SPEC® CFP2006 Result

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IBM Corporation

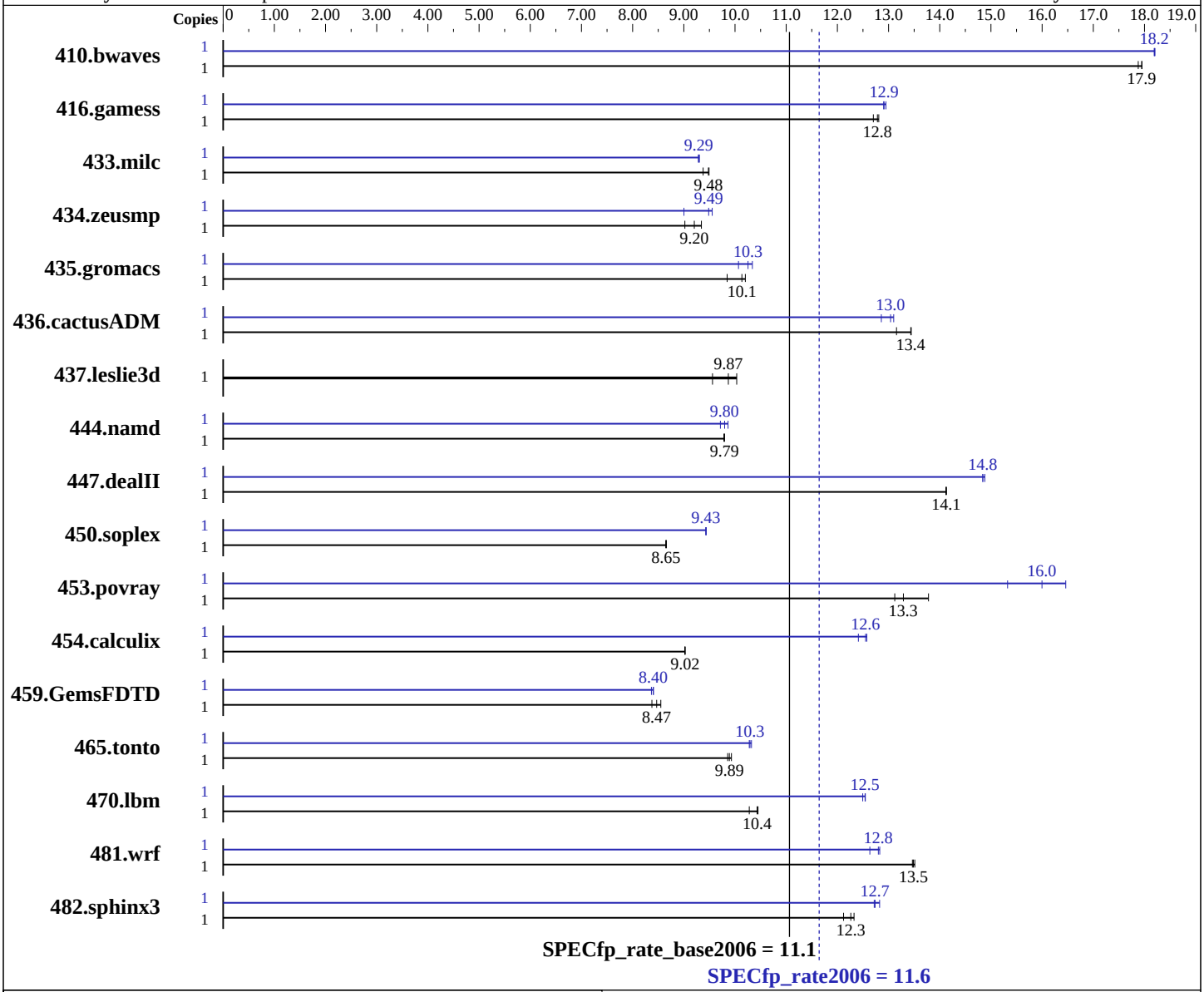
IBM BladeCenter HS12 (Intel Celeron 445)

SPECfp®_rate2006 = 11.6

SPECfp_rate_base2006 = 11.1

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: May-2008
Hardware Availability: May-2008
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Celeron 445
CPU Characteristics:	1066MHz system bus
CPU MHz:	1866
FPU:	Integrated
CPU(s) enabled:	1 core, 1 chip, 1 core/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per chip
Secondary Cache:	512 KB I+D on chip per chip

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Software

Operating System:	SuSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ and Fortran Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
Auto Parallel:	Yes
File System:	ReiserFS
System State:	Multi-user, run level 3
Base Pointers:	64-bit

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L3 Cache: None
Other Cache: None
Memory: 8 GB (4 x 2 GB DDR2-5300 ECC)
Disk Subsystem: 1 x 73 GB SAS, 10000 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
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	1	**757**	**17.9**	760	17.9	757	18.0	1	747	18.2	747	18.2	**747**	**18.2**
416.gamess	1	1529	12.8	**1532**	**12.8**	1541	12.7	1	1512	12.9	1517	12.9	**1516**	**12.9**
433.milc	1	979	9.38	**968**	**9.48**	967	9.49	1	989	9.28	**988**	**9.29**	987	9.30
434.zeusmp	1	1009	9.02	**989**	**9.20**	974	9.34	1	**959**	**9.49**	952	9.55	1011	9.00
435.gromacs	1	700	10.2	725	9.85	**705**	**10.1**	1	691	10.3	709	10.1	**696**	**10.3**
436.cactusADM	1	908	13.2	**890**	**13.4**	889	13.4	1	**916**	**13.0**	912	13.1	929	12.9
437.leslie3d	1	983	9.56	937	10.0	**952**	**9.87**	1	983	9.56	937	10.0	**952**	**9.87**
444.namd	1	819	9.79	**819**	**9.79**	820	9.78	1	813	9.86	**819**	**9.80**	826	9.71
447.dealII	1	810	14.1	**810**	**14.1**	810	14.1	1	769	14.9	**771**	**14.8**	771	14.8
450.soplex	1	964	8.65	963	8.66	**964**	**8.65**	1	884	9.43	**884**	**9.43**	884	9.44
453.povray	1	386	13.8	405	13.1	**400**	**13.3**	1	323	16.5	**333**	**16.0**	347	15.3
454.calculix	1	915	9.02	914	9.03	**914**	**9.02**	1	656	12.6	**657**	**12.6**	665	12.4
459.GemsFDTD	1	1267	8.38	1241	8.55	**1253**	**8.47**	1	1268	8.37	1262	8.41	**1263**	**8.40**
465.tonto	1	**995**	**9.89**	998	9.86	991	9.93	1	957	10.3	**956**	**10.3**	953	10.3
470.lbm	1	1337	10.3	**1317**	**10.4**	1315	10.4	1	**1096**	**12.5**	1095	12.5	1100	12.5
481.wrf	1	**828**	**13.5**	827	13.5	830	13.5	1	**873**	**12.8**	871	12.8	884	12.6
482.sphinx3	1	**1589**	**12.3**	1581	12.3	1608	12.1	1	1520	12.8	1532	12.7	**1530**	**12.7**

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

General Notes

```
All benchmarks compiled in 64-bit mode except 450.soplex,
470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode
Hardware Sector Prefetch Enabled and Adjacent Sector Prefetch Enabled
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 200M
```

Base Compiler Invocation

C benchmarks:

```
icc
```

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Base Compiler Invocation (Continued)

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

Fortran benchmarks:
-fast -parallel

Benchmarks using both Fortran and C:
-fast -parallel

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: `-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`

Continued on next page

Peak Optimization Flags (Continued)

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: -prof-gen(pass 1) -prof-use(pass 2) -fast

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: -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 -parallel -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-linux64-revC.20090713.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic10.1-fp-linux64-revC.20090713.xml

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