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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.

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We would like to thank our Platinum Sponsors, on this 15th Anniversary of our publishing. Additionally, we thank all the participants, distributors, consultants, writers - without our sponsors we would not have one of technically excellent publications.

Not to miss in this issue:
ESI-Xplorer

LSTC 2D and 3D Trimming of Solids and Laminates

First keynote announced for the 14th LS-DYNA Conference

YouTube Tutorial ANSA for CFD PreProcessing

YouTube LS-DYNA Multiphysics Channel – Snow Accumulation

Don't miss sending in your abstracts to papers@lstc.com for presenting at the 14th International LS-DYNA Conference.

Kaizenat India – 2nd Nov. – For the first time in India, LS-DYNA conference with a Mobile App as a knowledge sharing platform

If you have any suggestions for our upcoming 16th year please feel free to let us know. mv@feainformation.com

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

FEA Information Engineering Solutions US Edition

ESI launches ESI-Xplorer, Systems Modeling Solution

ESI launches ESI-Xplorer, Systems Modeling Solution Integrated into its Visual-Environment platform

Enabling engineers to manage increasingly complex systems early in the product development lifecycle

Example of 0D-1D systems modeling in Visual-Environment illustrating how ESI-Xplorer can assist the design and development of architecture, systems, parts and controls for automotive powertrains.

> *"Managing the complexity inherent to advanced systems modelling requires mastering the architecture of the model, the multi-domain dynamic behavior, and the link between model, simulation and system engineering."* said **Dr. Emmanuel Arnoux** , expert in Systems Simulation, ADAS & Autonomous Driving Department at Renault. *"This is why system simulation software is becoming a necessity."*

ESI Group, pioneer and world-leading solution provider in Virtual Prototyping for manufacturing industries, launched ESI-Xplorer, a new systems modeling solution integrated into ESI's multi-domain simulation platform Visual-Environment. (Paris, France – July 30, 2015)

ESI-Xplorer is designed to address the needs of system engineers for systems design and analysis from the early stage of the product development process. ESI-Xplorer provides a complete model-based design platform, accounting for the physics involved, thus allowing engineers to accurately verify and validate system architectures. Integration of the product inside ESI's collaborative platform Visual-Environment enables manufacturers to bridge the gap between systems modeling (0D-1D) and product validation (3D).

ESI launches ESI-Xplorer, Systems Modeling Solution

Since acquiring CyDesign Labs Inc. in October 2013, ESI has worked on the integration of systems modeling into its product portfolio. ESI's area of expertise, Virtual Prototyping, offers manufacturers a disruptive approach to test and pre-certify their products while cutting cost and lead-time. The integration of ESI-Xplorer into ESI's Virtual Prototyping platform Visual-Environment extends the scope of system modeling to system verification and validation, including virtual manufacturing, assembling and testing.

Thanks to ESI-Xplorer, system architects and system modeling engineers can now perform complex systems modeling, across multiple domains. Furthermore, through Visual-Environment, ESI's collaborative and open engineering platform, co-simulation between systems modeling (0D-1D) and product validation (3D) is now enabled. Visual-

Environment enables the characterization of systems across multiple domains of physics – from crash test and passenger safety to mechanical, electrical, electronic, hydraulic, thermal control or electric power. Mathematically sound and user-friendly, ESI-Xplorer hides the complexity of the underlying physics while maintaining numerical rigor by using the open, non-proprietary, Modelica® language to define simulation models.

Furthermore, with the integration of ESI-Xplorer in ESI's Visual-Environment platform, users benefit from advanced functionalities enabling the storage and organization of mechanical models, control models and data across organizations. VisualDSS decision support system enables project workflow automation, lean work management, and simulation content management.

READ THE COMPLETE PRESS RELEASE

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LSTC 2D and 3D Trimming of Solids and Laminates

Xinhai Zhu, Li Zhang, Yuzhong Xiao

2D and 3D Trimming of Solids and Laminates

INTRODUCTION: New trimming features are available in LS-DYNA. The new features apply to solid elements and laminates. Laminates are defined as a core of multiple layers of solid elements with outer layers of shell elements. This keyword is not applicable to axisymmetric solids or 2-D plane strain/stress elements.

MAIN FEATURES

Trimming curve for 3D trimming of solids and laminates   : The requirement for trimming curves definition of solids and laminates in case of 3D trimming is different from that of shell trimming. The trim curve should be created based on solid element normal. If trim curve is created closer to the top surface, the variable TDIR should be set to 1; if closer to the bottom surface, set to -1, see Figure 1.

Normal directions of solid elements can be viewed using *LS-PrePost* starting in *version 4.2* with the menu option of *EleTol → Normal → Entity Type: Solid → By Part*, and set a large *V-Size*. In addition, when defining a trim curve for the 3D trimming of both solids and shells, the curve should be as close to the part as possible to enable a successful trimming. This is especially true if wrinkles are present in the panels to be trimmed. *LS-PrePost* can be used to project the curves to the part, via menu option: *GeoTol → Project → Closest proj → Project to Element*. The curves may need to be refined with more points before projection, using menu option: *Curves → Method: Respace → By number*. Sufficient number of points may be entered to capture the sheet metal surface contour.

TDIR definition in *DEFINE_CURVE_TRIM for 3D trimming of solids and laminates

Under the keyword *DEFINE_CURVE_TRIM, if the option **3D** is used, the variable TDIR will be used to indicate whether the trim curve is near the top or bottom surface of the solids or laminates (>Revision 101964). Set TDIR to "1" if trim curve is located near the top surface (default); otherwise set to "-1". This variable previously is only used in conjunction with 2D (option **NEW**) trimming.

LSTC 2D and 3D Trimming of Solids and Laminates

2D trimming of solid elements: As of revision 92088, 2D (option **NEW**) trimming in any direction (defined by a vector) of solid elements is available. An illustration of the 2D trimming is shown in Figure 2. A partial keyword example is provided below, where trim curves trimcurves2d.iges is being used to perform a solid element trimming along a vector defined along the global Z-axis.

```
*KEYWORD
*INCLUDE_TRIM
incoming.dynain
$---+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
*PARAMETER_EXPRESSION

*CONTROL_TERMINATION
$   ENDTIM
0.0
*CONTROL_OUTPUT

*DATABASE_XXX

*PART
 Solid Blank
$#     pid     secid       mid
  &blk1pid  &blk1sec  &blk1mid
*SECTION_Solid
&blk1sec,&elform
*MAT_PIECEWISE_LINEAR_PLASTICITY
...
$---+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
$   Trim cards
$---+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
*CONTROL_FORMING_TRIMMING
$      PSID
   &blksid
*DEFINE_TRIM_SEED_POINT_COORDINATES
$ NSEED,X1,Y1,Z1,X2,Y2,Z2
1,&seedx,&seedy,&seedz
$---+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
*DEFINE_CURVE_TRIM_NEW
$#    tcid    tctype      tflg      tdir     tctol      toln    nseed1    nseed2
         2         2         0         1   0.10000  1.000000         0         0
$# filename
trimcurves2d.iges
*DEFINE_VECTOR
$#     vid        xt        yt        zt        xh        yh        zh       cid
         1     0.000     0.000     0.000     0.000     0.000  1.000000         0
*INTERFACE_SPRINGBACK_LSDYNA
$      PSID
&blksid,&nshv
*END
```

Currently, 2D trimming of solids in some cases may be approximate. The trimming will trim the top and bottom sides of the elements, not crossing over to the other sides. This can be seen, for instance, trimming involving a radius.

LSTC 2D and 3D Trimming of Solids and Laminates

3D trimming of solid elements: As of revision 93467 3D trimming (option **3D**) of solid elements is available. From the previous input example, for 3D trimming, the option **NEW** is changed to **3D**, and trim curves trimcurves3d.iges is used for trimming. In the example below, the variable TDIR is set to "1" since the trim curve is on the positive side of the element normal. Since 3D trimming are along the element normal directions, *DEFINE_VECTOR card is no longer needed.

```
*DEFINE_CURVE_TRIM_3D
$#    tcid    tctype      tflg      tdir     tctol      toln    nseed1    nseed2
         2         2         0         1   0.10000  1.000000         0         0
$# filename
trimcurves3d.iges
```

Trimming of laminates: As of revision 92289 2D and 3D trimming of laminates becomes available. The laminate is defined by multiple layers of solid elements, sandwiched by a top and a bottom layer of shell elements. Note that the nodes of shell elements must share the nodes with solid elements at the top and bottom layers. An illustration of the trim is shown in Figure 3. The input deck is similar to those used for trimming of solid elements, except the new variable ITYP under *CONTROL_FORMING_TRIMMING should be set to "1" to activate the trimming of laminates in both 2D and 3D conditions:

```
*CONTROL_FORMING_TRIMMING
$---+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
$     PSID              ITYP
   &blksid                 1
```

In summary, the trimming input files for solids and shells are different in a few ways. For solids, *SECTION_SOLID is needed in place of *SECTIONSHELL. For laminates, in addition to setting the ITYP=1 in *CONTROL_FORMING_TRIMMING, both *SECTION_SHELL and *SECTION_ SOLID need to be defined. The trim curve for 3D trimming of solids and laminates needs to be defined as shown in Figure 1.

Lastly, in trimming of solids and laminates, only dynain file is written out (no d3plot files will be output).

REVISION INFORMATION SUMMARY

1. Revision 92088: 2-D **(**option **NEW**) trimming of solid elements is available.
2. Revision 92289: 2-D and 3-D (option **3D**) trimming of laminates is available.
3. Revision 93467: 3-D trimming of solid elements is available
4. Revision 101964: TDIR definition activated for 3D trimming of top and bottom surfaces of solid elements and laminates.
5. Revision 92289: ITYP added for laminates trimming.
6. Latter Revisions may incorporate more improvements and are suggested to be used for trimming.

SUMMARY

In summary, 2D and 3D trimming of solids and laminates are enabled, creating a new capability for accurately simulating sheet metal forming with solids and laminates. Suggestions and improvement ideas from our users are encouraged.
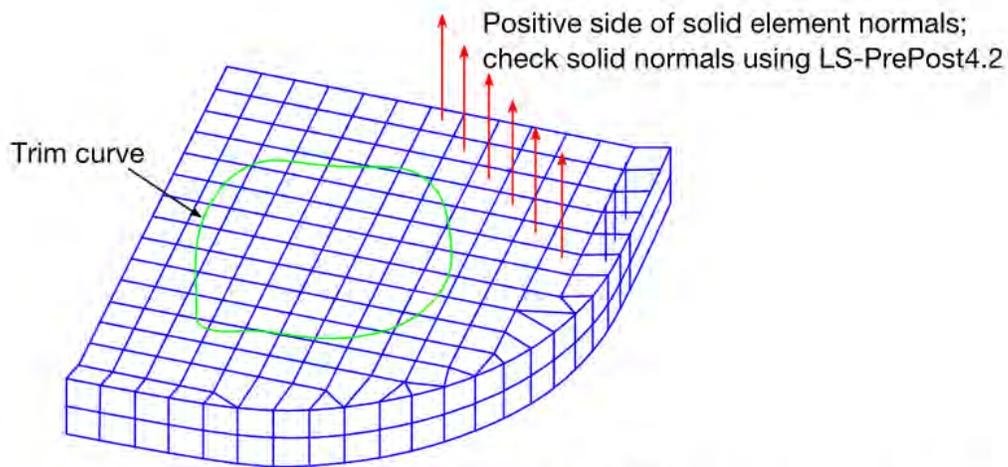
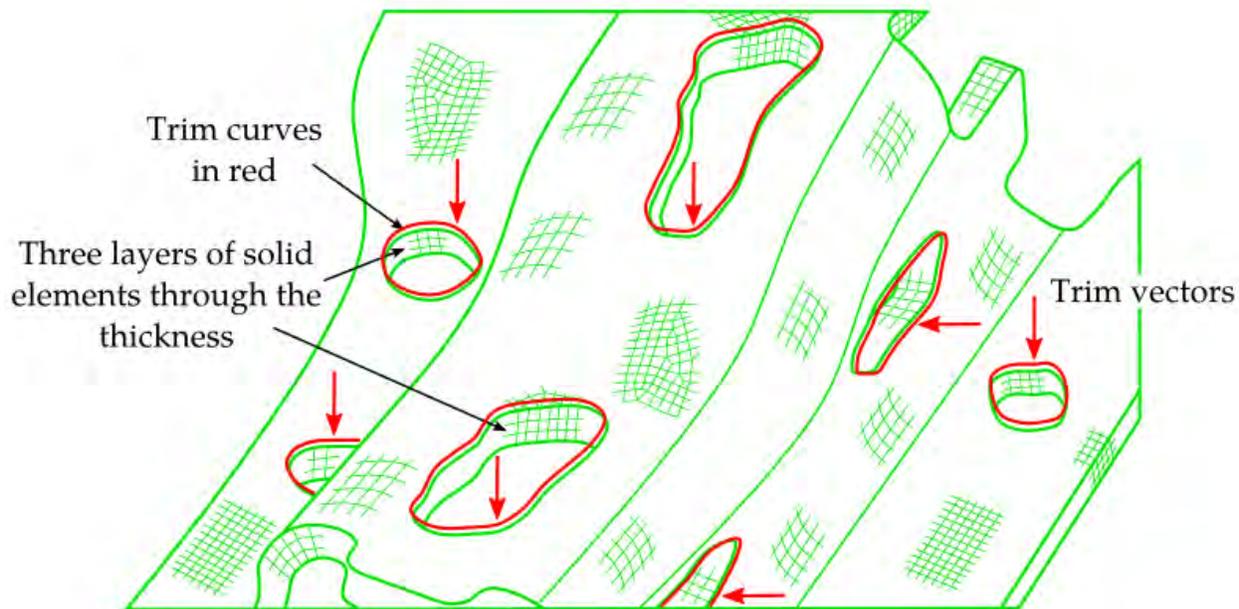Figure 1. Trim curve definition for 3-D trimming of solids and laminates.

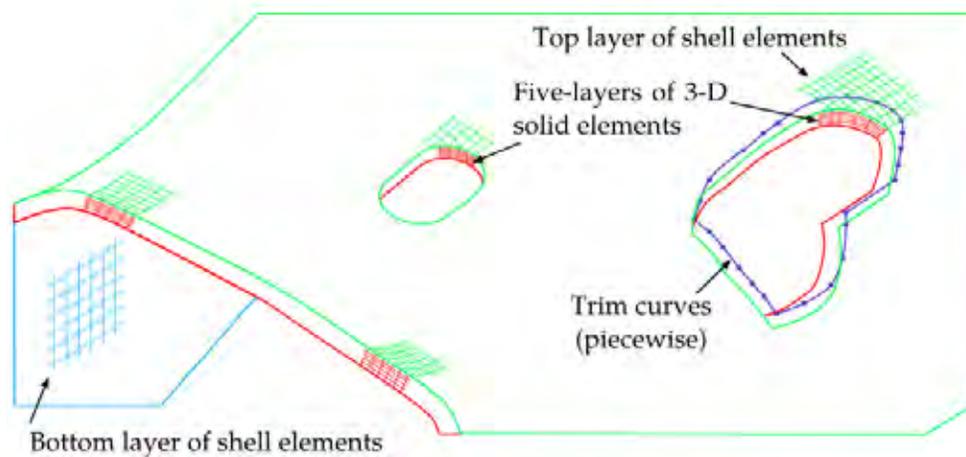Figure 2. 2D trimming (option NEW) of solid elements.

Figure 3. 3D trimming (option 3D) of laminates.

BETA CAE Systems announces the release of the v16.0.1 of its software suite

About this release
BETA CAE Systems S.A. announces the release of the maintenance version 16.0.1 of the ANSA / Epilysis / µETA suite.

This maintenance release is focused on the correction of identified problems and issues for the ANSA, Epilysis & µETA , while new features have also been added to enhance the capabilities of the v16x branch.

The ANSA / Epilysis / µETA v16x suite, brings BETA CAE Systems software suite to a new dimension, by providing complete solutions in the CAE field. Loyal to our commitment to deliver best-in-class software, we achieve our goal by introducing the new solver Epilysys, as well as by providing new tools and functions per domain and per discipline.

The 16x version of the ANSA pre- processor provides full compatibility with previous major versions. As with every major release, a broad range of new features and enhancements to existing ones add value to our solutions, reinforce overall process consistency, accelerate user performance, and provide a considerable boost on productivity.

The Epilysis solver is the new addition to the BETA CAE Systems analysis tools family and is available with the ANSA / Epilysis / µETA suite. Named after the Greek word for solution, it operates as a solution in the field of Finite Element Analysis embodying the accumulated knowledge from 25 years of collaboration with the CAE community. Epilysis covers numerous solution types and intends to bridge the gap between pre- and post- processing for disciplines such as Structural, NVH, Optimization, and more.

T

he v16x version of the µETA post-processor builds upon the tools available in previous releases, now supporting an increased array of new interfaces including Epilysis, the in-house solver of BETA CAE Systems, as well as enhancing the multi-disciplinary tools for crash, durability, CFD and NVH.

The most important additions and fixes implemented in v16.0.1 are listed below.

Contents: Understanding the Software Release Schedule

Understanding   the   Software   Release Schedule
The plan: We are committed in delivering improved and enhanced software releases, the soonest possible, in order to meet the requirement of our customers for the continuous improvement of their experience and work. Therefore, we are working in releasing new software versions with code corrections, new software features and enhancements, in regular, frequent intervals.

- A major software version is released every year.

- First point releases, such as v16.1.0, v16.2.0, v16.3.0 and so on, with code corrections but also with additional software features and enhancements are released every three months.
- Second point releases, such as v16.0.1, v16.0.2 etc. mainly with code corrections only upon their parent first point release, are scheduled on a monthly basis.

Each software release is accompanied by a detailed   description   of   the   introduced corrections   and/or   additions   so   that   our customers can decide whether it is critical to implement this release in their environment.

This release: This release of v16.0.1 brings additional features and code corrections on v16.0.0.

New features in ANSA
CAD Translators
- The CT_2015_SP2 library has been included in this version.
- CATIA V5-6R2015 (a.k.a R25) files are now supported.

Known issues resolved in ANSA

- CAD Translators: In certain cases the translation procedure would not initiate.
- CATIA R24 files would be reported as CATIA R22.
- When a file's path name exceeded a certain number of characters, unexpected termination could occur when attempting to translate the file.

Assembly & Connections: Connection Manager: The highlight of Connectivity group would not work in some cases.

Parts Manager: When replacing parts, the internal GEBs and connections might not be applied at the replaced model.

Shell Mesh: Intersect>Solid Description: Occasionally the resulting elements could be quads despite selecting tria in options.

When applying Reconstruct or Smooth, line elements type might change.

Batch Meshing: Running session through script could lead to unexpected termination.

Volume Mesh: When tria elements existed in the source area, applying the "Extrude" function with option "Snap to target bounds" enabled, could cause unexpected termination.

Check: Negative Volumes: The number of violating elements reported by the check was different to the number reported by the Negative Volume quality criterion.

Data Management: JT viewer: The parts were occasionally wrongly positioned.

Known issues resolved in Epilysis

- The solution SOL101 analysis with CWELD elements might not be completed properly.
- Some calculation results of the solution SOL112 might be missing.
- Occasionally the SOL111 would end with unexpected errors.
- For more details about the new software features, enhancements and corrections please, refer to the Release Notes document.

New features in µETA

Toolbars

- A new toolbar, named Correlation Analysis, has been added to calculate the correlation between two time history signals.
- The Pedestrian toolbar now supports the creation of the official EuroNCAP spreadsheet.
- The CompositePost toolbar can calculate failure for Abaqus C3D solid elements.

Known issues resolved in µETA

Supported Interfaces

- In certain cases Abaqus first principal tensor results were not read correctly.
- Reading Nastran .op2 files with PBMSECT or PBRSECT beam cross-sections could lead to unexpected termination.
- When reading Nastran .op2 files, non-linear quad elements would not be read correctly and unexpected termination could occur.

- Wrong ANSYS nodal results were read from files that did not contain data for all nodes.
- Reading LS-DYNA Discrete Element Sphere results could cause unexpected termination.
- Reading LS-DYNA binout files via session command could cause unexpected termination.
- In certain cases Sets and Rigid bodies were not read correctly from Pamcrash .pc files.
- Certain Pamcrash .erfh5 files might not be read correctly.

General

- Unexpected termination could occur while changing element color on multiple models simultaneously.
- Unexpected termination could occur when a range of non-existing Pids or Mids was used in a command.
- Stress Linearization would not function correctly for no-value shells attached to solids.

Section Forces

- Unexpected termination could occur when calculating section forces from RADIOSS results.
- The calculation of section forces was not correct for ANSYS pyramid and certain 2nd order elements.
- The Force Balance table would display the results of the previously selected section instead of that currently selected.

Curve Functions

- Unexpected termination could occur when applying Inverse FFT on certain curves.
- The tibia index crash criterion would not be calculated from session command.

NVH Calculators

MPC connectors calculation issue, by the FRF Assembly tool, has been fixed. The Modal/FRF Correlation tool could not read frequency response results from certain UNV58 files.

Project Files

- Differences could exist in results after saving and opening a project with user defined results.
- Projects saved with the "16.0.0" option could not be opened by previous versions.
- Project files were unreadable if saved with the "Save visible" option.
- The option Compression>Lossy>Simplify Solids would always save the same number of Hexas regardless of the percentage set.

Compatibility and Supported Platforms

- ANSA files saved by all the first and second point releases of a major version are compatible to each other. New major versions can read files saved by previous ones but not vice versa.
- The .metadb files saved with µETA version 16.0.1 are compatible and can be opened by earlier versions of µETA.
- Support for 32-bit platform has been discontinued for all operating systems.
- The support of Beta Lm Tools on Unix systems (SGI Irix, Sun Solaris, HP-UX, IBM AIX) was discontinued.

Where to download from: Customers who are served directly by BETA CAE Systems, or its subsidiaries, may download the new software, examples and documentation from their account on our server. They can access their account through the "user login" link at our web site.

Contact us if you miss your account details. The [PublicDir] link will give you access to the public downloads area.

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

What to download: All files required for the installation of this version reside in the folder named "BETA_CAE_Systems_v16.0.1" and are dated as of October 7, 2015. These files should replace any pre-releases or other files downloaded prior to that date.

The distribution of this version of our pre- and post-processing suite is packaged in one, single, unified installation file, that invokes the respective installer and guides the procedure for the installation of the required components.

For the installation of the software on each platform type, the.sh installer file residing in the folder with respective platform name, for Linux and MacOS or the respective .msi installer file for Windows, 64bit, have to be downloaded.

In addition to the above, optionally, the μETA Viewer is available to be downloaded for each supported platform.

The tutorials and the example files reside in the folder named "TUTORIALS". This folder includes the complete package of the tutorials and example files, and a package with only the updated ones.

The Abaqus libraries required for the post-processing of Abaqus .odb files are included in the installation package and can be optionally unpacked.

Earlier software releases are also available in the sub-directory called "old" or in a folder named after the product and version number.

KAIZENAT LS-DYNA Conference & Training India

Contact Kaizenat for complete Invitation

The following are highlights of the conference – please contact Kaizenat for locations and times.

support@kaizenat.com

2nd Nov.

For the first time in India, LS-DYNA conference with a Mobile App as a knowledge sharing platform

- **Keynote: Recent Global Trends in Digital Product Development and Manufacturing Sridhar Subramanyam, Director, Rise-es Inc., USA**

- "LS-DYNA - New Developments - Suri Bala, Sr. Scientist, LSTC"
- "LS-OPT -New Developments - Anirban Basudhar, Sr.Scientist, LSTC"
- "d3VIEW - A Data to Decision platform - Suri Bala, Sr.Scientist, LSTC"
- "LS-TaSC - New Developments - Anirban Basudhar, Sr.Scientist, LSTC"
- "First Impact Validation Using CPM Method - Mohan Badu & Balaji Vikram, Autoliv India Pvt Ltd."
- "Mechanism and DES particle simulation for material handling equipment using LS-DYNA
- Kathiresan Ganesan, FLSmidth Ltd."
- Virtual Analysis of Fluid-Structure Interactions of Stent Implantation in Image-based Artery Models using LS-DYNA ICFD solver -- Albert Einstein & Sreeja V, Einnel Technologies Pvt Ltd
- Topology optimization using LS-TaSC &   Trimline development and Opimization using LS-PREPOST   - Vijay Bhaskar, Jyoti Technical Services Pvt. Ltd.
- Total Human Model for Safety – THUMS - JSOL & Kaizenat
- Development of bench test through FEA simulation and Test data correlation for school bus fuel tanks   - Manoj Purohit, Tech Mahindra Ltd.

Kyoto University's Yukawa Institute for Theoretical Physics Awards Supercomputer Contract to Cray

SEATTLE, WA -- (Marketwired) -- 09/29/15 -- Global supercomputer leader Cray Inc. (NASDAQ: CRAY) today announced the Company has been awarded a contract to provide a Cray® XC40™ supercomputer to the Yukawa Institute for Theoretical Physics (YITP) at Kyoto University in Japan.

The Yukawa Institute for Theoretical Physics is one of the world's premier institutions and is renowned for pioneering research in contemporary theoretical physics. The institute is named in honor of the first Japanese citizen to win the Nobel Prize, Kyoto University Professor Hideki Yukawa, who was awarded the Nobel Prize in Physics in 1949. In 2008, YITP's then director, Toshihide Maskawa, was also awarded the Nobel Prize in Physics.

The two-cabinet Cray XC40 system will provide the YITP user community with a supercomputer that occupies one-fourth of the physical footprint of the Institute's previous system and a 4x improvement in overall compute performance. The liquid-cooled system will power a wide range of theoretical physics research at YITP, such as astrophysics, nuclear physics and particle physics, and will also serve as a shared supercomputing resource supporting theoretical physicists all across Japan.

"Our new Cray supercomputer significantly increases our high performance computing capabilities, and is also easy-to-use and energy efficient," said Professor Shinya Aoki. "A large scale numerical approach is becoming much more important in the field of fundamental physics and we believe this new system will contribute to the success of our researchers. The Cray system will also play an important role in our collaboration with the High Performance Computing Initiative in Japan."

"The researchers and scientists at YITP are performing ground breaking physics research and taking on some of the grandest challenges in the field," said Mamoru Nakano, president of Cray Japan. "We are honored that this important research taking place at such a highly regarded institution will be done on a Cray XC40 supercomputer. We have enjoyed a strong partnership with Kyoto University, and we are pleased that our collaborative relationship will continue."

Cray has a proud history of providing supercomputers to the diverse user community at Kyoto University. In 2011, the University's Academic Center for Computing and Media Studies selected a Cray® XE6™ supercomputer and a Cray® XC30™ supercomputer. The new Cray XC40 system is expected to be delivered to YITP in 2015.

Cray XC40 supercomputers are engineered to meet the performance challenges of today's most demanding HPC users. Special features of the Cray XC40 supercomputer include: the industry-leading Aries system interconnect; a Dragonfly network topology that frees applications from locality constraints; optional DataWarp applications I/O flash SSD accelerator technology; innovative cooling systems to lower customers' total cost of ownership; the next-generation of the scalable, high performance and tightly integrated Cray

Linux Environment that supports a wide range of applications; Cray's HPC optimized programming environment for improved performance and programmability, and the ability to handle a wide variety of processor types, including Intel® Xeon® processors, Intel® Xeon Phi™ coprocessors, and NVIDIA® Tesla® GPU accelerators.

For more information on the Cray XC™ series of supercomputers please visit the Cray website 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.

Safe Harbor Statement: This press release contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934 and Section 27A of the Securities Act of 1933, including, but not limited to, statements related to the timing and delivery of the system purchased by YITP and Cray's ability to deliver a system that meets YITP's requirements. These statements involve current expectations, forecasts of future events and other statements that are not historical facts. Inaccurate assumptions and known and unknown risks and uncertainties can affect the accuracy of forward-looking statements and cause actual results to differ materially from those anticipated by these forward-looking statements. Factors that could affect actual future events or results include, but are not limited to, the risk that the system required by YITP is not delivered in a timely fashion or does not perform as expected and such other risks as identified in the Company's quarterly report on Form 10-Q for the quarter ended June 30, 2015, and from time to time in other reports filed by Cray with the U.S. Securities and Exchange Commission. You should not rely unduly on these forward-looking statements, which apply only as of the date of this release. Cray undertakes no duty to publicly announce or report revisions to these statements as new information becomes available that may change the Company's expectations.

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

Source: Cray Inc.: 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.

TOPCRUNCH Benchmark by DYNAPOWER

Problem: ODB-10M

Topcrunch Benchmark:

  DYNAPOWER Corp.

  M.Makino

BENCHMARK DETAILS

1. **Computer** System: Xeon
  a.   Vendor: Intel
  b.   CPU Inerconnects: QPI
  c.   MPI Library: Platform MPI
  d   Processor: Intel(R) Xeon(R) CPU E5506
  e.   Number of nodes: 32
  f.   Processors/Nodes: 2
  g.   Cores Per Processor: 4
  h.   #Nodes x #Processors per Node #Cores

Per   Processor = 256 (Total CPU)

  i.   Operating System: CentOS release 5.3

2. **Code Version**: LS-DYNA

3. **Code Version Number**: 6.1

4. **Benchmark problem**: ODB-10M

Topcrunch Benchmark:DYNAPOWER Corp.

  M.Makino

5. **Wall clock time**: 82281

6. **RAM per CPU**: 6

7. **RAM Bus Speed**: 1333

8. **BenchmarkRun in Single**

  or Double Precision: Single

9. **Benchmark Run SMP or MPP**: MPP

10. **System Dedicated/Shared**: Dedicated

11. **Location**: LSTC

12 **Submitted** by: Dr. Makino Mitsuhiro

13 .**Submitter** Organization: Dynapower

Penguin Computing Remote Visualization

https://pod.penguincomputing.com/

Penguin Computing

Remote Visualization

Remote Visualization

Eliminate the need to migrate large data to and from the cloud by using our Remote Visualization solutions -- providing browser-based, 3D remote desktops so that you can pre and post-process your results directly in your cloud computing environment.

•No Installation needed
•High performance 3D desktops
•Low bandwidth requirements
•Runs directly through your browser

Tutorials – webinars – updates

ANSA for CFD PreProcessing

This video offers an introduction of the use of ANSA for CFD pre-processing through a live demonstration.

It starts with the ANSA GUI description and proceeds with a quick example of geometry import, clean up and shell meshing. It concludes with the demonstration

ANSA Tutorials - How To Guides
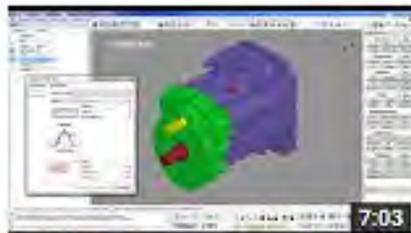
ANSA Feature Creation & Feature Modification   7:03

Introduction to the ANSA Batch Meshing   6:08

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

J-OCTA 10th anniversary
J-OCTA Users Conference 2015
November 27, 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

FEA Information Inc., D3View and the following FEA Information Participating LS-DYNA distributors will be hosting the Welcome Reception at the 14th International LS-DYNA Conference .

During the reception each participant will be announced giving you the opportunity to meet and know the 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
- ARUP China

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

From the UK
- ARUP UK

FEA Information Editors – Marsha Victory & Marnie Azadian

Keynote speaker Paul DuBois who will be presenting a joint presentation at the conference:

A new versatile tool for simulation of failure in LS-DYNA and the application to aluminum extrusions

· **Paul Du Bois, Consulting engineer**
· **Dr. Tobias Erhart, Dr. Filipe Andrade, Dr. Andre Haufe, Dynamore GmbH**
· **Drs. Frieder Neukamm, Dr.Markus Feucht, Daimler AG**

Presentation Contents

· **Aluminium extrusions**
· **Material modeling of Aluminium extrusions**
· **Concept of a generalized failure model**
· **Example of anisotropic damage**
· **Example of volumetric/deviatoric damage**
· **Plane stress anisotropic failure : directional dependency upon the state of stress**
· **Failure model for aluminium extrusion**
· **Example of a bumper component**
· **Conclusions**

14th International LS-DYNA Users Conference

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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Prof. Shi Yongjiu, Dean, School of Civil and Hydraulic Engineering at Tsinghua University and Prof. Dr. Ing. Hans Georg Engel, Head of R&D, Platform Management, Purchasing & Supplier Quality China are signing the contract about the continuation and further expansion of the research cooperation for sustainable transportation between Daimler Greater China and Tsinghua university in Beijing in presence of Winfried Kretschmann, Prime Minister of Germany's federal state of Baden-Württemberg

·   Contract signed about the continuation and further expansion of the research cooperation in the presence of Winfried Kretschmann, Prime Minister of Germany's federal state of Baden-Wuerttemberg

·   Initial project focus on studying China-specific traffic behavior, vehicle safety and traffic information technologies now extended by IT innovation and joint education and research internship projects.

·   Prof. Dr. Ing. Hans Georg Engel: "Through our partnership with Tsinghua University, one of China's leading academic institutions, we will be even better able to optimize our products for use on China's roads."

In September 2012, Daimler Greater China and Beijing's renowned Tsinghua University started a joint Research Center for Sustainable Transportation. In the presence of Winfried Kretschmann, Prime Minister of Germany's federal state of Baden-Wuerttemberg, on Monday both parties signed a contract about

the continuation and further expansion of the research cooperation for another 3 years.

"The signing with Tsinghua University reiterates our commitment to better understand China and the needs of our customers", said Prof. Dr. Ing. Hans Georg Engel, Head of R&D, Platform Management, Purchasing & Supplier Quality China. "Through our expanded partnership with Tsinghua University, one of China's leading academic institutions, we will be able to even better optimize our products for use on China's roads and so furthermore meet our Chinese customers' specifications within our future product development."

Today, Kretschmann together with Dr. Nils Schmid, Deputy Prime Minister and Minister of Finance and Economics, visited Mercedes-Benz's production facility in China, Beijing Benz Automotive Co., Ltd. (BBAC) where the C-Class, E-Class, GLA, GLK as well as engines are being locally produced in China and for China.

Daimler and Beijing's Tsinghua University expand Research Cooperation in China

About the Tsinghua University Daimler Joint Research Center for Sustainable Transportation The Research Center, funded by an annual contribution of more than 3 million RMB by Daimler, is supporting future-oriented research projects relating to sustainable transportation in the China-specific road environment context. This includes since 2012 active and passive safety systems, accident research, integrated traffic information services, vehicle infrastructure integration as well as megacity traffic and regulation research. With today's signing the work scope of the Research Center has been extended by IT innovation, including Virtual Reality Technologies, and joint education and research internship projects, which target both young Chinese and international talents. Together with Daimler's R&D experts in China, experienced scholars from Tsinghua University are co-leading all these research projects to contribute their strong local R&D capability and know-how. In addition, Tsinghua students are also involved in the projects, facilitating training and development of local talents in these fields.

"The Tsinghua-Daimler Center for Sustainable Transportation Research is a perfect collaboration between a first-class university and an outstanding company," added Prof. Shi Yongjiu, Dean, School of Civil and Hydraulic Engineering. "Such collaboration can leverage the top-level research capabilities with the most advanced industrial experiences and skills. I am confident that our win-win partnership can make a significant contribution to the scientific research, product development, and student educations in the field of sustainable transportation."

The expanded research collaboration with Tsinghua University again shows Daimler's clear commitment to R&D activities in China. Among the most recent milestones is the opening of the Mercedes-Benz Research & Development Center in China in November 2014 with a full-fledged Advanced Design Studio at its core. By the end of 2015, over 500 highly qualified engineers and designers will be working at the new R&D Center. In total, Daimler has most recently invested about 865 million RMB in its local passenger car R&D network in Beijing.

Focus RS Engineers Drop the Hammer: Hot Hatch Buyers to Get Monstrous Output of 350 Horsepower, 350 Lb.-Ft.

- Unique 2.3-liter EcoBoost® engine powering all-new Focus RS certified at 350 horsepower at 6,000 rpm on way to 6,800-rpm redline
- Exclusive Focus RS turbo makes peak boost of 23.2 psi, with peak torque certified at 350 lb.-ft. at 3,200 rpm
- Innovative Focus RS feature restarts engine for drivers in the event of a stall

DEARBORN, Mich., Oct. 12, 2015 – The unique EcoBoost® engine in the all-new Focus RS will produce 350 horsepower – far exceeding original estimates of 315 – along with 350 lb.-ft. torque.

And yet even with all that torque, the manual-only hot hatch will be especially forgiving in the event a driver stalls the engine, as Focus RS will debut with a trick feature called stall recovery. In other words, there will be no need for drivers to manually restart the engine or move the gear selector to neutral as the innovative technology allows the driver to simply push the clutch back in after a stall and the engine will restart.

"We knew we wanted to put start-stop technology on the RS," explained Tyrone Johnson, engineering and vehicle manager, Ford Performance Europe. "So we said, 'What if we went one step further, and controlled for engine stall at launch using the same technology?' Well, that's exactly what we did and it's just as fast as our start-stop technology."

The monster output the Focus RS engine achieves is due to its all-new low-inertia twin-scroll turbocharger with a larger compressor wheel that delivers more airflow and power throughout the rev range. Peak turbocharger boost is 23.2 psi.

Backing up this increased output is a large intercooler to maximize charge density. Air itself is delivered through a low-restriction intake manifold on the front end with a high-performance exhaust. The system includes an electronically controlled valve that optimizes back pressure and exhaust volume level.

Stout, high-tensile cast-iron cylinder liners are used to enhance the robustness of the engine, while a high-performance head gasket brings improved thermal capability.

Additional space created in the front of the car allowed engineers to deploy a larger radiator than what's used on other Focus models for enhanced cooling.

Despite the engine's high output of 152 horsepower per liter, RS engineers tuned this EcoBoost to deliver right off idle all the way on up to a free-spinning 6,800 rpm, with an especially chunky midrange power delivery.

Focus RS is the latest car to be unveiled as part of a new golden age of Ford Performance. The plan calls for bringing more than 12 high-performance vehicles to market worldwide through 2020.

Developed by a small team of Ford Performance engineers in Europe and the United States, the third-generation Focus RS follows on the heels of the much-loved models launched in 2002 and 2009. The 2016 Focus RS is the 30th car globally to wear the vaunted RS badge, joining such legendary models as the 1970 Escort RS1600, the 1984 mid-engine RS200 Group B rally car, 1985 Sierra RS Cosworth and 1992 Escort RS Cosworth.

Production of Focus RS with 2.3-liter EcoBoost begins later this year.

First Toyota Mirai Owners Get a Jump on the Future Hydrogen Fuel Cell Vehicle's Arrival Celebrated with "Back to the Future" Bash and Video Release

October 21, 2015 - TORRANCE, Calif. (Oct. 21, 2015) – Movie magic sometimes turns into technological reality. Last night more than 300 new Toyota Mirai owners, Mirai dealers and special guests watched actors Michael J. Fox and Christopher Lloyd bring a famous trash-into-fuel scene from "Back to the Future Part II" into the present.

The occasion: a celebration to mark the U.S. arrival of Toyota's Mirai hydrogen fuel cell vehicle — a modern, real-life version of Doc Brown's trash-fueled technology. The "Fueled by the Future" video debuted at the event is the last in the "Fueled By Everything" online video series demonstrating hydrogen fuel's potential to be sourced from almost anything, including solar, wind and trash.

Today marked the official on-sale date of the Mirai, the same date that was "the future" in the storied Universal franchise. More than 2,000 people so far have requested to buy a Mirai in California, where it is first available. The party celebrated those trailblazers with food, décor and conversation inspired by the "Back to the Future" vision of 2015. New owners representing each of the dealership locations in Southern and Northern California received ceremonial keys. They will be behind the wheel soon.

"A piece of the future is now a reality with the Toyota Mirai," Lloyd said. "Compared to some other technologies predicted in the film, like rehydrated pizza or self-tying shoes, this technology has the real potential to change the world."

"Back to the Future" films will be in theaters on October 21 only and also available in a new Blu-Ray and DVD box set. While drivers can't exactly throw soda cans and banana peels into the Mirai fuel tank and expect to cruise the roads of California, organic waste can decompose and produce biogas at landfills. This gas can be purified into and converted into hydrogen for fuel. The only emission from the Mirai's tailpipe is water.

At the Mirai premiere event, attendees got to put this technology in context with a discussion led by CNET Editor-at-Large Brian Cooley with participants Nerdist CEO and host of @midnight Chris Hardwick, Jackie Birdsall, Mirai engineer, and Edward Eyth, the creative designer responsible for many of the "Back to the Future II" concepts. Celebrity chef Richard Blais set the tone with a custom cocktail inspired by the future.

"This moment celebrated the intersection between the U.S. arrival of the Mirai and the 30th anniversary of an iconic film," said Bill Fay, Toyota division group vice president and general manager. "We were thrilled to mark the occasion with a video featuring the film's original stars Michael J. Fox and Christopher Lloyd, reminding our first Mirai owners that they will be driving a future we could only dream of 30 years ago."

Also on-hand at the event were two exclusive "Back to the Future"-inspired vehicles. The first re-imagined Doc Brown's time machine as a customized Mirai, complete with gullwing doors and a heads-up display of the time-traveling destination. The second was a re-creation of Marty McFly's dream truck using the all-new 2016 Toyota Tacoma that went on sale in September. The tricked out truck is a fan-favorite in the "Back to the Future" trilogy and a natural movie connection for Toyota. Fans in Los Angeles, New York and Dallas today can see that truck in major tourist destinations.

Toyota's "Fueled by Everything" campaign was created with creative agency partner Droga5, while the "Back to the Future" Tacoma elements drew on the expertise of Saatchi & Saatchi Los Angeles.

ABOUT THE BACK TO THE FUTURE 30TH ANNIVERSARY TRILOGY
Experience the future all over again with the Back to the Future 30th Anniversary Trilogy on Blu-ray & DVD! Join Marty McFly (Michael J. Fox), Doc Brown (Christopher Lloyd) and a time traveling DeLorean for the adventure of a lifetime as they travel to the past, present and future, setting off a time-shattering chain reaction that disrupts the space-time continuum! From filmmakers Steven Spielberg, Robert Zemeckis and Bob Gale, this timeless collection includes a new bonus disc with over two hours of extra features such as "Doc Brown Saves the World!", an all-new original short starring Christopher Lloyd. Hashtag: #BTTF2015

About Toyota - Toyota (NYSE:TM), the world's top automaker and creator of the Prius, 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 and directly employ more than 40,000 people. Our 1,800 North American dealerships sold more than 2.5 million cars and trucks in 2013 – and about 80 percent of all Toyota vehicles sold over the past 20 years are still on the road today.

Toyota partners with philanthropic organizations across the country, with a focus on education, safety and the environment. As part of this commitment, we share the company's extensive know-how garnered from building great cars and trucks to help community organizations and other nonprofits expand their ability to do good. For more information about Toyota, visit www.toyotanewsroom.com.

About Universal Partnerships & Licensing - Universal Partnerships & Licensing (UP&L) oversees NBCUniversal's consumer product and digital licensing for Universal Pictures, NBC Television, Focus Features and Sprout Channel. This dedicated division is also responsible for film, home entertainment and television promotions. UP&L is part of NBCUniversal. NBCUniversal is one of the world's leading media and entertainment companies in the development, production, and marketing of entertainment, news, and information to a global audience. NBCUniversal owns and operates a valuable portfolio of news and entertainment television networks, a premier motion picture company, significant television production operations, a leading television stations group, world-renowned theme parks, and a suite of leading Internet-based businesses. NBCUniversal is a subsidiary of Comcast Corporation.

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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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www.nasa.gov

Earth rotates through an entire day as captured in this animation of 22 still images taken on Sept. 17, 2015 by NASA's Earth Polychromatic Imaging Camera (EPIC) camera on the Deep Space Climate Observatory (DSCOVR) spacecraft.
Credits: NASA

NASA launched a new website Monday so the world can see images of the full, sunlit side of the Earth every day. The images are taken by a NASA camera one million miles away on the Deep Space Climate Observatory (DSCOVR), a partnership between NASA, the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Air Force.

Once a day NASA will post at least a dozen new color images of Earth acquired from 12 to 36 hours earlier by NASA's Earth Polychromatic Imaging Camera (EPIC). Each daily sequence of images will show the Earth as it rotates, thus revealing the whole globe over the course of a day. The new website also features an archive of EPIC images searchable by date and continent.

The primary objective of NOAA's DSCOVR mission is to maintain the nation's real-time solar wind monitoring capabilities, which are critical to the accuracy and lead time of space weather alerts and forecasts from NOAA. NASA has two Earth-observing instruments on the spacecraft. EPIC's images of Earth allow scientists to study daily variations over the entire globe in such features as vegetation, ozone, aerosols, and cloud height and reflectivity.

EPIC is a four megapixel CCD camera and telescope. The color Earth images are created by combining three separate single-color images to create a photographic-quality image equivalent to a 12-megapixel camera. The camera takes a series of 10 images using different narrowband filters -- from ultraviolet to near infrared -- to produce a variety of science products. The red, green and blue channel images are used to create the color images. Each image is about 3 megabytes in size.

"The effective resolution of the DSCOVR EPIC camera is somewhere between 6.2 and 9.4 miles (10 and 15 kilometers)," said Adam Szabo, DSCOVR project scientist at NASA's Goddard Space Flight Center, Greenbelt, Maryland.

Since Earth is extremely bright in the darkness of space, EPIC has to take very short exposure images (20-100 milliseconds). The much fainter stars are not visible in the background as a result of the short exposure times.

The DSCOVR spacecraft orbits around the L1 Lagrange point directly between Earth and the sun. This orbit keeps the spacecraft near the L1 point and requires only occasional small maneuvers, but its orbit can vary from 4 to 15 degrees away from the sun-Earth line over several years.

EPIC was built by Lockheed Martin's Advanced Technology Center, in Palo Alto, California. Using an 11.8-inch (30-centimeter) telescope and 2048 x 2048 CCD detector, EPIC measures in the ultraviolet, visible and near-infrared areas of the spectrum. The data from all 10 wavelengths are posted through a website hosted by the Atmospheric Science Data Center at NASA's Langley Research Center, Hampton, Virginia. All images are in the public domain.

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

For daily images from EPIC, visit: http://epic.gsfc.nasa.gov/

For more information about the DSCOVR mission, visit: http://www.nesdis.noaa.gov/DSCOVR/

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robert.j.gutro@nasa.gov

Luke issues first Generation lll helmet

Courtesy – copyright Luke AFB - by Staff Sgt. Staci Miller - 56th Fighter Wing Public Affairs

Christopher Culley, Rockwell Collins customer support specialst, fits and issues an F-35 Lightning ll Generation lll Helmet Mounted Display System at the Pilot Fit Facility at Luke Air Force Base, Arizona, Oct. 16, 2015. The new system includes a number of upgrades, including improved night vision, optics and liquid-crystal displays. (U.S. Air Force photo by Airman 1st Class Ridge Shan)

10/20/2015 - LUKE AIR FORCE BASE, Ariz. -- The world's most advanced aircraft is getting a new helmet to match.

Luke Air Force Base issued its first Generation III F-35 Helmet Mounted Display System to Norwegian Air Force Maj. Morten Hanche, 62nd Fighter Squadron training pilot Oct. 16, 2015.

The new system, built and issued by Rockwell Collins at the Pilot Fit Facility, includes a number of upgrades, including improved night vision, optics and liquid-crystal displays.

"It's Luke's first," said Donald Guess, Rockwell Collins customer support specialist. "It's something that's been coming for a while and something that all the pilots are going to want."

The latest helmet takes the head-up display (HUD) usually projected onto on a piece of glass at the front of the cockpit, and puts it on the helmet. That means the pilot's always has it in his field of vision, and can see useful data like the horizon, airspeed, altitude, and weapons status wherever he's looking.

By integrating three advanced technologies, helmet-mounted display, head up display and visor projected night vision, the Generation III helmet allows the F-35 to become the first tactical fighter jet in 50 years without a traditional Head-Up Display system.

"I think the helmet is going to be an important factor in enhancing my situational awareness," Hanche said. "I don't have to look around. I can glance with my eyes and get the info I need."

Feeds from any of six cameras located outside the jet can be piped into the helmet. It provides a 360-degree digital view of what's going on around the aircraft. When the pilot looks down, he doesn't see his knees, he sees "through" the aircraft floor and walls, and knows what's below him. All the information pilots need to complete their missions is projected on the helmet's visor.

Thanks to the helmet's eye tracking capability, pilots using the system can look at a target to aim their weapons while maintaining spatial orientation of their surroundings and continually monitoring flight information.

"If your rifle scope is off, you'll never hit your target," Hanche said. "With this helmet, it's going to be a lot more accurate than it used to be."

Integrating the night vision capability right into the helmet is a major advantage for F-35 pilots. Built-in night-vision lets pilots see in the dark, without needing to flip down a set of goggles.

"I'll now have access to two night vision options," Hanche said. "An infrared image and a night vision image. Having those two available at any time is going to be really great."

All of that technology is built into a carbon fiber helmet that weighs just about five pounds. It's customized to each pilot, both to fit around the head, as well as to ensure that the visuals work properly
.
"The helmet itself looks like something from a sci-fi series," Hanche said. "It looks impressive and it feels really good. It has a really great fit."

The two-day fitting process measures things like the horizontal and vertical alignment of the pupils, eye spacing, and a litany of other variables.

"It's a customized helmet for the pilot," said Christopher Culley, Rockwell Collins customer support specialist. "It's made to fit just him."

The helmets are custom built for each pilot, so if yours is at home, you're stuck on the ground.

LSTC & DYNAmore GmbH On Line Resources

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.

.

Snow accumulation on vehicle using ICFD solver and DEM coupling (LS-DYNA R9)

www.youtube.com/user/lstcanddynamore

LS-DYNA Corporate Tutorial & Content

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.

Published on Oct 21, 2015   www.youtube.com/watch?v=6OBpXgcw5MI
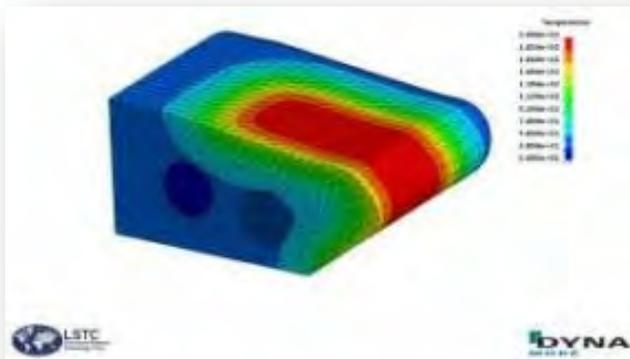
This LS-DYNA simulation shows the conjugate heat transfer between a hotforming tool and its water filled cooling pipe. It was computed solely using the implicit incompressible fluid solver ICFD) of LS-DYNA and its intrinsic coupling possibilities to the implicit thermal and structural solvers in LS-DYNA.

Video of the 10th European LS-DYNA Conference, 15 – 17 June 2015, Würzburg, Germany

www.youtube.com/watch?v=Mw5Dm-SXcWo

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
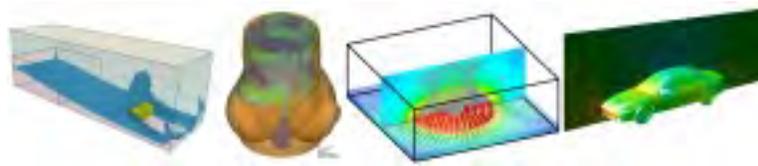
LS-DYNA Support

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

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

- History Variables for Certain Material Models

- LS-DYNA Manual R 8.0 - Vol III

- LS-DYNA Manual R 8.0 - Vol II

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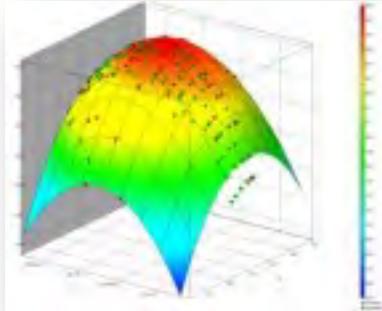
LS-OPT

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

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

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

Optimization

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

LS-TaSC - LS-TaSC 3.1 released

Topology Optimization

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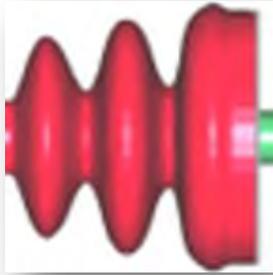
LS-DYNA Examples

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

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

Among the files and Sections:

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

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

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

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

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

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

DYNAlook

DYNAlook

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

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

2015 will be published soon.

13th International
LS-DYNA Conference - NEW
  Detroit, 2014

12th International
LS-DYNA Conference
  Detroit, 2012

9th European
LS-DYNA Conference
  Manchester, 2013

8th European LS-DYNA
Conference
  Straßburg, 2011 …

www.dummymodels.com

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

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

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

Among the Dummy Models on this site you can find:

Side Impact Dummies

Rear Impact Dummies

ES2/ES2re -
DYNAmore

BioRID-II V3.
DYNAmore

World SID 50%
DYNAmore

Child Dummies

US-SID
DYNAmore

P-1.5
DYNAmore
P-3.0
DYNAmore

LSTC Models Overview

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

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

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

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

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

Barrier Models

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

- ODB modeled with shell elements
- ODB modeled with solid elements
- ODB modeled with a combination of shell and solid elements
- MDB according to FMVSS 214 modeled with shell elements
- MDB according to FMVSS 214 modeled with solid elements

- MDB according to ECE R-95 modeled with shell elements
- AE-MDB modeled with shell elements
- IIHS MDB modeled with shell elements
- IIHS MDB modeled with solid elements
- RCAR bumper barrier
- RMDB modeled with shell and solid elements

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

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

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

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

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

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

Cabin Interior (CI)

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

Participant's Training Classes

Webinars

Info Days

Class Directory

Participant Class Directory

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

ARUP Visit the website for complete listings/changes/locations

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

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

Date	Training Class
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

Please Visit the DYNAmore website for dates and classes

TRAININGS ESI Group

DATE USA	
Nov 10-11, 2015	VA One: SEA training
Nov 12-13, 2015	VA One: Advanced training
Mar 1-2, 2016	VA One: FE/BEM training
MAR 3-4, 2015	VA One: Coupled FEA/SEA training
DATE Germany	
Nov 9-10, 2015	SEA for marine industry
Nov 11-12, 2015	Underwater radiation simulation methods

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. **www.beta-cae.gr**

BETA CAE Systems S.A.– ANSA

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

BETA CAE Systems S.A.– μETA

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

Solutions for:
Process Automation - Data Management – Meshing – Durability - Crash & Safety NVH   - CFD   -   Thermal analysis   -   Optimization   -   Powertrain   Products made of composite materials   -   Analysis Tools   -
Maritime and Offshore Design   -   Aerospace engineering   -   Biomechanics

CRAY   **www.cray.com**

THE CRAY® XC™ SERIES: ADAPTIVE SUPERCOMPUTING ARCHITECTURE

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

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

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

MAXIMIZE PRODUCTIVITY WITH CRAY CS SERIES SUPERCOMPUTERS

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

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

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

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

CRAY® SONEXION® SCALE-OUT LUSTRE®STORAGE SYSTEM

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

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

Simplify

· Through its fully-integrated and pre-configured design, Cray Sonexion storage gets customers deployed faster and reduces the total number of components to manage.

· The Sonexion system's compact design reduces the total hardware footprint of petascale systems by 50 percent over component-based solutions.

Scale

· Performance scales from 7.5 GB/s to 1.7 TB/s in a single file system.

· Capacity scales in modular increments; the Sonexion 2000 system stores over two usable petabytes in a single rack. Fewer drives and components reduce capital costs as capacity grows.

Protect

· New software-based GridRAID offers higher levels of data protection and up to 3.5 times faster rebuild times than traditional RAID6 and MD-RAID storage.

· Cray ensures quality, reliability and stability at scale through exhaustive thermal and real-world stress testing, system hardening and availability, and tight hardware and software integration.

OPEN ARCHIVE AND TIERED STORAGE SYSTEM FOR BIG DATA AND SUPERCOMPUTING

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

With Cray TAS you can:

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

CRAY® URIKA-XA™ EXTREME ANALYTICS PLATFORM

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

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

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

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

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

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

The Urika-GD™ appliance enables enterprises to:

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

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

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

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

Realize rapid time to powerful new insights.

DatapointLabs   **www.datapointlabs.com**

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

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

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

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

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

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

etainfo@eta.com

Inventium Suite™

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

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

PreSys

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

VPG

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

DYNAFORM

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

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

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

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

Several high productivity tools such as advanced dummy positioning, seat morphing, belt fitting and airbag folder are provided in **Visual-Safe,** a dedicated application to safety utilities.

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

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

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

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

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

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

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

Latest Release is Visual-Environment v11.0

JSOL

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

HYCRASH

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

JSTAMP/NV

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

JMAG

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

Livermore Software Technology Corp.

LS-DYNA

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

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

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

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

LSTC Dummy Models:

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

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

Oasys Ltd. LS-DYNA Environment

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

Oasys PRIMER

Key benefits:

·   Pre-Processor created specifically for LS-DYNA®

·   Compatible with the latest version of LS-DYNA®

·   Maintains the integrity of data

·   Over 6000 checks and warnings – many auto-fixable

·   Specialist tools for occupant positioning, seatbelt fitting and seat squashing (including setting up pre-simulations)

·   Many features for model modification, such as part replace

·   Ability to position and depenetrate impactors at multiple locations and produce many input decks

automatically (e.g. pedestrian impact, interior head impact)

·   Contact penetration checking and fixing

·   Connection feature for creation and management of connection entities.

·   Support for Volume III keywords and large format/long labels

·   Powerful scripting capabilities allowing the user to create custom features and processes

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

Oasys REPORTER

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

Key benefits:

· Automatic report generation tool created specifically for LS-DYNA®

· Automatically post-process and summarize multiple analyses

· Built-in report templates for easy automatic post-processing of many standard impact tests

Shanghai Hengstar

www.hengstar.com

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

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

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

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

Consulting

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

Lenovo   www.lenovo.com

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

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

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

www.penguincomputing.com

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

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

HPC and cloud solutions optimized for industry-specific uses

High-powered workstations for individual power users

Highly power-efficient server platforms for enterprise computing

Private and public cloud solutions, including hybrid options.

Focus

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

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

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

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 **DYNAMAX**   sales@dynamax-inc.com
States 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 sales@lstc.com

LSTC www.lstc.com

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

United States

Predictive Engineering george.laird@predictiveengineering.com
www.predictiveengineering.com

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

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

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

Distribution/Consulting		Europe	Distribution/Consulting

Germany   **DYNAmore GmbH**   uli.franz@dynamore.de

www.dynamore.de

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

The Netherlands   **Infinite Simulation Systems B.V**   j.mathijssen@infinite.nl

www.infinite.nl

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

Italy **EnginSoft SpA** info@enginsoft.it

www.enginsoft.it

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

Russia **STRELA** info@dynarussia.com

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

Sweden **DYNAmore Nordic** marcus.redhe@dynamore.se

www.dynamore.se Oasys Suite

ANSA	µETA	LS-DYNA	LS-OPT
LS-PrePost	LS-TaSC	FastFORM	DYNAform
FormingSuite		LSTC Dummy Models	
		LSTC Barrier Models	

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		

Distribution/Consulting	**Europe**	**Distribution/Consulting**

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

Rescale: Cloud Simulation Platform

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

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

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

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

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

Rescale Cloud Simulation Platform

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

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

Industry-Leading Security

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

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

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

LSTC   - DYNAmore GmbH   JSOL Corporation

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

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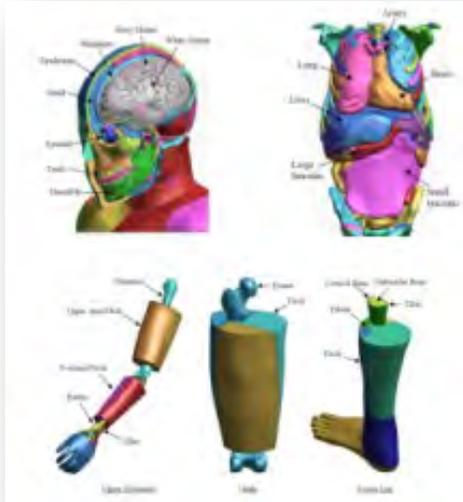
The Total Human Model for Safety, or THUMS®, is a joint development of Toyota Motor Corporation and Toyota Central R&D Labs. Unlike dummy models, which are simplified representation of humans, THUMS represents actual humans in detail, including the outer shape, but also bones, muscles, ligaments, tendons,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

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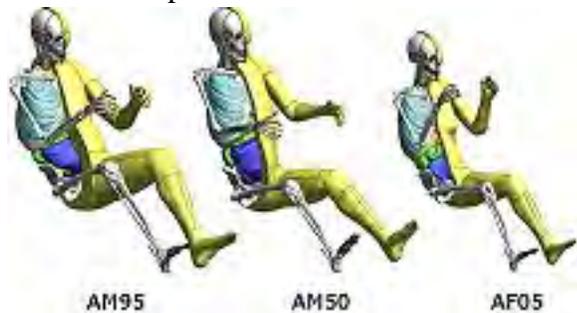
and as standing model to represent pedestrians.
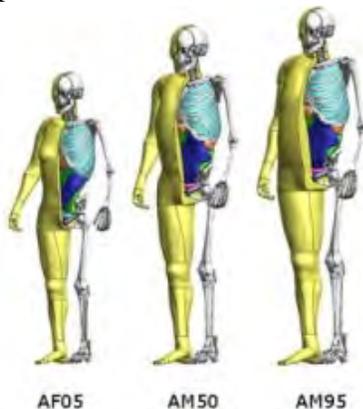
The internal organs were modeled based on high resolution CT-scans.

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

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

For information please contact:
THUMS@lstc.com

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

LSTC – Dummy Models

LSTC Crash Test Dummies (ATD)

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

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

 e-mail to: atds@lstc.com

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

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

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

LSTC – Barrier Models

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

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

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

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

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

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

•RMDB modeled with shell and solid elements

e-mail to: atds@lstc.com.

FACEBOOK

BETA CAE SYSTEMS SA   CADFEM   Cray Inc.

ESI Group   Lenovo

TWITTER

BETA CAE SYSTEMS SA   Cray Inc.   ESI Group

ETA   CADFEM   Lenovo

LINKEDIN

BETA CAE SYSTEMS SA   CADFEM   Cray Inc.

DYNAmore Nordic   ETA   Oasys

NEWS FEEDS   ETA:

YOUTUBE

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