SPEC® CFP2006 Result

IBM Corporation

IBM BladeCenter HS12 (Intel Xeon E3113)

$SPECfp®\_rate2006 =$　　30.5

$SPECfp\_rate\_base2006 =$　28.5

CPU2006 license: 11	**Test date:** Apr-2008
Test sponsor: IBM Corporation	**Hardware Availability:** Jun-2008
Tested by: IBM Corporation	**Software Availability:** Nov-2007

Benchmark results (Copies, SPECfp_rate values):

Benchmark	Copies	Result
410.bwaves	2 / 2	22.9 / 22.7
416.gamess	2 / 2	44.7 / 44.0
433.milc	2 / 2	17.0 / 17.1
434.zeusmp	2 / 2	31.7 / 31.6
435.gromacs	2 / 2	38.9 / 38.6
436.cactusADM	1 / 2	37.7 / 35.1
437.leslie3d	1 / 2	16.1 / 17.5
444.namd	2 / 2	31.8 / 31.7
447.dealII	2 / 2	53.3 / 51.1
450.soplex	2 / 2	23.2 / 20.5
453.povray	2 / 2	58.9 / 50.5
454.calculix	2 / 2	46.0 / 32.0
459.GemsFDTD	2 / 2	16.2 / 15.7
465.tonto	2 / 2	39.6 / 38.4
470.lbm	1 / 2	21.6 / 13.7
481.wrf	2 / 2	31.2 / 30.8
482.sphinx3	1 / 2	28.7 / 31.0

SPECfp_rate_base2006 = 28.5

SPECfp_rate2006 = 30.5

Hardware

CPU Name:	Intel Xeon E3113
CPU Characteristics:	1333MHz system bus
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip
CPU(s) orderable:	1 chip
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) 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

Continued on next page

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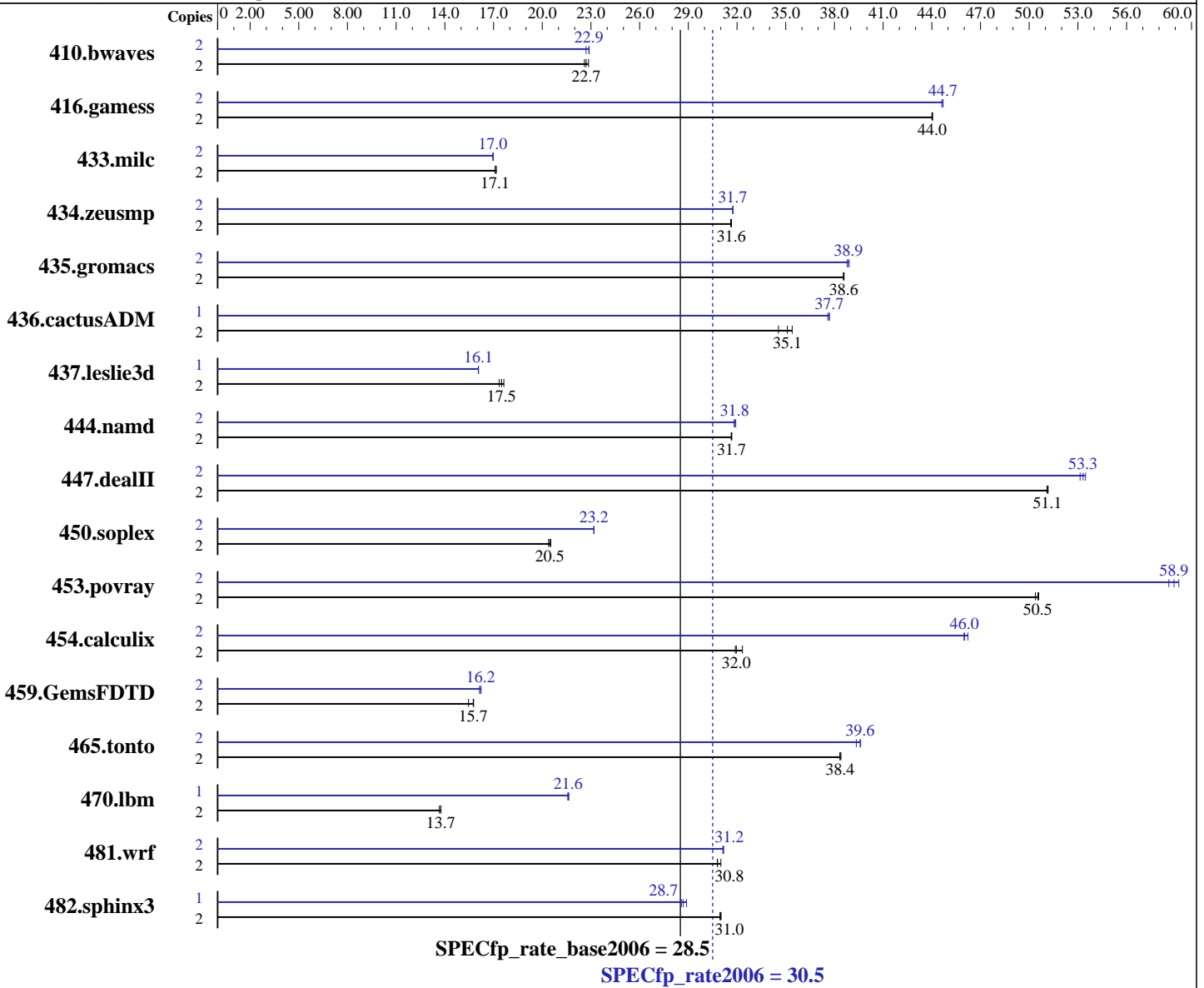### SPECfp_rate_base2006 = 28.5

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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	2	1203	22.6	**1197**	**22.7**	1189	22.9	2	1197	22.7	1187	22.9	**1188**	**22.9**
416.gamess	2	890	44.0	**889**	**44.0**	889	44.0	2	**876**	**44.7**	876	44.7	878	44.6
433.milc	2	1069	17.2	**1074**	**17.1**	1074	17.1	2	1083	17.0	1081	17.0	**1082**	**17.0**
434.zeusmp	2	576	31.6	575	31.7	**575**	**31.6**	2	573	31.8	574	31.7	**573**	**31.7**
435.gromacs	2	370	38.6	**370**	**38.6**	370	38.6	2	**367**	**38.9**	367	38.9	368	38.8
436.cactusADM	2	**681**	**35.1**	675	35.4	692	34.6	1	**317**	**37.7**	317	37.7	318	37.6
437.leslie3d	2	1083	17.4	1066	17.6	**1075**	**17.5**	1	**585**	**16.1**	585	16.1	585	16.1
444.namd	2	506	31.7	507	31.6	**507**	**31.7**	2	**504**	**31.8**	502	31.9	504	31.8
447.dealII	2	447	51.2	**448**	**51.1**	448	51.1	2	431	53.1	**429**	**53.3**	428	53.5
450.soplex	2	813	20.5	818	20.4	**815**	**20.5**	2	720	23.2	719	23.2	**719**	**23.2**
453.povray	2	210	50.6	**211**	**50.5**	211	50.4	2	**181**	**58.9**	182	58.6	180	59.2
454.calculix	2	510	32.3	517	31.9	**516**	**32.0**	2	**359**	**46.0**	357	46.2	359	46.0
459.GemsFDTD	2	1373	15.5	**1347**	**15.7**	1345	15.8	2	1316	16.1	**1310**	**16.2**	1307	16.2
465.tonto	2	**513**	**38.4**	512	38.4	513	38.3	2	497	39.6	**497**	**39.6**	500	39.3
470.lbm	2	2012	13.7	**1999**	**13.7**	1997	13.8	1	635	21.6	637	21.6	**636**	**21.6**
481.wrf	2	**725**	**30.8**	726	30.8	720	31.0	2	717	31.2	**717**	**31.2**	718	31.1
482.sphinx3	2	1260	30.9	1257	31.0	**1258**	**31.0**	1	682	28.6	675	28.9	**680**	**28.7**

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 437.leslie3d, 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 64M
taskset utility used to bind CPU(s) to processes
```

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`

C++ benchmarks:
     `-fast`

Fortran benchmarks:
     `-fast`

Benchmarks using both Fortran and C:
     `-fast`

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

437.leslie3d: `/opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib`
`-I/opt/intel/fc/10.1.008/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`
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`

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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`

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:

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 -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`

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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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