



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp[®]_rate2006 = 151

Express5800/R120d-1E (Intel Xeon E5-2420)

SPECfp_rate_base2006 = 147

CPU2006 license: 9006

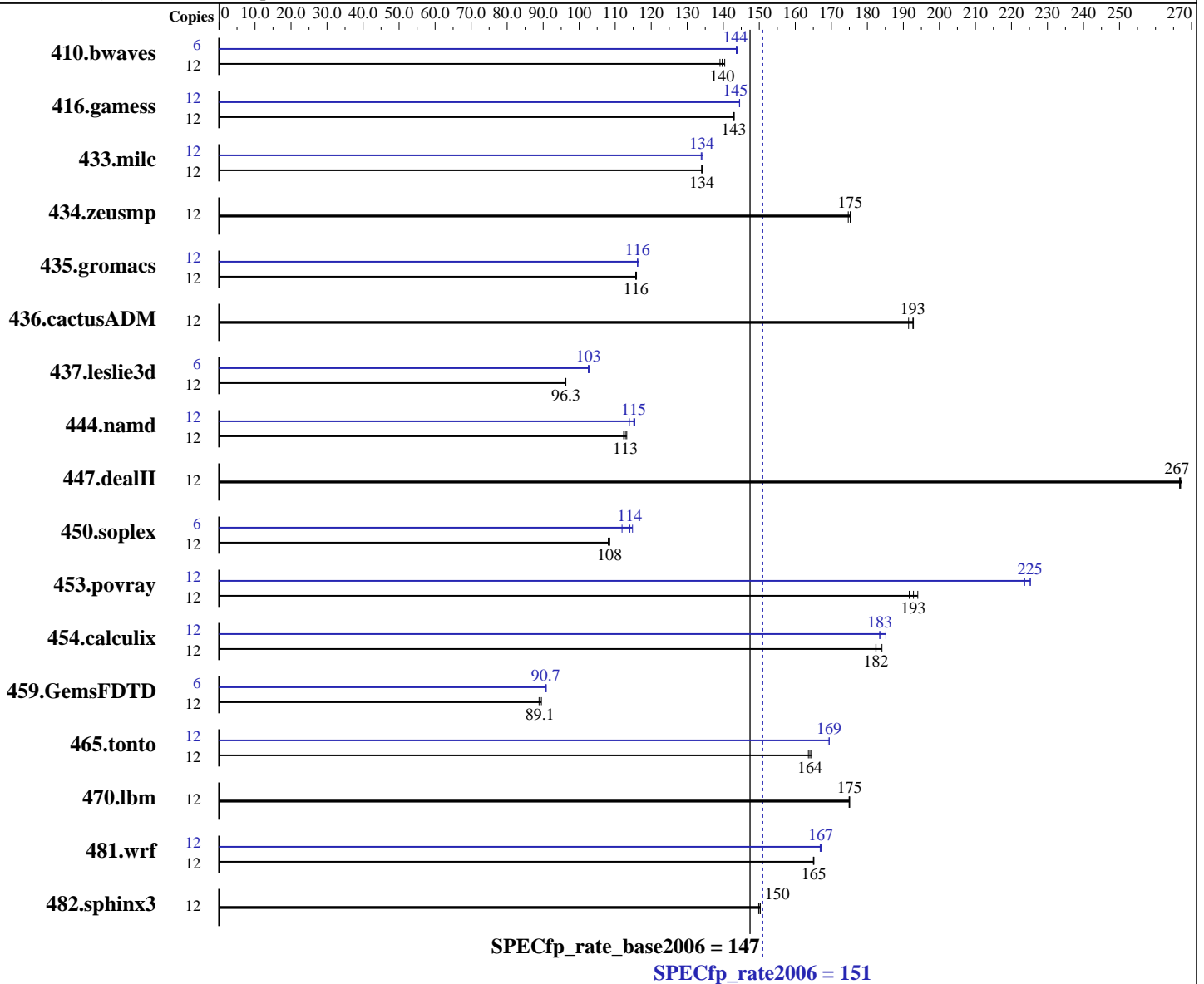
Test date: Jun-2012

Test sponsor: NEC Corporation

Hardware Availability: May-2012

Tested by: NEC Corporation

Software Availability: Dec-2011



Hardware

CPU Name: Intel Xeon E5-2420
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
 CPU MHz: 1900
 FPU: Integrated
 CPU(s) enabled: 6 cores, 1 chip, 6 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: Red Hat Enterprise Linux Server release 6.2 (Santiago)
 Kernel 2.6.32-220.el6.x86_64
 Compiler: C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.2.273 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext4

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp_rate2006 = 151

Express5800/R120d-1E (Intel Xeon E5-2420)

SPECfp_rate_base2006 = 147

CPU2006 license: 9006

Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jun-2012

Hardware Availability: May-2012

Software Availability: Dec-2011

L3 Cache: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 24 GB (3 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9)
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM
 Other Hardware: None

System State: Run level 3 (multi-user)
 Base Pointers: 32/64-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	12	1161	140	<u>1167</u>	<u>140</u>	1172	139	6	567	144	568	144	<u>568</u>	<u>144</u>		
416.gamess	12	1642	143	<u>1644</u>	<u>143</u>	1645	143	12	1625	145	1626	144	<u>1626</u>	<u>145</u>		
433.milc	12	<u>822</u>	<u>134</u>	822	134	821	134	12	820	134	823	134	<u>822</u>	<u>134</u>		
434.zeusmp	12	625	175	622	175	<u>623</u>	<u>175</u>	12	625	175	622	175	<u>623</u>	<u>175</u>		
435.gromacs	12	741	116	<u>740</u>	<u>116</u>	739	116	12	736	116	737	116	<u>737</u>	<u>116</u>		
436.cactusADM	12	749	191	744	193	<u>744</u>	<u>193</u>	12	749	191	744	193	<u>744</u>	<u>193</u>		
437.leslie3d	12	1171	96.3	<u>1171</u>	<u>96.3</u>	1172	96.3	6	550	103	549	103	<u>550</u>	<u>103</u>		
444.namd	12	<u>853</u>	<u>113</u>	850	113	857	112	12	834	115	<u>836</u>	<u>115</u>	845	114		
447.dealII	12	515	267	514	267	<u>514</u>	<u>267</u>	12	515	267	514	267	<u>514</u>	<u>267</u>		
450.soplex	12	<u>923</u>	<u>108</u>	926	108	923	108	6	436	115	447	112	<u>439</u>	<u>114</u>		
453.povray	12	333	192	<u>331</u>	<u>193</u>	329	194	12	283	225	<u>283</u>	<u>225</u>	285	224		
454.calculix	12	<u>543</u>	<u>182</u>	543	182	538	184	12	535	185	540	183	<u>540</u>	<u>183</u>		
459.GemsFDTD	12	1433	88.9	<u>1429</u>	<u>89.1</u>	1422	89.5	6	703	90.6	701	90.9	<u>702</u>	<u>90.7</u>		
465.tonto	12	<u>720</u>	<u>164</u>	718	164	722	164	12	<u>697</u>	<u>169</u>	700	169	697	169		
470.lbm	12	942	175	943	175	<u>942</u>	<u>175</u>	12	942	175	943	175	<u>942</u>	<u>175</u>		
481.wrf	12	<u>812</u>	<u>165</u>	812	165	812	165	12	802	167	803	167	<u>802</u>	<u>167</u>		
482.sphinx3	12	1561	150	<u>1557</u>	<u>150</u>	1557	150	12	1561	150	<u>1557</u>	<u>150</u>	1557	150		

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS Settings:
Energy Performance: Performance



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp_rate2006 = 151

Express5800/R120d-1E (Intel Xeon E5-2420)

SPECfp_rate_base2006 = 147

CPU2006 license: 9006

Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Jun-2012

Hardware Availability: May-2012

Software Availability: Dec-2011

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

The Express5800/R120d-1E and the Express5800/R120d-2E models are electronically equivalent. The results have been measured on the Express5800/R120d-1E model.

Added glibc-static-2.12-1.47.el6.x86_64.rpm to enable static linking

Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp_rate2006 = 151

Express5800/R120d-1E (Intel Xeon E5-2420)

SPECfp_rate_base2006 = 147

CPU2006 license: 9006

Test date: Jun-2012

Test sponsor: NEC Corporation

Hardware Availability: May-2012

Tested by: NEC Corporation

Software Availability: Dec-2011

Base Portability Flags (Continued)

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:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:

icc -m64

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp_rate2006 = 151

Express5800/R120d-1E (Intel Xeon E5-2420)

SPECfp_rate_base2006 = 147

CPU2006 license: 9006

Test date: Jun-2012

Test sponsor: NEC Corporation

Hardware Availability: May-2012

Tested by: NEC Corporation

Software Availability: Dec-2011

Peak Portability Flags (Continued)

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
 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

Peak Optimization Flags

C benchmarks:

433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
 -opt-mem-layout-trans=3

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xAVX(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: -xAVX(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

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

Fortran benchmarks:

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

416.gamess: -xAVX(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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp_rate2006 = 151

Express5800/R120d-1E (Intel Xeon E5-2420)

SPECfp_rate_base2006 = 147

CPU2006 license: 9006

Test date: Jun-2012

Test sponsor: NEC Corporation

Hardware Availability: May-2012

Tested by: NEC Corporation

Software Availability: Dec-2011

Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: -xAVX(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

465.tonto: -xAVX(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

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
-static -auto-ilp32 -opt-mem-layout-trans=3

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
-opt-mem-layout-trans=3

481.wrf: Same as 454.calculix

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.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 v1.2.
Report generated on Thu Jul 24 10:00:08 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 July 2012.