



SPEC® CFP2006 Result

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NEC Corporation

SPECfp®2006 = 114

Express5800/T120f (Intel Xeon E5-2680 v3)

SPECfp_base2006 = 110

CPU2006 license: 9006

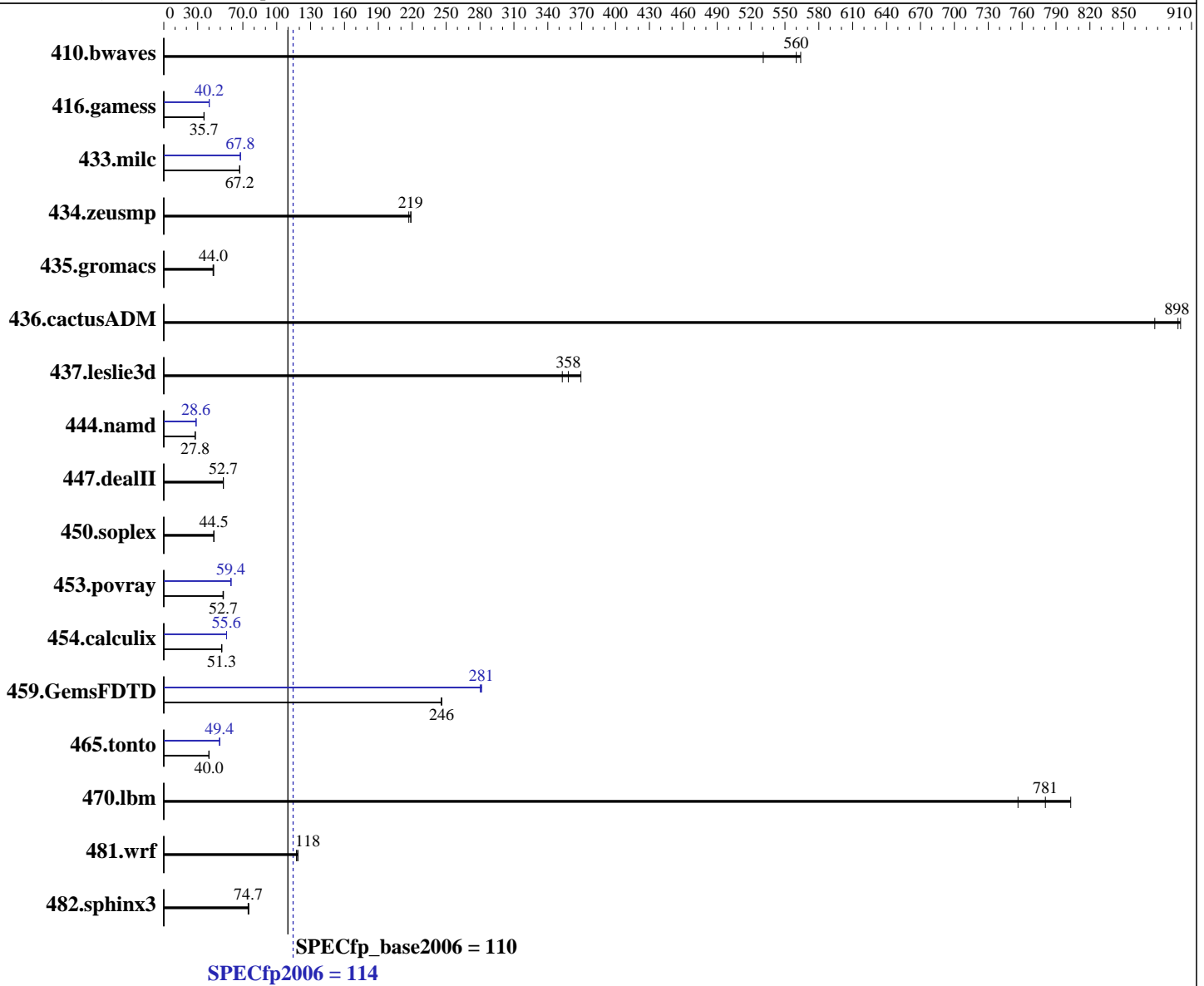
Test date: Feb-2015

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

Continued on next page

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

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	25.6	531	24.1	564	<u>24.3</u>	<u>560</u>	25.6	531	24.1	564	<u>24.3</u>	<u>560</u>
416.gamess	<u>548</u>	<u>35.7</u>	548	35.7	552	35.5	487	40.2	<u>487</u>	<u>40.2</u>	488	40.2
433.milc	137	67.2	136	67.3	<u>137</u>	<u>67.2</u>	<u>135</u>	<u>67.8</u>	135	67.8	135	67.9
434.zeusmp	41.6	219	<u>41.6</u>	<u>219</u>	41.9	217	41.6	219	<u>41.6</u>	<u>219</u>	41.9	217
435.gromacs	162	44.1	164	43.6	<u>162</u>	<u>44.0</u>	162	44.1	164	43.6	<u>162</u>	<u>44.0</u>
436.cactusADM	13.3	900	<u>13.3</u>	<u>898</u>	13.6	877	13.3	900	<u>13.3</u>	<u>898</u>	13.6	877
437.leslie3d	<u>26.2</u>	<u>358</u>	25.4	369	26.6	353	<u>26.2</u>	<u>358</u>	25.4	369	26.6	353
444.namd	289	27.8	<u>288</u>	<u>27.8</u>	288	27.8	<u>281</u>	<u>28.6</u>	281	28.6	281	28.6
447.dealII	217	52.7	<u>217</u>	<u>52.7</u>	217	52.7	217	52.7	<u>217</u>	<u>52.7</u>	217	52.7
450.soplex	188	44.5	<u>188</u>	<u>44.5</u>	189	44.2	188	44.5	<u>188</u>	<u>44.5</u>	189	44.2
453.povray	<u>101</u>	<u>52.7</u>	101	52.8	102	52.4	89.1	59.7	<u>89.6</u>	<u>59.4</u>	89.7	59.3
454.calculix	161	51.4	<u>161</u>	<u>51.3</u>	161	51.2	148	55.6	<u>148</u>	<u>55.6</u>	148	55.6
459.GemsFDTD	43.2	246	43.1	246	<u>43.1</u>	<u>246</u>	<u>37.7</u>	<u>281</u>	37.9	280	37.7	281
465.tonto	245	40.1	247	39.9	<u>246</u>	<u>40.0</u>	199	49.4	<u>199</u>	<u>49.4</u>	199	49.4
470.lbm	18.2	756	<u>17.6</u>	<u>781</u>	17.1	803	18.2	756	<u>17.6</u>	<u>781</u>	17.1	803
481.wrf	95.0	118	<u>94.8</u>	<u>118</u>	94.0	119	95.0	118	<u>94.8</u>	<u>118</u>	94.0	119
482.sphinx3	261	74.6	259	75.3	<u>261</u>	<u>74.7</u>	261	74.6	259	75.3	<u>261</u>	<u>74.7</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
 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

Continued on next page

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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:

Continued on next page



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

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