Solve the Most Demanding Compute-Intensive Problems

Part of the SGI UV server line for high performance in-memory computing, SGI UV 2000 and SGI UV 20 are advanced symmetric multiprocessing (SMP) systems designed for compute-intensive, fast algorithm workloads such as CAE, CFD, and scientific simulations.

SGI UV 2000 scales to truly extraordinary levels—up to 256 CPU sockets and 64TB of cache-coherent shared memory in a single system. Enabling such powerful in-memory computing capability is 6th generation SGI NUMAlink® ASIC technology, providing extreme bandwidth, low latency network interconnects. Equipped with an integrated MPI Offload Engine, UV 2000 can also be leveraged for distributed applications and as a “super node” for clustered high performance computing (HPC) systems.

Designed for smaller, compute-intensive environments, SGI UV 20 is a 2U, 4-socket server providing up to 1.5TB of in-memory computing power.

Single System Simplicity with Extreme Scalability

The SGI UV 2000 features a modular chassis design that enables users to grow their system without adding complexity. A 10U chassis contains up to 16 sockets and 24 threads coupled with an All-to-All NUMAlink network topology. By adding additional chassis (up to four per standard 19” rack) and using an Enhanced Hypercube topology, UV 2000 can scale up to 256 sockets and 4,096 threads, all operating as a single system. It’s like running a giant workstation with lightning speed and maximum investment protection.

Flexible, Open, Energy Efficient

SGI UV 2000 is designed with optimum flexibility. Featuring Intel® Xeon® E5-4600 processors with eight DIMMs per socket, the system’s x86 architecture delivers a high processor to memory ratio. NVIDIA® Quadro® and NVIDIA® Tesla® GPU accelerators and Intel® Xeon® Phi™ coprocessors can also be added. A choice of unmodified SUSE® Linux® Enterprise Server or Red Hat® Enterprise Linux operating systems make the UV 2000 ideal for standard ISV and open source applications as well custom codes. And SGI’s innovative air or water cooling helps lower energy costs.

High Performance Storage with Fast Access

Industry-standard PCIe Gen3 expansion slots provide countless options for persistent storage with fast I/O, very-high bandwidth connectivity. For hardware, select from the entire SGI InfiniteStorage line of Storage Servers, RAID and tape libraries, as well as industry-standard 3rd party components. For storage software, leverage Intel® Enterprise Edition for Lustre, SGI CXFS™, or industry standard XFS® file systems, SGI XVM® volume management, SGI DMF™ tiered data management, and 3rd party backup solutions.
UV 2000, UV 20 Configuration Specifications

### System Components

**Processors**
- Intel® Xeon® processor ES-4600 v2 product family (2.4-3.3GHz)

**Memory**
- 8, 16 or 32GB up to 1600 MT/s ECC DDR3 DIMMs

**Disk Drives**
- 2.5” SATA, SAS HDD or SSD

**Interconnect**
- NumaLink® (NL6; 6.7GB/s bidirectional)

**Environmental**
- 68-77°F (20-25°C), 40-55% relative humidity (non-condensing)

**Power**
- Single phase 30 amp or three phase (208, 400 or 480VAC) 60 amp

**Cooling**
- Optional water-cooled: water temp. 45-60°F (7.2-15.6°C)

### Rack

**SGI Rack Dimensions** (H x W x D)
- 79.5” (202.6cm) x 31.3” (79.5cm) x 46.2” (117.3cm)

**Power**
- Single phase 180-264VAC or three-phase 180-504VAC, 47-63Hz

**Cooling**
- Open-looped airflow or optional water-cooled door

### Blade

**Dimensions** (H x W x D)
- 17.5” (44.5cm) x 19” (48.36cm) x 27” (68.68cm)

**Power**
- Three 12VDC 307W, 200-240VAC or 277VAC input voltage (N+1)

**Cooling**
- Nine hot-pluggable, 119mm, 12VDC axial cooling fans

### Administrative Network

- One Chassis Management Controller
- Two backplane connections

### Compute Blade

**Dimensions** (H x W x D)
- 3.7” (9.4cm) x 8.4” (21.3cm) x 18.1” (46.0cm)

**CPU**
- Up to 2 NVIDIA Quadro, NVIDIA Tesla computing accelerators and Intel® Xeon® Phi™ coprocessors

**Memory**
- 4, 8, 16 or 32GB 1600/1866 ECC DDR3 DIMMs

**Storage**
- Up to 2.5” SSD plus up to 8 2.5” SAS, SATA HDD or SSD

**IO Expansion**
- 4 external PCIe X16 Gen 3 slots, 2 internal IO module x 8

**System Management**
- One per compute blade
- One per blade enclosure

**System Management Node**
- One per system

### SGI UV 20-way Server Specifications

**CPU**
- 4 Intel® Xeon® processor ES-4600 v2 product family (8, 10, or 12 core CPUs, 2.4-3.3 GHz)

**Memory**
- Up to 48 DIMM slots

**Storage**
- 4, 8, 16 or 32GB 1600/1866 MT/s ECC DDR3 DIMMs

**Power**
- 2x 1.8” SSD plus up to 8 2.5” SAS, SATA HDD or SSD

**Cooling**
- 4, 8, 16 or 32GB 1600/1866 MT/s ECC DDR3 DIMMs

**Dimensions**
- 2U, 17.24” (438mm) x 28” (712mm) x 27” (687mm)

**Power**
- 2x 1600W N+N redundant power supplies

**Cooling**
- 11.40 mm x 40mm x 50mm hot swap fans

**Other**
- Base system includes integrated SAS, management controllers

### Software Development

#### Programming Languages and Debuggers

- SGI Development Suite
- C & C++: Intel C++ Compiler, GNU GCC
- Fortran: Intel Fortran Compilers, GNU GCC
- Performance Analysis: Intel® VTune Amplifier XE, Intel® Trace Analyzer & Collector

**Libraries**
- SGI MPI
- OpenMP included with Intel® compilers
- Intel® Math Kernel Library
- Intel® Parallel Building Blocks
- Intel® Integrated Performance Primitives
- Intel® MPI Library

### System Software

**Operating Systems**
- SUSE® Linux Enterprise Server 11
- Red Hat® Enterprise Linux 6

**SGI Linux System Software**
- SGI Foundation Software
- SGI Performance Suite
- SGI Management Suite

**Virtualization Software**
- KVM

About SGI

SGI, the trusted leader in high performance computing (HPC), is focused on helping customers solve their most demanding business and technology challenges by delivering technical computing. Big Data analytics, cloud computing, and petascale storage solutions that accelerate time to discovery, innovation, and profitability. For more information please contact an SGI sales representative at 1-800-800-7441 or visit www.sgi.com/contactus.

Global Sales and Support: sgi.com/global

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