SPEC® CFP2006 Result

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SGI

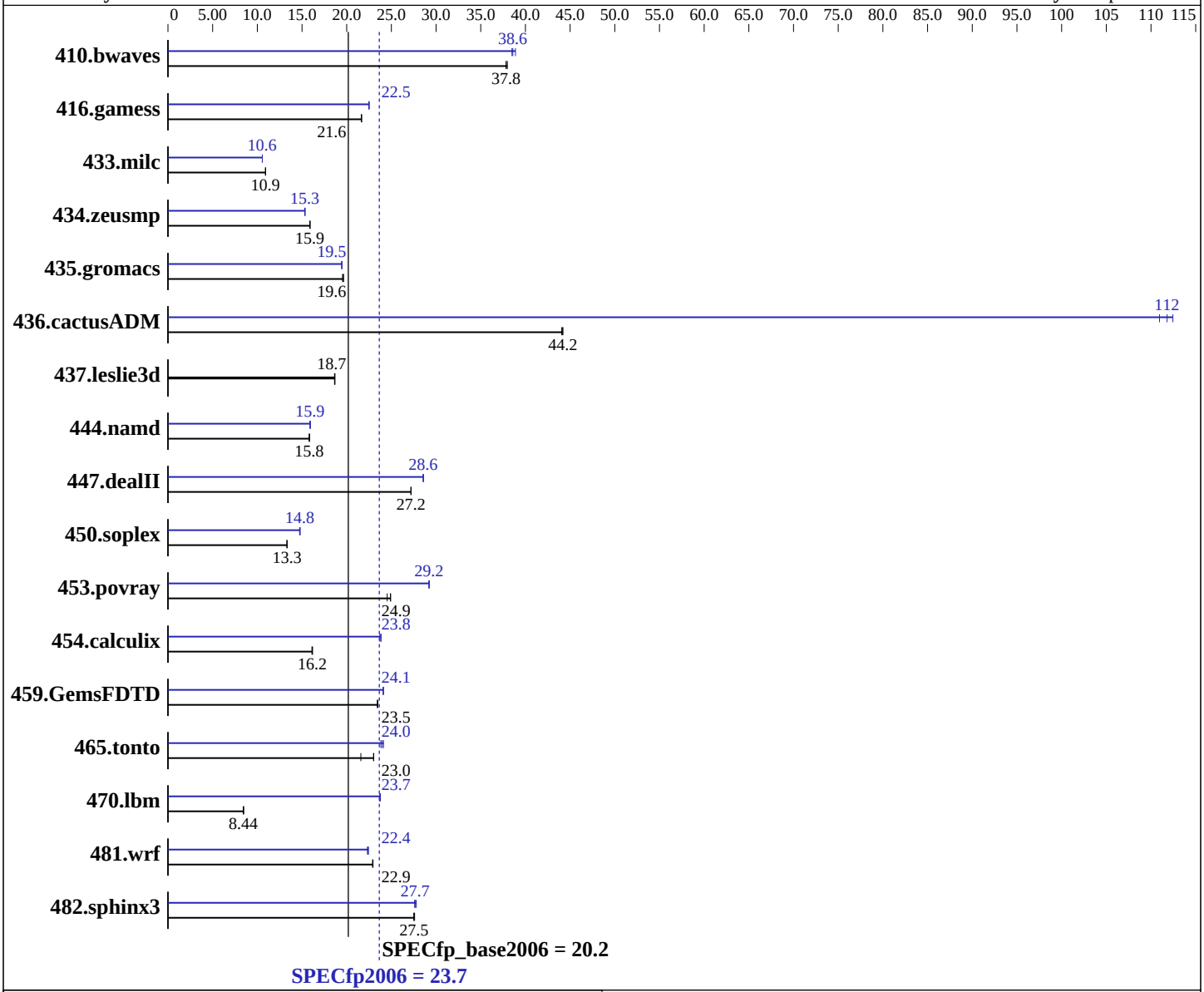
SGI Altix XE 320 (Intel Xeon E5472, 3.00 GHz)

SPECfp®2006 = 23.7

SPECfp_base2006 = 20.2

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 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 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: 16 GB (8*2GB PC2-6400 CL5-5-5 FB-DIMMs)
Disk Subsystem: 1 x 250 GB SATA (Hitachi Deskstar 7200rpm)
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	**359**	**37.8**	359	37.8	358	38.0	349	38.9	**352**	**38.6**	353	38.5
416.gamess	903	21.7	**905**	**21.6**	905	21.6	871	22.5	**871**	**22.5**	869	22.5
433.milc	840	10.9	841	10.9	**841**	**10.9**	870	10.6	869	10.6	**869**	**10.6**
434.zeusmp	573	15.9	573	15.9	**573**	**15.9**	**594**	**15.3**	594	15.3	594	15.3
435.gromacs	365	19.5	**364**	**19.6**	364	19.6	367	19.5	**367**	**19.5**	367	19.5
436.cactusADM	271	44.0	270	44.2	**270**	**44.2**	**107**	**112**	106	112	108	111
437.leslie3d	**503**	**18.7**	504	18.6	503	18.7	**503**	**18.7**	504	18.6	503	18.7
444.namd	507	15.8	506	15.8	**507**	**15.8**	503	15.9	505	15.9	**504**	**15.9**
447.dealII	421	27.2	421	27.2	**421**	**27.2**	**400**	**28.6**	400	28.6	401	28.6
450.soplex	626	13.3	**626**	**13.3**	626	13.3	564	14.8	**565**	**14.8**	566	14.7
453.povray	**214**	**24.9**	217	24.5	214	24.9	182	29.2	182	29.2	**182**	**29.2**
454.calculix	512	16.1	510	16.2	**511**	**16.2**	348	23.7	346	23.8	**346**	**23.8**
459.GemsFDTD	**452**	**23.5**	453	23.4	452	23.5	440	24.1	**440**	**24.1**	440	24.1
465.tonto	427	23.0	**428**	**23.0**	456	21.6	**410**	**24.0**	408	24.1	413	23.8
470.lbm	1622	8.47	1629	8.44	**1627**	**8.44**	578	23.8	579	23.7	**579**	**23.7**
481.wrf	487	22.9	**487**	**22.9**	488	22.9	498	22.4	**498**	**22.4**	501	22.3
482.sphinx3	706	27.6	708	27.5	**708**	**27.5**	701	27.8	**705**	**27.7**	706	27.6

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
```

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

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.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 -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.

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