SPEC® CINT2006 Result
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SGI

SGI Altix ICE 8200EX (Intel Xeon X5570, 2.93 GHz)

$SPECint^®\_rate2006 =$ 499

$SPECint\_rate\_base2006 =$ 466

CPU2006 license: 4	**Test date:** May-2009
Test sponsor: SGI	**Hardware Availability:** Mar-2009
Tested by: SGI	**Software Availability:** Feb-2009

Copies — graph scale: 0 50.0 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1100 1200 1300 1400

- **400.perlbench** — 32: 499 / 32: 429
- **401.bzip2** — 32: 326 / 32: 311
- **403.gcc** — 32: 398 / 32: 401
- **429.mcf** — 16: 544 / 32: 542
- **445.gobmk** — 32: 526 / 32: 478
- **456.hmmer** — 16: 482 / 32: 356
- **458.sjeng** — 32: 494 / 32: 449
- **462.libquantum** — 32: 1370 / 32: 1370
- **464.h264ref** — 32: 652 / 32: 619
- **471.omnetpp** — 32: 347
- **473.astar** — 32: 333 / 32: 304
- **483.xalancbmk** — 32: 525

SPECint_rate_base2006 = 466

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Hardware

CPU Name:	Intel Xeon X5570
CPU Characteristics:	Quad Core, 2.93 GHz
	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	16 cores, 4 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips per blade, 2-16384 blades
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	96 GB (2 x 12*4GB DDR3-1066 CL7 RDIMMs)
Disk Subsystem:	13 TB Lustre Parallel Filesystem
	1 Metadata Server and 6 Object Storage Servers
	96 x 136 GB SAS (Seagate Cheetah 15000 rpm)
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP2 with patch Linux kernel 20080917, Kernel 2.6.16.60-0.30-smp
Compiler:	Intel C++ Compiler 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.080
Auto Parallel:	No
File System:	lustre v1.6.7 over DDR Infiniband
System State:	Multi-user, run level 3
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	SGI ProPack 6 for Linux Service Pack 2 Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502

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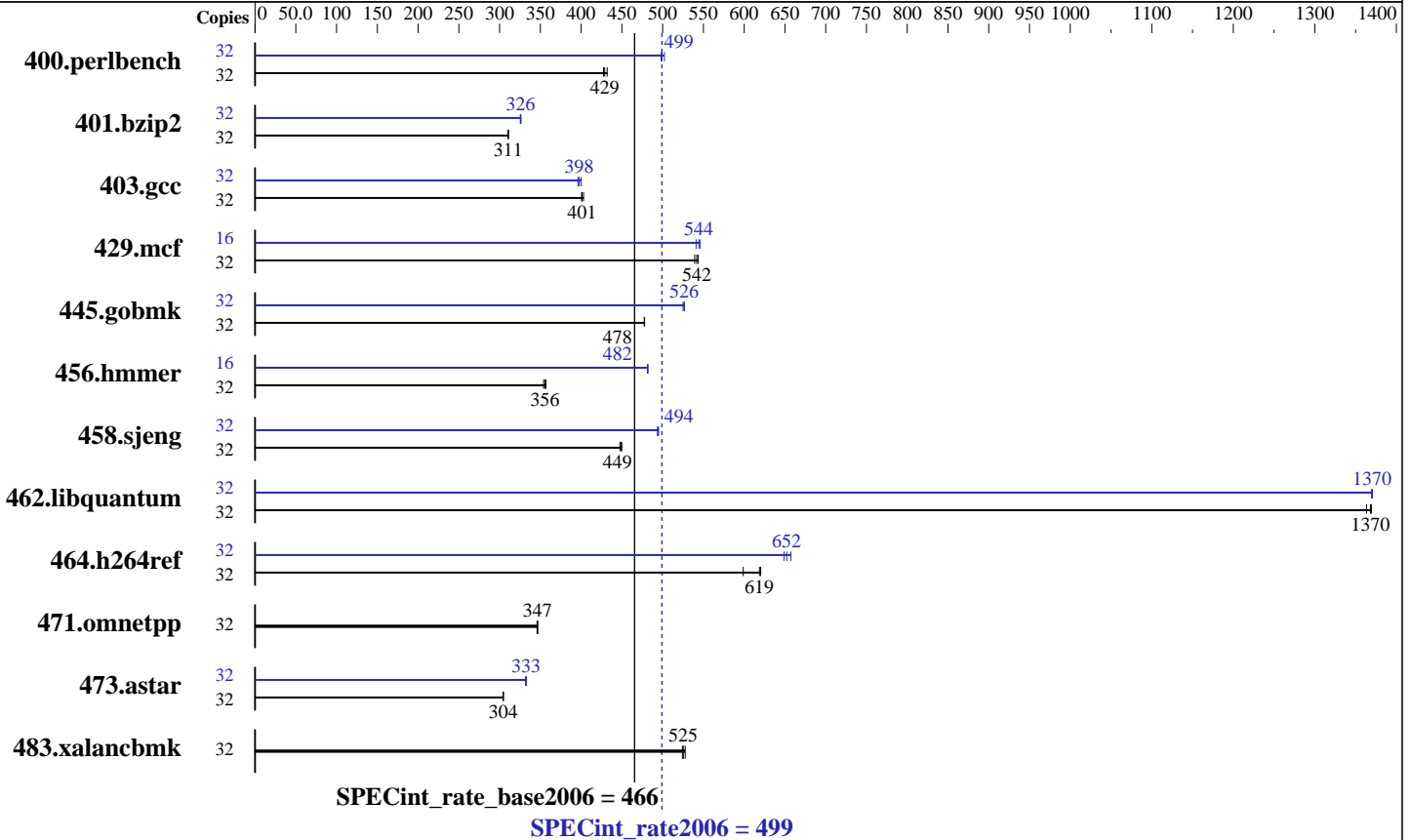
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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	32	**729**	**429**	731	427	724	432	32	623	502	**626**	**499**	628	498
401.bzip2	32	995	310	**994**	**311**	994	311	32	946	326	**948**	**326**	949	325
403.gcc	32	**642**	**401**	639	403	643	401	32	650	396	**648**	**398**	644	400
429.mcf	32	537	543	**539**	**542**	541	539	16	270	541	267	546	**268**	**544**
445.gobmk	32	703	477	702	478	**703**	**478**	32	639	525	**638**	**526**	637	527
456.hmmer	32	**839**	**356**	837	357	843	354	16	**310**	**482**	310	482	310	481
458.sjeng	32	861	450	865	448	**862**	**449**	32	**784**	**494**	782	495	784	494
462.libquantum	32	484	1370	486	1360	**485**	**1370**	32	484	1370	484	1370	**484**	**1370**
464.h264ref	32	**1145**	**619**	1183	599	1142	620	32	**1086**	**652**	1077	657	1091	649
471.omnetpp	32	577	347	**577**	**347**	578	346	32	577	347	**577**	**347**	578	346
473.astar	32	739	304	737	305	**738**	**304**	32	**675**	**333**	677	332	675	333
483.xalancbmk	32	418	528	**420**	**525**	421	524	32	418	528	**420**	**525**	421	524

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The config file option 'submit' was used.
A submit.pl script was used to distribute benchmark
copies across the 2 blades and to pin processes
to cores using dplace.  Each blade runs a separate
instance of the operating system.
```

General Notes

```
Adjacent cache line prefetch enabled
System has 2 blades with 2 chips/blade.
```

Base Compiler Invocation

C benchmarks:
    icc

C++ benchmarks:
    icpc

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32

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Base Portability Flags (Continued)

462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc
-opt-malloc-options=3 -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/spec/cpu2006.1.1/lib -lsmartheap
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
`icc`

401.bzip2: `/opt/intel/Compiler/11.0/080/bin/intel64/icc`

456.hmmer: `/opt/intel/Compiler/11.0/080/bin/intel64/icc`

458.sjeng: `/opt/intel/Compiler/11.0/080/bin/intel64/icc`

C++ benchmarks (except as noted below):
`icpc`

473.astar: `/opt/intel/Compiler/11.0/080/bin/intel64/icpc`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`

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Peak Portability Flags (Continued)

```
462.libquantum: -DSPEC_CPU_LINUX
     473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
               -prof-use(pass 2) -ansi-alias -opt-prefetch

    401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
               -prof-use(pass 2) -opt-prefetch -ansi-alias -auto-ilp32

      403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc
               -opt-malloc-options=3

      429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
               -prof-use(pass 2) -opt-prefetch

    445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2
               -ipo -no-prec-div -ansi-alias

    456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2
               -ansi-alias -auto-ilp32

    458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
               -prof-use(pass 2) -unroll4 -auto-ilp32

462.libquantum: -xSSE4.2 -ipo -O3 -no-prec-div -static
               -opt-malloc-options=3 -opt-prefetch

   464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -static(pass 2)
               -prof-use(pass 2) -unroll2 -ansi-alias
```

C++ benchmarks:

```
   471.omnetpp: basepeak = yes

     473.astar: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
               -ansi-alias -opt-ra-region-strategy=routine -auto-ilp32
               -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap64
```

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Peak Optimization Flags (Continued)

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090710.13.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090710.13.xml

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