10th Year Anniversary Issue
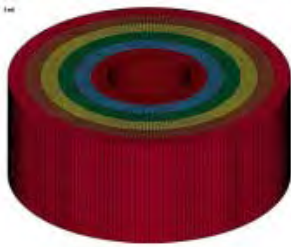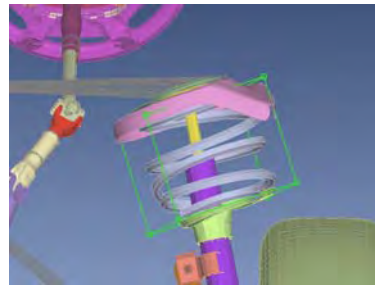
10th Year Anniversary Issue

FEA Information   http://www.feainformation.com

Engineering Journal and Website Resource

LS-DYNA® Implicit Hybrid
Technology on Advanced SGI®
Architectures – Benchmark

ANSA Kinematics Tool

Attendees with Paul DuBois and Art Shapiro
The 2nd Russian LS-DYNA® User's Conference

Dominic Gallello, CEO MSC software

Orphanage - Romania
NewHome - NewLife

Livermore Horses
Training = Hope For Horses

TABLE OF CONTENTS

Announcements - In this issue don't miss:

ANSA Kinematics Tool
   Solver for performing complex mechanism movements

Dominic Gallello, CEO of MSC software
   Orphanage - Romania, NewHome NewLife

Marsha Victory, FEA Information Inc.
   Training = Hope For Horses

SGI® Architectures
   LS-DYNA® Implicit Hybrid Technology on Advanced SGI® Architectures

FTSS Model Portofolio - Availability
   Non-linear structural codes LS-DYNA, PAM-CRASH, RADIOSS, ABAQUS

Training Course - LSTC - Instructor, Ian Do
   LS-DYNA ALE ADVANCED APPLICATIONS TRAINING SEMINAR

10th Year Anniversary Issue: Thanks to all of you that have helped make this journal a success.   Our Platinum Participants, Distributors, Consultants, assists us keeping The Journal, and our websites no fee to our readers.   A special thanks to the FEA Information Inc. writing staff, and the many engineers, consultants, students and professors that send articles, press releases, events.

Sincerely, *Marsha J. Victory*, President, FEA Information Inc

---

From engineering to horses - http://www.livermorehorses.com

Aislin (6) and her Mom, Melinda, teaching Prinz about riding and lead line, for his 1st show next season.   Prinz, was a rescue, and has been sponsored by Guenter and Margareta Mueller of CADFEM GmbH

Global Leaders

OASYS Ltd: http://www.oasys-software.com/dyna/en/	**JSOL Corporation**: http://www.jsol.co.jp/english/cae	**HP**: http://www.hp.com/
ETA: http://www.eta.com	**INTEL**: http://www.intel.com	**ESI Group**: http://www.esi-group.com
BETA CAE Systems S.A.: http://www.beta-cae.com	**LSTC:** http://www.lstc.com	**SGI:** http://www.sgi.com
MICROSOFT http://www.microsoft.com		

1. **ALE Incompressible Fluid in LS-DYNA**
   http://www.dynalook.com/international-conf-2010/FluidFSI-5.pdf
   Mhamed Souli - University of Lille

   The computation of fluid forces acting on a rigid or deformable structure constitutes a major problem in fluid- structure interaction. However, the majority of numerical tests consists in using two different codes to separately solve pressure of the fluid and structural displacements. In this paper, a monolithic with an ALE formulation approach is used to implicitly calculate the pressure of an incompressible fluid applied to the structure. …

2. **LS-DYNA Implemented Multi-Layer Fabric Material Model Development for Engine Fragment Mitigation**
   http://www.dynalook.com/international-conf-2010/Aerospace-1-5.pdf
   S. D. Rajan, B. Mobasher, A. Vaidya - Arizona State University

   The development of a robust and reliable material model for dry fabrics is the main subject of this paper. Dry fabrics are used in a number of applications such as propulsion engines fan-containment systems, and soft body armor. A mechanistic-based material behavior model capturing the behavior of fabrics when subjected to impacts from high-velocity projectiles would make a powerful predictive tool. In this paper, the constitutive model…

3. **Solid Elements with Rotational Degree of Freedom for Grand Rotation Problems in LS-DYNA**
   http://www.dynalook.com/international-conf-2010/Simulation-1-6.pdf
   Hailong Teng - Livermore Software Technology Corporation

   The goal of this paper is to further enhance the solid elements with rotational degree of freedom (DOF). Three- dimensional finite elements with rotational degree of freedom have been proposed elsewhere, however, these elements are restricted to linear analysis. In this paper, by improving the mid-side node velocity update algorithm, we enhance the elements performance. Numerical results are presented, showing that the enhanced elements …

The ANSA Kinematics Tool

A Solver for performing complex mechanism movements

Introduction

One of the greatest burdens of crash/safety simulation pre-processing is the fast and accurate positioning and articulation of kinematic mechanisms. Such mechanisms can be the occupant seat, the crash-test dummy, the seat with the dummy positioned on it, suspensions, rooftops, hoods etc.

Most of the software available in the market today, used for the above operations, requires advanced knowledge of dynamics in order to model and simulate these types of mechanisms. In addition, a detailed knowledge of the mechanism's structure is required for the set-up and use of such software.

On the other hand, ANSA's Kinematics Tool was developed to provide the CAE engineer with the ability to easily set-up and simulate the movement of mechanisms models without requiring a deep knowledge of the mechanisms' kinematics from the engineer.

An Implicit Multibody Dynamics solver (HHT-I3), wrapped around by a user-friendly interface, has been integrated within ANSA, in order to allow the users to efficiently and easily position such complex kinematics mechanisms.

Basic Concepts of the Kinematics Tool

Kinematic Rigid Bodies and Joints

The Kinematics Tool automatically extracts kinematic rigid bodies and kinematic joints from the FE model. The two main ways for the automatic identification of the definition of a kinematic mechanism is by:

- Model Connectivity: The tool automatically detects the connectivity of the model and separates the model into the appropriate kinematic rigid bodies and joints.
- Sets: This technique is more common in defining seat mechanism. The seat manufacturers usually provide the kinematic rigid bodies as nodal sets. Providing this set to the tool, the appropriate kinematic rigid bodies and joints are created.
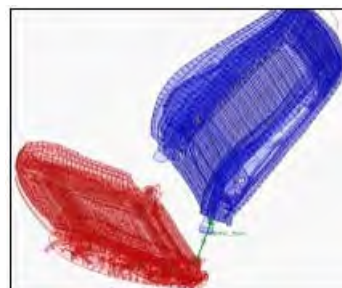

Figure 1: Automatic detection of Rigid Bodies and joints

Kinematic Rigid Bodies

The Kinematic Rigid Bodies are groups of parts that move jointly during mechanisms motion.

Kinematic Joints

ANSA offers the user access to a rich library of joint types that can be directly selected for mechanisms modeling. Many advanced joints types are supported by ANSA, such as: revolute, spherical, cylindrical, slider, screw, rack and pinion, universal and many more. This allows for the efficient set up of the kinematic configuration, without requiring from the user to turn on and off D.O.Fs for each joint definition, as in other software.

Mechanical & electro-mechanical mechanisms

The above listed joints types fully serve the modeling of the mechanical kind of mechanisms. But how to address the modeling of modern electro-mechanical mechanisms that perform complex and coupled motions?

To model complex electro-mechanical mechanisms, the Coupler Joint is used in ANSA, which relates the translational and/or rotational relative motion of two or three joints.

Creating Kinematic Configurations

The Kinematics Tool's intuitive interface allows the organization of the kinematic components so that different movement configurations can be predefined by the mechanism expert and made available to more engineers for modeling tasks. This is important because not all users need to know all the details of the kinematic configuration, so they can focus only on the positioning task.

Characteristic application examples may be the tilt and height adjustments of a seat model.
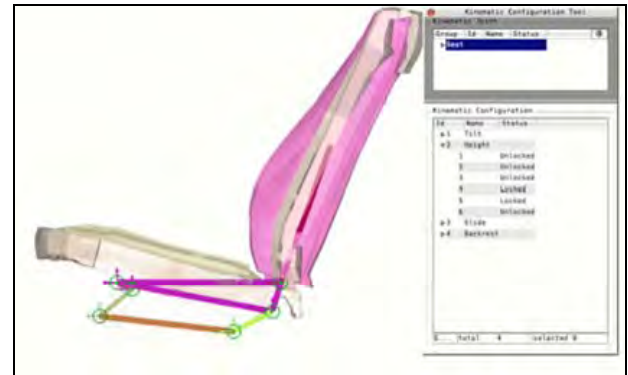
Figure 2. Complete Seat Configuration set-up

With the definition of the Mechanism, kinematic configurations can be created to perform a specific type of movements. Kinematic configurations are easily created by:
- locking or unlocking joints
- grouping the necessary joints
- selecting a joint to be the actuator joint.

Kinematics Tool and Morphing

A tight integration with many software tools is already present in ANSA. This way, the Kinematics Tool woks also in conjunction with the ANSA Morphing Tool.

Deformable components connecting different parts of the kinematic model can be controlled and reshaped automatically by the Morphing Tool, during mechanism's motion. Examples of

such components are: stabilizing bars, springs, deformable ducts, stretchable fabric covers etc.

Figure 3: Suspension spring getting linearly compressed during the kinematic motion

Motion

During the movement of the mechanism, relevant information from the LS-DYNA® model is taken into account.
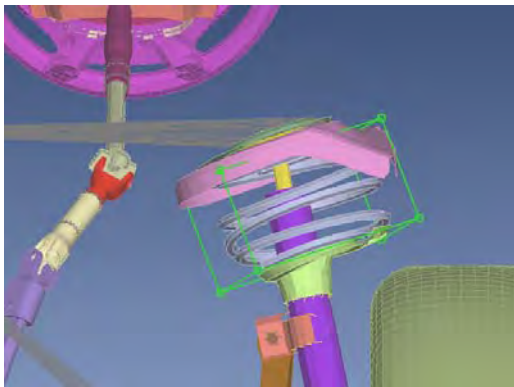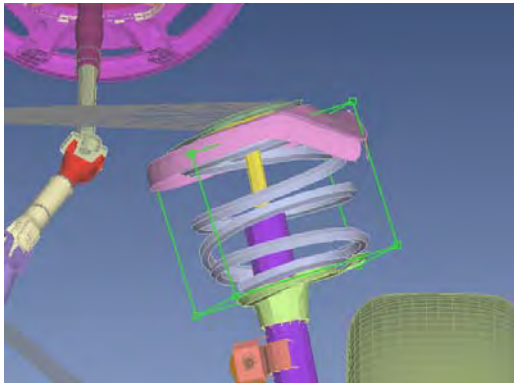
For example, information of the *CONSTRAINED_JOINT_ and CONSTRAINED_JOINT_STIFFNESS_ keywords, such as the high & low stop angles values, are respected as constraints to the mechanism model kinematics.

At the same time, during mechanism model motion, values update is performed automatically on the

LS-DYNA® model cards, taking into account the spatial information that is needed to be transformed (e.g. PART_INERTIA cards, ELEMENT_DISCRETE offsets etc).

Output

In order to guaranty the robustness of a CAE process, validated models are used during model built up. A characteristic case is that of crash test dummy models. Reading and writing a dummy model to/from the pre-processor is something that is usually avoided.

In order to serve this practice, ANSA Kinematics Tool offers the option to treat imported validated sub-models as read-only, by outputting only their transformation information in the form of *NODE_TRANSFORM.

Applications

The Kinematics Tool has a wide range of applications. Some of the most common applications are presented below.

Seat and Dummy Positioning

A characteristic case of mechanisms motion in crash and safety is the positioning of the crash test dummy model, and its coupled motion with the seat, in a position dictated by the test protocol to be simulated.

Figure 4: A dummy seat coupling moving together

Suspensions

The adjustment of the suspension height, without having to quit the pre-processor and use a third party solver, is an offered capability that saves a lot of time. With ANSA, the user can set-up the suspension mechanism and configure the suspension to the desired riding height and wheel angle.
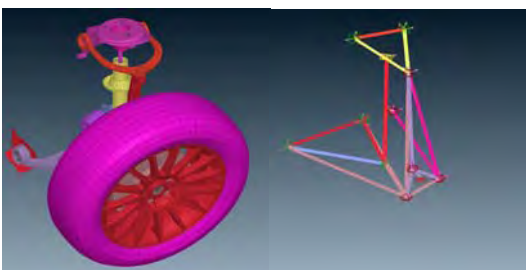
Figure 5: The FE model of the suspension and the extracted kinematic model

In the example depicted below, after the mechanism model has been extracted and the configurations are defined, the execution of a turn wheel kinematic configuration is a simple procedure
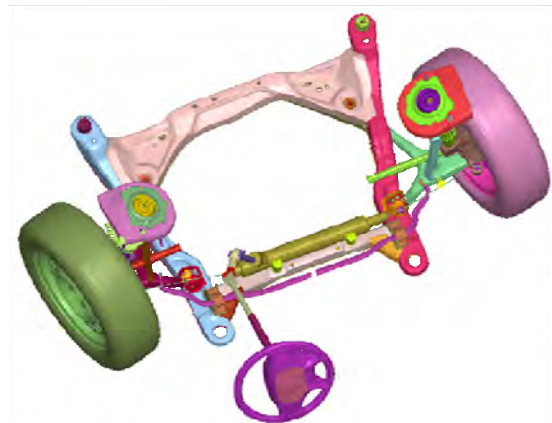
Figure 6. Wheel turn, kinematic configuration

Roof Tops

For rooftop analysis, the Kinematics Tool allows the deployment of the roof model to various positions, from full fordling to full extension. In this specific example the time that it takes to extract the kinematic model and perform the articulation is less than a couple of minutes.

9
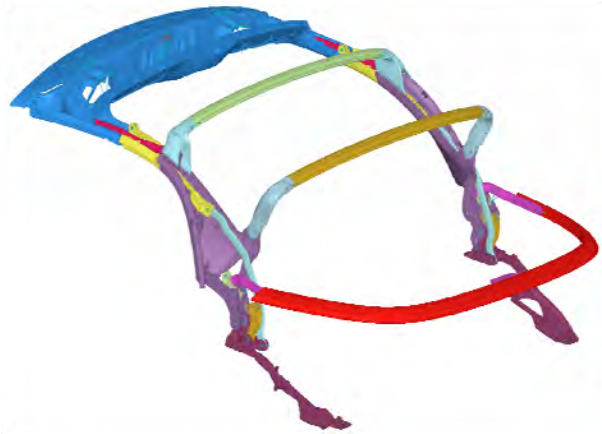
Figure 7: Folded rooftop

Conclusions

The Multi Body Dynamics solver capability, embedded within ANSA, provides the user with impressive capabilities in positioning and articulating a FE model.

Any type of electromechanical mechanism can be positioned and articulated according to the load case requirements. All the set-up can be done, in advance, by the mechanism expert and shared with the rest of team for later implementation. Using the kinematic configurations, the non-experts can move the mechanism without needing to have a deep knowledge of the mechanism's kinematics.

References

-ANSA v13.1.1 User's Guide, BETA CAE Systems S.A., October 2010

For More Information contact BETA CAE Systems S.A. ansa@beta-cae.gr

**Dominic Gallello, CEO
MSC software Corporation.**
www.mscsoftware.com/

Dominic and his family have always believed that the wealth created in high tech should have meaningful social impact. Each year, the Gallello family fund and oversee the construction of new orphanage building in Romania. Today the Gallellos have over 100 bright and affectionate kids they can call their own. For Gallellos, reward comes in hugs that are limitless. Construction on their 5th NewHome NewLife starts soon.

http://www.youtube.com/watch?v=vI6lg kkh33c

This effort came about through partnering with Brother Csaba of the St. Francis Foundation. Brother Csaba is already known as the Mother Teresa of Transylvania, in Romania. Since 1993, Brother Csaba has turned the appalling conditions of the orphans and kids from broken families, a legacy of the Ceausescu era, into an opportunity to give them a new life. Sadly, more than 20 years after Ceausescu and his demand for women to have 5 children to create a great society for Romania, the abandonment of kids and the horrible conditions in institutions have hardly subsided.

Brother Csaba and his staff care for 1,800 kids in 17 homes and 26 day care centers throughout Transylvania. The results are extraordinary. Over 70% of the kids who reach tertiary education age go to college. The basic philosophy is to give the kids a safe and nurturing environment where school, spirituality and mending broken families are the centerpieces. The demand for Brother Csaba's services by kids who have no parents or kids who live in broken homes is sadly almost limitless, even today. Each new orphanage building that is opened is immediately filled within weeks. It does not take long for the kids to fall in love with their new caring and nurturing environment. http://www.youtube.com/watch?v=vI6lg kkh33c
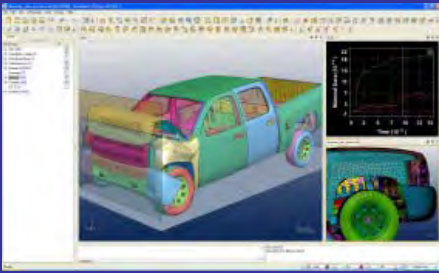
ETA Announces PreSys 2010 R1 Release

Improving FE Modeling Capabilities

October 11, 2010—ETA is pleased to announce the availability of the R1 update of its finite element modeling software, PreSys. Available immediately through ETA and its world-wide distribution network, this update delivers new features which enhance the software's ability to quickly and efficiently create complex simulation models and visualize simulations results.

A core solution for finite element analysis engineers, PreSys is an efficient, cost-effective software tool, which interfaces with popular CAD software products such as CATIA, Unigraphics, ProEngineer, Solidworks and AutoCAD. It allows product development engineers and simulation specialists to access design data and quickly create simulation models.

The software's extensive toolset features the ability to create a wide variety of insightful simulations which include durability, vibration, crashworthiness and fluid-structure interaction models. It interfaces seamlessly with LS-DYNA, MSC/NASTRAN, NX NASTRAN and NEI NASTRAN.

In addition to the model creation tools, PreSys provides users with complete results visualization and reporting capabilities. Users can create detailed images of simulation results, communicating important details regarding the product's behavior under simulated loadings. In addition, users can examine graphs of various simulation results, comparing the results of various simulations.

Building upon its initial release in June of 2010, the updated version of PreSys provides the most complete and advanced toolset on the market. The software tool is available on the Windows platform, directly through ETA and its distributor network. To find out more, please visit www.eta.com.

For more information, contact:
Tim Palmer,
Product Director, ETA
Phone: (248) 729-3010
etainfo@eta.com – www.eta.com

	[Finite Element Analysis Theory and Application with ANSYS (3rd Edition)](#)		[Arbitrary Langrangian-Eulerian and Fluid Structure Interaction](#).
	[A First Course in Finite Elements](#)		[Engineering Numerical Analysis](#)

Demo licenses are now available for D3View, developed by Suri Bala
     Available through LSTC – sales@lstc.com

Hybrid LS-DYNA
  October 21st, 2010

With the recent growth of multi-core chips, scalibility of pure MPP LS-DYNA beyond 128 cores has shown degration due to several factors including latency and network communications. LSTC has recently developed a new code named "Hybrid LS-DYNA" that provides sustained scalibility for large number of cores and also yields digit-2-digit repeatibility when changing the number of cores per job. Both these offer tremendous advantages as we move forward to take advantage of multi-core chips. A surpise advantage that we recently saw is the ability to run IMPLICIT jobs in Hybrid LS-DYNA on comptuers with substantially less memory.

Hybrid MPP LS-DYNA is a very promising solver version that is very easy to run and set up.

pure MPP LS-DYNA and Hybrid LS-DYNA
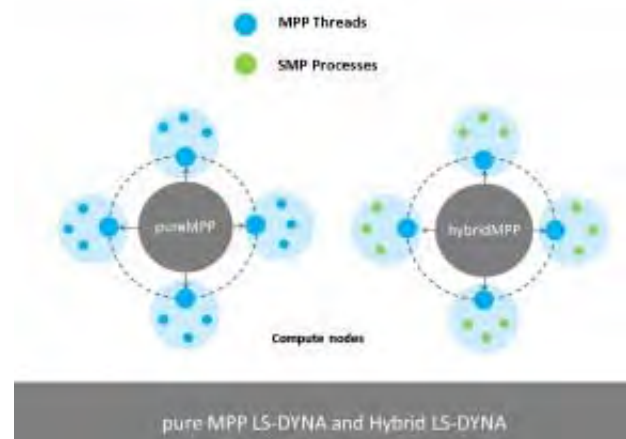
For complete post with pictures please visit. http://blog.d3view.com/

White Paper Presentation:

d3VIEW – Collaboration Software For Virtual Product Development

**The 8th European
LS-DYNA Users Conference
hosted by
ALYOTECH
May 23rd & 24th, 2011.
Strasbourg (France)**

8th European LS-DYNA© Users Conference Strasbourg - France

The 8th European LS-DYNA Users Conference hosted by ALYOTECH with the support of ARUP, DYNAMORE, ERAB and LSTC. The conference will be an excellent occasion to meet LS-DYNA© users from all over the world and to share LS-DYNA© applications in different areas.

Presentations will cover various LS-DYNA© related topics, new developments and new applications from academic and industrial engineers. An exhibition area will allow to obtain information about the latest software and hardware developments related to LS-DYNA©.

Several training classes will be held immediately before or after the Conference:

- Crash & Impact Modeling
- FSI & ALE in LS-DYNA
- Material Modeling and User-Defined Materials in LS-DYNA
- Modeling & Simulation with LS-DYNA

- SPH & EFG Methods in LS-DYNA
- Optimization with LS-OPT
- Sheet Metal Forming with LS-DYNA & DYNAFORM
- LS-PrePost
- Using LS-DYNA for Heat Transfer with Hot Stamping Applications
- LS-DYNA Applications to Protective structures, blasts, vehicle mines, …

Known as the European Capital, Strasbourg is home to the Council of Europe, the Human Rights Building and the European Parliament. It is a major hub, making for an easy access to the European LS-DYNA© meeting!

We hope to count you among our participants very soon!

Additional information/ registration:
    www.lsdynaeuc.alyotech.fr
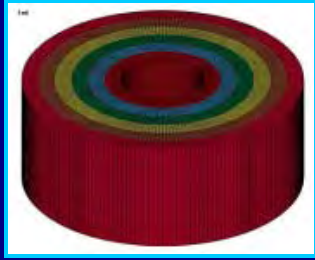
Complete White Paper pdf format is at URL: http://www.sgi.com/pdfs/4231.pdf

LS-DYNA® Implicit Hybrid Technology on Advanced SGI® Architectures*

Olivier Schreiber, SGI Application Engineering
Scott Shaw,   SGI Application Engineering
Brian Thatch,   SGI Application Engineering
Bill Tang,   SGI System Engineering

EXCERPTS From White Paper —

Abstract: LS-DYNA's implicit solver integration with explicit software allows large time steps transient dynamics as well as linear statics and normal modes analysis. Until recently, this capability could only be run on large Shared Memory Parallel (SMP) systems, where the application had access to large memory address space of the model. Distributed Memory Parallel (DMP) implementation of LS-DYNA's implicit solver now allows the factorization of smaller mass and stiffness matrices of the decomposed problem domain by corresponding tasks in less memory. Performance enhancement through SMP processing is moreover also available in the recently introduced 'hybrid' mode.

This paper demonstrates how advanced SGI computer systems, ranging from SMP servers addressing large memory space through multi-node clusters can be used to architect and accelerate solutions to meet complex analysis requirements.

Introduction

The subject of this paper is to evaluate the use of SGI Octane™ III, Altix® XE, Altix ICE, Altix UV and Altix architectures to Shared Memory Parallel (SMP), Distributed Memory Parallel (DMP) and their combination (hybrid mode) LS-DYNA implicit analyses. The strategies employed by LS-DYNA and the practical importance of such analyses are described in Refs [2] and [3]. Integrated within its explicit framework, LS-DYNA's implicit technology provides the capability to perform transient analyses with larger time steps as well as usual linear statics and modal analyses. How to best use SGI hardware is described in Ref [4].

1. Benchmark Description

The benchmarks used are identical physical problems as in Refs [2] and [3] available in meshes of 100K, 500K, 1M, 2M, 4M, up to 20M nodes. The model represents 6 nested cylinders held together with surface to surface contact, meshed with single elastic material solid elements.

A prescribed motion on the top and a load on the bottom are imposed for one nonlinear implicit time step with two factorizations, two solves and four force computations. Figure 1 illustrates a 921,600 solid elements, 1,014,751 nodes problem leading to a 3,034,944 order linear algebra system.
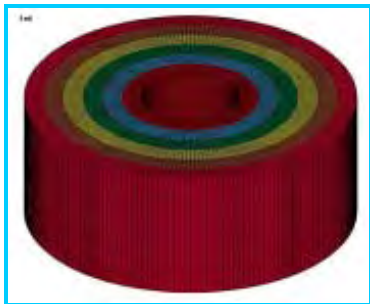
Figure 1: Refs [2] and [3] Cylinder Solid Element Problem Series, 1M nodes

Table of Content Excerpt Highlights

1. BENCHMARK DESCRIPTION

2. BENCHMARK SYSTEMS
- SGI Octane III
- SGI Octane III Xeon® X5570
- SGI Octane III Xeon E5540
- SGI Altix XE 1300 cluster
- SGI Altix ICE 8200 cluster
- SGI Altix ICE 8200 cluster
- SGI Altix ICE 8200 cluster
- SGI Altix 450 and 4700 SMP
- SGI Altix UV 100, UV 1000 SMP
- Filesystems

3. LS-DYNA
- Version Used
- Parallel Processing Capabilities of LS-DYNA
- Submittal procedure
- Hybrid mode
- MPI tasks and OpenMP thread allocation across nodes and cores
- Optimizing turnaround time
- Optimizing memory footprint

4. ANALYSIS OF BENCHMARK RESULTS
- Effect of Interconnect
- Effect of core frequency
- Effect of Turbo Boost
- Effect of Hyper-Threading Technology
- Effect of Memory Speed
- Effect of Filesystem

5. ACCESS TO BENCHMARK SYSTEMS

http://www.sgi.com/pdfs/4231.pdf For the Complete Paper
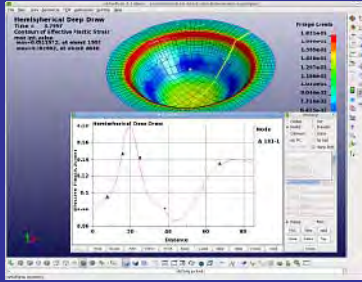
ERAB Blog

Now Live

New Feature in LS-PrePost

ProOpt Workshop

Our new website went live and we feel that it marks a new beginning for how we communicate with you. The keywords that lead the development for the new site were "up to date and accessible".

ERAB Blog:

The most obvious change of the site, apart from the new layout, is the blog. The purpose of the blog is to provide you with up to date information and news. We think the blog will be very useful for our software users that now can receive the latest news on additions, new versions, courses, et c. for their software in an easy manner using e.g. a web browser or RSS-reader of their choice. You can find the RSS link at the bottom of the page – try it!

XY-plot along path
  Posted in Development
    By Anders [October 22, 2010

A new feature is added in LS-PrePost 3.1 beta which allows XY-plotting for any fringe component along a path of selected nodes or elements. The function is located in Post – History.

ProOpt – Workshop
  Posted in LS-OPT, Story
    By Daniel [October 14, 2010

Last week the first ProOpt workshop was held in at Jönköping University (on the 7:th October) . The workshop attracted about 50 persons from the Swedish industry. Many interesting presentations and discussions were held. Daniel Hilding held a presentation on the experience from the participation of Engineering Research in the SuperLIGHT-CAR project

Further improvements of the site include a reworking and polishing of all the existing parts and functions, i.e. course registration, uploading files, the secure project site, product presentations and so on.

2nd Russian LS-DYNA User's Conference Review

Shown in the picture are the attendees at the 2nd Russian LS-Dyna User's Conference held at Dalnaya Dacha in Kyshtym, Chelyabinsk region, Russia, on October 4-8, 2010.

During this 5 day conference, Paul Dubois presented a 2 day training class on Modeling Blast and Art Shapiro presented a 1 day training class on using LS-DYNA to model Heat Transfer and Thermal Stress Problems.

"The Conference was a great success and LSTC's distributor, State Unitary Enterprise, STRELA continues to grow LS-DYNA sales, support and training in Russia," said Dr. Arthur Shapiro, "The additional growth and interest in Russian, and throughout the EU, marks a new milestone for use of modeling Heat Transfer and Thermal Stress Problems and their latest features implemented in LS-DYNA."

State Unitary Enterprise, STRELA
Contact: lsdyna@strela.snz.ru
www.strela.snz.ru

Published: 11th Int'l LS-DYNA Users Conference - US - June 2010.

Mathematical Modeling of Asteroid Falling into the Ocean
http://www.dynalook.com/international-conf-2010/Simulation-5-5.pdf
A.V. Abramov, O.V. Voikina, I.V. Minaev – LLC "STRELA" Open Computer Center
V.A. Simonenko –   RFNC Zababakhin Research Institute of Technical Physics
E.A. Abramov –   South-Ural State University
N.A. Skorkin National -   Research Nuclear University "MIFI"

"Today, experimental information about large-scale collision tsunami is not available. That is why one of the main tools of studies is mathematical modeling. This paper considers falling of stone asteroid with diameter 1 km into the ocean 4 km deep. This asteroid collides with the Earth at a speed of 22 km/s at angles 30, 60 and 90 degrees. Calculation of space body collision with a barrier is split into two stages. At the first stage, using...."

Approximately 300 delegates followed the invitation from DYNAmore to attend the German LS-DYNA Forum, 12 - 13 October 2010 in Bamberg/Germany. Once again, the users meeting was a success and the feedback was excellent. It was an ideal forum for LS-DYNA and LS-OPT users to present, share, and discuss experiences, to obtain information on upcoming features, and to learn more about new application areas.

Approximately 80 papers from users and developers, including keynotes from Prof. M. Kaliske (TU Dresden), S. Frik (Opel), H. Klamser (Porsche), K. Wiegand (Daimler), C. Lemaitre (Faurecia), T. Zeguer (Jaguar Cars), P. Du Bois (Consultant) and J. Hallquist (LSTC) were presented at the confer-ence.

Besides the contributions from the main applications crash and sheet metal forming there was an emphasis on fibre reinforced plastics and advanced occupant analysis. The papers on specific technical purposes were accomplished by presentations on simulation data management, followed by a fruitful and lively discussion moderated by Dr. Fachbach, Virtual Vehicle.

Additionally there were workshops on LS-OPT, PRIMER, Pre/Sys, and eta/DYNAFORM. In those workshops presentations and online demonstrations on new features, developments and application areas were given.

All plenary presentations were either held in English language or simultaneously translated. Additionally almost all presenters used English slides and more than 50% of the presentations were held in English language.

The Forum was accompanied by an exhibition featuring the latest software and hardware developments related to LS-DYNA and LS-OPT.

Following companies exhibited:
- 4a engineering
- Altair Engineering
- Arup
- Das virtuelle Fahrzeug
- DYNAmore
- D3VIEW
- e-Xstream engineering
- eta Engineering Tech..
- Fraunhofer SCAI
- GNS Systems / GNS
- Gridcore
- Hewlett Packard

- IBM Deutschland
- Inprosim
- Lasso Ingenieurges
- BetaCAE Systems
- MSC.Software
- NAFEMS
- NEC Deutschland
- Siemens PLM Software
- T-Systems International
- Tecosim
- transtec ag / Panasas.

Additionally DYNAmore offered several pre and post conference seminars in English language:
- "Corpuscular Method - Simulate Airbag Unfolding" given by Dr. J. Wang (LSTC),
- "ALE and Fluid-Structure Interaction in LS-DYNA", given by Prof. M. Souli (LSTC/University of Lille), and
- "Blast Modeling with LS-DYNA – Protective Structures, Vehicles, Security Threats" given by Paul Du Bois (Consultant) and Dr. Len Schwer (SE&CS).

DYNAmore would like to thank all presenters, delegates, and exhibitors as well as Siemens PLM Software as premium sponsor, Hewlett Packard, Microsoft, transtec/Panasas, and Virtual Vehicle as gold sponsors and 4a engineering, Arup, e-Xstream, and NEC as silver sponsors.

All presentations will be available on www.dynalook.com by end of the year. You may also be interested in the CD containing all presentations or in the conference proceedings. Please order by sending an e-mail to forum@dynamore.de (CD 20.– Euro, conference proceedings 80.– Euro*).
* plus VAT + shipping

Upcoming Conferences:
- 8th European LS-DYNA Conference, 23rd – 24th May 2011 in Strasbourg, France
- 10th German LS-DYNA Forum, 13th October 2011 in Filderstadt near Stuttgart, Germany

For questions please contact:
DYNAmore GmbH,
   Industriestr. 2, 70565
   Stuttgart, Germany
Tel: +49-(0)711-459600-0.
E-Mail: forum@dynamore.de,
Website: www.dynamore.de

Since 1995, FTSS has supplied the crash safety CAE community with innovative virtual dummies available in the non-linear structural codes LS-DYNA, PAM-CRASH, RADIOSS and ABAQUS.

Model Portfolio: These models are available in: LS-DYNA, PAM-CRASH, RADIOSS and ABAQUS

Frontal Impact Dummies
- Hybrid III 5th
- Hybrid III 50th
- Hybrid III 50th with THOR-LX Legs
- Hybrid III 95th

Side Impact Dummies
- EuroSID-1
- ES-2
- ES-2re
- SID-2s SBL "C"
- SID-2s SBL "D"
- SID-2s FRG
- SID-H3
- WorldSID 5th
- WorldSID 50th
- US-DOTSID

Rear Impact Dummies
- BioRID II

Child Dummies
- CRABI 12 Month
- Hybrid III 3YO
- Hybrid III 6YO
- Hybrid III 10YO
- Q3
- Q3s

Headforms
- Ejection Mitigation Headform
- Free Motion Headform
- ACEA Headform
- WG17 Child Headform
- WG17 Adult Headform

Pedestrian
- Flex-PLI-GTR
- WG17 Upper Legform
- WG17 Lower Legform

Barriers
- IIHS
- NHTSA
- AE-MDB
- EEVC ODB
- Advanced 2000

Aerospace
- Hybrid II 50th

Note: Some models are developed/owned by our partners Altair, ARUP, DYNAmore, ESI Group, and SIMULIA. LS-DYNA models are distributed by FTSS or our partners Alyotech, ARUP, DYNAmore, ERAB, JSOL or THEME depending on the region. RADIOSS models are distributed by Altair. PAM-CRASH models are distributed by ESI Group. ABAQUS models are distributed by SIMULIA
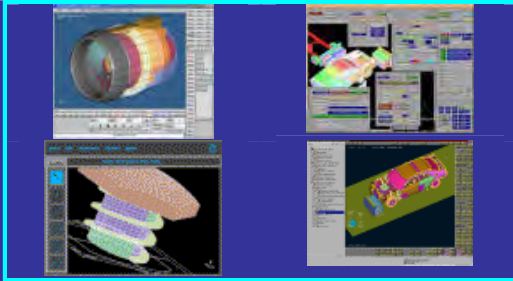
Pre-Processing

Post Processing

Model Editing

A preprocessor is a program that processes its input data to produce output. This data is then used as input to another program.

BETA CAE Systems S.A.

http://www.beta-cae.gr/

Provides complete CAE pre- and post-processing solutions. ANSA, the world wide standard pre-processor and full product modeler for LS-DYNA, with integrated Data Management and Task Automation. μETA, with special features for the high performance an effortless 3D & 2D post-processing of LS-DYNA results.

Engineering Technology Associates, Inc.

http://www.inventiumsuite.com

PreSys is an advanced Pre/Post Processor. PreSys is a full-featured, core solution that can be used on its own or with a variety of available add-on applications. The system offers advanced automeshing tools to provide the highest quality mesh with little CAD data preparation. It also features a scripting interface and model explorer feature for in-depth data navigation.

Oasys, Ltd

http://www.oasys-software.com/dyna/en/

Oasys Primer is a model editor for preparation of LS-DYNA input decks. - Oasys D3Plot is a 3D visualization package for post-processing LS-DYNA analyses using OpenGL® (SGI) graphics.

JSOL Corporation

http://www.jsol.co.jp/english/cae/

JVISION is a general purpose pre-post processor for FEM software. Designed to prepare data for, as well as support, various types of analyses, and to facilitate the display of the subsequent results.

Livermore Software Technology Corporation

http://www.lstc.com

LS-PrePostis an advanced interactive program for preparing input data for LS-DYNA and processing the results from LS-DYNA analyses.

Alpha Order by Country

Australia	Leading Eng. Analysis Providers - LEAP http://www.leapaust.com.au/ info@leapaust.com.au
Canada	Metal Forming Analysis Corp - MFAC http://www.mfac.com/ galb@mfac.com
China	ETA China http://www.eta.com.cn/ lma@eta.com.cn
China	OASYS Ltd. (software house of Arup) http://www.oasys-software.com/dyna/en stephen.zhao@arup.com
France	ALYOTECH TECH. http://www.alyotech.fr nima.edjtemai@alyotech.fr
France	ALLIANCE SVCE. PLUS - AS+ http://www.asplus.fr/ls-dyna v.lapoujade@asplus.fr
Germany	CADFEM http://www.cadfem.de/en lsdyna@cadfem.de
Germany	DYNAmore http://www.dynamore.de/ uli.franz@dynamore.de
Greece	PhilonNet Engineering Solutions http://www.philonnet.gr stavroula.stefanatou@philonnet.gr

India	OASYS Ltd. (software house of Arup) http://www.oasys-software.com/dyna/en lavendra.singh@arup.com
India	EASi Engineering http://www.easi.com/ rvenkate@easi.com
India	CADFEM Eng. Svce India http://www.cadfem.in/ info@cadfem.in
Italy	EnginSoft SpA http://www.enginsoft.it/ info@enginsoft.it
Japan	JSOL Corporation http://www.jsol.co.jp/english/cae cae-info@sci.jsol.co.jp
Japan	ITOCHU Techno-Solutions Corp. http://www.engineering-eye.com/ ls-dyna@ctc-g.co.jp
Japan	FUJITSU http://jp.fujitsu.com\solutions\hpc\app\lsdyna\

Korea	Theme Engineering http://www.lsdyna.co.kr/ wschung@kornet.com
Korea	Korea Simulation Technologies http://www.kostech.co.kr young@kostech.co.kr
Netherlands	Infinite Simulation Systems, BV http://www.infinite.nl/ j.mathijssen@infinite.nl
Sweden	Engineering Research AB http://www.erab.se/ sales@erab.se
Taiwan	Flotrend Corporation http://www.flotrend.com.tw/ gary@flotrend.tw
Russia	State Unitary Enterprise –STRELA info@ls-dynarussia.com

LS-DYNA Distributors

LS-DYNA is delivered with
LS-OPT
LS-PrePost
LSTC Dummy & Barrier Models

United Kingdom	OVE ARUP & PARTNERS http://www.oasys-software.com/dyna/en/ dyna.sales@arup.com
USA	Livermore Software Tech. Corp. - LSTC http://www.lstc.com/ sales@lstc.com
USA	Engineering Tech. Assc. Inc. – ETA http://www.eta.com/ sales@eta.com
USA	DYNAMAX http://www.dynamax-inc.com/ sales@dynamax-inc.com

FEA Consultants use a wide range of software simulation programs. Their expertise using specific programs for their customers offers the ability for controlling the modeling and analysis of structures, systems, products and many other applications. Consultants and Engineering Services are used by government, homeland security, court trials, and a number of industries needing to have outside sources for expertise in FEA

http://www.fea-consulting.com

North America

Located: Texas	Located: Connecticut
KBEC **Khan Bui** (512) 363-2739	**CAE Associates** **http://www.caeai.com** (203) 758-2914
Located: Oregon	Located: California
Predictive Engineering **http://predictiveengineering.com** George Laird, Ph.D., P.E (503) 206-5571	**Schwer Engineering** **http://schwer.net** Len Schwer (707) 837-0559
	Located: Ohio **AEG Product Engineering Svce.** http://engineering-group.com support@enginering-group.com

ETA – DYNAFORM & VPG

http://www.eta.com

Includes a complete CAD interface capable of importing, modeling and analyzing, any die design. Available for PC, LINUX and UNIX, DYNAFORM couples affordable software with today's high-end, low-cost hardware for a complete and affordable metal forming solution.

ETA – VPG

http://www.eta.com

Streamlined CAE software package provides an event-based simulation solution of nonlinear, dynamic problems. eta/VPG's single software package overcomes the limitations of existing CAE analysis methods. It is designed to analyze the behavior of mechanical and structural systems as simple as linkages, and as complex as full vehicles.

OASYS   software for LS-DYNA

http://www.oasys-software.com/dyna/en/

Oasys software is custom-written for 100% compatibility with LS-DYNA. Oasys PRIMER offers model creation, editing and error removal, together with many

specialist functions for rapid generation of error-free models. Oasys also offers post-processing software for in-depth analysis of results and automatic report generation.

ESI Group Visual-CRASH For DYNA

http://www.esi-group.com

Visual-Crash for LS-DYNA helps engineers perform crash and safety simulations in the smoothest and fastest possible way by offering an intuitive windows-based graphical interface with customizable toolbars and complete session support. Being integrated in ESI Group's Open VTOS, an open collaborative multi-disciplinary engineering framework, Visual-Crash for DYNA allows users to focus and rely on high quality digital models from start to finish. Leveraging this state of the art environment, Visual Viewer, visualization and plotting solution, helps analyze LS-DYNA results within a single user interface.

BETA CAE Systems S.A.— ANSA

http://www.beta-cae.gr

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 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

http://www.beta-cae.gr

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

http://www.hpcservers.com

CRAY XD1	Linux
HP PA-8X00	HP-UX 11.11 and above
HP IA-64	HP-UX 11.22 and above
HP Opteron	Linux CP4000/XC
INTEL IA32	Linux, Windows
INTEL IA64	Linux
INTEL Xeon	Linux Windows 64 bit
SGI Mips	IRIX 6.5 X
SGI IA64	SUSE 9 w/Propack 4 RedHat w/Propack 3

Vendor	O/S	HPC Interconnect	MPI Software
CRAY XD1	Linux		
HP PA8000	HPUX		
HPIA64	HPUX		
INTEL IA32	Linux, Windows	InfiniBand (Voltaire), MyriCom	Open MPI, MPICH, HP MPI, SCALI
INTEL IA64	Linux		Open MPI, MPICH, HP MPI
INTEL Xeon	Linux x86-64 Windows 64	InfiniBand (Topspin, Voltaire), MyriCom, PathScale InfiniPath	Open MPI, MPICH, HP MPI, INTEL ICR, SCALI
SGI Mips	IRIX 6.5 X	NUMAlink	MPT
SGI IA64	SUSE 9 w/Propack4 RedHat w/Propack 3	NUMAlink, InfiniBand (Voltaire)	MPT, Intel MPI, MPICH

FEA Information

http://www.ls-dynadummymodels.com

LSTC's Models

http://www.lstc.com/models/

Arup Cellbond Barrier Models

http://www.oasys-software.com/dyna/en/fe-models/barrier.shtml

Arup Pedestrian Impactor Models
http://www.oasys-software.com/dyna/en/fe-models/pedestrian.shtml

Arup RCAR Barrier Model

http://www.oasys-software.com/dyna/en/fe-models/rcar.shtml

DYNAMore Models for

http://www.dummymodels.com

LS-DYNA Dummy Mailing List

sarba@lstc.com

First Technology Safety Systems

http://www.humaneticsatd.com/virtual-models

SUPPORT SITES FOR LS-DYNA

The Official LS-OPT Support site

http://www.lsoptsupport.com

LS-OPT User's Group on Google

The intention of this group is to support LS-OPT users and to provide useful information according to LS-OPT. In addition, the user group provides the possibility to get in contact with other users and to share experience on the application of LS-OPT.

In order to subscribe to the group, please use the following (external) link:
https://www.google.com/accounts/ServiceLogin?service=groups2&passive=1209600&continue=http://groups.google.com/group/lsopt_user_group&followup=http://groups.google.com/group/lsopt_user_group

The Official LS-OPT Support site
[http://www.lsoptsupport.com] is jointly monitored by DYNAmore GmbH (Germany) and LSTC (US)

The LS-OPT support site was jointly developed to keep you updated with current information. During January 2010 the site will be updated with

"Getting Started"
A first place to stop for new users to view the LS-OPTui and the basic procedures of optimization with LS-OPT.

How To's
A collection of information and examples for several tasks with LS-OPT

Documents
A collection of documents related to LS-OPT, Optimization and Stochastics

Examples
This Section demonstrates LS-OPT capabilities by means of a series of examples

Glossary
Alpha order to view definitions such as Anova, Bias error, Iteration and other technical terms.

Downloads
Downloads specific to LS-OPT

FAQ's
Questions related to Optimization, Robustness and Reliability Analysis
    Answers are posted on the LS-OPT Support Site
    http://www.lsoptsupport.com/faqs

News
Latest news relation to, or about LS-OPT

For changes for accuracy please see the company websites.

France – AS+ www.asplus.fr

Sweden – ERAB

http://www.erab.se/courses/

Nov 3 LS-DYNA, Implicit training

Nov 9 LS-DYNA, Advanced training class in impact analysis with Paul du Bois

Nov 22 LS-OPT, Optimization and robust design with Dr. Jimmy Forsberg

India - CADFEM India

http://www.cadfem.in

Nov 18th   Introduction to LS-DYNA

Nov 25th   Contact Simulation with LS-DYNA

Nov 26th   Material Models in LS-DYNA

UK - Oasys

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

Contact: Katherine Groves
0121 213 3399
katherine.groves@arup.com .

For Full Course List and Dated:

http://www.dynamore.de/seminars/infodays

DYNAstart - Getting Started with LS-DYNA

Traboch, Austria, Nov 03, 2010
Stuttgart, Nov 10, 2010
Stuttgart, Dec 14, 2010

Support Day

Stuttgart, Dec 17, 2010

Introduction to Forming Simulation using LS-DYNA and ETA/DYNAFORM

Stuttgart, Nov 09, 2010

Visual-Crash DYNA - Environment for LS-DYNA

Stuttgart, Nov 24, 2010

Dynamic Material Characterisation using 4A Impetus

Stuttgart, Dec 01, 2010

Occupant Safety Support Day

Stuttgart, Dec 06, 2010

Current LS-DYNA Trends and Delevopments for Forming Simulations

Stuttgart, Dec 09, 2010

LSTC Course Coordinator: Cathie Walton
Cathie@lstc.com (248) 649-4728 x221

Course	Location	Start Date	End Date
LS-PrePost (no charge w/ Intro to LS-DYNA)	CA	11/15/2010	11/15/2010
Intro to LS-DYNA (3.5 days; 1/2 day Friday)	CA	11/16/2010	11/19/2010
LS-OPT (3-1/2 days; half day on Friday)	CA	11/30/2010	12/3/2010
Advanced Options in LS-DYNA	CA	12/9/2010	12/10/2010
LS-PrePost (no charge with Intro to LS-DYNA)	MI	12/13/2010	12/13/2010
Intro to LS-DYNA (3-1/2 days; half day on Friday)	MI	12/14/2010	12/17/2010
ALE Advanced Application	CA	12/15/2010	12/17/2010

2011

Course	Location	Start Date	End Date
ALE / Eurlerian & Fluid Structure Interaction	CA	02/16/2011	02/18/2011

Isogeometric Analysis 2011
www.ices.utexas.edu/iga
January 13-15, 2011, Austin Texas
Integrating Design and Analysis

Dr. David Benson dbenson@ucsd.edu

Contact: Ruth Hengst - e-mail ruthusacm@ices.utexas.edu

Geometry is the foundation of analysis yet modern methods of computational geometry have until recently had very little impact on analysis. The reason may be that Finite Element Analysis (FEA), as we know it today, was developed in the 1950's and 1960's, before the advent and widespread use of Computer Aided Geometric Design (CAGD), which occurred in the 1970's and 1980's. The CAGD – FEA interface gives rise to many problems.

Perhaps the most significant of all is the problem of translating CAGD files into analysis-suitable FEA geometry and meshing, reputed to take 80% of overall analysis time for complex engineering designs. The approximate, polynomial-based geometry of FEA also creates difficulties in modeling sliding contact, flows about aerodynamic shapes, buckling of thin shells, etc. It would seem that it is time to look at more powerful descriptions of geometry to provide a new and more efficient basis for analysis. An attempt to address these issues and improve on FEA has led to the introduction and development of Isogeometric Analysis, in which a single geometric representation is utilized for design and analysis. Among the approaches that have been proposed, those that

have demonstrated the most potential so far are Subdivision Surfaces, NURBS, and T-Splines. NURBS are the industry standard for CAGD systems used in engineering design. NURBS-based isogeometric analysis has already been applied to fluids, structures, fluid-structure interaction, phase-field modeling, electromagnetics, shape and topology optimization, material modeling (e.g., implicit gradient damage models), discrete and diffuse modeling of crack propagation, etc. T-Splines, which are a generalization of NURBS that allow efficient local refinement while maintaining higher-order continuity and exact geometry, have recently attracted increasing attention. The purpose of this workshop is to bring together experts in geometry and analysis interested in the development of the new generation of analysis procedures based on modern methods of computational geometry. The workshop will focus on:

- Analysis-suitable geometry
- Mathematics of isogeometric methods
- New isogeometric analysis technologies
- Applications
- Implementation and software
- History of CAGD and FEA

BETA CAE Systems SA -   Twitter account

Follow@betacae on Twitter to be updated on the latest news about our products, services and events. http://twitter.com/betacae

Read the new White Paper on ANSA Kinematics
Toll: http://www.beta-cae.gr/pdf/ansa_kinematics_tool.pdf
9:19 AM Oct 19th via TweetDeck .

RT @betacae: ANSA v13.0.5 CAD translators update announced
http://www.beta-cae.gr/news.htm
9:17 AM Oct 19th via TweetDeck .

mETA v6.6.2 release is announced
http://www.beta-cae.gr/news.htm
9:16 AM Oct 19th via TweetDeck .

ANSA v13.0.5 CAD translators update announced
http://www.beta-cae.gr/news
9:15 AM Oct 19th via TweetDeck

4th ANSA & μETA International Conference,
    June 1-3, 2011, Makedonia Palace, Thessaloniki, Greece

University of Chicago Orders Cray XE6 Supercomputer

The Beagle had landed in Chicago!

A new supercomputer for biomedical simulation and data analysis

CHICAGO, Ill. (Oct. 21, 2010) – The Computation Institute (CI) a joint initiative between The University of Chicago (UChicago) and Argonne National Laboratory (Argonne), is pleased to announce the introduction of Beagle, a 150 teraflops, 18,000-core Cray XE6 supercomputer that will support computation, simulation and data analysis for the biomedical research community. Made possible by a grant from the National Institutes of Health (NIH) National Center for Research Resources (NCRR), Beagle will be housed in the new Theory and Computing Sciences (TCS) building at Argonne and will be available for use by UChicago researchers, their collaborators and other meritorious investigators nationwide. "Innovative research requires access to the latest technologies," said NCRR Director Barbara Alving, M.D. "This high-performance tool will serve as a core resource that will help ensure scientists remain at the forefront of modern biomedical research."

The system is named after the HMS Beagle, the ship that carried Charles Darwin on his famous scientific voyage in 1831. While Darwin's Beagle enabled discoveries that established a unifying theory for all life sciences, the unique capabilities of UChicago's Beagle will enable transformative innovation in basic, translational and clinical research leading to improved diagnostic strategies and life-sustaining medical treatment. Beagle is scheduled to dock in the TCS machine room by the end of the year, with her maiden voyage, for early adopters, set for the 202nd anniversary of Darwin's birthday, February 12, 2011. The system should be placed into full production by the second quarter of the calendar year.

Ian Foster, director of the CI and principal investigator for the project, with UChicago's team of technical and domain specialists, identified the need for a powerful computational environment that would serve the growing resource-intensive requirements of the biomedical research community. "Computation is fundamentally changing the nature of research in most disciplines, and biomedical researchers with access to advanced computational resources are more likely to make transformative progress," said Foster.

"We are excited about the opportunity to advance the biomedicine research frontier and greatly appreciate the support of the NIH-NCRR for this initiative."

Twelve NIH-funded biomedical research teams, with more than 100 faculty, students, staff, and postdoctoral scholars from multiple research institutions, will be among Beagle's early adopters. Teams presented a case for additional and dedicated computing resources in support of research spanning multiple arenas, including the prevention and treatment of cancer, improved management of burn victims, better drug design, genetics and inherited disorders, and the development of patient-specific medicine. The vast diversity among the teams' research strategies will provide computational scientists, high-performance computing (HPC) consultants and systems administrators with a rich proving ground so that Beagle can be finely tuned for a range of biomedical research applications before going into full production.

"The convergence of whole-genome experimental data sets and digitalized clinical data from hospital patient records is changing the landscape of biomedical research," saidConrad Gilliam, dean for research and graduate education in the UChicago biological sciences division. "UChicago is poised to lead this exciting new phase of discovery with nationally recognized leadership in high-end computation, evolutionary genetics and genomics, and translational research, along with a history of interdisciplinary problem-solving. The arrival of Beagle will challenge our best minds as we forge new modes of inquiry to extract meaningful biological and medical information from these massive tomes of data," he added.

UChicago's Benoit Roux, with collaborators from Cornell University and the University of Maryland, and the additional researchers who supported this project, will be an early Beagle user. Roux, director of the Computational Core Facility of the Membrane Protein Structural Dynamics Consortium, which was recently funded by NIH, anticipates that Beagle will be an important resource for advancing scientists' understanding of several membrane proteins that play a critical role in human health because their malfunction is often the cause of disease. "To understand and comprehend how membrane proteins work, one must be able to visualize the manner in which these molecular machines move and change their shape, atom by atom, as they go about their business. Beagle will enable us to perform the detailed computations necessary to reach this goal," says Roux.

Beagle is anticipated to place among the top 50 fastest supercomputers in the world and will be one of the fastest systems fully devoted to life sciences. Beagle uses a unique combination of AMD multicore processors, Cray's powerful Gemini system interconnect, and 3D torus topology in an infrastructure designed to scale to more than 1 million processor cores. Following a thorough assessment of five different vendors' HPC solutions and two hybrid systems, Foster's team recognized Cray's reputation for scalability, reliability, flexibility and efficiency. Designed for scalability, with future investments, Beagle can be upgraded to achieve sustained petaflops performance.

"We are honored to provide UChicago and NIH with one of the world's most powerful life sciences supercomputers," said Barry Bolding, vice president of Cray's products division. "Cray specifically designs systems to improve scientific productivity, and we look forward to the important health-related research results that these innovative teams will produce with the aid of the Cray XE6 supercomputer."

About the University of Chicago and the Computation Institute

Founded by oil magnate John D. Rockefeller, UChicago is a private, nondenominational, coeducational institution of higher learning. Scientists at the University are working at the cutting edge of virtually every field of science, from cosmological astrophysics to molecular genetics and from high-energy particle physics to economics. Many recipients of the Nobel Prize have been researchers, students or faculty members at the University at some point in their careers.

The CI is a joint initiative between UChicago and Argonne. It is an intellectual nexus for scientists and scholars pursuing multi-disciplinary research, and a resource center for developing and applying innovative computational approaches. The CI is home to over 100 faculty, fellows, and staff researching complex, system-level problems in such areas as bioinformatics, biomedicine, neuroscience, genomics, metagenomics, energy and climate, astronomy and astrophysics, computational economics, and molecular engineering. TeraGrid, the world's largest, most comprehensive distributed cyberinfrastructure for open scientific research is managed by the CI team.

For more information, visit www.ci.uchicago.edu.

About Argonne National Laboratory and the Theory and Computing Sciences Building

With employees from more than 60 nations, Argonne brings the world's brightest scientists and engineers together to find exciting and creative new solutions to pressing national problems in science and technology. The nation's first national laboratory, Argonne conducts leading-edge basic and applied scientific research in virtually every scientific discipline. Argonne researchers work closely with researchers from hundreds of companies, universities, and federal, state and municipal agencies to help them solve their specific problems, advance America's scientific leadership, and prepare the nation for a better future. Argonne is managed by UChicago Argonne, LLC for the U.S. Department of Energy's Office of Science.

Argonne's Theory and Computing Sciences Building is home to all major computing divisions and computing resources at the Laboratory. The TCS building accommodates 650 residents and houses Argonne's research library, three computational research laboratories, a 25,000-square-foot machine room and the TCS Conference Center.

About the National Institutes of Health National Center for Research Resources

The NIH-NCRR provides laboratory scientists and clinical researchers with the resources and training they need to understand, detect, treat and prevent a wide range of diseases. NCRR supports all aspects of translational and clinical research, connecting researchers, patients and communities across the nation. For more information, visit www.ncrr.nih.gov.

About Cray, Inc.

As a global leader in supercomputing, Cray provides highly advanced supercomputers and world-class services and support to government, industry and academia. Cray technology is designed to enable scientists and engineers to achieve remarkable breakthroughs by accelerating performance, improving efficiency and extending the capabilities of their most demanding applications. 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 surpass today's limitations and meeting the market's continued demand for realized performance. Go to www.cray.com for more information.

For more information, please contact:
Vas Vasiliadis, Director, Products, Communication and Development Computation Institute
vas@ci.uchicago.edu
(773) 702-5376

Nov 3rd – Nov 5th 2010
Aachen, Eurogress

CADFEM GmbH

www.cadfem.de/en.html

Since 1985, the CADFEM brand has stood for ANSYS had a vast competence in CAE in Germany, Austria and Switzerland. Moreover, company shares and partnerships have led the owner-run CADFEM company to become a global player in CAE, e.g. in the US, in China, India, and Eastern Europe.

CADFEM Business Areas

CADFEM offers a complete portfolio of leading software tools for numerical simulations, including all product-supporting services, such as expert advice, seminars, and helpdesk. Furthermore, CADFEM is an engineering office with a highly-trained team of over 100 design analysts offering CAE consulting and software customization services.

CADFEM – CASE Studies
www.cadfem.de/en/case-studies/overview.html

Case studies can be located by:

Subjects
- Electromagnetics,
- Multiphysics,
- Structural Mechanics,
- Fluid Mechanics,
- Temperature Modeling,

Products
- ANSYS,
- AnyBody,
- DIGIMAT,
- ESAcomp,
- FTI,
- LS-DYNA,

- optiSlang,
- Virtual Paint Shop,
- WAON

Text Search
Additionally you have the capability of doing a text search.

Among the Case Studies:

Modeling, CFD and FEM Calculations of a Pressure Control Valve Using ANSYS Workbench

Geometry Modeling, One Way Fluid-Structure Interaction

Task: Grande Dixence S.A. in Sion (Switzerland) is a leading supplier of electrical power and owner of the Grande Dixence dam in the valaisian Alps, the tallest gravity dam in the world. They have to perform a revision campaign for the maintenance of several pressure control valves (large hydraulic installations that evacuate water in case of overpressure in the pipes). These devices are quite old and the present working conditions have changed since their installation. It is therefore necessary to know the new solicitations of the structure due to water flow. In order to understand this behavior, a

coupled one way fluid-structure simulation was performed.

Solution: The geometry was created with ANSYS Design Modeler based on 55 year old construction drawings. The fluid domain, including downstream pipe section was then transferred to ANSYS CFX. The new operating conditions were used to determine the model boundary conditions. With this CFD simulation, the pressure field in the fluid volume and on the internal walls of the ducts was calculated.

In order to assess structural integrity, a Finite Element Model (FE model) based on the structure of the device was built. The concrete surrounding the pipework was also considered. The pressure field obtained from the CFD calculation was used as load condition on the FE model. This allowed calculating the stress field in the structure using ANSYS Mechanical.

Customer Benefit: With the contribution of CADFEM (Suisse) AG, Grande Dixence S.A. knows the flow behavior in the pressure control valve and structure solicitations due to the new operating conditions. This allows Grande Dixence SA to identify the most solicited zones of the structure, which have to be carefully checked during the revision campaign.

http://www.cadfem.de/en/case-studies/overview/cs-id/202.html

Many people in our engineering community have interests that assist many countries, children, schools, supporting varied causes. My interest is the camaraderie between horses/children/adults. In my spare time I assist with the rehabilitation of horses. There are many people that assist Livermore Horses, with their time.

I'd like to take a moment on the publishing of the 10th year Anniversary of the FEA Information Engineering Journal and introduce you to my other passion, and some of the horses. Additionally, their trainers, volunteers, and the horses they work with.

Western Trainer, Tracy,
helping Melinda to train Prinz

Yanhua walking Quincy

Aislin getting ready for a show.
Prinz is sponsored by Guenter &
Margareta Mueller

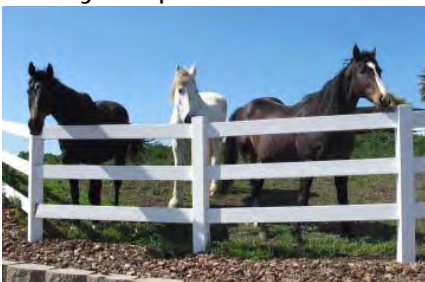Horse Therapist, Lori, helping Shane with a pulled neck muscle.

English Dressage Trainer,
Kylie, with Cody

Lila, walking Dusty
Dusty has a bad hip

Chiropractor, Barbie, adjusting
 Dusty's hip

Hero – Jack – Timber
All rescued – all now retired

Don, with Pajarito, our lead horse
(not a rescue)

Western Trainer, Tracy, w/Cajun
stepping over trail obstacles.

Rescued bunny that I kept.
My 9 pound bunny, Barcode

Paja – The Freedom To Run

TRAINING COURSE
LSTC

LS-DYNA ALE ADVANCED
APPLICATIONS TRAINING SEMINAR

Organizer: Cathie Walton (for administrative questions cathie@lstc.com)

Instructor: Ian Do, Ph.D. (for questions on class content ian@lstc.com)

_____

Course Objective

This application oriented seminar is to help users already familiar with LS-DYNA (and the ALE method) get more proficient at using the more complex features of ALE and fluid-structure interaction (FSI) modeling.

This is a ~2.5 day seminar. Day 1 is for reviewing some critical ALE features, FSI usage & basic concepts. In the remaining time more complicated examples are discussed. Simulation techniques for each model will be discussed. We will also discuss model fine-tuning and procedures for debugging models, such as ways to deal with FSI leakage. Boundary and initial conditions, mesh resolution design, etc. will also be covered. This is a hands-on training class.

A range of possible LS-DYNA ALE-FSI examples is shown below covering a wide area of applications. However, there will not be enough time to cover all listed examples. So depending on the interests of the attendees, the instructor will select some examples in the list below and discuss them in detail. Examples other than those listed may also be discussed to clarify certain modeling concepts when necessary. Please indicate the examples that are of interest to you upon registration so they can be prepared. All input files to models discussed will be made available to the attendees so that they can review them at their convenience.

Attendees are expected to conceptually construct the models discussed (pencil-paper approach).

Please note that due to the huge amount of output for the models and long run time, the attendees will not have time to run the models in class. The goal is to be able construct each model **conceptually**.

Result review may be done during the discussion of each model.

LIST OF POSSIBLE APPLICATIONS EXAMPLES

Basic Concepts (< 1 day):

(01) Introduction
(02) ALE Multi-Material Group (AMMG) concepts and applications
(03) Fluid-Structure Interaction (FSI) concepts
(04) Initial and boundary condition set up with ALE element formulation (ELFORM=11)
(05) Material failure modeling
(06) Information on typical unit systems and references

Possible ALE models to be discussed

(11) Soda can drop
(12) Tank sloshing and impact
(13) Extrusion
(15) Bird strike fan blade assembly model
(16) Projectile-target penetration modeling
(17) Simple flow in flexible tube
(21) Hydrostatic pressure initialization
(22) Wave impacting floating "ship" (simple model)
(23) Cylinder (Rocket booster) impacting water model
(27) Tanker floating and moving through water

There are a couple of examples related to modeling of energetic materials that are available and may be discussed depending on the attendees' interest (some restrictions will apply). Please contact Ian Do for more information on this.

JSOL CORPORATION

JSOL CORPORATION (JSOL)

The following services are offered, as a distributor of LS-DYNA, in Japan and a developer of CAE package software:

* Consulting of software application to fit user's environment and purposes
* Manuals and original reference books (both in Japanese)
* Technical support for the users by experienced staff
* Regular training classes

LS-DYNA & JSTAMP Forum 2010

Organizer: JSOL Corporation

Dates: Wednesday, December 1 -Thursday, December 2, 2010

Venue: Tokyo Conference Center Shinagawa (Tokyo, Japan)

http://www.tokyo-cc.co.jp/eng/access.html

URL: http://ls-dyna.jsol.co.jp/en/event/uc2010.html