SPEC® CFP2006 Result

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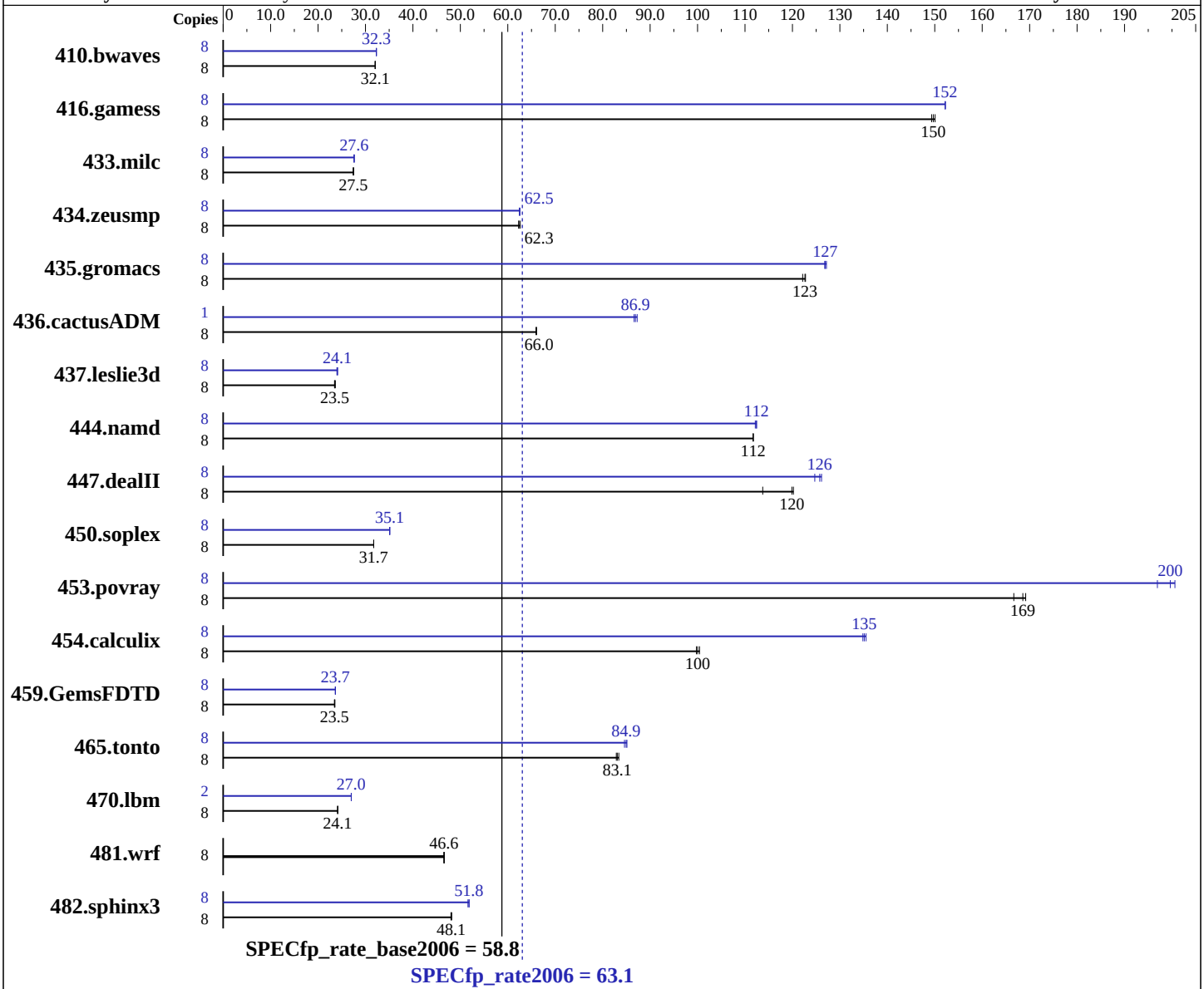
Sun Microsystems
Sun Fire X4150

SPECfp®_rate2006 = 63.1

SPECfp_rate_base2006 = 58.8

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

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



Hardware

CPU Name:	Intel Xeon X5355
CPU Characteristics:	Quad Core, 2.667 GHz
CPU MHz:	2667
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
CPU(s) orderable:	1,2 (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 20070725
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, 72 GB, 10K RPM
Other Hardware: None

Other Software: Binutils 2.17.50.0.15

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3391	32.1	3393	32.0	**3391**	**32.1**	8	3367	32.3	3366	32.3	**3366**	**32.3**
416.gamess	8	1049	149	1044	150	**1046**	**150**	8	1029	152	1029	152	**1029**	**152**
433.milc	8	**2673**	**27.5**	2681	27.4	2671	27.5	8	2657	27.6	2663	27.6	**2660**	**27.6**
434.zeusmp	8	1169	62.3	1162	62.6	**1168**	**62.3**	8	**1165**	**62.5**	1164	62.6	1166	62.4
435.gromacs	8	468	122	**466**	**123**	465	123	8	450	127	**450**	**127**	449	127
436.cactusADM	8	1447	66.0	1450	65.9	**1448**	**66.0**	1	138	86.6	**138**	**86.9**	137	87.3
437.leslie3d	8	3180	23.6	**3193**	**23.5**	3203	23.5	8	3136	24.0	**3125**	**24.1**	3116	24.1
444.namd	8	574	112	574	112	**574**	**112**	8	571	112	**571**	**112**	572	112
447.dealII	8	805	114	761	120	**763**	**120**	8	726	126	734	125	**728**	**126**
450.soplex	8	2103	31.7	2102	31.7	**2102**	**31.7**	8	1901	35.1	**1901**	**35.1**	1898	35.1
453.povray	8	255	167	252	169	**252**	**169**	8	**213**	**200**	216	197	212	201
454.calculix	8	662	99.8	**660**	**100**	657	100	8	**488**	**135**	487	136	489	135
459.GemsFDTD	8	3616	23.5	3602	23.6	**3615**	**23.5**	8	**3588**	**23.7**	3588	23.7	3587	23.7
465.tonto	8	944	83.4	**948**	**83.1**	950	82.9	8	**927**	**84.9**	925	85.1	930	84.6
470.lbm	8	**4552**	**24.1**	4552	24.1	4554	24.1	2	**1018**	**27.0**	1017	27.0	1018	27.0
481.wrf	8	1917	46.6	**1919**	**46.6**	1921	46.5	8	1917	46.6	**1919**	**46.6**	1921	46.5
482.sphinx3	8	**3242**	**48.1**	3237	48.2	3247	48.0	8	**3009**	**51.8**	3022	51.6	3007	51.8

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

Operating System Notes

```
Processes were bound to cores using "submit" and "taskset".

'ulimit -s unlimited' was used to set the stacksize to unlimited
```

Platform Notes

```
BIOS configuration:
Hardware Prefetch = Disable; Adjacent Sector Prefetch = Disable
```

General Notes

```
All benchmarks were compiled in 64-bit mode except 437.leslie3d, 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

C++ benchmarks:
-fast

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Base Optimization Flags (Continued)

Fortran benchmarks:
`-fast`

Benchmarks using both Fortran and C:
`-fast`

Peak Compiler Invocation

C benchmarks (except as noted below):
`/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icc`
`-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib`
`-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include`

433.milc: `icc`

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

450.soplex: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icpc`
`-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib`
`-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include`

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

437.leslie3d: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/ifort`
`-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib`
`-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/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`

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Peak Portability Flags (Continued)

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

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:

Continued on next page

Peak Optimization Flags (Continued)

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: `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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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 14:17:22 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 30 October 2007.