



# SPEC® CFP2006 Result

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## SGI

SGI Altix ICE 8200EX (Intel Xeon E5472, 3.00 GHz)

SPECfp®2006 = 23.6

SPECfp\_base2006 = 20.1

CPU2006 license: 4

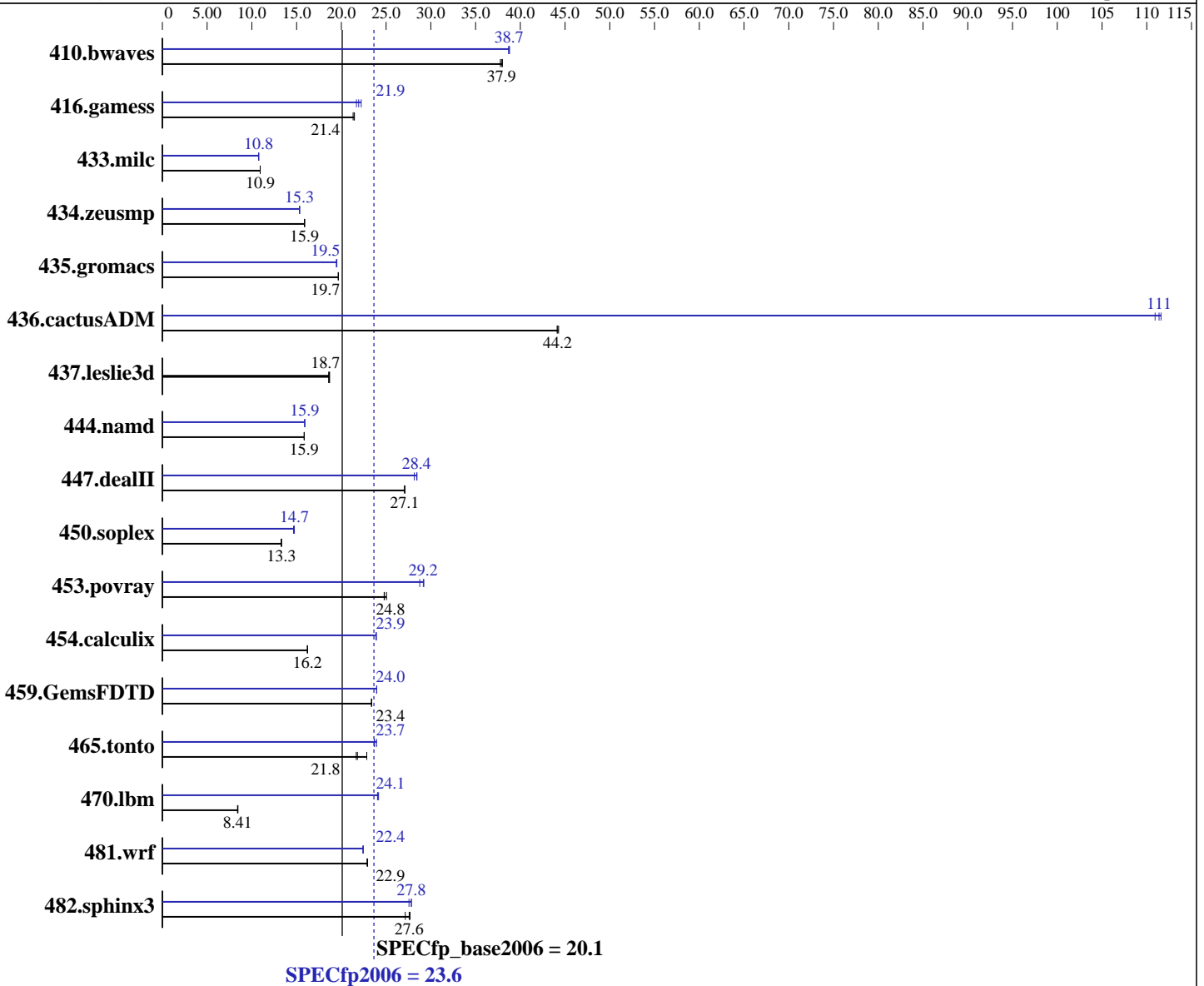
Test sponsor: SGI

Tested by: SGI

Test date: May-2008

Hardware Availability: Mar-2008

Software Availability: Apr-2008



### Hardware

CPU Name: Intel Xeon E5472  
 CPU Characteristics: Quad Core, 3.0 GHz  
 CPU MHz: 2992  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

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### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP1 2.6.16.46-0.12-smpp  
 Compiler: Intel C++ and Fortran Compiler for Linux Version 10.1, Build 20070913  
 Auto Parallel: Yes  
 File System: NFSv3 IPoIB  
 System State: Multi-user, run level 3  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (8\*2GB PC2-6400 CL5-5-5 FB-DIMMs)  
Disk Subsystem: 16 TB RAID 6+1  
32 x 500 GB SATA (Seagate Barracuda 7200 rpm)  
Other Hardware: None

Other Software: SGI ProPack 5 for Linux Service Pack 5  
Binutils 2.17

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	360	37.8	<b>359</b>	<b>37.9</b>	358	38.0	<b>351</b>	<b>38.7</b>	350	38.8	351	38.7
416.gamess	912	21.5	<b>913</b>	<b>21.4</b>	919	21.3	<b>893</b>	<b>21.9</b>	903	21.7	881	22.2
433.milc	839	10.9	840	10.9	<b>840</b>	<b>10.9</b>	853	10.8	<b>853</b>	<b>10.8</b>	852	10.8
434.zeusmp	573	15.9	572	15.9	<b>573</b>	<b>15.9</b>	<b>594</b>	<b>15.3</b>	594	15.3	593	15.3
435.gromacs	<b>363</b>	<b>19.7</b>	363	19.7	363	19.7	<b>367</b>	<b>19.5</b>	366	19.5	367	19.4
436.cactusADM	271	44.1	270	44.3	<b>271</b>	<b>44.2</b>	107	112	108	111	<b>107</b>	<b>111</b>
437.leslie3d	<b>504</b>	<b>18.7</b>	503	18.7	506	18.6	<b>504</b>	<b>18.7</b>	503	18.7	506	18.6
444.namd	506	15.8	<b>506</b>	<b>15.9</b>	506	15.9	504	15.9	504	15.9	<b>504</b>	<b>15.9</b>
447.dealII	423	27.1	422	27.1	<b>422</b>	<b>27.1</b>	406	28.2	402	28.5	<b>403</b>	<b>28.4</b>
450.soplex	626	13.3	628	13.3	<b>627</b>	<b>13.3</b>	569	14.7	<b>565</b>	<b>14.7</b>	565	14.8
453.povray	212	25.0	215	24.8	<b>214</b>	<b>24.8</b>	185	28.8	182	29.2	<b>182</b>	<b>29.2</b>
454.calculix	509	16.2	<b>509</b>	<b>16.2</b>	509	16.2	345	23.9	<b>345</b>	<b>23.9</b>	345	23.9
459.GemsFDTD	454	23.4	<b>454</b>	<b>23.4</b>	454	23.4	443	24.0	<b>443</b>	<b>24.0</b>	443	23.9
465.tonto	431	22.8	<b>452</b>	<b>21.8</b>	454	21.7	411	23.9	416	23.7	<b>415</b>	<b>23.7</b>
470.lbm	1626	8.45	1635	8.40	<b>1633</b>	<b>8.41</b>	<b>570</b>	<b>24.1</b>	569	24.2	572	24.0
481.wrf	487	22.9	<b>487</b>	<b>22.9</b>	489	22.9	<b>498</b>	<b>22.4</b>	497	22.5	498	22.4
482.sphinx3	704	27.7	718	27.1	<b>707</b>	<b>27.6</b>	700	27.8	707	27.6	<b>701</b>	<b>27.8</b>

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

## General Notes

BIOS settings:

Snoop Filter: Enabled

Hardware Prefetcher: Enabled

Adjacent Sector Prefetch: Disabled

All benchmarks compiled in 64-bit mode except 450.soplex, 470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode

Benchmarks compiled with automatic parallelization use the following environment settings:

OMP\_NUM\_THREADS = 8

KMP\_AFFINITY = physical,0

KMP\_STACKSIZE = 200M



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## Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## Base Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
416.gamess: -DSPEC\_CPU\_LP64  
433.milc: -DSPEC\_CPU\_LP64  
434.zeusmp: -DSPEC\_CPU\_LP64  
435.gromacs: -DSPEC\_CPU\_LP64 -nofor\_main  
436.cactusADM: -DSPEC\_CPU\_LP64 -nofor\_main  
437.leslie3d: -DSPEC\_CPU\_LP64  
444.namd: -DSPEC\_CPU\_LP64  
447.dealII: -DSPEC\_CPU\_LP64  
450.soplex: -DSPEC\_CPU\_LP64  
453.povray: -DSPEC\_CPU\_LP64  
454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
459.GemsFDTD: -DSPEC\_CPU\_LP64  
465.tonto: -DSPEC\_CPU\_LP64  
470.lbm: -DSPEC\_CPU\_LP64  
481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX  
482.sphinx3: -DSPEC\_CPU\_LP64

## Base Optimization Flags

C benchmarks:

-fast -parallel

C++ benchmarks:

-fast -parallel

Fortran benchmarks:

-fast -parallel

Benchmarks using both Fortran and C:

-fast -parallel



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## Peak Compiler Invocation

C benchmarks (except as noted below):

```
/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/bin/icpc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070824/Linux32/include
```

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## Peak Portability Flags

```
410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.deallI: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

## Peak Optimization Flags

C benchmarks:

433.milc: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-scalar-rep- -prefetch -opt-malloc-options=3

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## Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

### C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32

447.dealIII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast  
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4  
-ansi-alias

### Fortran benchmarks:

410.bwaves: -fast -prefetch -parallel

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

### Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -parallel -prefetch -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.04.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.04.xml>



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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