SPEC® CFP2006 Result

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SGI

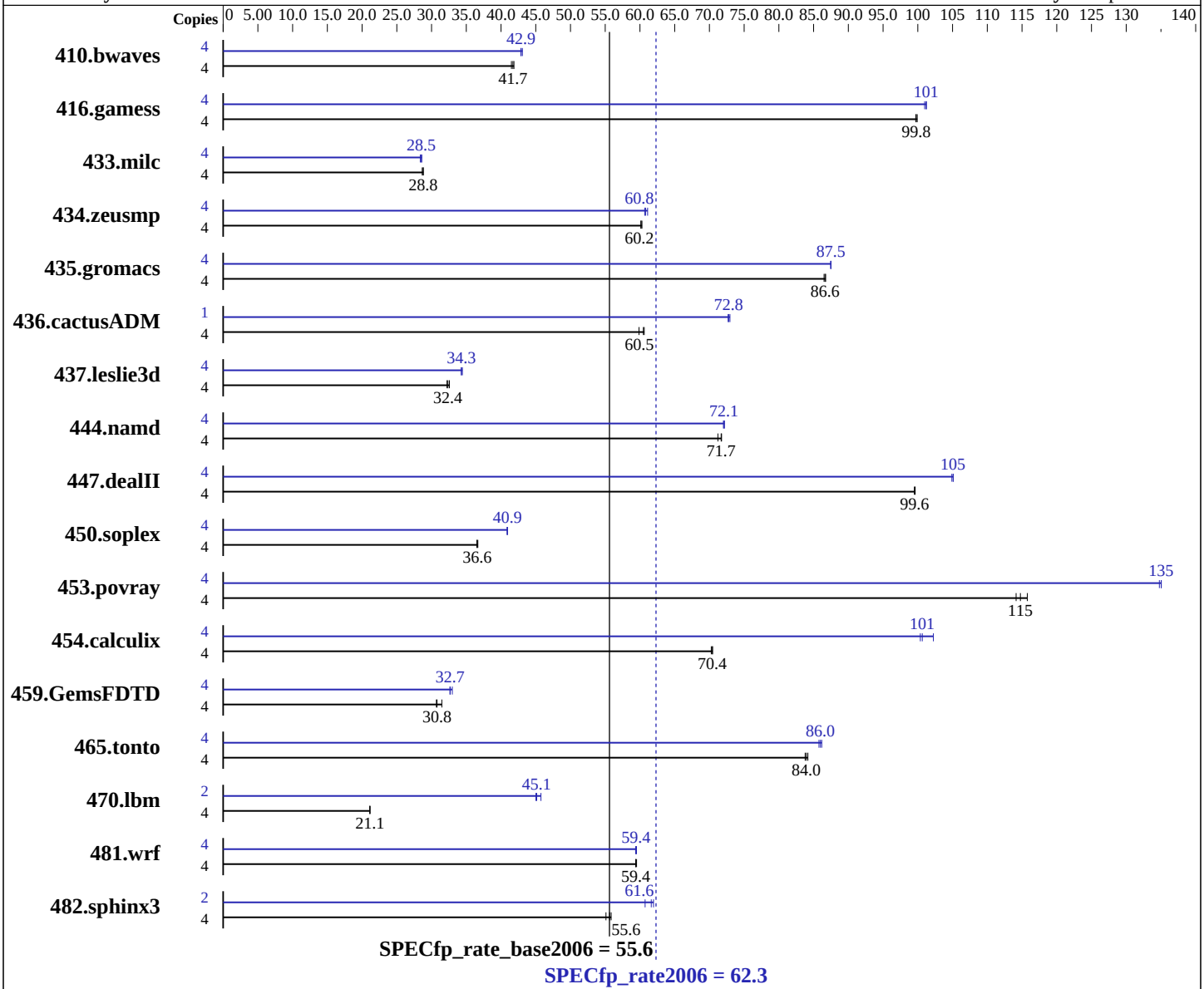
SGI Altix XE 250 (Intel Xeon X5272 3.4GHz)

SPECfp®_rate2006 = 62.3

SPECfp_rate_base2006 = 55.6

CPU2006 license: 4
Test sponsor: SGI
Tested by: SGI

Test date: May-2008
Hardware Availability: Feb-2008
Software Availability: Apr-2008



Hardware

CPU Name:	Intel Xeon X5272
CPU Characteristics:	Dual Core, 3.4 GHz
CPU MHz:	3391
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	6 MB I+D on chip per chip

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Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP1 Kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ and Fortran Compiler for Linux Version 10.1, Build 20070913
Auto Parallel:	Yes
File System:	xfs
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: 8 GB (4*2GB PC2-6400 CL5-5-5 FB-DIMMs)
Disk Subsystem: 1 x 300 GB SAS (Seagate Cheetah 15000rpm)
Other Hardware: None

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	1310	41.5	1299	41.9	**1303**	**41.7**	4	1268	42.9	1262	43.1	**1267**	**42.9**
416.gamess	4	784	99.9	**785**	**99.8**	786	99.7	4	774	101	776	101	**774**	**101**
433.milc	4	1281	28.7	**1275**	**28.8**	1275	28.8	4	1294	28.4	1284	28.6	**1287**	**28.5**
434.zeusmp	4	605	60.1	604	60.3	**605**	**60.2**	4	**599**	**60.8**	596	61.1	600	60.7
435.gromacs	4	329	86.7	330	86.5	**330**	**86.6**	4	327	87.5	326	87.5	**326**	**87.5**
436.cactusADM	4	798	59.9	**790**	**60.5**	789	60.6	1	164	72.7	164	73.0	**164**	**72.8**
437.leslie3d	4	1167	32.2	1154	32.6	**1162**	**32.4**	4	1097	34.3	**1096**	**34.3**	1092	34.4
444.namd	4	447	71.7	450	71.2	**447**	**71.7**	4	445	72.0	445	72.2	**445**	**72.1**
447.dealII	4	460	99.5	**460**	**99.6**	459	99.6	4	435	105	**435**	**105**	436	105
450.soplex	4	910	36.7	914	36.5	**912**	**36.6**	4	816	40.9	**815**	**40.9**	815	40.9
453.povray	4	184	116	**185**	**115**	186	114	4	158	135	**158**	**135**	158	135
454.calculix	4	**469**	**70.4**	468	70.5	470	70.3	4	323	102	**328**	**101**	329	100
459.GemsFDTD	4	**1378**	**30.8**	1348	31.5	1383	30.7	4	1287	33.0	1300	32.6	**1298**	**32.7**
465.tonto	4	**469**	**84.0**	468	84.2	470	83.8	4	457	86.2	**458**	**86.0**	459	85.8
470.lbm	4	**2602**	**21.1**	2602	21.1	2601	21.1	2	601	45.7	**609**	**45.1**	610	45.0
481.wrf	4	**752**	**59.4**	751	59.5	752	59.4	4	751	59.5	752	59.4	**752**	**59.4**
482.sphinx3	4	1415	55.1	**1402**	**55.6**	1396	55.9	2	642	60.7	**633**	**61.6**	629	62.0

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: Enabled
All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex,
470.lbm, and 482.sphinx3, at peak, are compiled in 32-bit mode
The taskset utility was used to bind processes to cores
Parallel settings for 436.cactusADM peak:
  OMP_NUM_THREADS = 4
  KMP_AFFINITY = physical,0
  KMP_STACKSIZE = 64M
```

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

C++ benchmarks:
-fast

Fortran benchmarks:
-fast

Benchmarks using both Fortran and C:
-fast

Peak Compiler Invocation

C benchmarks (except as noted below):
`/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

433.milc: `icc`

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

450.soplex: `/opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

Fortran benchmarks (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib -I/opt/intel/fc/10.1.008/include`

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`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-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`

Continued on next page

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.dealII: -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

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

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

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 -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.20090714.03.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.20090714.03.xml`

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