SPEC® CFP2006 Result

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Dell Inc.

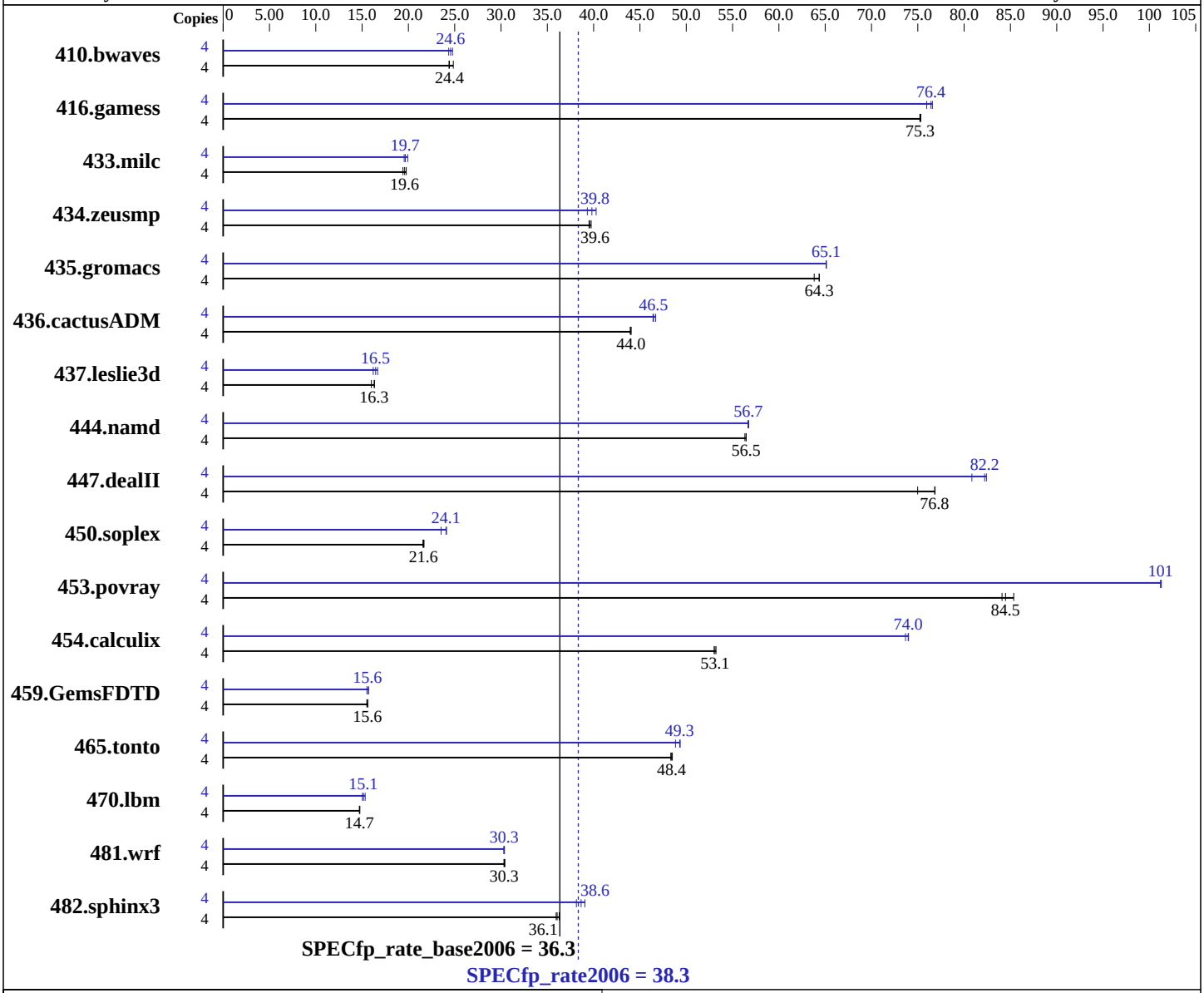
PowerEdge 860 (Intel Xeon X3230, 2.66 GHz)

SPECfp®_rate2006 = 38.3

SPECfp_rate_base2006 = 36.3

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Aug-2007
Hardware Availability: Jul-2007
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon X3230
CPU Characteristics:	1066MHz system bus
CPU MHz:	2660
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
CPU(s) orderable:	1 chip
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:	64-Bit SUSE LINUX Enterprise Server 10
Compiler:	Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070725
Auto Parallel:	No
File System:	ReiserFS
System State:	Multi-user, run level 3
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit

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L3 Cache: None
Other Cache: None
Memory: 8 GB (4x2 GB 667 Mhz DIMM)
Disk Subsystem: 1 x 73 GB SAS 10k RPM
Other Hardware: None

Other Software: SmartHeap library V8.1

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	**2225**	**24.4**	2188	24.8	2229	24.4	4	2232	24.4	2195	24.8	**2213**	**24.6**
416.gamess	4	1040	75.3	**1041**	**75.3**	1041	75.2	4	1023	76.6	**1025**	**76.4**	1031	76.0
433.milc	4	1891	19.4	1857	19.8	**1874**	**19.6**	4	1879	19.5	1843	19.9	**1867**	**19.7**
434.zeusmp	4	**920**	**39.6**	916	39.7	921	39.5	4	926	39.3	**914**	**39.8**	904	40.3
435.gromacs	4	448	63.8	444	64.4	**444**	**64.3**	4	**439**	**65.1**	439	65.1	439	65.1
436.cactusADM	4	1088	43.9	1086	44.0	**1086**	**44.0**	4	1024	46.7	**1029**	**46.5**	1030	46.4
437.leslie3d	4	2350	16.0	**2306**	**16.3**	2302	16.3	4	2320	16.2	2254	16.7	**2284**	**16.5**
444.namd	4	569	56.3	**568**	**56.5**	568	56.5	4	566	56.7	565	56.7	**566**	**56.7**
447.dealII	4	595	76.9	**596**	**76.8**	610	75.0	4	566	80.8	**557**	**82.2**	555	82.4
450.soplex	4	1547	21.6	1538	21.7	**1542**	**21.6**	4	1418	23.5	**1387**	**24.1**	1383	24.1
453.povray	4	253	84.1	249	85.4	**252**	**84.5**	4	210	101	210	101	**210**	**101**
454.calculix	4	623	53.0	620	53.2	**621**	**53.1**	4	**446**	**74.0**	446	74.0	448	73.7
459.GemsFDTD	4	2716	15.6	**2721**	**15.6**	2737	15.5	4	2700	15.7	2733	15.5	**2725**	**15.6**
465.tonto	4	812	48.5	814	48.3	**813**	**48.4**	4	806	48.8	798	49.3	**799**	**49.3**
470.lbm	4	3723	14.8	**3732**	**14.7**	3737	14.7	4	3584	15.3	3655	15.0	**3628**	**15.1**
481.wrf	4	**1472**	**30.3**	1473	30.3	1469	30.4	4	**1472**	**30.3**	1471	30.4	1475	30.3
482.sphinx3	4	2169	36.0	2149	36.3	**2162**	**36.1**	4	2044	38.1	1996	39.1	**2017**	**38.6**

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

Compiler Invocation Notes

```
OMP_NUM_THREADS set to number of cores
KMP_STACK_SIZE set to 64M
KMP_AFFINITY set to physical,0
```

Operating System Notes

```
 'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'/usr/bin/taskset' used to bind processes to CPUs
```

Platform Notes

```
BIOS Settings:
 Adjacent Cache Line Prefetch = Disabled (default Enabled)
 Hardware Prefetcher = Disabled (default Enabled)
```

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 -auto-ilp32`

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

481.wrf: `-fast -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.20090714.13.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.20090714.13.xml`

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