SPEC® CFP2006 Result

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Sun Microsystems

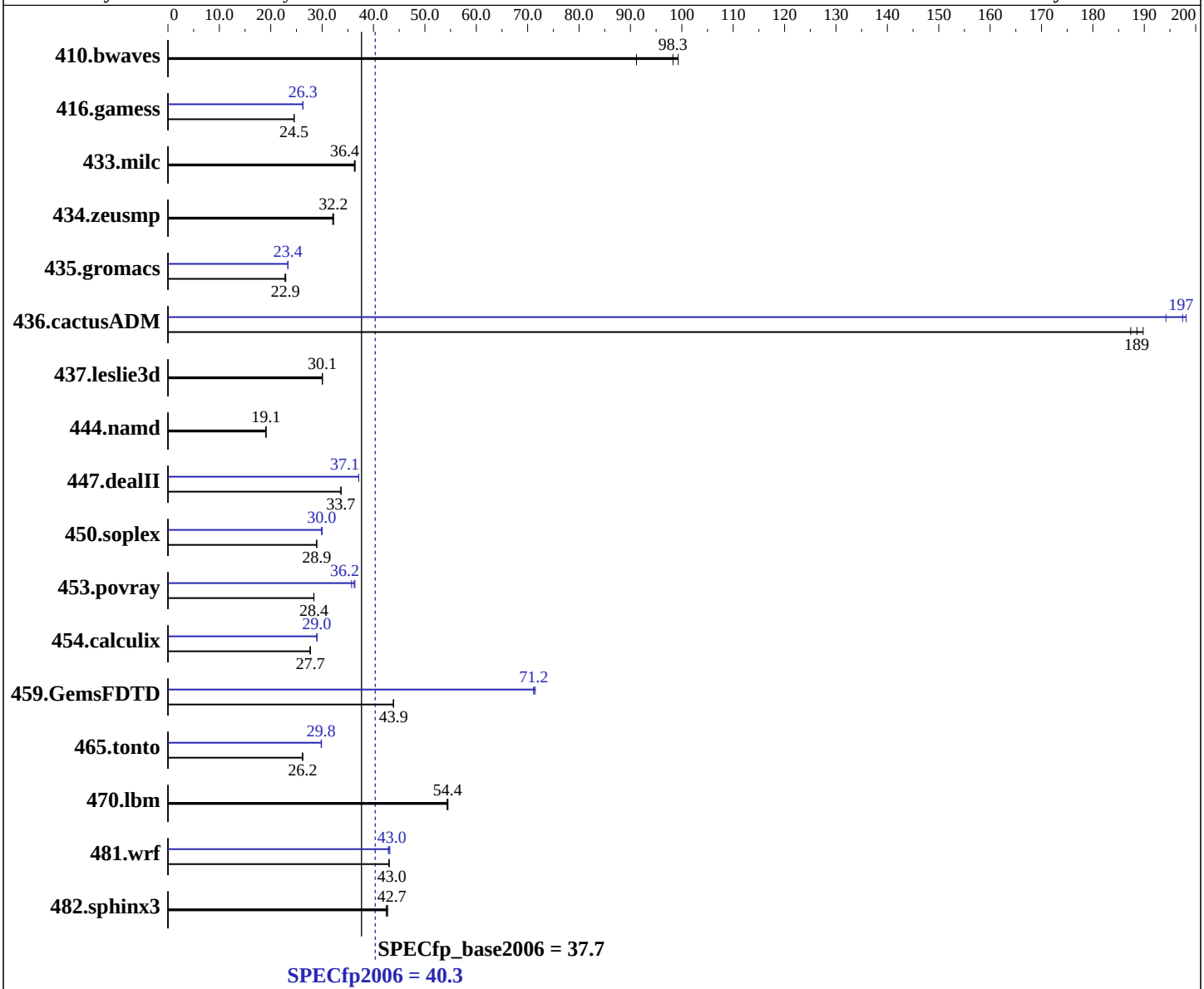
Sun Blade X6275 (Intel Xeon X5570 2.93GHz)

SPECfp®2006 = 40.3

SPECfp_base2006 = 37.7

CPU2006 license: 6
Test sponsor: Sun Microsystems
Tested by: Sun Microsystems

Test date: Mar-2009
Hardware Availability: Apr-2009
Software Availability: Nov-2008



Hardware

CPU Name:	Intel Xeon X5570
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 or 2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

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Software

Operating System:	SuSe Linux Enterprise Server 10 (x86_64) SP2, kernel 2.6.16.60-0.21-smp
Compiler:	Intel C++ and Fortran Compiler 11.0 for Linux Build 20080930 Package ID: l_cproc_p_11.0.066, l_cprof_p_11.0.066
Auto Parallel:	Yes
File System:	NFSv3 (See additional details below)
System State:	Run level 3 (multi-user)

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6 x 4 GB DDR3-1333)
Disk Subsystem: 48 x SATA 250 GB 7200 RPM via NFS for SPEC CPU2006
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	137	99.3	**138**	**98.3**	149	91.2	137	99.3	**138**	**98.3**	149	91.2
416.gamess	797	24.6	**798**	**24.5**	798	24.5	745	26.3	746	26.3	**745**	**26.3**
433.milc	**252**	**36.4**	252	36.4	253	36.3	**252**	**36.4**	252	36.4	253	36.3
434.zeusmp	**283**	**32.2**	282	32.2	284	32.1	**283**	**32.2**	282	32.2	284	32.1
435.gromacs	314	22.8	311	22.9	**312**	**22.9**	306	23.4	306	23.3	**306**	**23.4**
436.cactusADM	63.0	190	**63.4**	**189**	63.8	187	**60.5**	**197**	61.5	194	60.3	198
437.leslie3d	**313**	**30.1**	313	30.1	313	30.0	**313**	**30.1**	313	30.1	313	30.0
444.namd	**420**	**19.1**	420	19.1	421	19.1	**420**	**19.1**	420	19.1	421	19.1
447.dealII	**340**	**33.7**	340	33.7	340	33.7	**308**	**37.1**	308	37.1	308	37.1
450.soplex	288	29.0	288	28.9	**288**	**28.9**	279	29.9	278	30.0	**278**	**30.0**
453.povray	187	28.4	**187**	**28.4**	187	28.4	146	36.4	149	35.7	**147**	**36.2**
454.calculix	298	27.7	298	27.7	**298**	**27.7**	285	29.0	**285**	**29.0**	285	29.0
459.GemsFDTD	242	43.9	242	43.9	**242**	**43.9**	149	71.2	148	71.5	**149**	**71.2**
465.tonto	**375**	**26.2**	375	26.2	376	26.2	329	29.9	**330**	**29.8**	330	29.8
470.lbm	252	54.5	**253**	**54.4**	253	54.3	252	54.5	**253**	**54.4**	253	54.3
481.wrf	260	43.0	**259**	**43.0**	259	43.0	**259**	**43.0**	259	43.2	261	42.9
482.sphinx3	456	42.7	**457**	**42.7**	459	42.5	456	42.7	**457**	**42.7**	459	42.5

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

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

Platform Notes

Default BIOS settings used.

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 200M
NFS for file system: NFS server, Sun Fire X4540 equipped with
48 x 250GB SATA 7200 RPM, serves the client over Gigabit

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General Notes (Continued)

ethternet connection.

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:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Peak Compiler Invocation

C benchmarks:
`icc`

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

450.soplex: `icpc -m32`

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`
470.lbm: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`
482.sphinx3: `-DSPEC_CPU_LP64`

Peak Optimization Flags

C benchmarks:

433.milc: `basepeak = yes`

Continued on next page

Peak Optimization Flags (Continued)

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -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 -scalar-rep- -opt-prefetch

450.soplex: -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-malloc-options=3

453.povray: -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 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -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 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -Ob0 -opt-prefetch -parallel

465.tonto: -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

Benchmarks using both Fortran and C:

435.gromacs: -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 -auto-ilp32

436.cactusADM: -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 -opt-prefetch -parallel -auto-ilp32

Continued on next page

Peak Optimization Flags (Continued)

454.calculix: `-xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel -auto-ilp32`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.09.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.09.xml`

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