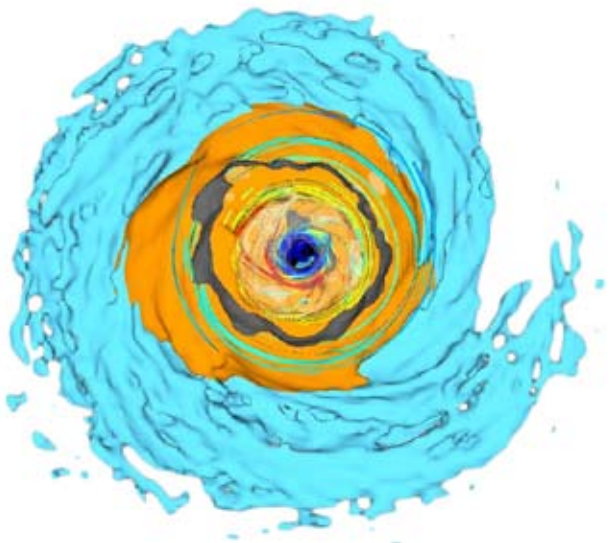
CONTINUING THE LEGACY OF VISUAL INNOVATION

SGI® Performance Visualization

Advancing SGI's expertise and leadership in visual innovation to deliver the next generation of visualization solutions.

Highlights

- Brings 25 years of SGI innovation with visualization technologies to the HPC and commercial business space
- Superior engineering to provide the best-in-class, highest performance visualization solutions
- Faster decision-making through enhanced collaboration using SGI Wide Area Visualization Environment.
- Reduces workflow and system complexity through SGI's data-centric architectures and hybrid solutions that integrate seamlessly
- Fully integrates leading edge visualization capabilities into the full line of SGI® Altix®, SGI® Altix® XE, and SGI® Altix® ICE high-productivity clusters
- The Virtu Solution Family brings scalable solutions to address the range of visualization needs



Images courtesy of Jon Reisner and David Langley, Los Alamos National Labs.

Visualization is the keystone to research breakthroughs and industrial innovation. SGI Performance Visualization, through the Virtu™ solution family, delivers the next generation of visualization solutions. Based on the wealth of SGI market-proven technologies, SGI is uniquely positioned to provide this leadership and allow you to *visualize* in a whole new way.

For approaching three decades, SGI has been known as the leader in visualization, powering innovations including the first digital prototype of the worlds largest passenger jet, the first fully immersive center for war ship design, eight consecutive years of Academy Award winning special effects, the first atomic-level simulation of a complete functioning organism, the industry's first 64-bit gaming system, and the first virtual reality gaming center.

The Virtu family continues in the SGI tradition of visual innovation, bringing the wealth of patented SGI visualization technology to the HPC and Commercial space. Our legacy, expertise, existing customer installations, and dominance in this market area are the building blocks for our new generation of visualization solutions. All members of the Virtu family will be powered by these advanced visualization technologies.

The SGI Virtu family of solutions is our comprehensive portfolio of innovative high performance visualization technologies, services, and solutions that enable our customers to solve their greatest challenges. Those challenges include the ability to process increasingly larger and more complex data sets that continue to expand in scope and detail; the ability to explore multiple "what if" scenarios and meet tight deadlines; and the need to display and interact with visual data in remote locations.

SGI Performance Visualization is the complete visualization solution - enabling users to explore, discover, and innovate in an unparalleled manner.

The Virtu family includes high-performance visualization servers and workstations featuring the latest CPUs and GPUs, remote visualization capabilities, and decision support and display technologies for enhanced collaboration. These technologies are integrated into our industry-leading compute and data management products to deliver a seamless and highly productive environment. Every SGI system that incorporates a Virtu product is engineered to match the unique global workflow requirements of each of our clients.

SGI Virtu family of high-performace visualization servers and clusters, provide unmatched configurability, high processor density, unlimited cluster scalability, and include the Virtu VN visualization nodes and Virtu VS visualization platform.

The Virtu VN brings a new level of flexibility, power, and accuracy to real-time visual analytic environments. This high density, highly scalable visualization system features the latest generation of Intel® Quad-Core Xeon™ processors and NVIDIA® Quadro™ FX technologies. Up to 5 VN nodes can be contained in a 4U rack space, and node counts can be scaled up to meet any high performance visualization demand.

Virtu VS platform are a family of highly configurable high-performance workstations that provide industry-leading visualization capability and performance through maximum adaptability and expandability. Virtu VS workstations feature the latest generation of Intel® and AMD® processors, and both NVIDIA® Quadro™ Plex and NVIDIA® Quadro™ FX technologies. The full range of Virtu VS workstations provide maximum configurability necessary to meet a diverse range of functional, environmental, and display requirements.

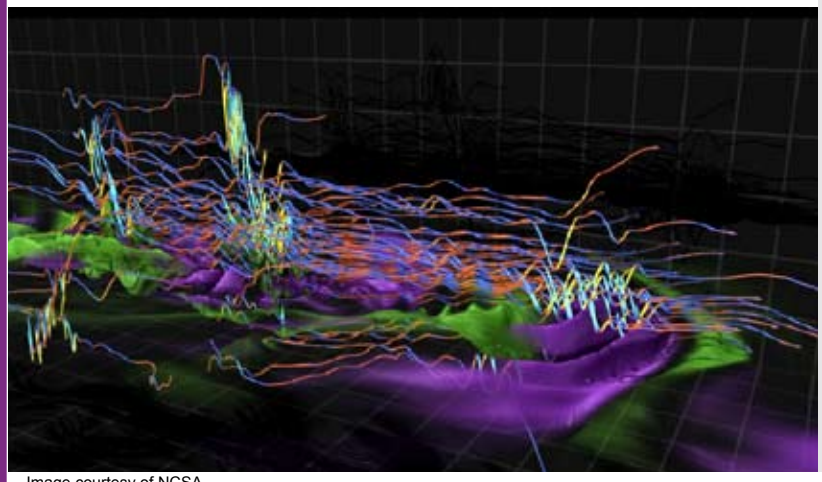


Image courtesy of NCSA

SGI Custom Visualization Solutions

SGI offers custom visualization solutions that can meet a customer's unique visualization requirements and environments. A range of solutions employing remote visualization, decision support and distributed collaboration technologies can be designed and implemented to meet a wide range of diverse visualization demands.

Whether it's a WAVE (Wide Area Virtual Environment) for Remote Visualization and Collaboration, or a Reality Center™ for a custom immersive environment, or any other unique visualization solution, only SGI has the qualifications and experience necessary to deliver success in the demanding discipline of custom visualization.

SGI Display Solutions

To fully realize the tremendous potential and power of today's high-performance visualization systems, leading edge organizations require high-impact display and interactivity environments. SGI Display Solutions are found in the world's most diverse and innovative display environments.

SGI Display Solutions are fully integrated systems combining SGI Virtu servers and clusters, fully validated third party display systems, and SGI Professional Services needs analysis, system design, integration, deployment, and support. The result is a high-resolution blended display that meets the needs of our customers, enabling faster more precise analysis and decision making.

SGI® Performance Visualization

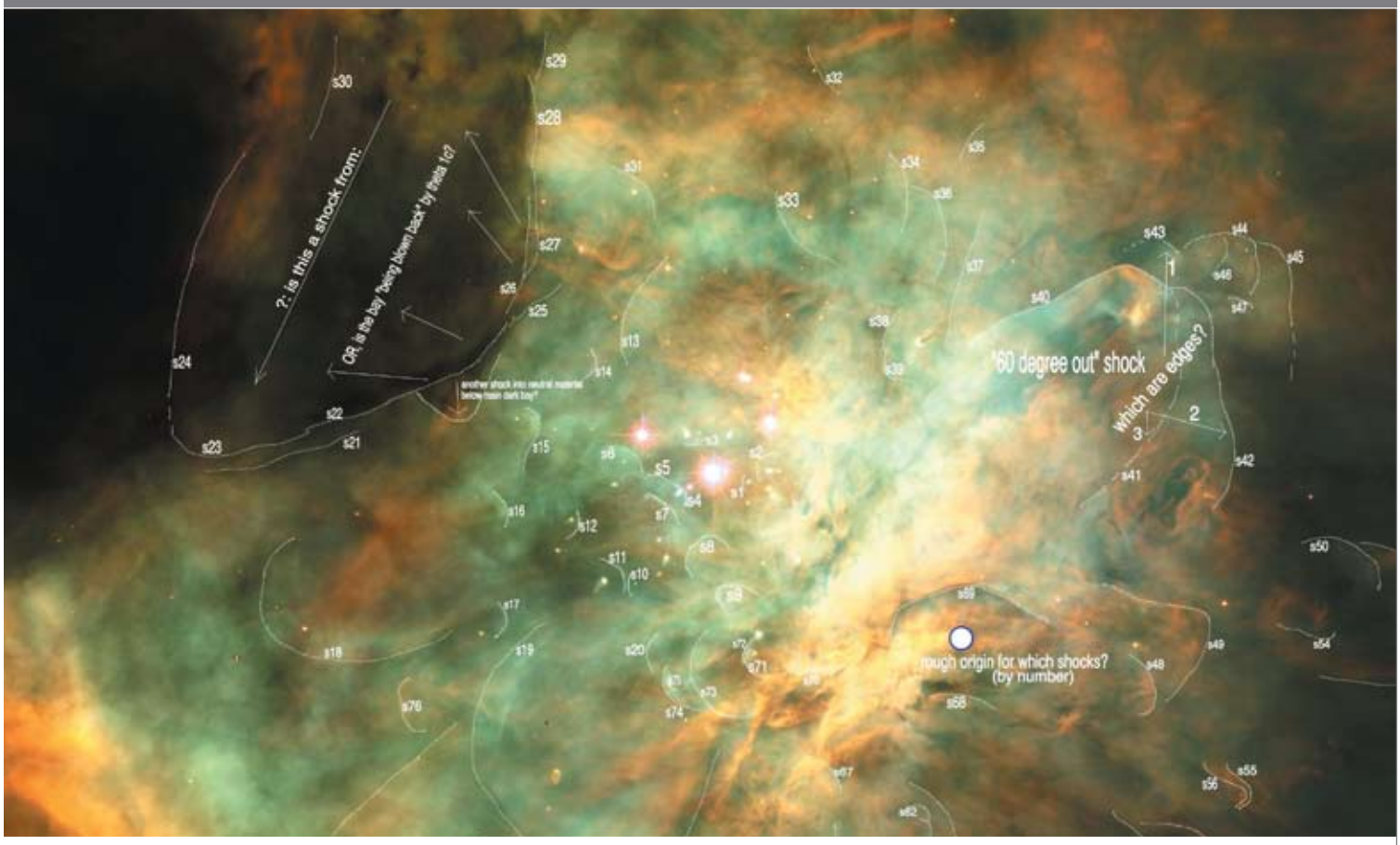


Image courtesy of 2000 American Museum of Natural History. San Diego Supercomputer Center - UCSD

In addition, all Virtu servers and workstations are fully integrated into our industry-leading hybrid compute and data management systems, delivering a seamless and highly productive computing environment.

With the Virtu solution family, SGI continues to deliver on its commitment to understand and solve our customer's toughest and most challenging problems, powering performance and reducing complexity by delivering state of the art integrated systems and solutions.

Flexibility

Deploy the optimal configuration to meet your application needs, scaling as visual needs grow. Use the visualization nodes for compute needs enhancing the performance of the cluster or for GPU application acceleration for enhancing the overall performance of the cluster. Enjoy the benefits of powerful visual analytics either locally or remotely and review results when and where you need them.

Power

Best in class graphics and compute engines with SGI's patented graphics software is integrated into a seamless visualization solution. Small or the largest data sets can be processed and visualized with the resulting models delivered to a wide variety of remote devices.

Real-time Accuracy

Thanks to proven HPC technologies the Virtu products can ingest large volumes of data, dramatically increasing the granularity and accuracy of the resulting analysis. This accuracy is enhanced by empowering users with real-time access to the same decision data and models, driving a real-time collaborative approach to analysis and decision making.

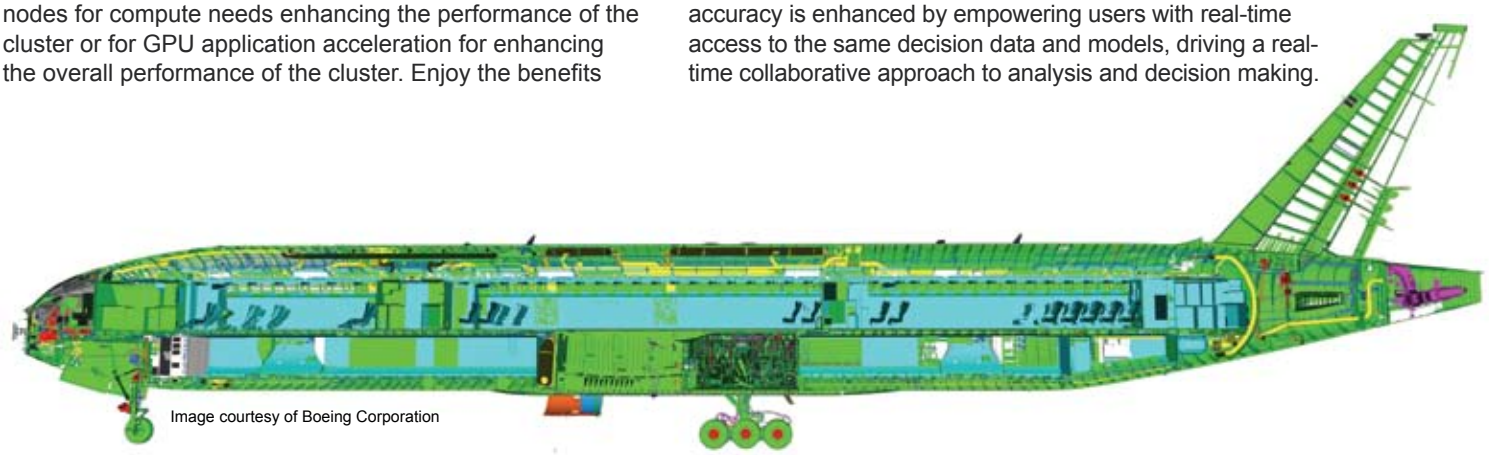


Image courtesy of Boeing Corporation

	SGI® Virtu™ VN200
Node Type	Highly Scalable Rack Optimized High Density Node
Form Factor	Rack mounted, up to 5 nodes horizontal per 4U subrack
Processor	Dual Xeon™ E5420 2.50GHz, 12MB cache, 1333 MHz FSB Dual Xeon™ X5460 3.16GHz, 12MB cache, 1333 MHz FSB Dual Xeon™ E5462 2.80GHz, 12MB cache, 1600 MHz FSB Dual Xeon™ X5472 3.00GHz, 12MB cache, 1600 MHz FSB Dual Xeon™ E5482 3.20GHz, 12MB cache, 1600 MHz FSB
Memory per node	From 4GB to 32GB DDR2 800 MHz FB-DIMM
Graphics	NVIDIA® FX 1700, Quadro™ FX 3500, FX 5600 cards available
Interconnect	Onboard DDR InfiniBand & GigE
Chassis	6.72”w x 3.44”h x 32.93”d; (1) PCIe x16 Gen2; Redundant power supplies

SGI Visual Supercomputing Software Stack	
System Software	• Red Hat® Enterprise Linux 5.0 • SUSE® Linux® Enterprise Server 10 • Microsoft® Windows® Compute Cluster Server 2003 • SGI ProPack™ 5 for Linux®
Visualization Software Stack*	• Cluster Management Software: Scali Manage • Job Scheduling/ Workload Management: Altair® PBS Professional™ • Fabric Management: SGI InfiniBand Fabric Management (based on OFED) or Voltaire GridStack (SLES 9 systems) • Filesystem: XFS™ 64-bit journaled filesystem (on SUSE Linux OS), CXFS™ shared filesystem for SANs • Network File System: Samba, NFS
SGI ProPack™ 5 for Linux®	• Supports Novell® SUSE® Linux Enterprise Server 10 and Red Hat® Enterprise Linux® 5 • Linux Operating System Enhancements: CPUSETS, Cross Partition support with XPMEM, NUMA Tools (dlook, dplace) memory management • General Application Support: Linkless Flexible File I/O (FFIO) libraries, Intel® compiler runtime libraries, Performance Co-Pilot™ • Parallel Application Support: Array Services and Secure Array Services, SGI Message Passing Toolkit (MPI), Perfcatcher (MPI profiler), XPMEM DAPL for Intel MPI Library • System Support: ESP (embedded support partner), SGI ProPack configuration script, SGI Technical Support Tools

	SGI® Virtu™ VS100	SGI® Virtu™ VS200	SGI® Virtu™ VS300	SGI® Virtu™ VS350
Node Type	Highly configurable and expandable workstations, stand alone or rack mountable			
Form Factor	Deskside or rack mountable			
Processors	Two Intel® Quad-Core Xeon™ 5300 or 5400 Series	Two AMD® Opteron™ 2200 Dual-Core or 2300 Quad-Core Series	Four AMD® Opteron™ 8200 Dual-Core or 8300 Quad-Core Series	Eight AMD® Opteron™ 8200 Dual-Core or 8300 Quad-Core Series
Memory	Up to 32GB DDR2 FB-DIMM per node Supports memory sparing and mirroring 100: 8 memory slots 200: 8 memory slots 300: 16 memory slots 350: 32 memory slots	Up to 32GB DDR2 FB-DIMM per node Supports memory sparing and mirroring	Up to 64GB DDR2 FB-DIMM per node Supports memory sparing and mirroring	Up to 128GB DDR2 FB-DIMM per node Supports memory sparing and mirroring
Graphics	• Full range of NVIDIA® Quadro™ Plex and Quadro™ FX GPUs • FX 1700, FX 3700, FX4500x2, FX4600, FX 5500, FX5600, 4600G, 5500G, 5600G, Quadroplex Model II (all), Quadroplex Model IV (VSM+VSL) • All support Dual Quadro FX			
Interconnect	Dual port GigE Optional InfiniBand	Dual port GigE Optional InfiniBand	Dual port GigE Optional InfiniBand	Dual port GigE Optional InfiniBand
Chassis	4U 7”w x 17”h x 19”d (2) PCIe x16 Gen2 (2) PCI-X 64-bit 133 MHz (2) PCI 32 bit (6) 3.5” drive bays (2) external 5.25” drive bays 700 W power supply	4U 7”w x 17”h x 19”d (6) 3.5” hard drive bays (2) 5.25” drive bays (2) PCI Express x16 (1) PCI Express x8 (1) PCI Express x4 (using x8 slot) (1) PXI-X 64-bit 133 MHz (1) PCI-X 64-bit 100 MHz 700W Power Supply	4U 10.45”w x 17.7”h x 25.5”d (2) PCIe x16 (2) PCIe x16 (with x4 signaling) (1) PCI 32-bit (6) 3.5” internal drive bays (3) external 5.25” drive bays. 5 to 15 removeable SATA or SAS drives. Dual 850W power supplies.	5U 10.45”w x 17.7”h x 25.5”d (2) PCIe x16 (2) PCIe x16 (with x4 signaling) (1) PCI 32-bit (6) 3.5” internal drive bays (3) external 5.25” drive bays. 5 to 15 removeable SATA or SAS drives. Dual 850W power supplies.
Operating System	• Red Hat® Enterprise Linux® 5.0 32 and 64-bit • SUSE® Linux® Enterprise Server 10 32 and 64-bit • Microsoft® Windows® XP Professional 32 and 64-bit		• Red Hat® Enterprise Linux® 5.0 64-bit • SUSE® Linux® Enterprise Server 10 64-bit • Microsoft® Windows® XP Professional 64-bit	
Services and Support	SGI provides support for hardware and systems software. SGI also offers services in your environment. For more information, please see www.sgi.com/support.			

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