SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

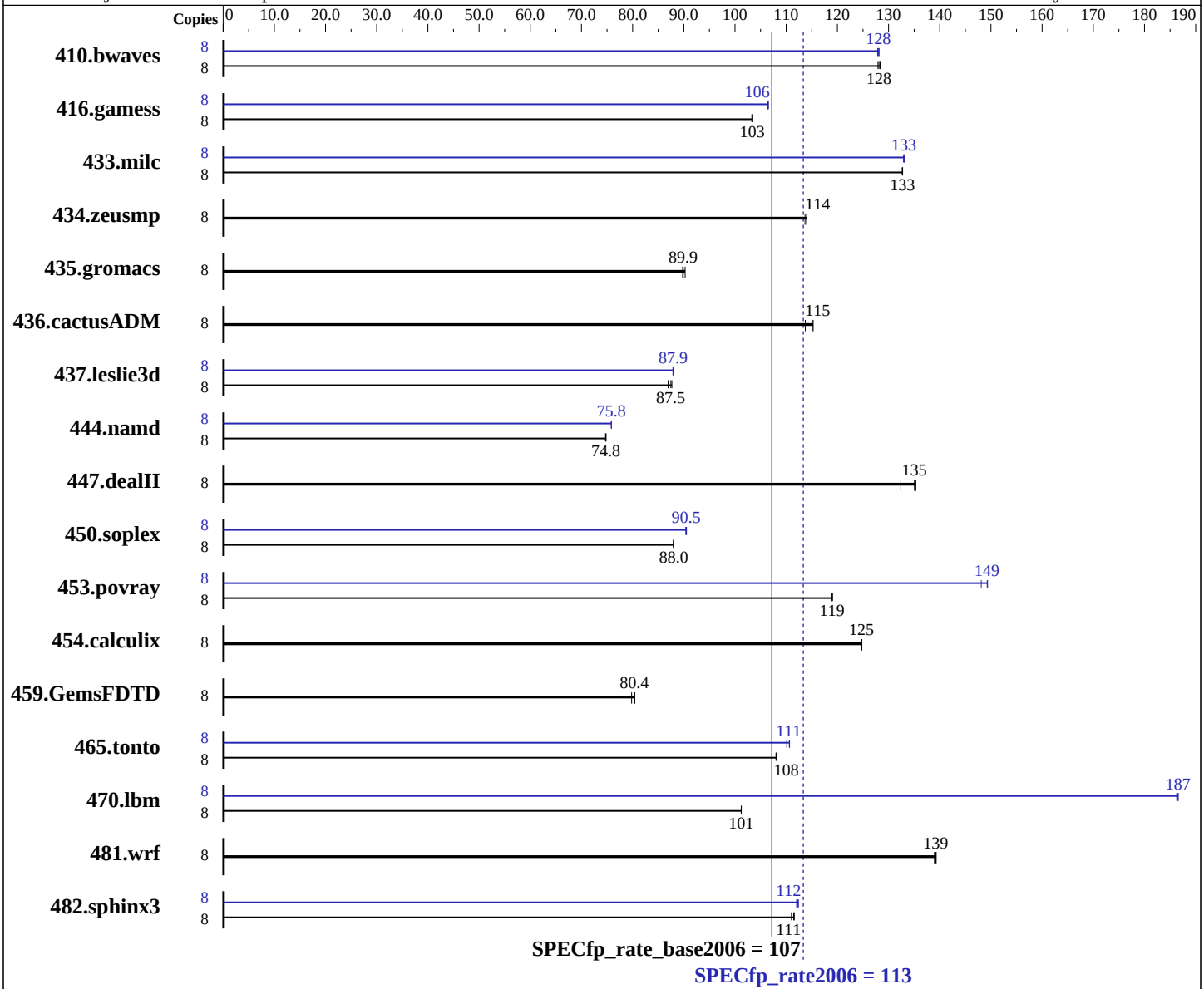
IBM System x3500 M3 (Intel Xeon E5603)

SPECfp®_rate2006 = 113

SPECfp_rate_base2006 = 107

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

Test date: Apr-2011
Hardware Availability: Feb-2011
Software Availability: Jan-2011



Hardware

CPU Name:	Intel Xeon E5603
CPU Characteristics:	
CPU MHz:	1600
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 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
Compiler:	Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x3500 M3 (Intel Xeon E5603)

SPECfp_rate2006 = 113

SPECfp_rate_base2006 = 107

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

Test date: Apr-2011
Hardware Availability: Feb-2011
Software Availability: Jan-2011

L3 Cache: 4 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1067 MHz)
Disk Subsystem: 1 x 146 GB SAS, 15000 RPM
Other Hardware: None

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	8	**849**	**128**	850	128	847	128	8	**849**	**128**	850	128	848	128
416.gamess	8	1516	103	**1515**	**103**	1514	103	8	1470	107	1472	106	**1472**	**106**
433.milc	8	**553**	**133**	553	133	554	133	8	**552**	**133**	552	133	553	133
434.zeusmp	8	640	114	**639**	**114**	638	114	8	640	114	**639**	**114**	638	114
435.gromacs	8	633	90.3	**635**	**89.9**	636	89.8	8	633	90.3	**635**	**89.9**	636	89.8
436.cactusADM	8	**830**	**115**	829	115	841	114	8	**830**	**115**	829	115	841	114
437.leslie3d	8	**860**	**87.5**	858	87.7	865	86.9	8	**855**	**87.9**	856	87.9	855	87.9
444.namd	8	858	74.8	**858**	**74.8**	859	74.7	8	846	75.8	**846**	**75.8**	846	75.9
447.dealII	8	**678**	**135**	676	135	691	132	8	**678**	**135**	676	135	691	132
450.soplex	8	**758**	**88.0**	758	88.1	759	87.9	8	**737**	**90.5**	737	90.5	738	90.4
453.povray	8	358	119	**358**	**119**	358	119	8	285	149	287	148	**285**	**149**
454.calculix	8	529	125	530	125	**529**	**125**	8	529	125	530	125	**529**	**125**
459.GemsFDTD	8	1064	79.8	**1056**	**80.4**	1055	80.4	8	1064	79.8	**1056**	**80.4**	1055	80.4
465.tonto	8	729	108	728	108	**728**	**108**	8	715	110	**712**	**111**	711	111
470.lbm	8	**1086**	**101**	1086	101	1086	101	8	**589**	**187**	590	186	589	187
481.wrf	8	**642**	**139**	643	139	641	139	8	**642**	**139**	643	139	641	139
482.sphinx3	8	1397	112	1404	111	**1399**	**111**	8	**1389**	**112**	1387	112	1392	112

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

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 7200 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

```
CPU C-State enabled in BIOS
Data Reuse disabled in BIOS
Demand Scrub disabled in BIOS
```

General Notes

```
Binaries compiled on RHEL5.5
```

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 -ansi-alias`

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

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

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

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`

Continued on next page

Peak Portability Flags (Continued)

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) -prof-use(pass 2) -static -auto-ilp32

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
-ansi-alias -opt-prefetch -static -auto-ilp32

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

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(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) -prof-use(pass 2) -opt-malloc-options=3
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes

Continued on next page

Peak Optimization Flags (Continued)

465.tonto: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll4 -auto -inline-calloc -opt-malloc-options=3 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

Benchmarks using both Fortran and C:

435.gromacs: `basepeak = yes`

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

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-ic12.0-linux64-revB.html`
`http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.20110420.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml`
`http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.20110420.xml`

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 18:47:47 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 April 2011.