Datasheet

SGI Graphics Cluster™

Affordable, High-Performance Solutions for Immersive Visualization

Features

- Single or dual Intel processors
- Linux operating system
- NVIDIA Quadro DCC (NV20) or Quadro2 Pro (NV16GL) graphics board with full-screen anti-aliasing and gigapixel fill performance
- SGI ImageSync precision interchannel video synchronization
- SGI DataSync global cluster data synchronization
- SGI SynaptIQ suite of graphics and cluster administration tools
- SGI OpenGL Performer API
- Optional Gigabit Ethernet, storage area networks
- Industry-standard, rack-mounted chassis
- Worldwide SGI service and support

The World's Choice for Demanding Simulation Applications

SGI® visual computing systems are the leading platform for high-performance, real-time 3D applications. SGI Graphics Cluster extends this legacy at an extremely affordable price. Built on a standard Intel® architecture that supports popular PC operating systems as well as today's leading off-the-shelf graphics subsystems, APIs, and accelerators, SGI Graphics Cluster offers best-of-class graphics performance for entry-level, immersive visualization requirements. Advanced systems, integrated software, the bundled SGI® OpenGL Performer™ API, and rich, unmatched feature sets such as SGI ImageSync™ with SGI DataSync™ and SGI SynaptIQ™ software combine to deliver the advanced functionality required for demanding visualization applications.

SGI ImageSync: Interchannel Synchronization

Innovative SGI ImageSync technology provides high-precision, fully locked video and frame-buffer synchronization between visual channels using the NVIDIA® graphics cards. This ensures that requirements for visual immersion can be cost-effectively achieved with multichannel displays—without image tearing or drift. SGI ImageSync lets you take full advantage of the rapid evolution of commercial graphics technology, without paying for the proprietary graphics that usually accompany a true, video-locked solution.

SGI DataSync: Data Synchronization

The synchronization of the graphics and application data is just as important as synchronizing the video image across multiple channels. SGI DataSync is an MPI-based tool that enables the distribution and synchronization of data across SGI Graphics Cluster—providing an environment that is user- and application-friendly.

SGI SynaptIQ: Complete Graphics and Administration Toolkit

SGI delivers a comprehensive cluster and graphics programming and administration environment for Linux® by integrating open-source and vendor-developed components. Each component of SGI SynaptIQ is tested extensively to ensure the interoperability and functionality of the entire package. The result is a robust solution that meets the challenges of creating and supporting immersive graphics applications in a multisystem environment while providing the administrative ease of a single-system environment.

SGI OpenGL Performer: Streamlined Real-Time 3D Development

OpenGL Performer is the world's leading API for real-time visual simulation and performance-oriented 3D graphics application development. As a standard component of SGI Graphics Cluster, it simplifies the development of complex applications used for visual simulation, simulation-based design, virtual reality, interactive entertainment, broadcast video, architectural walk-through, and computer-aided design.

For more information, please visit *www.sgi.com/go/graphicscluster*.

SGI Graphics Cluster Technical Specifications

Core System Configuration
- CPU speed: Intel Pentium® III 1.0 GHz
- Chipset: Via Apollo Pro133A
- RAM: PC133 ECC registered SDRAM
- Interconnect: 100Base-T standard, optional Gigabit Ethernet
- Storage and I/O:
  - 2 external 5.25" drive bays
  - 1 external 5.25" 48X CD-ROM (preinstalled)
  - 1 external 3.5" floppy drive (preinstalled)
  - Optional SAN
  - Optional removable disk
- Communication:
  - 2 9-pin serial ports (16550 UART)
  - 1 25-pin parallel port
  - 2 Universal Serial Bus ports
  - 1 PS/2 mouse port
  - 1 PS/2 keyboard port
- Audio:
  - On-board audio: Analog Devices AD1881 chip
  - Optional Soundblaster Live
- Display: single 19" monitor standard per system, optional upgrades
- Dimensions and weights:
  - Full rack: 71" H, 24" W, 37"D, 36U internal space, 300 lb max.
  - Half rack: 38" H, 24" W, 37" D, 20U internal space, 200 lb max.

Expansion
- 5 32-bit PCI slots
- Dual-channel SCSI controller

Networking
- Standard 100Base-T interconnect between channels via onboard NIC

10/100Base-T: Intel 82559
- Optional Gigabit Ethernet

NVIDIA Quadro DCC (NV20) or Quadro2 Pro™ (NV16GL) Graphics Board
- Full-featured graphics subsystem
- Second-generation NVIDIA GPU technology
- Unprecedented 2D and 3D graphics performance
- 64MB high-speed DDR SDRAM unified local buffer
- Multiple output options, including a standard VGA connector and DVI-I for flat panel display and digital monitor compatibility
- NVIDIA unified driver architecture support

Key Graphics Features
- 4 anisotropic filtered pixels/clock
- Hardware anti-aliased lines and points
- 32-bit color
- 32-bit Z/stencil buffer
- Integrated hardware transformation and lighting engines
- Integrated hardware support for vertex and pixel shaders
- Cube environment mapping
- High-performance 2D rendering engine
- High-definition video processor for full-screen, full-frame HDTV and DVD playback
- Professional-quality driver software featuring the NVIDIA unified driver architecture

SGI ImageSync
- Precision video synchronization
- Global swap-buffer synchronization

SGI DataSync
- Graphics data synchronization technology for cluster environments

SGI OpenGL Performer
- Real-time high-performance scene graph

SGI SynaptIQ
- A comprehensive suite of graphics and cluster administration tools for Linux

Peak Performance (NV20)
- 1,000 pixels/sec peak rendering rate*
- 32 million triangles/sec*
- 3.2 billion anti-aliased samples/sec fill rate
- 8-tap anisotropic texture filtering at full speed
- GPU internal bus width: 256-bit
- GPU core clock speed: 250 MHz
- Memory bus: SGI unique 128-bit DDR at 460 MHz (230 MHz input clock), 7.3GB/sec peak bandwidth
- Memory: SGI unique 64MB DDR at 460 MHz (230 MHz input clock), 7.3GB/sec peak bandwidth
- DAC: 350 MHz

*Actual performance will vary by application and data sets.

Digital Video Port
- Enhanced VIP 1.1 digital video port and connector

Connectors
- 1 DB-15 for RGB video
- 1 DVI-I for flat panel display and digital monitor compatibility

Monitor Support
- 1 set of digital video port headers for video port

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