SPEC® CFP2006 Result

IBM Corporation

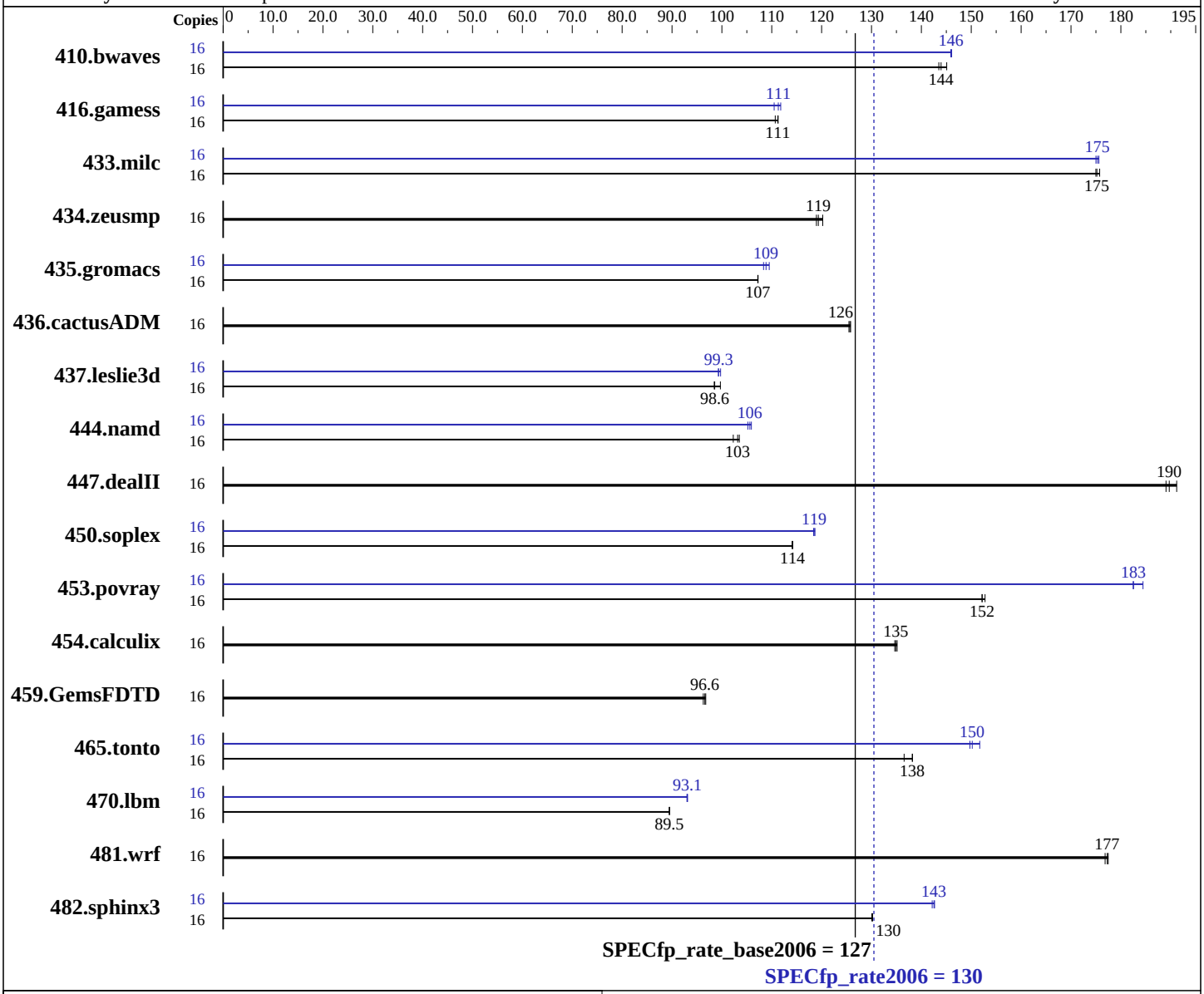
IBM BladeCenter HX5 (Intel Xeon E6510)

SPECfp®_rate2006 = 130

SPECfp_rate_base2006 = 127

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

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



Hardware

CPU Name:	Intel Xeon E6510
CPU Characteristics:	
CPU MHz:	1733
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip, 2 threads/core
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:	No
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: 128 GB (16 x 8 GB PC3-8500R CL7, Quad Rank, running at 800 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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1515	143	1499	145	**1511**	**144**	16	1489	146	**1490**	**146**	1490	146
416.gamess	16	**2817**	**111**	2815	111	2830	111	16	2802	112	**2814**	**111**	2836	110
433.milc	16	836	176	**838**	**175**	839	175	16	836	176	839	175	**838**	**175**
434.zeusmp	16	**1220**	**119**	1211	120	1224	119	16	**1220**	**119**	1211	120	1224	119
435.gromacs	16	1065	107	**1065**	**107**	1066	107	16	**1049**	**109**	1043	109	1054	108
436.cactusADM	16	**1521**	**126**	1520	126	1524	125	16	**1521**	**126**	1520	126	1524	125
437.leslie3d	16	**1526**	**98.6**	1509	99.7	1528	98.5	16	1508	99.7	1515	99.3	**1514**	**99.3**
444.namd	16	1240	103	1255	102	**1244**	**103**	16	1212	106	1220	105	**1215**	**106**
447.dealII	16	968	189	957	191	**965**	**190**	16	968	189	957	191	**965**	**190**
450.soplex	16	**1169**	**114**	1168	114	1170	114	16	1125	119	1127	118	**1126**	**119**
453.povray	16	559	152	**559**	**152**	557	153	16	462	184	467	182	**466**	**183**
454.calculix	16	977	135	**979**	**135**	980	135	16	977	135	**979**	**135**	980	135
459.GemsFDTD	16	1754	96.8	**1758**	**96.6**	1763	96.3	16	1754	96.8	**1758**	**96.6**	1763	96.3
465.tonto	16	1153	137	1139	138	**1140**	**138**	16	1038	152	1051	150	**1048**	**150**
470.lbm	16	2457	89.5	2457	89.5	**2457**	**89.5**	16	**2362**	**93.1**	2361	93.1	2364	93.0
481.wrf	16	1007	177	**1008**	**177**	1011	177	16	1007	177	**1008**	**177**	1011	177
482.sphinx3	16	2395	130	**2396**	**130**	2398	130	16	2186	143	**2188**	**143**	2194	142

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.
 numactl was used to bind copies to the cores
```

Operating System Notes

```
echo 1 > /proc/sys/vm/zone_reclaim_mode
```

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
```

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

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

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

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

Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

450.soplex: `icpc -m32`

Fortran benchmarks:
`ifort -m64`

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

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`
470.lbm: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

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) `-fno-alias -opt-prefetch`

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) `-opt-malloc-options=3 -ansi-alias -auto-ilp32`

Continued on next page

Peak Optimization Flags (Continued)

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

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: basepeak = yes

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

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

Fortran benchmarks:

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

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: -xSSE4.2 -ipo -O3 -no-prec-div -static

459.GemsFDTD: basepeak = yes

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) -unroll4 -auto -inline-calloc -opt-malloc-options=3

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: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

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.20100929.00.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.20100929.00.xml

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

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