SPEC® CFP2006 Result

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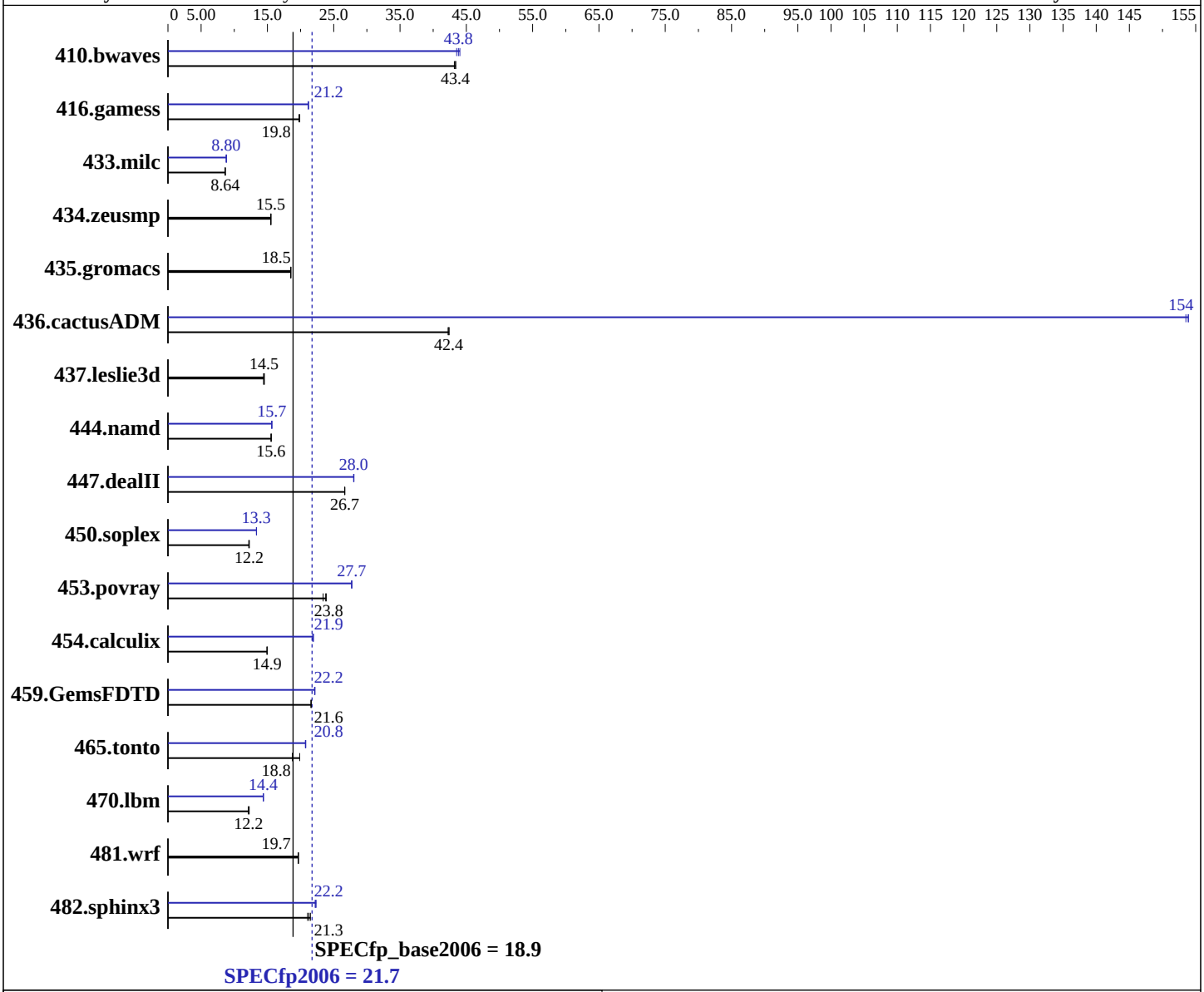
Sun Microsystems
Sun Fire X4450

SPECfp®2006 = 21.7

SPECfp_base2006 = 18.9

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

Test date: Oct-2007
Hardware Availability: Nov-2007
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon X7350
CPU Characteristics:	Quad Core, 2.93 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	16 cores, 4 chips, 4 cores/chip
CPU(s) orderable:	2,4 (order by number of chips)
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	8 MB I+D on chip per chip, 4 MB shared / 2 cores

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Software

Operating System:	SUSE LINUX Enterprise Server 10 SP1 for x86_64
Compiler:	Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070824
Auto Parallel:	Yes
File System:	ReiserFS
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 (8x2GB DDR2 PC2-5300F 2rank CAS 5-5-5 with ECC)
Disk Subsystem: SAS, 73 GB, 10K RPM
Other Hardware: None

Other Software: Binutils 2.17.50.0.15

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	313	43.4	**313**	**43.4**	315	43.2	312	43.5	309	44.0	**310**	**43.8**
416.gamess	985	19.9	**989**	**19.8**	990	19.8	**925**	**21.2**	924	21.2	925	21.2
433.milc	1062	8.64	1064	8.63	**1062**	**8.64**	1044	8.79	**1043**	**8.80**	1042	8.81
434.zeusmp	**586**	**15.5**	586	15.5	587	15.5	**586**	**15.5**	586	15.5	587	15.5
435.gromacs	385	18.5	**385**	**18.5**	386	18.5	385	18.5	**385**	**18.5**	386	18.5
436.cactusADM	282	42.4	**282**	**42.4**	283	42.2	77.6	154	77.8	154	**77.7**	**154**
437.leslie3d	647	14.5	**649**	**14.5**	652	14.4	647	14.5	**649**	**14.5**	652	14.4
444.namd	**515**	**15.6**	515	15.6	516	15.5	512	15.7	512	15.7	**512**	**15.7**
447.dealII	429	26.7	**429**	**26.7**	429	26.7	409	28.0	**408**	**28.0**	408	28.1
450.soplex	680	12.3	684	12.2	**682**	**12.2**	624	13.4	**625**	**13.3**	625	13.3
453.povray	223	23.9	**224**	**23.8**	227	23.4	192	27.7	192	27.7	**192**	**27.7**
454.calculix	552	15.0	552	14.9	**552**	**14.9**	376	21.9	378	21.8	**377**	**21.9**
459.GemsFDTD	491	21.6	**491**	**21.6**	492	21.6	480	22.1	479	22.2	**479**	**22.2**
465.tonto	525	18.8	**524**	**18.8**	495	19.9	474	20.8	**474**	**20.8**	475	20.7
470.lbm	1132	12.1	**1130**	**12.2**	1122	12.3	956	14.4	**956**	**14.4**	954	14.4
481.wrf	568	19.6	568	19.7	**568**	**19.7**	568	19.6	568	19.7	**568**	**19.7**
482.sphinx3	**916**	**21.3**	926	21.1	907	21.5	877	22.2	**877**	**22.2**	872	22.3

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
OMP_NUM_THREADS set to 16
KMP_STACKSIZE set to 200M
KMP_AFFINITY set to physical,0
```

Platform Notes

```
Default BIOS configuration was used.
```

General Notes

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

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

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Base Optimization Flags (Continued)

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`

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: `basepeak = yes`

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: `basepeak = yes`

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

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

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Peak Optimization Flags (Continued)

481.wrf: `basepeak = yes`

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.20090714.22.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.20090714.22.xml`

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For other inquiries, please contact webmaster@spec.org.

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