SPEC® CFP2006 Result

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Dell Inc.

PowerEdge 1950 III (Intel Xeon E5205, 1.86 GHz)

$SPECfp^{®}\_rate2006 =$ 40.0

$SPECfp\_rate\_base2006 =$ 38.2
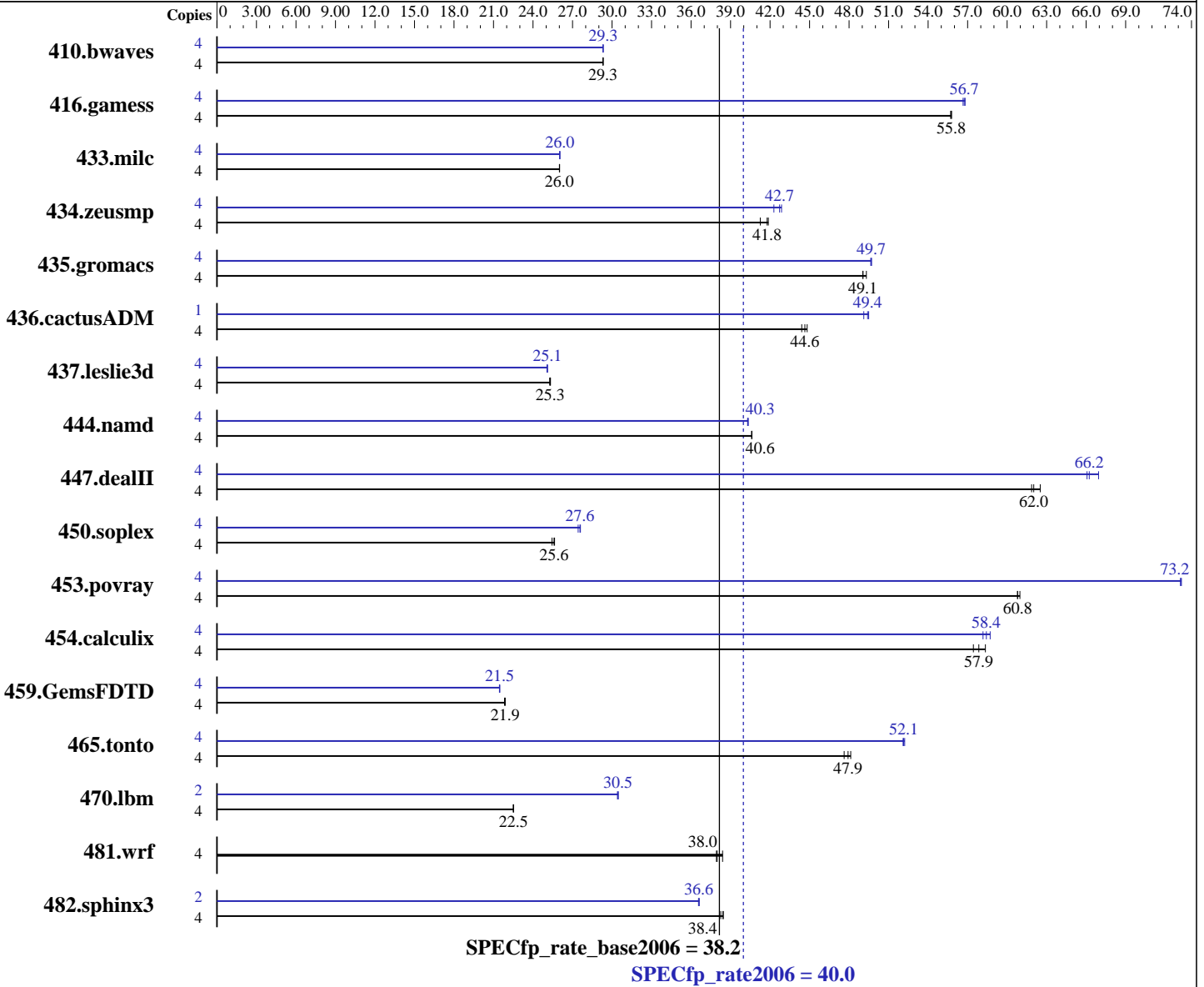
CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Nov-2008
Hardware Availability: Sep-2008
Software Availability: Nov-2008

Benchmark	Copies	Result
410.bwaves	4 / 4	29.3 / 29.3
416.gamess	4 / 4	56.7 / 55.8
433.milc	4 / 4	26.0 / 26.0
434.zeusmp	4 / 4	42.7 / 41.8
435.gromacs	4 / 4	49.7 / 49.1
436.cactusADM	1 / 4	49.4 / 44.6
437.leslie3d	4 / 4	25.1 / 25.3
444.namd	4 / 4	40.3 / 40.6
447.dealII	4 / 4	66.2 / 62.0
450.soplex	4 / 4	27.6 / 25.6
453.povray	4 / 4	73.2 / 60.8
454.calculix	4 / 4	58.4 / 57.9
459.GemsFDTD	4 / 4	21.5 / 21.9
465.tonto	4 / 4	52.1 / 47.9
470.lbm	2 / 4	30.5 / 22.5
481.wrf	4	38.0
482.sphinx3	2 / 4	36.6 / 38.4

SPECfp_rate_base2006 = 38.2

SPECfp_rate2006 = 40.0

Hardware

CPU Name: Intel Xeon E5205
CPU Characteristics:
CPU MHz: 1866
FPU: Integrated
CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
CPU(s) orderable: 1,2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 6 MB I+D on chip per chip

Continued on next page

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 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
Auto Parallel: Yes
File System: ReiserFS
System State: Run level 3 (multi-user)
Base Pointers: 64-bit

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L3 Cache:	None
Other Cache:	None
Memory:	16 GB (8 x 2 GB 667 MHz ECC CL5 FB-DIMM)
Disk Subsystem:	1 x 73 GB 15000 RPM SAS
Other Hardware:	None
Peak Pointers:	32/64-bit
Other Software:	Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	1855	29.3	1853	29.3	**1855**	**29.3**	4	**1854**	**29.3**	1854	29.3	1854	29.3
416.gamess	4	1404	55.8	1406	55.7	**1404**	**55.8**	4	1379	56.8	1382	56.7	**1380**	**56.7**
433.milc	4	1411	26.0	1412	26.0	**1412**	**26.0**	4	1410	26.0	1411	26.0	**1410**	**26.0**
434.zeusmp	4	869	41.9	**871**	**41.8**	882	41.3	4	**852**	**42.7**	861	42.3	849	42.9
435.gromacs	4	**582**	**49.1**	582	49.0	579	49.3	4	**575**	**49.7**	575	49.7	575	49.6
436.cactusADM	4	1067	44.8	1076	44.4	**1071**	**44.6**	1	241	49.5	243	49.1	**242**	**49.4**
437.leslie3d	4	**1486**	**25.3**	1488	25.3	1484	25.3	4	1501	25.1	1498	25.1	**1499**	**25.1**
444.namd	4	790	40.6	**790**	**40.6**	790	40.6	4	795	40.3	796	40.3	**796**	**40.3**
447.dealII	4	740	61.9	732	62.5	**738**	**62.0**	4	693	66.1	**691**	**66.2**	684	66.9
450.soplex	4	1301	25.6	1311	25.4	**1303**	**25.6**	4	**1210**	**27.6**	1209	27.6	1216	27.4
453.povray	4	350	60.8	**350**	**60.8**	349	61.0	4	291	73.2	**291**	**73.2**	291	73.2
454.calculix	4	566	58.4	**570**	**57.9**	575	57.4	4	562	58.7	**565**	**58.4**	567	58.2
459.GemsFDTD	4	1944	21.8	1939	21.9	**1940**	**21.9**	4	**1978**	**21.5**	1979	21.4	1975	21.5
465.tonto	4	826	47.6	**821**	**47.9**	818	48.1	4	754	52.2	**755**	**52.1**	755	52.1
470.lbm	4	2442	22.5	**2441**	**22.5**	2440	22.5	2	**902**	**30.5**	904	30.4	902	30.5
481.wrf	4	1178	37.9	**1176**	**38.0**	1164	38.4	4	1178	37.9	**1176**	**38.0**	1164	38.4
482.sphinx3	4	2038	38.3	**2029**	**38.4**	2028	38.4	2	**1065**	**36.6**	1066	36.6	1064	36.6

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

Submit Notes

The config file option 'submit' was used.

Operating System Notes

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

General Notes

taskset was used to bind processes to cores except
for 436.cactusADM peak
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M

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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:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Fortran benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

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Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

```
482.sphinx3: /opt/intel/Compiler/11.0/042/bin/ia32/icc
             -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
             -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

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

```
450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
            -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
            -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

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

```
437.leslie3d: /opt/intel/Compiler/11.0/042/bin/ia32/ifort
              -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
              -I/opt/intel/Compiler/11.0/042/ipp/ia32/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
     465.tonto: -DSPEC_CPU_LP64
       470.lbm: -DSPEC_CPU_LP64
       481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

Continued on next page

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Peak Optimization Flags (Continued)

433.milc: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -fno-alias`

470.lbm: `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32`

482.sphinx3: `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2`

C++ benchmarks:

444.namd: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -fno-alias -auto-ilp32`

447.dealII: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias -scalar-rep-`

450.soplex: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-malloc-options=3`

453.povray: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll4 -ansi-alias`

Fortran benchmarks:

410.bwaves: `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

416.gamess: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -ansi-alias -scalar-rep-`

434.zeusmp: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static`

437.leslie3d: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-malloc-options=3 -opt-prefetch`

459.GemsFDTD: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -opt-prefetch`

465.tonto: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll4 -auto`

Benchmarks using both Fortran and C:

435.gromacs: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32`

436.cactusADM: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -opt-prefetch -parallel -auto-ilp32`

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Peak Optimization Flags (Continued)

454.calculix: `-xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: `basepeak = yes`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.05.html
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.11.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.05.xml
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.11.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
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