



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]2006 = 117

Express5800/R120f-2M (Intel Xeon E5-2643 v3)

SPECfp_base2006 = 113

CPU2006 license: 9006

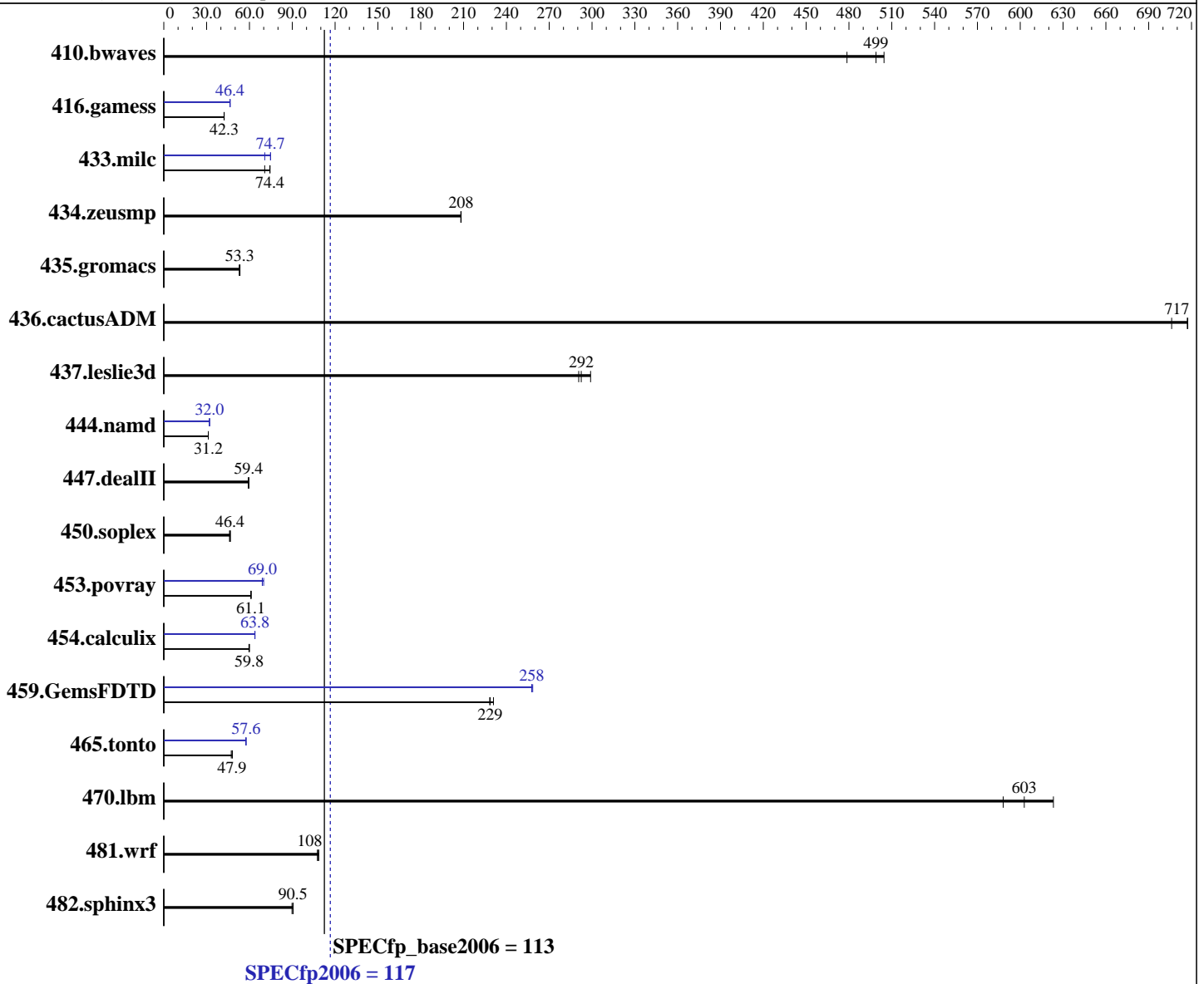
Test date: Dec-2014

Test sponsor: NEC Corporation

Hardware Availability: Feb-2015

Tested by: NEC Corporation

Software Availability: Jul-2014



Hardware

CPU Name: Intel Xeon E5-2643 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3400
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 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 2.6.32-431.17.1.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

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L3 Cache: 20 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	28.4	479	<u>27.2</u>	<u>499</u>	26.9	505	28.4	479	<u>27.2</u>	<u>499</u>	26.9	505
416.gamess	464	42.2	<u>463</u>	<u>42.3</u>	463	42.3	422	46.4	422	46.4	<u>422</u>	<u>46.4</u>
433.milc	123	74.4	<u>123</u>	<u>74.4</u>	130	70.7	130	70.7	123	74.8	<u>123</u>	<u>74.7</u>
434.zeusmp	<u>43.7</u>	<u>208</u>	43.7	208	43.7	208	<u>43.7</u>	<u>208</u>	43.7	208	43.7	208
435.gromacs	135	52.8	<u>134</u>	<u>53.3</u>	134	53.4	135	52.8	<u>134</u>	<u>53.3</u>	134	53.4
436.cactusADM	<u>16.7</u>	<u>717</u>	16.7	717	16.9	706	<u>16.7</u>	<u>717</u>	16.7	717	16.9	706
437.leslie3d	<u>32.1</u>	<u>292</u>	32.3	291	31.4	299	<u>32.1</u>	<u>292</u>	32.3	291	31.4	299
444.namd	257	31.2	257	31.2	<u>257</u>	<u>31.2</u>	251	32.0	<u>250</u>	<u>32.0</u>	250	32.0
447.dealII	193	59.2	192	59.6	<u>192</u>	<u>59.4</u>	193	59.2	192	59.6	<u>192</u>	<u>59.4</u>
450.soplex	179	46.7	<u>180</u>	<u>46.4</u>	181	46.0	179	46.7	<u>180</u>	<u>46.4</u>	181	46.0
453.povray	<u>87.1</u>	<u>61.1</u>	86.9	61.2	87.2	61.0	<u>77.1</u>	<u>69.0</u>	76.0	70.0	77.1	69.0
454.calculix	<u>138</u>	<u>59.8</u>	138	60.0	138	59.7	129	63.9	129	63.8	<u>129</u>	<u>63.8</u>
459.GemsFDTD	45.9	231	<u>46.4</u>	<u>229</u>	46.5	228	41.0	258	41.2	258	<u>41.2</u>	<u>258</u>
465.tonto	208	47.3	205	48.1	<u>206</u>	<u>47.9</u>	171	57.5	171	57.6	<u>171</u>	<u>57.6</u>
470.lbm	23.4	588	<u>22.8</u>	<u>603</u>	22.0	623	23.4	588	<u>22.8</u>	<u>603</u>	22.0	623
481.wrf	<u>103</u>	<u>108</u>	103	109	104	108	<u>103</u>	<u>108</u>	103	109	104	108
482.sphinx3	217	89.8	<u>215</u>	<u>90.5</u>	215	90.6	217	89.8	<u>215</u>	<u>90.5</u>	215	90.6

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 = "12"

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.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.dealII: 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 Tue Mar 10 16:02:38 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 March 2015.