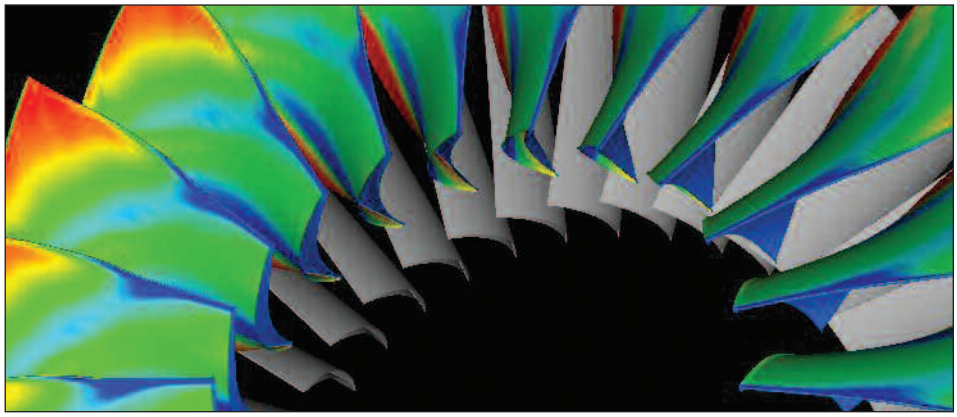
Application Brief

SGI® Visualization Solutions



Silicon Graphics Prism™ Visualization System and CEI EnSight Gold:
Delivering Groundbreaking Visualization in Manufacturing and Sciences CAE

Silicon Graphics Prism and CEI EnSight Gold create a world-leading solution for analyzing, visualizing and communicating high-end scientific and engineering datasets. Together EnSight Gold and Silicon Graphics Prism deliver a scalable, multipipe solution for pre- and post-processing of large and complex 64-bit data on a single shared memory system platform.

You should consider this solution for your organization if:

- You are visualizing large or complex data and spending an inordinate amount of time decimating your data so that you can work with it and visualize it.
- You spend a lot of time moving data around the network from compute resources to visualization resources.
- You cannot currently visualize your entire model and would like this capability.
- You are a high-performance computing (HPC) user and are overwhelmed with the challenges of interpreting the large amount of data your system generates.
- You are a cluster user who is becoming increasingly aware of the challenges of operating and maintaining a multinode system for large-scale visualization.

A Powerful Team for Your CAE Visualization Requirements

CEI EnSight Gold and Silicon Graphics Prism help you manage your CAE post-processing more effectively than ever before.

EnSight Gold and Silicon Graphics Prism deliver post-processing of all types of common analyses: computational fluid dynamics (CFD), structural finite elements analysis (FEA) and computational electromagnetics (CEM). In addition, EnSight Gold or EnSight combined with Silicon Graphics Prism provides the expansion solution for visualization of 64-bit data from FEA and CFD applications such as ANSYS®, Fluent®, ABAQUS®, LS-Dyna, STAR-CD, CFX-5, and MSC.Nastran.

Workflow benefits of Silicon Graphics Prism and CEI EnSight Gold include the ability to:

- conduct high-performance analysis and interactive visualization on the same system
- interactively visualize large or complex data without decomposing it first
- collaborate interactively with remote users without moving data via Visual Area Networking (VAN)
- leverage the system as a virtual resource by sharing it simultaneously with a number of users or allocating it to large-scale computation and visualization as needed
- create a team-room environment for large display of interactive visualization for shared insight and faster decision-making
- standardize on a common application for visualization of CAE results

EnSight Gold takes full advantage of the Silicon Graphics Prism scalability and SGI visualization ecosystem. It is designed for parallel processing and rendering and provides support for an array of virtual reality devices. EnSight is the version best suited for customers who only plan to use a single graphics pipe.

EnSight Gold Broadens 64-bit Visualization Capabilities

Key capabilities of CEI EnSight and EnSight Gold include:

- handling of unstructured, structured and hybrid meshes, and particle data
- broad feature set: including clips, isosurfaces, streamlines, vector arrows, elevated surfaces, model displacement, plotting, data queries, animation, flow feature extraction and more
- readers and translators for all common analysis packages and standard formats
- direct output of images and animations
- simultaneously reading up to 16 different datasets, mixing CFD, FEA, etc.

File Formats

The file formats that CEI EnSight and EnSight Gold accept include:

CFD	FEA
CFD++	ABAQUS
CFD-ACE	ANSYS
CFD-FASTRAN	LS-DYNA
CFX-5	MADYMO
FIRE	MSC.Adams®
FLUENT	MSC.Dytran®
PAM-FLOW	MSC.Marc®
PHOENICS	MSC.Patran™
Polyflow	MSC.Nastran™
PowerFLOW	PERMAS
RADIOSS-CFD	RADIOSS
STAR-CD	
VECTIS	

For the full list of solvers supported, please see *www.ceintl.com/products/solvers.html.*

EnSight and EnSight Gold also allow you to create your own custom reader for proprietary formats. The EnSight format is also well documented so that you can save your custom application data in a native EnSight format or write a data translator.

Supporting Applications

CEI also delivers supporting applications for your CAE visualization:
EnVideo: multipipe movie player – plays movies created with EnSight Gold
EnLighten Gold: 3D geometry player for viewing, analyzing, and manipulating complex visualization scenarios

Configuration Recommendations

Your ideal CEI EnSight Gold and Silicon Graphics Prism configuration will depend on your current model size and requirements. Silicon Graphics Prism systems are highly scalable so that you can increase your system capabilities as your requirements increase. Based on best-of-breed industry-standard components with Linux®, Intel® Itanium® 2, and ATI® FireGL™ graphics, the systems can scale to 16 graphics pipelines and 256 processors.

Upgrading Your SGI® Altix® System

You can upgrade your existing SGI® Altix® 3000 system to include visualization with a Silicon Graphics Prism visualization module with the addition of a NUMAlink™ 4 router.

Silicon Graphics Prism Deskside

Entry configuration is 1 CPU, 1 GPU, scalable to 2 CPUs and 2 GPUs. EnSight is appropriate for customers who only plan to use a single graphics pipe; EnSight Gold supports multiple graphics pipes.

Power System

The recommended Silicon Graphics Prism Power configuration for local work is a 4 CPU, 2 GPU system with 1-4GB memory per CPU. This system is delivered in two rackmountable 2U modules.

Team System

The Team configuration is designed as a shared resource for up to six users for analysis of big data problems. The recommended configuration is 6 CPUs, 4 GPUs with 24GB memory teamed with a large display. This configuration enables your team to collaborate in a highly productive team room environment where team members can work with all of their data in a high-performance, high-resolution environment. This single Silicon Graphics Prism system can simultaneously support multiple individuals, groups of people working together, and the HPC requirements of an entire organization.

Extreme System

The Extreme system with VAN is designed for multi-user visualization both locally and remotely. The recommended configuration is 12 CPUs, 4 GPUs, 48GB memory, with OpenGL VizServer™ for VAN capabilities. VAN helps revolutionize your CAE workflow by providing networked collaboration between distributed individuals and groups with full multisite control of your 3D visualization results. VAN allows individuals (remote or local) a convenient on-demand way of accessing a powerful Silicon Graphics Prism system at their desktops. The system offers flexibility for use by individuals and teams for both their visualization and HPC requirements.

For more information about Silicon Graphics Prism see *http://www.sgi.com/products/visualization/prism/*

Corporate Office
1500 Crittenden Lane
Mountain View, CA 94043
(650) 960-1980
www.sgi.com

North America +1 800.800.7441
Latin America +55 11.5509.1455
Europe +44 118.912.7500
Japan +81 3.5488.1811
Asia Pacific +1 650.933.3000

3801 [05.2005]

J14905