SPEC® CFP2006 Result
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IBM Corporation

IBM BladeCenter HS22V (Intel Xeon L5609)

$SPECfp^®2006 =$ 27.3
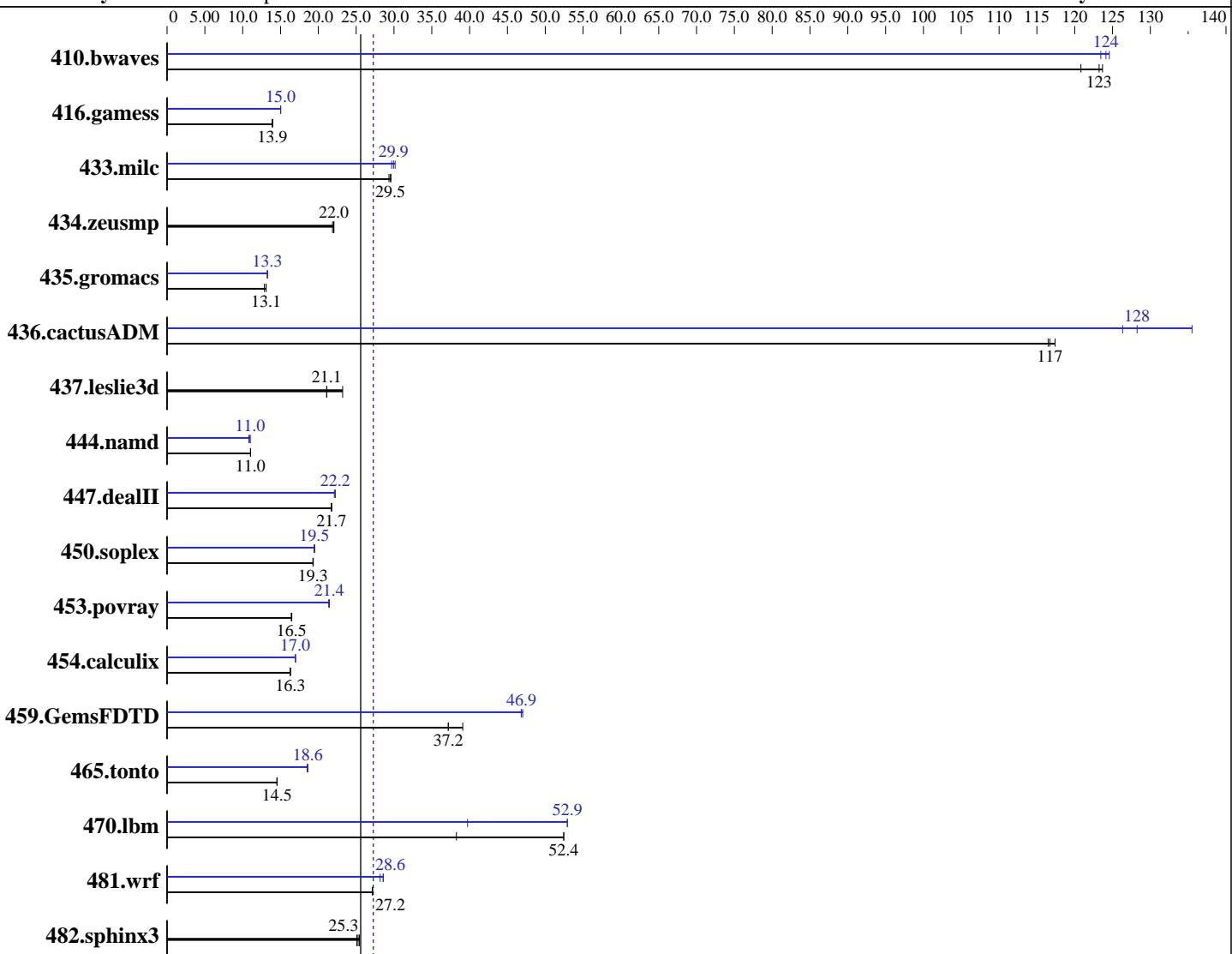
$SPECfp\_base2006 =$ 25.6

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

Test date: Aug-2010
Hardware Availability: Sep-2010
Software Availability: Jan-2010

Benchmark results chart (scale 0 to 140):

- 410.bwaves: 124 / 123
- 416.gamess: 15.0 / 13.9
- 433.milc: 29.9 / 29.5
- 434.zeusmp: 22.0
- 435.gromacs: 13.3 / 13.1
- 436.cactusADM: 128 / 117
- 437.leslie3d: 21.1
- 444.namd: 11.0 / 11.0
- 447.dealII: 22.2 / 21.7
- 450.soplex: 19.5 / 19.3
- 453.povray: 21.4 / 16.5
- 454.calculix: 17.0 / 16.3
- 459.GemsFDTD: 46.9 / 37.2
- 465.tonto: 18.6 / 14.5
- 470.lbm: 52.9 / 52.4
- 481.wrf: 28.6 / 27.2
- 482.sphinx3: 25.3

SPECfp_base2006 = 25.6
SPECfp2006 = 27.3

Hardware

CPU Name:	Intel Xeon L5609
CPU Characteristics:	
CPU MHz:	1867
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

Continued on next page

Software

Operating System:	SuSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
Compiler:	Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)

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L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (12 x 2 GB PC3-10600R CL9, 2 Rank, running at 1066 MHz)
Disk Subsystem:	2 x 50 GB SATA, SSD, RAID 0
Other Hardware:	None

Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	112	121	**110**	**123**	110	124	110	123	**109**	**124**	109	125
416.gamess	1404	13.9	**1406**	**13.9**	1407	13.9	**1304**	**15.0**	1303	15.0	1305	15.0
433.milc	313	29.3	**311**	**29.5**	310	29.6	**307**	**29.9**	304	30.2	309	29.7
434.zeusmp	416	21.9	413	22.1	**413**	**22.0**	416	21.9	413	22.1	**413**	**22.0**
435.gromacs	555	12.9	545	13.1	**545**	**13.1**	539	13.2	537	13.3	**538**	**13.3**
436.cactusADM	**102**	**117**	102	117	103	116	88.2	136	94.6	126	**93.2**	**128**
437.leslie3d	446	21.1	405	23.2	**445**	**21.1**	446	21.1	405	23.2	**445**	**21.1**
444.namd	727	11.0	**727**	**11.0**	726	11.0	730	11.0	**731**	**11.0**	742	10.8
447.dealII	526	21.8	**526**	**21.7**	526	21.7	**515**	**22.2**	517	22.1	514	22.2
450.soplex	433	19.3	**432**	**19.3**	431	19.3	427	19.5	**428**	**19.5**	429	19.4
453.povray	**323**	**16.5**	323	16.5	324	16.4	248	21.5	249	21.4	**248**	**21.4**
454.calculix	**506**	**16.3**	506	16.3	507	16.3	487	16.9	485	17.0	**487**	**17.0**
459.GemsFDTD	271	39.1	285	37.2	**285**	**37.2**	227	46.8	**226**	**46.9**	226	47.0
465.tonto	**677**	**14.5**	676	14.6	677	14.5	532	18.5	529	18.6	**529**	**18.6**
470.lbm	262	52.4	**262**	**52.4**	359	38.3	260	52.9	**260**	**52.9**	346	39.7
481.wrf	**411**	**27.2**	411	27.2	412	27.1	396	28.2	**391**	**28.6**	390	28.6
482.sphinx3	766	25.4	**772**	**25.3**	777	25.1	766	25.4	**772**	**25.3**	777	25.1

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

Platform Notes

```
    Power C-states enabled
    Demand Scrub disabled
```

General Notes

```
    'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
    Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
    OMP_NUM_THREADS set to number of cores
    KMP_AFFINITY set to granularity=fine,scatter
    KMP_STACKSIZE set to 200M
```

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Base Compiler Invocation

C benchmarks:
    icc   -m64

C++ benchmarks:
    icpc   -m64

Fortran benchmarks:
    ifort -m64

Benchmarks using both Fortran and C:
    icc   -m64 ifort -m64

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:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

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Peak Compiler Invocation

C benchmarks:
        icc   -m64

C++ benchmarks:
        icpc   -m64

Fortran benchmarks:
        ifort -m64

Benchmarks using both Fortran and C:
        icc   -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

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

        470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                  -parallel -ansi-alias -auto-ilp32

        482.sphinx3: basepeak = yes

C++ benchmarks:

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

        447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                  -unroll2 -ansi-alias -scalar-rep- -auto-ilp32

        450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                  -opt-malloc-options=3 -auto-ilp32

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

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Peak Optimization Flags (Continued)

Fortran benchmarks:

> 410.bwaves: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`
> `-parallel`

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

> 434.zeusmp: `basepeak = yes`

> 437.leslie3d: `basepeak = yes`

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

> 465.tonto: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
> `-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)`
> `-inline-calloc -opt-malloc-options=3 -auto -unroll4`

Benchmarks using both Fortran and C:

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

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

> 454.calculix: `-xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32`

> 481.wrf: `Same as 454.calculix`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.xml

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

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