



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]2006 = **115**

Express5800/B120f-h (Intel Xeon E5-2690 v3)

SPECfp_base2006 = **110**

CPU2006 license: 9006

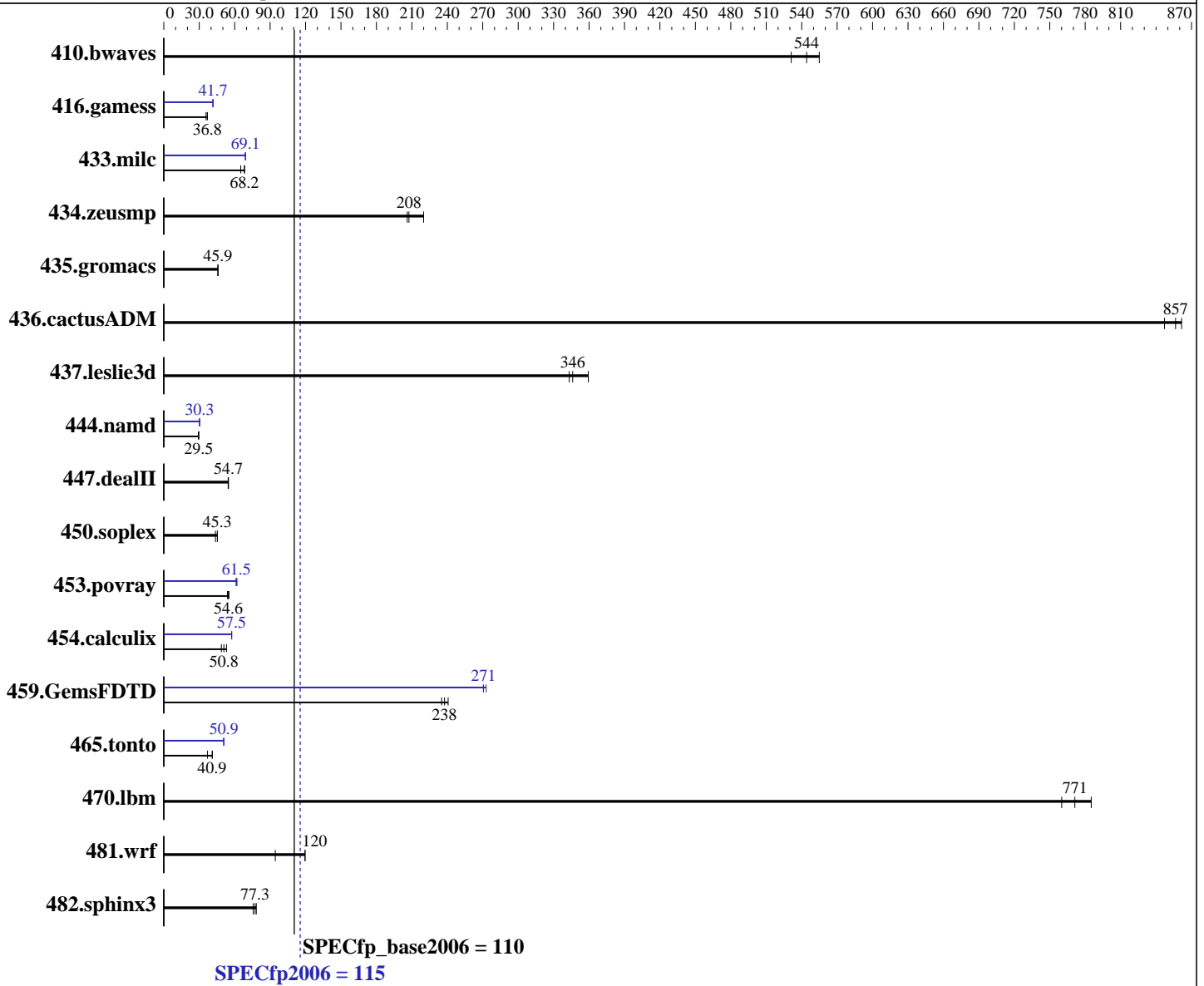
Test date: Feb-2015

Test sponsor: NEC Corporation

Hardware Availability: Jun-2015

Tested by: NEC Corporation

Software Availability: Oct-2014



Hardware

CPU Name: Intel Xeon E5-2690 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 2600
 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 6.6 (Santiago)
 Kernel 2.6.32-504.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: 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)
 Disk Subsystem: 1 x 400 GB SATA, SSD
 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	24.5	555	<u>25.0</u>	<u>544</u>	25.6	531	24.5	555	<u>25.0</u>	<u>544</u>	25.6	531
416.gamess	530	36.9	548	35.7	<u>532</u>	<u>36.8</u>	470	41.7	472	41.5	<u>470</u>	<u>41.7</u>
433.milc	<u>135</u>	<u>68.2</u>	141	65.1	134	68.4	133	69.2	133	69.0	<u>133</u>	<u>69.1</u>
434.zeusmp	41.4	220	44.2	206	<u>43.8</u>	<u>208</u>	41.4	220	44.2	206	<u>43.8</u>	<u>208</u>
435.gromacs	155	45.9	156	45.8	<u>156</u>	<u>45.9</u>	155	45.9	156	45.8	<u>156</u>	<u>45.9</u>
436.cactusADM	14.1	847	13.9	862	<u>14.0</u>	<u>857</u>	14.1	847	13.9	862	<u>14.0</u>	<u>857</u>
437.leslie3d	<u>27.2</u>	<u>346</u>	26.2	359	27.4	343	<u>27.2</u>	<u>346</u>	26.2	359	27.4	343
444.namd	272	29.5	272	29.5	<u>272</u>	<u>29.5</u>	265	30.3	<u>265</u>	<u>30.3</u>	265	30.3
447.dealII	210	54.5	209	54.7	<u>209</u>	<u>54.7</u>	210	54.5	209	54.7	<u>209</u>	<u>54.7</u>
450.soplex	<u>184</u>	<u>45.3</u>	191	43.7	184	45.4	<u>184</u>	<u>45.3</u>	191	43.7	184	45.4
453.povray	98.8	53.9	96.4	55.2	<u>97.4</u>	<u>54.6</u>	<u>86.5</u>	<u>61.5</u>	85.8	62.0	86.9	61.2
454.calculix	169	48.7	<u>162</u>	<u>50.8</u>	156	53.1	143	57.5	<u>144</u>	<u>57.5</u>	144	57.4
459.GemsFDTD	45.1	235	44.1	241	<u>44.6</u>	<u>238</u>	<u>39.2</u>	<u>271</u>	39.2	271	38.9	273
465.tonto	266	37.0	239	41.2	<u>241</u>	<u>40.9</u>	193	51.0	194	50.6	<u>193</u>	<u>50.9</u>
470.lbm	18.1	760	<u>17.8</u>	<u>771</u>	17.5	785	18.1	760	<u>17.8</u>	<u>771</u>	17.5	785
481.wrf	<u>93.4</u>	<u>120</u>	118	94.4	93.4	120	<u>93.4</u>	<u>120</u>	118	94.4	93.4	120
482.sphinx3	258	75.6	249	78.3	<u>252</u>	<u>77.3</u>	258	75.6	249	78.3	<u>252</u>	<u>77.3</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:
 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.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.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-B120f-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-B120f-RevB.xml>



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

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