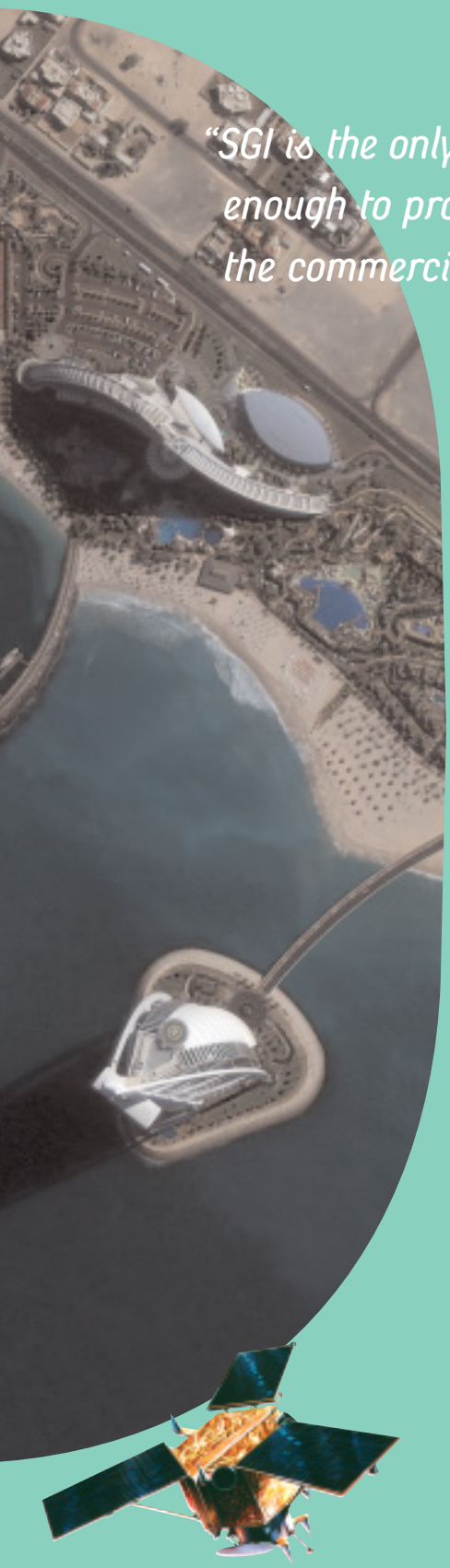
Success Story



"SGI is the only provider of high-performance computing systems powerful enough to provide mission-critical ground station image processing to the commercial, high-resolution satellite imaging market."

—John Copple, Chairman and CEO, Space Imaging

Eye in the Sky

SGI Helps Space Imaging Bring One-Meter Resolution Satellite Imagery to the Commercial Marketplace

Space Imaging, headquartered in Denver, Colorado, is a leading supplier of visual information products and related services derived from space imagery and aerial photography. The company collects earth imagery from its own IKONOS satellite and Digital Airborne Imaging System (DAIS-1™) and those of other satellite agencies, then processes the data and archives the imagery before making it available globally via the Internet and other channels. The successful launch of Space Imaging's IKONOS satellite in 1999—the world's first satellite to provide unclassified one-meter resolution imagery for commercial use—firmly established the company as a global leader in providing high-resolution satellite imagery.

Space Imaging utilizes SGI® high-performance computing (HPC) servers within its ground stations around the world to provide real-time image processing for its IKONOS one-meter high-resolution imagery. Space Imaging chose SGI systems because they provide cost-effective supercomputer bandwidth, throughput, and processing power.

According to John Copple, chairman and CEO of Space Imaging, "We have been able to lower the cost per unit of what we produce and make it feasible to bring high-resolution data to the commercial marketplace using commercial off-the-shelf computer technology available from SGI."

Geospatial Marketplace

Space Imaging's products, services, and solutions serve a wide variety of markets throughout commercial, government, and consumer sectors, a market estimated to be worth $2.5 billion by 2003. Among the sectors on which both Space Imaging and SGI focus are:

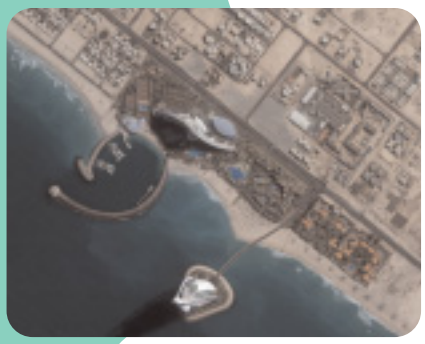
- Environment: Impact assessments, regulatory compliance studies
- Exploration: Oil and gas exploration and monitoring
- Government: Local and regional planning, mapping, urban monitoring, change detection
- Infrastructure: Transportation network assessments, site planning and development studies
- National emergencies: Natural disaster assessments, emergency evacuation studies
- Security: National and global security, airports and harbors
- Telecommunications: Cell siting studies, network assessments, corridor planning
- Media: Reporting, entertainment

To sum up the team approach to serving these markets, Anthony Robbins, senior vice president of SGI, said, "The SGI and Space Imaging team will provide best-in-class solutions to help commercial and government customers in the geospatial market solve some of the world's biggest data problems."

Collecting Geospatial Data

The IKONOS satellite can collect and process some 900 to 1,000 images per day and can revisit any location on earth every three days at high resolution. The satellite collects one-meter resolution black-and-white (panchromatic) images and four-meter resolution color (multispectral) images simultaneously. IKONOS performs these amazing tasks from an orbit 423 miles above the earth, moving at 17,500 miles per hour. The IKONOS satellite can easily distinguish objects on the earth's surface such as cars and trucks, roads, pipelines, individual trees, houses, large equipment, boats, ships, and airplanes.

In addition to the IKONOS satellite, Space Imaging also uses its company-owned DAIS-1 to collect aerial imagery. Other satellites contracted to provide earth imagery include the two Indian Remote Sensing satellites, the U.S. LandSat, and Canadian RADARSAT.



Dubai, United Arab Emirates, featuring the Burj Al Arab "Arabian Tower" Hotel

Venice, Italy, including the Railway Station, the Grand Canal, and St. Mark's Square

"The SGI and Space Imaging team will provide best-in-class solutions to help commercial and government customers in the geospatial market solve some of the world's biggest data problems."

—Anthony Robbins, Senior Vice President, SGI

Ground Stations: Staging, Processing, and Storing Imagery Data

Space Imaging utilizes multiple satellite systems to facilitate an efficient, global collection program that ensures customers are provided the best, most efficient service possible. The satellite imagery is transmitted to Space Imaging's ground stations along with those of its regional affiliates located in the U.S., Japan, South Korea, Turkey, Singapore, and the United Arab Emirates. Robbins points out that, "What makes IKONOS unique is that it is the only satellite that enables its worldwide ground station customers to directly task the satellite, receive the imagery data in real time, and process and store the imagery data locally."

In a typical ground station, Space Imaging and its partner Raytheon integrate four SGI® Origin® 300 servers of various processor and memory configurations for the data capture server, compute server, database server, and media server. The companies also deploy five to 10 SGI visual workstations and a 3TB to 5TB SGI® TP9400 RAID storage system to optimize satellite ground station processing, archiving, production, data analysis, and quality-control functions.

The company selected SGI Origin family systems because of their ability to provide real-time image processing of one-meter high-resolution imagery data relayed to ground stations by IKONOS. SGI systems provide the bandwidth, throughput, and processing power to combine imagery data from IKONOS with other geospatial data to produce 3D data sets of the world that can be navigated in real time. This combination of SGI hardware and Space Imaging data is ideal for the visual simulation industry.

Invesco Field and Mile High Stadium, Denver, Colorado

Analyzing the Data

In addition to the visual simulation market, Space Imaging's CARTERRA™ Analyst software integrates geographic information systems (GIS), remote sensing, imagery analysis, photogrammetry, and cartography tools into a single workstation. The application enables customers to search, browse, and retrieve images and data from a database, perform multispectral analysis, create and combine image files, generate reports and products, and create GIS databases of reports, data layers, and images. Space Imaging and SGI are providing customers of CARTERRA Analyst the option of using the SGI® File Server 830 system, using SCSI JBOD technology, or the SGI® File Server 850 system, using 2Gb RAID 5 technology.

A Relationship for the Future

"This relationship with SGI demonstrates our commitment to working with premier technology providers who offer leading-edge solutions to the geospatial community," says Copple. "SGI is the only provider of high-performance computing systems powerful enough to provide mission-critical ground station image processing to the commercial, high-resolution satellite imaging market."

In November 2001, SGI and Space Imaging signed a teaming agreement to further expand cooperation and revenue opportunities in the geospatial marketplace. A joint strategic opportunity committee (JSOC) was formed to help determine mutual revenue goals and create mutual business opportunities from which SGI and Space Imaging can develop new solutions and generate incremental revenue. The committee, which meets quarterly, will also help Space Imaging develop enhanced solutions that allow it to capture nontraditional revenue from the use of its Regional Operations Center ground stations

Jeff Young, vice president of Global Solutions, Sales, and Marketing at Space Imaging and a member of the JSOC, points out that, "SGI is an important contributor to our deliveries to [Space Imaging's] Regional Operations Center (ROC) affiliates. It behooves us to have a strong working relationship with SGI because of the high-performance computing capacity of SGI platforms and Space Imaging's need to process and store huge volumes of the satellite imagery data. As we move from one-meter imaging solutions to half-meter imaging solutions, we expect to at least quadruple the volume of data required to cover the same geography. This will enable us to grow our existing ROC business as well as identify new growth opportunities. For Space Imaging to realize our expected growth potential in the near and long term, the data processing capabilities of SGI high-performance computers are critical to that growth."

As the demand for high-resolution satellite imagery continues to increase in the months and years ahead, SGI will continue working closely with industry leaders such as Space Imaging and Raytheon to provide the bandwidth, throughput, and processing power necessary to advance the ability of existing and future ground stations to receive and process imagery data from next-generation satellites.

sgi®

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