SPEC® CFP2006 Result

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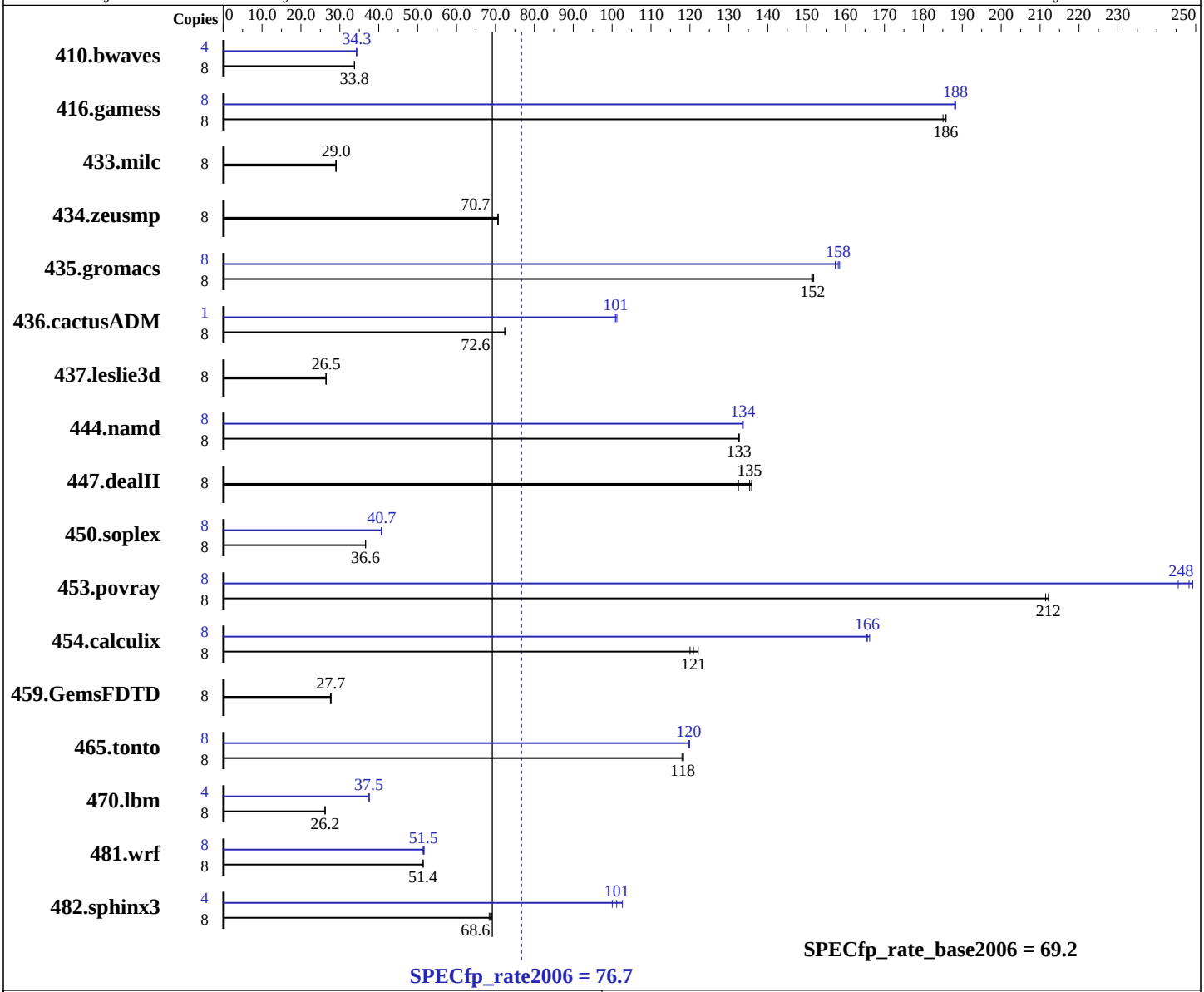
Sun Microsystems
Sun Fire X4150

SPECfp®_rate2006 = 76.7

SPECfp_rate_base2006 = 69.2

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

Test date: Jan-2008
Hardware Availability: Feb-2008
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon X5460
CPU Characteristics:	3.16 GHz, 2x6 MB L2 shared, 1333 MHz system bus
CPU MHz:	3166
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:	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 SP1 for x86_64
Compiler:	Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070913
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: SmartHeap library V8.1
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	3219	33.8	3220	33.8	**3220**	**33.8**	4	**1584**	**34.3**	1583	34.3	1585	34.3
416.gamess	8	846	185	843	186	**843**	**186**	8	832	188	**832**	**188**	833	188
433.milc	8	2524	29.1	2536	29.0	**2529**	**29.0**	8	2524	29.1	2536	29.0	**2529**	**29.0**
434.zeusmp	8	1031	70.6	1030	70.7	**1030**	**70.7**	8	1031	70.6	1030	70.7	**1030**	**70.7**
435.gromacs	8	376	152	378	151	**377**	**152**	8	363	157	360	158	**361**	**158**
436.cactusADM	8	1317	72.6	**1317**	**72.6**	1321	72.4	1	118	101	119	101	**118**	**101**
437.leslie3d	8	**2841**	**26.5**	2845	26.4	2837	26.5	8	**2841**	**26.5**	2845	26.4	2837	26.5
444.namd	8	484	133	484	133	**484**	**133**	8	481	133	480	134	**480**	**134**
447.dealII	8	691	132	674	136	**676**	**135**	8	691	132	674	136	**676**	**135**
450.soplex	8	**1823**	**36.6**	1822	36.6	1824	36.6	8	1642	40.6	1638	40.7	**1638**	**40.7**
453.povray	8	**201**	**212**	201	212	201	211	8	171	249	**171**	**248**	173	246
454.calculix	8	**546**	**121**	540	122	550	120	8	397	166	**399**	**166**	399	166
459.GemsFDTD	8	3078	27.6	**3066**	**27.7**	3058	27.8	8	3078	27.6	**3066**	**27.7**	3058	27.8
465.tonto	8	667	118	665	118	**666**	**118**	8	656	120	**658**	**120**	658	120
470.lbm	8	4194	26.2	**4194**	**26.2**	4193	26.2	4	**1466**	**37.5**	1466	37.5	1463	37.6
481.wrf	8	**1739**	**51.4**	1737	51.5	1747	51.2	8	1729	51.7	**1734**	**51.5**	1738	51.4
482.sphinx3	8	2258	69.0	**2273**	**68.6**	2280	68.4	4	**771**	**101**	759	103	779	100

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

Platform Notes

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

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

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:
`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: `basepeak = yes`

470.lbm: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -scalar-rep- -prefetch -opt-malloc-options=3`

482.sphinx3: `-fast -unroll2`

Continued on next page

Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -fno-alias -auto-ilp32`

447.dealII: `basepeak = yes`

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: `basepeak = yes`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `basepeak = yes`

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 -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.20090714.19.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.20090714.19.xml`

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