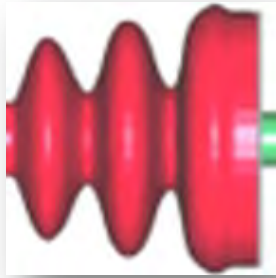
LS-DYNA Examples

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 - NEW
  Detroit, 2014

12th International
LS-DYNA Conference
  Detroit, 2012

9th European
LS-DYNA Conference
  Manchester, 2013

8th European LS-DYNA
Conference
  Straßburg, 2011 …

ATD –DUMMY   MODELS
www.dummymodels.com

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

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

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

Among the Dummy Models on this site you can find:

Side Impact Dummies

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
26 - 28 October 2015	LS-DYNA Introductory Course
26-27 January 2016	Polymeric Material Modelling in LS-DYNA
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

DYNAmore　　Visit the website for complete listings/changes/locations

　　　www.dynamore.de/en/training/seminars

Among the classes for the month – more on site

Date	Training Class
Oct 07	ALE and FSI
Oct 09	Discrete Element Method
Oct 13	Introduction to LS-DYNA
Oct 15	Introduction to LS-DYNA
Oct 20	LS-OPT Optimization & Robustness
Oct 26	Infoday DYNAstart
Oct 27	Introduction to LS-PrePost
Oct 28	Introduction to LS-DYNA
Oct 30	

ESI-Group   Visit the website for complete listings/changes/locations

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

Date US	Training Class
1 Oct - 2 Oct 2015	VA One: Coupled FEA/SEA Training

Date GERMANY	Training Class
26 Oct - 27 Oct 2015	High frequency automotive interior acoustics
28 Oct - 29 Oct 2015	Low frequency automotive interior acoustics
5 Nov - 6 Nov 2015	VA One for aerospace industry (FE/BEM topics)

LSTC   Visit the website for complete listings/changes/locations

                   www.lstc.com/training

Michigan

Date	Training Class
Dec 10-11	Advanced Impact Options in LS-DYNA
Dec 14	Intro to LS-PrePost
Dec 15-18	Intro to LS-DYNA

California

Date	Training Class
Nov 9	Intro to LS-PrePost
Nov 10-13	Intro to LS-DYNA
December 2-3	NVH & Frequency Domain Analysis in LS-DYNA

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.

BETA CAE Systems S.A.– ANSA

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

BETA CAE Systems S.A.– μETA

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

Solutions for:

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

Maritime and Offshore Design - Aerospace engineering - Biomechanics

CRAY   www.cray.com

THE CRAY® XC™ SERIES: ADAPTIVE SUPERCOMPUTING ARCHITECTURE

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

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

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

MAXIMIZE PRODUCTIVITY WITH CRAY CS SERIES SUPERCOMPUTERS

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

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

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

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

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

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

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

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

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

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

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

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

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

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.

www.lstc.com

LS-DYNA

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

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

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

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

LSTC Dummy Models:

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

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

Oasys Ltd. LS-DYNA Environment

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

www.oasys-software.com/dyna

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
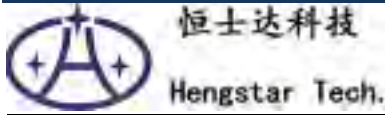
Shanghai Hengstar

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.

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   **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	**Gompute**	info@gompute.com
	www.gompute.com	
	LS-DYNA Cloud Service	Additional software
	Additional Services	

United States	**Comet Solutions**	steve.brown@cometsolutions.com
	Comet Software	

Distribution/Consulting	US/Canada	Distribution/Consulting

United States

Livermore Software Technology Corp

LSTC   www.lstc.com

sales@lstc.com

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

United States

Predictive Engineering
www.predictiveengineering.com

george.laird@predictiveengineering.com

FEMAP	NX Nastran	LS-DYNA	LS-OPT
LS-PrePost	LS-TaSC	LSTC Dummy Models	
		LSTC Barrier Models	

Distribution/Consulting		Europe	Distribution/Consulting	
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

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

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

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

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

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

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

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	

Distribution/Consulting	Asia Pacific	Distribution/Consulting

Taiwan   **Flotrend**   gary@flotrend.tw

www.flotrend.com.tw

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

Taiwan   **APIC**

www.apic.com.tw

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

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

Run STAR-CCM+, LS-DYNA, NX Nastran, and more on demand

Empower your organization with access to the largest global HPC network of over 8 million servers with the latest hardware technology

Control, manage, monitor, and optimize enterprise simulation usage using a robust IT administration portal

Integrate on-premise and cloud resources using a single, intuitive SaaS platform that can be easily deployed within the enterprise

Drive product innovation and leverage your organization's core competency while improving return on IT assets

**Access Instant Computing Directly in Your Browser**

Run STAR-CCM+, LS-DYNA, NX Nastran, and more on demand – choose from 120+ pre-tested, natively integrated simulation applications

Support variable user demand for simulation software and computing hardware with an agile, scalable solution

Instantly spin up clusters of 100,000+ state-of-the-art, highly secure HPC cores on demand

Easily set up your most complex workflows – multidisciplinary exploration, optimizations, design of experiments, and more

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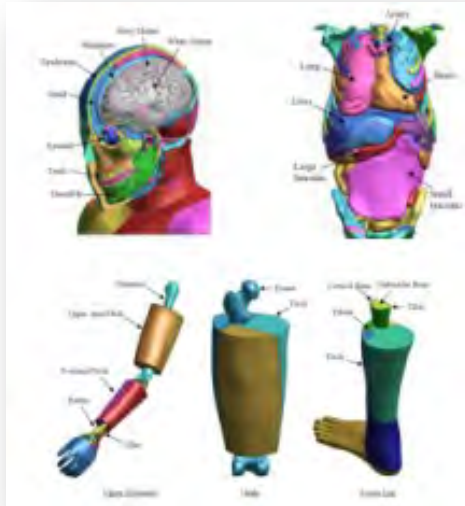
The Total Human Model for Safety, or THUMS®, is a joint development of Toyota Motor Corporation and Toyota Central R&D Labs. Unlike dummy models, which are simplified representation of humans, THUMS represents actual humans in detail, including the outer shape, but also bones, muscles, ligaments, tendons,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

Each of the different sized models is available as sitting model to represent vehicle occupants
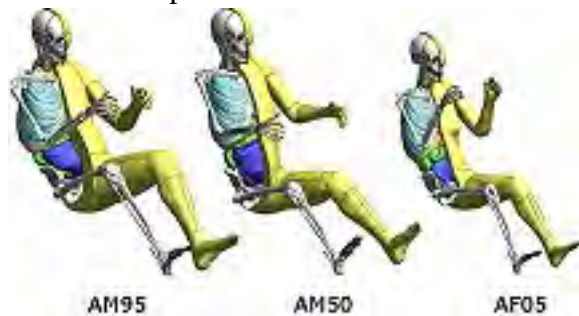
and as standing model to represent pedestrians.
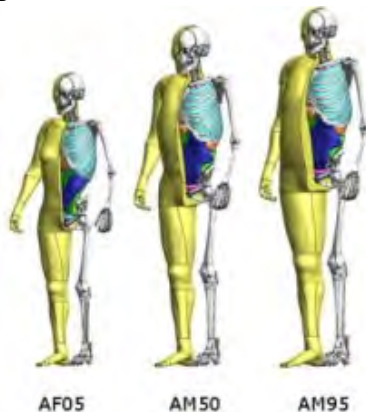
The internal organs were modeled based on high resolution CT-scans.

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

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

For information please contact:
THUMS@lstc.com

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

LSTC – Dummy Models

LSTC Crash Test Dummies (ATD)

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

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

e-mail to: atds@lstc.com

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

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

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

LSTC – Barrier Models

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

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

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

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

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

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

•RMDB modeled with shell and solid elements

e-mail to: atds@lstc.com.

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[ESI Group](#)   [Lenovo](#)

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NEWS FEEDS   [ETA](#):

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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	