



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]2006 = 109

Express5800/R120f-2M (Intel Xeon E5-2670 v3)

SPECfp_base2006 = 104

CPU2006 license: 9006

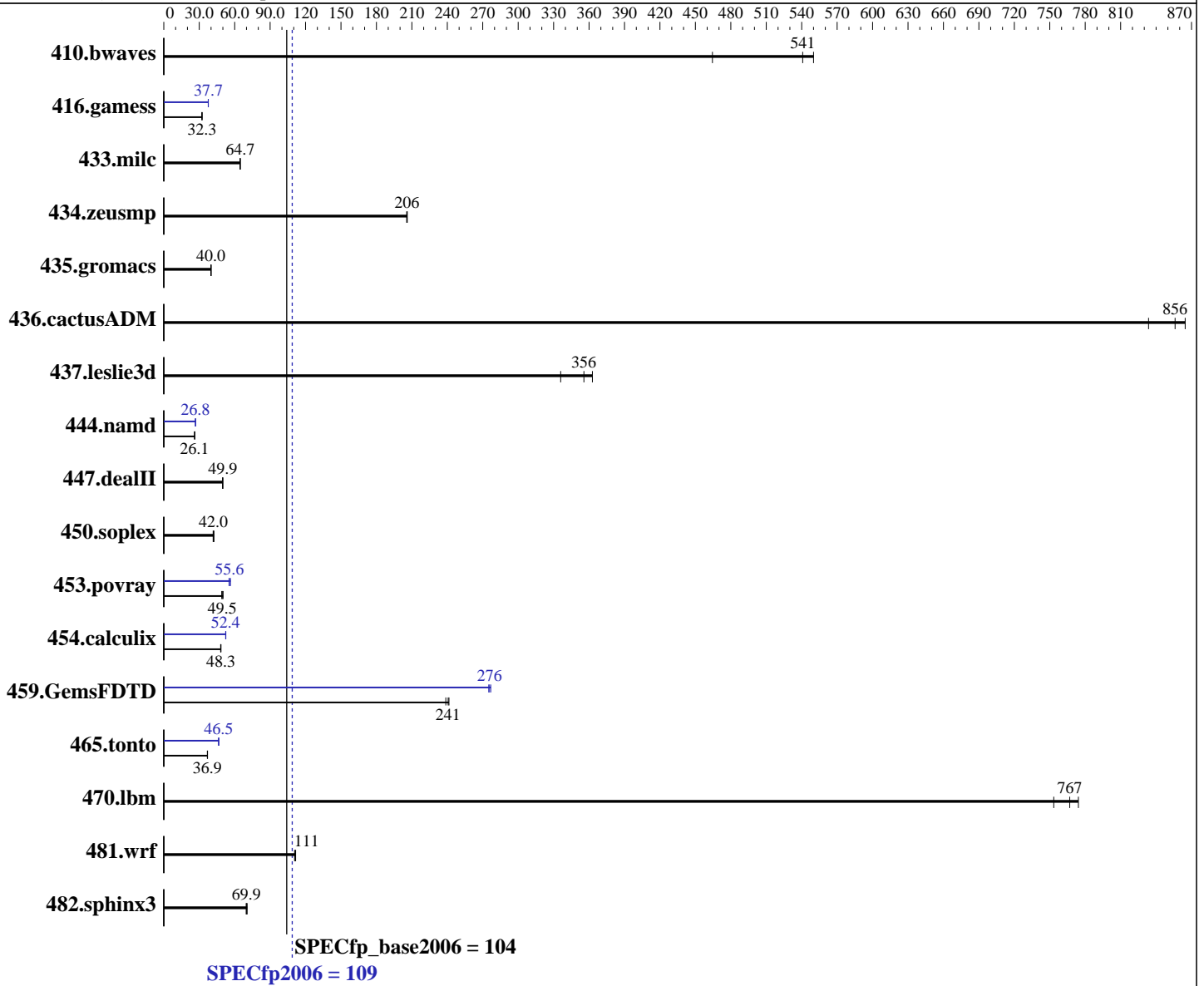
Test date: Oct-2014

Test sponsor: NEC Corporation

Hardware Availability: Feb-2015

Tested by: NEC Corporation

Software Availability: Jul-2014



Hardware

CPU Name: Intel Xeon E5-2670 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 24 cores, 2 chips, 12 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: Red Hat Enterprise Linux Server release 6.5 (Santiago)
 Kernel 2.6.32-431.17.1.el6.x86_64
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;
 Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

Continued on next page



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L3 Cache: 30 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM
 Other Hardware: None

System State: Run level 3 (multi-user)
 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	29.3	464	24.7	550	<u>25.1</u>	<u>541</u>	29.3	464	24.7	550	<u>25.1</u>	<u>541</u>
416.gamess	606	32.3	604	32.4	607	32.3	<u>520</u>	<u>37.7</u>	519	37.7	521	37.6
433.milc	142	64.7	142	64.5	<u>142</u>	<u>64.7</u>	142	64.7	142	64.5	<u>142</u>	<u>64.7</u>
434.zeusmp	<u>44.2</u>	<u>206</u>	44.3	206	44.2	206	<u>44.2</u>	<u>206</u>	44.3	206	44.2	206
435.gromacs	179	39.9	<u>179</u>	<u>40.0</u>	179	40.0	179	39.9	<u>179</u>	<u>40.0</u>	179	40.0
436.cactusADM	14.3	834	13.8	865	<u>14.0</u>	<u>856</u>	14.3	834	13.8	865	<u>14.0</u>	<u>856</u>
437.leslie3d	<u>26.4</u>	<u>356</u>	25.9	363	28.0	336	<u>26.4</u>	<u>356</u>	25.9	363	28.0	336
444.namd	307	26.1	307	26.1	<u>307</u>	<u>26.1</u>	<u>299</u>	<u>26.8</u>	299	26.8	299	26.8
447.dealII	230	49.7	229	50.0	<u>229</u>	<u>49.9</u>	230	49.7	229	50.0	<u>229</u>	<u>49.9</u>
450.soplex	<u>198</u>	<u>42.0</u>	200	41.8	196	42.5	<u>198</u>	<u>42.0</u>	200	41.8	196	42.5
453.povray	108	49.1	<u>107</u>	<u>49.5</u>	106	50.2	<u>95.6</u>	<u>55.6</u>	94.2	56.5	96.3	55.2
454.calculix	171	48.3	<u>171</u>	<u>48.3</u>	171	48.1	<u>157</u>	<u>52.4</u>	157	52.5	158	52.4
459.GemsFDTD	44.0	241	44.4	239	<u>44.1</u>	<u>241</u>	38.3	277	<u>38.5</u>	<u>276</u>	38.6	275
465.tonto	267	36.9	<u>266</u>	<u>36.9</u>	266	37.0	212	46.5	212	46.4	<u>212</u>	<u>46.5</u>
470.lbm	18.2	753	17.7	774	<u>17.9</u>	<u>767</u>	18.2	753	17.7	774	<u>17.9</u>	<u>767</u>
481.wrf	100	112	<u>100</u>	<u>111</u>	101	111	100	112	<u>100</u>	<u>111</u>	101	111
482.sphinx3	279	69.8	276	70.6	<u>279</u>	<u>69.9</u>	279	69.8	276	70.6	<u>279</u>	<u>69.9</u>

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

Operating System Notes

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

Platform Notes

BIOS Settings:
 Power Management Policy: Custom
 Energy Performance: Performance
 Patrol Scrub: Disabled
 Demand Scrub: Disabled
 Early Snoop: Disabled
 Hyper-Threading: Disabled



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General Notes

Environment variables set by runspec before the start of the run:

KMP_AFFINITY = "granularity=fine,compact"

LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

OMP_NUM_THREADS = "24"

The Express5800/R120f-1M (Intel Xeon E5-2670 v3) and the Express5800/R120f-2M (Intel Xeon E5-2670 v3) models are electronically equivalent. The results have been measured on the Express5800/R120f-2M (Intel Xeon E5-2670 v3) model.

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

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.deallI: -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



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Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

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: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

Continued on next page

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Page 4



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Peak Optimization Flags (Continued)

444.namd: -xCORE-AVX2(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.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(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: basepeak = yes

416.gamess: -xCORE-AVX2(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-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(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 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120f-RevB.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120f-RevB.xml>



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For other inquiries, please contact webmaster@spec.org.

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