



SPEC® CFP2006 Result

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NEC Corporation

SPECfp®2006 = **114**

Express5800/R120f-2E (Intel Xeon E5-2680 v3)

SPECfp_base2006 = **109**

CPU2006 license: 9006

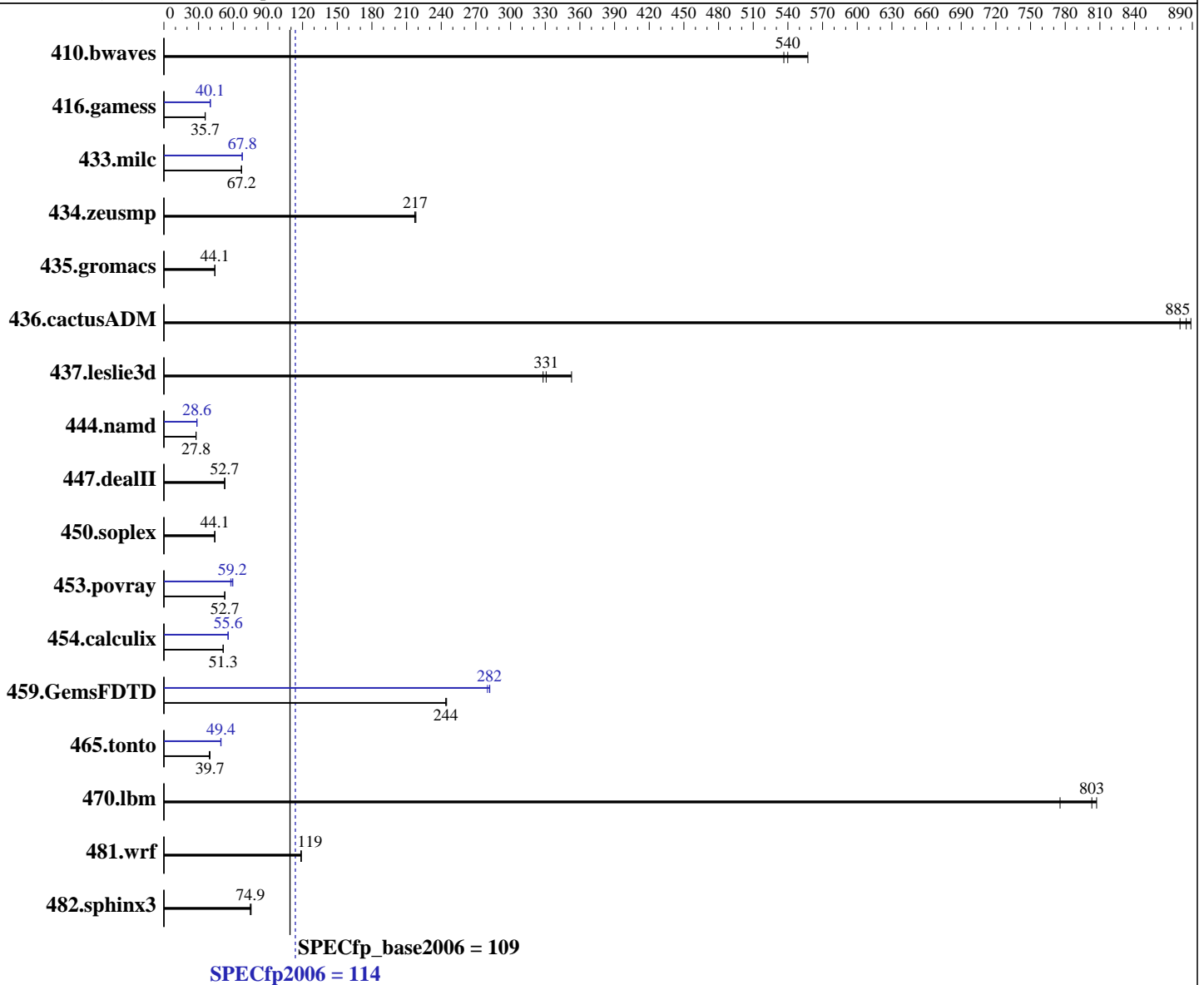
Test date: Jan-2015

Test sponsor: NEC Corporation

Hardware Availability: Jan-2015

Tested by: NEC Corporation

Software Availability: Jul-2014



Hardware

CPU Name: Intel Xeon E5-2680 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2500
 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

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Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)
 Kernel 2.6.32-431.20.3.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

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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	24.4	557	<u>25.2</u>	<u>540</u>	25.3	536	24.4	557	<u>25.2</u>	<u>540</u>	25.3	536
416.gamess	548	35.8	550	35.6	<u>548</u>	<u>35.7</u>	487	40.2	<u>488</u>	<u>40.1</u>	489	40.0
433.milc	137	67.0	136	67.3	<u>137</u>	<u>67.2</u>	135	67.8	<u>135</u>	<u>67.8</u>	135	67.8
434.zeusmp	41.7	218	41.9	217	<u>41.8</u>	<u>217</u>	41.7	218	41.9	217	<u>41.8</u>	<u>217</u>
435.gromacs	162	44.1	162	44.1	<u>162</u>	<u>44.1</u>	162	44.1	162	44.1	<u>162</u>	<u>44.1</u>
436.cactusADM	<u>13.5</u>	<u>885</u>	13.6	879	13.4	889	<u>13.5</u>	<u>885</u>	13.6	879	13.4	889
437.leslie3d	<u>28.4</u>	<u>331</u>	28.6	328	26.6	353	<u>28.4</u>	<u>331</u>	28.6	328	26.6	353
444.namd	288	27.8	289	27.8	<u>288</u>	<u>27.8</u>	281	28.6	281	28.5	<u>281</u>	<u>28.6</u>
447.dealII	<u>217</u>	<u>52.7</u>	217	52.7	218	52.4	<u>217</u>	<u>52.7</u>	217	52.7	218	52.4
450.soplex	<u>189</u>	<u>44.1</u>	189	44.2	190	43.9	<u>189</u>	<u>44.1</u>	189	44.2	190	43.9
453.povray	101	52.5	101	52.8	<u>101</u>	<u>52.7</u>	89.2	59.7	92.0	57.8	<u>89.9</u>	<u>59.2</u>
454.calculix	161	51.3	161	51.3	<u>161</u>	<u>51.3</u>	<u>148</u>	<u>55.6</u>	148	55.6	148	55.6
459.GemsFDTD	<u>43.5</u>	<u>244</u>	43.4	245	43.5	244	37.6	282	<u>37.7</u>	<u>282</u>	37.9	280
465.tonto	251	39.2	247	39.8	<u>248</u>	<u>39.7</u>	199	49.5	200	49.2	<u>199</u>	<u>49.4</u>
470.lbm	17.7	776	17.0	807	<u>17.1</u>	<u>803</u>	17.7	776	17.0	807	<u>17.1</u>	<u>803</u>
481.wrf	93.9	119	94.2	119	<u>94.1</u>	<u>119</u>	93.9	119	94.2	119	<u>94.1</u>	<u>119</u>
482.sphinx3	258	75.5	<u>260</u>	<u>74.9</u>	260	74.9	258	75.5	<u>260</u>	<u>74.9</u>	260	74.9

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
 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"

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.lelie3d: -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:

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

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Base Optimization Flags (Continued)

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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

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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-ic15.0-official-linux64.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-ic15.0-official-linux64.xml>

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



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Tested with SPEC CPU2006 v1.2.
Report generated on Wed Feb 25 11:30:44 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 24 February 2015.