



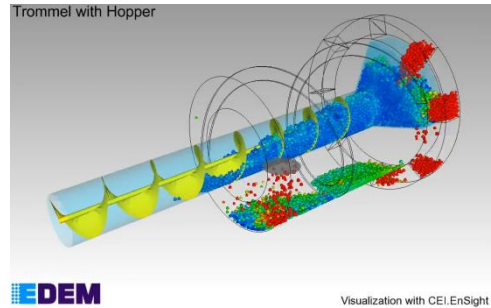
EnSight from CEI



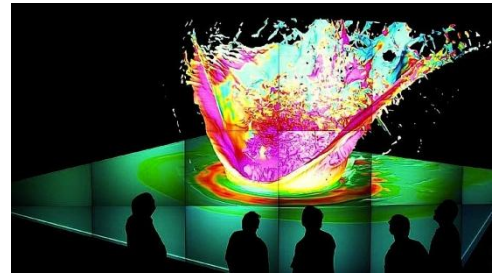
Engineers Can Tackle Large Simulation Models Easily with [EnSight](#) and [Symmetric Computing](#)

Today's engineering simulation problems are growing in many dimensions. Increasing problem size and model complexity, the use of multiple solvers, and the added complexity of coupled analyses are all making engineering simulation datasets more difficult to work with. This is forcing engineers to more carefully consider their software and hardware choices, and to look beyond default solutions. As a result, engineers are adopting [EnSight](#) for its market leading visualization and post-processing feature set, and are looking for powerful computing environments in which to run [EnSight](#) and their CAE analysis to quickly get to the core results and extract out the information from their simulations. Ultimately CAE analysis is about supporting product and process design and decision-making. Engineers need software and hardware environments which simplify and speed the CAE process because the other dimensions are becoming more complex.

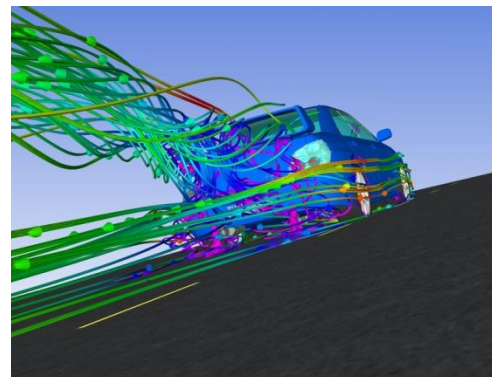
In CAE, the trend has often been toward adoption of Linux clusters and Distributed Memory Parallel (DMP) computing architecture to support larger and larger models. And this trend is on solid ground for many applications and many solvers, for example Computation Fluid Dynamics (CFD). However, some solvers and some solver coupling mechanisms just do not scale well in a distributed environment. In this situation there are several questions that customers ask: What are the hardware options available? Do existing tools like EnSight work on them? And are they a good value? Here at CEI we have tested one solution, [Symmetric Computing](#), and found it to be suitable to this problem area.



Coupled Physics Simulation Visualization using EnSight



Large Dataset Visualization and High Resolution Collaboration with EnSight



Large Model Aerodynamic Analysis using EnSight

.... Analyze, Visualize, Communicate....

www.ensight.com
www.SymmetricComputing.com



EnSight from CEI



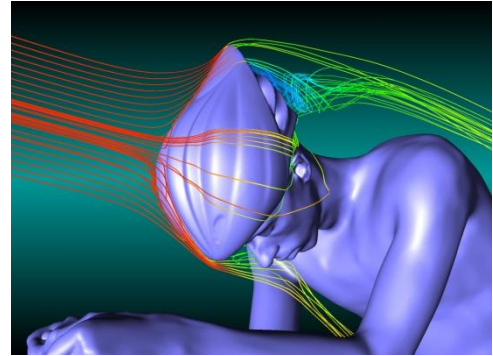
CEI's class-leading analysis & visualization software, [EnSight](#), takes full advantage of the large memory SMP systems from [Symmetric Computing](#) and easily handle your large simulation data by:

- Utilizing a single in-memory data structure (not requiring decomposition);
- Automatically utilizing up to 16 threads per case loaded;
- Coupled analyses and visualizations by reading in datasets from multiple solvers and physics into a single session; and,
- Accessing large SMP memory resources.

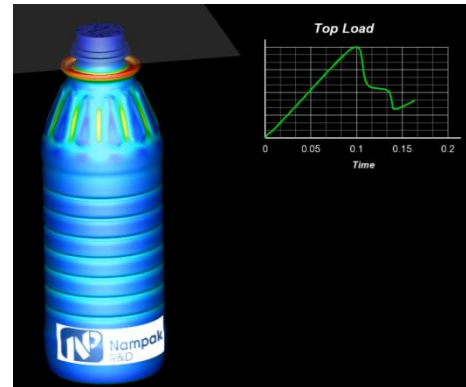
Maintaining your data in a single coherent data structure may be a requirement of some physics solvers or coupling mechanisms. [EnSight](#) can easily operate on this single large dataset structure, simplifying the process of data loading. Typical examples are implicit FEA solvers such as NASTRAN and ANSYS, MARC, and ABAQUS. Another area which prefers SMP architectures is DEM, or Discrete Element Modeling, the use of particles to simulate materials. A leading DEM product in the market is EDEM from [DEM-Solutions](#).

EnSight's automatic detection of multi-threaded machines and automatic utilization of up to 16 threads per case allows users to utilize the parallel nature of the algorithms without the requirement for physical domain decomposition. This multi-threading support is for all data formats, as well as for each case read into [EnSight](#). For example, a coupled two-dataset analysis would automatically use 32 threads without any user input required.

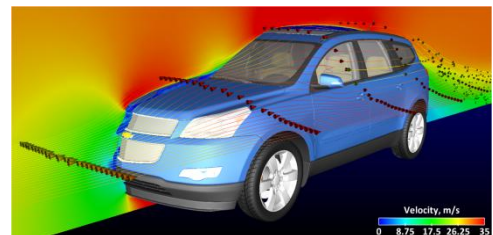
CEI has installed, tested, and verified that [EnSight](#) runs on Symmetric Computing's systems, providing superior performance and access to their SMP memory resources to analyze and visualize large datasets, at a reasonable cost. If your solver, problem size, or coupling environment is causing you to consider a large memory SMP solution, [Symmetric Computing](#) would be a logical solution to include in your comparison shopping.



High Detail CFD Simulation Results in EnSight



FEA Analysis of Bottle Loading, Analyzed and Visualized with EnSight



Automotive Aerodynamic Analysis of Vehicle Performance using EnSight

.... Analyze, Visualize, Communicate....

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