Datasheet

SGI™ Geospatial Exploitation System

High-Performance Imagery Analysis Photogrammetry Groupstation

Features

- Smooth, high-performance roam and zoom for faster analysis
- Linked graphics and compute capabilities eliminate bottlenecks
- Real-time analysis of image mosaics 50GB and larger
- Reduced analyst fatigue with fast, smooth image handling
- Mono or stereo displays of color or panchromatic data
- Scalable up to 128 CPUs and multiterabyte databases
- Collaborative multistation shared-data environment
- Supports 2D and 3D analysis, 3D perspective fly-throughs, and videography

The Challenge: So Much Data, So Little Time

Image analysts, photogrammetrists, and cartographers face tight deadlines, massive data sets, complex interfaces, and time-consuming delays while data sets are downloaded and processed. This has created an urgent need for high-performance image-processing technology that accelerates analysis, lets co-workers share the same system, eliminates traditional network bottlenecks, and scales up to handle the biggest imagery files that any organization can generate.

The Solution: The SGI Geospatial Exploitation System

The new SGI Geospatial Exploitation System (GES) is a highly scalable group workstation built around the high-bandwidth multiprocessor SGI™ NUMA architecture, and unrivaled image generation, of the SGI™ Onyx® 3000 series InfiniteReality3™ system. Graphics systems are directly connected to the computation and storage systems, eliminating the need for downloads. The GES can be configured with hardware and software from industry-leading vendors to meet any need in image analysis, photogrammetry, GIS, cartography, or videography.

Input Control Devices

The GES works with your choice of keyboard, video, and mouse extenders. For image analysis, an optional input controller gives analysts a two-axis miniature joystick, a lever, a knob, and five pushbuttons to facilitate cursor movement and system control.

A Wide Choice of Video Displays

The highly programmable SGI Onyx 3000 series system can be configured to drive virtually any display in single- or dual-head configurations, including standard color monitors or high-performance grayscale monitors from Orwin Associates or Precision Imaging Corporation.

Choose Any Industry-Standard Software Package

The GES supports all industry-standard electronic light table (ELT), photogrammetry, and GIS software, handling the largest mosaics, terrain data files, or 3D models with ease:

- ELT functionality is accelerated with the power of the Onyx 3000 series InfiniteReality3 graphics system, and image processing is supported by SGI ImageVision Library®
- ArcView GIS software from ESRI provides GIS analysis and map presentation from virtually any source
- Imagine software from ERDAS is a comprehensive map production system with a broad range of tools for visualization and analysis, including the 3D analysis tool Virtual GIS

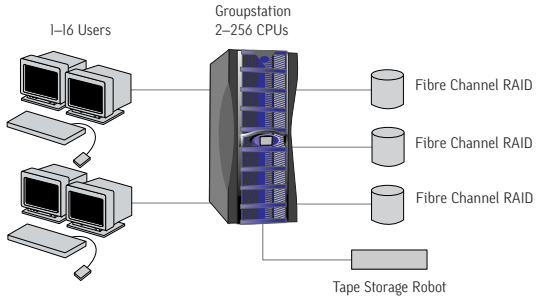
Taking Productivity to New Levels

The GES makes image analysts, photogrammetrists, and cartographers instantly more productive. Smooth, high-performance roaming and zooming over large data sets accelerate production and reduce operator fatigue. The system handles even terabyte-size files and data sets quickly and smoothly. GES users can share data and applications. And the GES can be linked to other platforms in a heterogeneous environment.

The GES also increases productivity in these significant ways:

- High-performance collaboration: the GES supports up to 16 independent users; image analysts, cartographers, and other specialists can analyze and render the same data simultaneously
- Fast data transfer: the imaging capability of the SGI Onyx 3000 series system is directly linked to the data, eliminating bottlenecks and time-consuming downloads
- Massive scalability: the GES scales from 2 to 128 MIPS® R12000™ processors and from 256MB to 256GB of main memory; petabytes of disk storage can make the GES a low-latency image archive
- Multiuse capability: users can work with a variety of COTS software solutions, including 2D and 3D image processing, mapping, terrain fly-throughs, and videography
- Professional support: for custom applications and code optimization, including remote collaborative visualization over high-bandwidth networks, the SGI Global Services team is available to offer expertise and support

Configuration Diagram



The SGI GES scales from 1 to 16 users.

Technical Specifications

Image Quality
- Bilinear or bicubic interpolation
- Convolutions kernels: separable and general 3x3, 5x5, and 7x7
- 12-bit RGBA or 16-bit luminance throughout the processing chain

Performance
- Polygons/sec: 13.1 million
- Pixel fill, smooth, Z: 224 to 896 million pixels/sec
- Convolutions (5x5, separable RGBA): 15.3 million

Displays
- 1–2 displays per user
- VGA to HDTV

Platform
- 2–128 processors
- 1–256GB memory
- All industry-standard I/O and networking available

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