SGI® Altix® 450 Mid-Range Server

Top Performance, Efficiency and Flexibility

The High-Throughput Computational Chemist System.

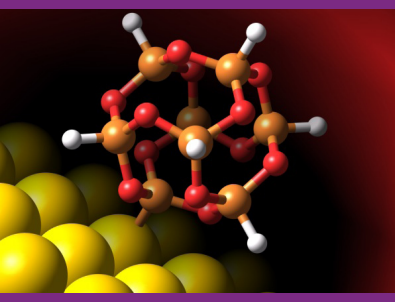
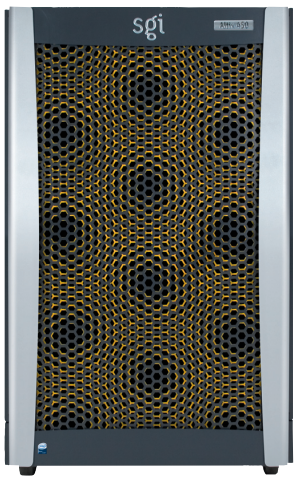


Image courtesy of Schrödinger.

The new SGI® Altix® 450 mid-range server is the ideal high-performance system to run your most demanding Computational Chemistry applications. With industry leading performance on Schrödinger Jaguar and other applications, this compact yet powerful computer uses an innovative modular blade design that allows you to pack up to half a teraflop in a short rack, and NUMAlink™ interconnect technology which leads the industry in bandwidth and latency.



Drive your results faster with your own 12-core SGI Altix 450 server based on next-generation dual-core Intel® Itanium® 2 processors (1.6GHz/18M), 146GB SAS HDD, and 32GB of global shared memory — for the amazingly low price of…

$49,388* (USD)

And you get…

- The powerful combination of Intel Itanium 2 processors and the Linux® OS (Novell® SUSE® LINUX Enterprise Server or Red Hat® Enterprise Linux®)
- Turbo-charged Computational Chemistry application performance with SGI® ProPack™ for Novell SUSE Linux Enterprise Server
- Intel C++ and Fortran compilers, and Intel Math Kernel Library
- 1 Year of SGI warranty support
- 'Plug and solve' configuration flexibility with interchangeable compute, memory, I/O and special purpose blades for perfect system right-sizing
- A system that can keep up with your needs: support for up to 38 sockets (76 cores) under one instance of Linux and up to 456GB of global shared memory

*Special Offer: Receive up to US$2000 List Price credit per socket of Altix 450 purchased with trade-in of qualifying systems.

Don't miss out on this special pricing…
Please call 1-800-800-SGI1 (7441), e-mail at eleads@sgi.com, or contact your authorized SGI channel partner.

SGI® Altix® 450 Servers

Compute Blades

Two processor sockets per blade

- Dual Core Intel Itanium 2 Processor 9000 Series
  - 1.6GHz/18MB, 1.6GHz/8MB, 1.4GHz/12MB
  - Socket upgradeable to code-name Montvale
- 12 DIMM slots per blade
- 512MB, 1GB, 2GB, or 4GB DIMMs
- Up to 38 sockets per short rack
- Up to two 38 cpu socket single system image machines (76 sockets total) per tall rack
- Up to 38 sockets per short rack

Compute Blades: Bandwidth Configuration

One processor socket per blade

- Dual Core Intel Itanium 2 Processor 9000 Series
  - 1.6GHz/24MB, 1.6GHz/18MB
- Same features and memory options as above

Memory-only Blade

- Adds to shared memory without cost of cpu and associated software licenses
- Same memory options as compute blade

I/O Blades

Base I/O Blade

- Minimum of One Base I/O blade required for every SSI/ partition
- Up to two hard drives – mix or match 146GB SAS or 250GB SATA2 hard drives
- Two low profile PCI-X slots
- Supports 2D graphics card (details below)
- Supports HW RAID 0,1
- One 4X SAS port, one DVDR/W, two Gigabit Ethernet, and four USB connectors
- Double blade width – for use in blade slots 1 only

PCI-X Expansion Blade – 3 slot

- Three full 64-bit/133MHz 3.3V PCI-X slot, hot plug capable
- Double blade width – for use in blade slot 1 only

PCI-X Expansion Blade – 2 slot

- Two full 64-bit/133MHz 3.3V PCI-X slots (100MHz bus if both populated), hot plug capable
- One blade width

PCI-Express I/O Blade – 2 slot

- Two full PCI-Express slots
- Supports two standard height PCIe cards at 16X speeds
- Supports 3D graphics card options (see below)
- One blade width

PCI-X + PCI-Express I/O Blade – 4 slot

- Two 64-bit/133MHz 3.3V PCI-X slots
- Two full 16X PCI-Express slots
- Double blade width – for use in blade slots 1 only

Graphics Cards

- 2D Card: ATI™ FireMV 2200 PCI low profile, max analog resolution 2048 x 1536, 64MB memory
- 3D Card: ATI™ FireGL V7350 PCI-E, max digital resolution 3840 x 2400, 1GB memory

SGI® RC100 RASC™ Blade

- Two high performance Xilinx Virtex 4 LX200 FPGA chips with 160K logic cells
- 10 QDR SRAM or SDRAM DIMMs per blade

Interfaces for Networking and External Storage

- 4Gbit Fibre Channel, single-port and dual-port optical HBAs
- Ultra320 SCSI, dual-port HBA
- Gig-E, dual-port optical and dual-port copper adapters
- 10Gigabit Ethernet, optical adapter

Software

Operating System

- SUSE Linux Enterprise Server
- SGI® ProPack™ on SUSE® Linux Enterprise Server
- Red Hat® Enterprise Linux®

Optional Host Storage Software

- XVM, XVM Ple, XVM Snapshot, XFS®, CXFS®, DMF, InfiniteStorage Resource Manager

Networking

- TCP/IP, NFS V2/V3, DHCP, SNMP management, SNMP MIB, NIS/ONC+

Software Development Tools

- Compilers, Libraries, Debuggers, Analysis Tools, Automated Parallelization Tools, Open Source Development Tools, FPGA Software Development Tools
- For more details, see the SGI® Altix® 450 Datasheet

Dimensions and Weight

Altix 450 Individual Rack Unit (A450 IRU)

- Supports up to 5 blade slots including one double-wide
- 5U (8.75"H x 17.5"W x 17.0"D)
- Max. shipping weight 262 lbs (119kg)

Standard Tall Rack

- Eight A450 IRU per rack
- 42U (79.5"H x 25.8"W x 43.5"D)
- Max. shipping weight 1500lbs (680kg)

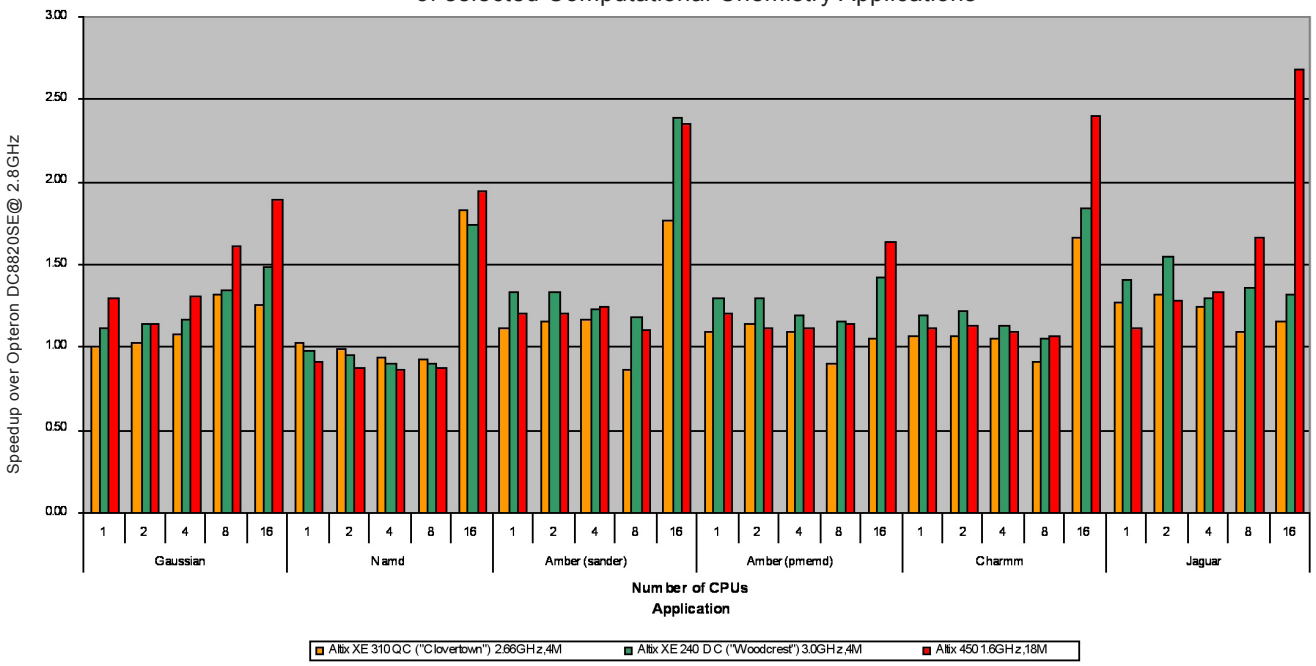
Standard Short Rack

- Four A450 IRU per rack
- 20U (41.8"H x 25.8"W x 40.9"D)
- Max. shipping weight 847lbs (384kg)

Support and Services

SGI offers full support for hardware and system software. SGI offers services to implement and integrate Linux applications in your environment. SGI also offers SGI ESP (Embedded Support Partner), a set of tools and facilities that provides an effective, reliable, proactive, and automated environment for achieving levels of high availability. For more information, please see www.sgi.com/support or contact your SGI representative. more information, please contact your SGI representative.

Average Relative speed
of selected Computational Chemistry Applications



Notes:
All performance results reported as the sum of all the times normalized by the total time of the reference machine. All testing done by SGI. SGI Altix 450 system tested: dual-core Intel Itanium 2 9040 (1.6GHz/18MB L3 cache per socket), 8 blades, 16 sockets, 32 cores, 64GB mem (2GB mem/core). SGI Altix XE 310 Quad-Core system tested: quad-core Intel Xeon 5300 (2.66GHz/8MB cache per socket), 2 sockets, 8 cores, 16GB mem. SGI Altix XE 240 Dual-Core system tested: dual-core Intel Xeon 5160 (3.0GHz/4MB cache per socket), 2 sockets, 4 cores, 8GB mem. Colfax DC 8220 system tested: dual-core AMD Opteron 8220SE (2.8GHz/2MB L2 cache per socket), 4 sockets, 8 cores, 32GB mem. Interconnect InfiniBand. Gaussian 03 rev D.01. Testing based on apinefreq (C10H16, 182 basis functions, RB3LYP/6-31G, Frequency calculation), apineneht (C10H16, HF/6-311g(df,p), 346 basis functions), Test397 (RB3LYP/3-21G Force calculation of C54H90N6O18, C1 symmetry, 882 basis functions.), TATBcis (CIS=Direct, SCF=NoIncore calculation of C6H6N6O6, C2v symmetry, 6-311g(2d,p) basis set, 171 basis functions). Amber 9. Testing based on jac, factor_ix, hb, rt, trx, gb_alp, gb_cox2 and gb_mb (http://amber.scripps.edu/). Namd 2.6. Testing based on apoa1 (http://www.ks.uiuc.edu/Research/namd/performance.html) and JAC. Charmm c33b1. Testing based on JAC and MbCOdyn (Carobxymyoglobin Dynamics 1,000 steps (1 ps) Number of Atoms: 17,491 (4,985 waters),12A cutoff + PME. Gromacs 3.3.1. Testing based on villin, Lys/cut, Lys/PME, dppc and poly-ch2 (http://www.gromacs.org/content/view/24/37/). Jaguar 7.0.105. Tsting based on cholesterol - b3lyp/pvtz ("One step of Geometry optimization of Cholesterol (C27H46O; C1 symmetry) b3lyp, cc-pvtz(-f) basis set, 74 atoms, 1058 basis functions"), taxol b3lyp/6-31g (One step of Geometry optimization of Taxol (C47NH51O14; C1 symmetry), b3lyp, 6-31g** basis set, 113 atoms, 1185 basis functions); mimic -lmp2/pvtz (LMP2 calculation (C12H14O3F2; C1 symmetry), cc-pvtz basis set, 31 atoms, 706 basis functions); cholesterol - lmp2/6-31g ("LMP2 calculation of Cholesterol (C27H46O; C1 symmetry) 6-31g** basis set, 74 atoms, 650 basis functions); cholesterol - lmp2/pvtz ("LMP2 calculation of Cholesterol (C27H46O; C1 symmetry) cc-pvtz(-f) basis set, 74 atoms, 1058 basis functions); dioxin -freq-6-31g ("Frequency calculation of dioxin(C12H4Cl4O2; D2h symmetry) b3lyp, 6-31g** basis set, 22 atoms, 306 basis functions); tetramethrin lmp2-cc-pvtz(-f) ("LMP2 calculation of tetramethrin (C19NH25O4; C1 symmetry) cc-pvtz(-f) basis set, 49 atoms, 777 basis functions); "emetine - freq-631g ("Frequency calculation of emetine (C27N2H36O4; C1 symmetry) b3lyp, 6-31g** basis set, 69 atoms, 675 basis functions). Detailed performance results are available upon request.

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