



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]2006 = 91.9

Express5800/R120f-1M (Intel Xeon E5-2650L v3)

SPECfp_base2006 = 88.0

CPU2006 license: 9006

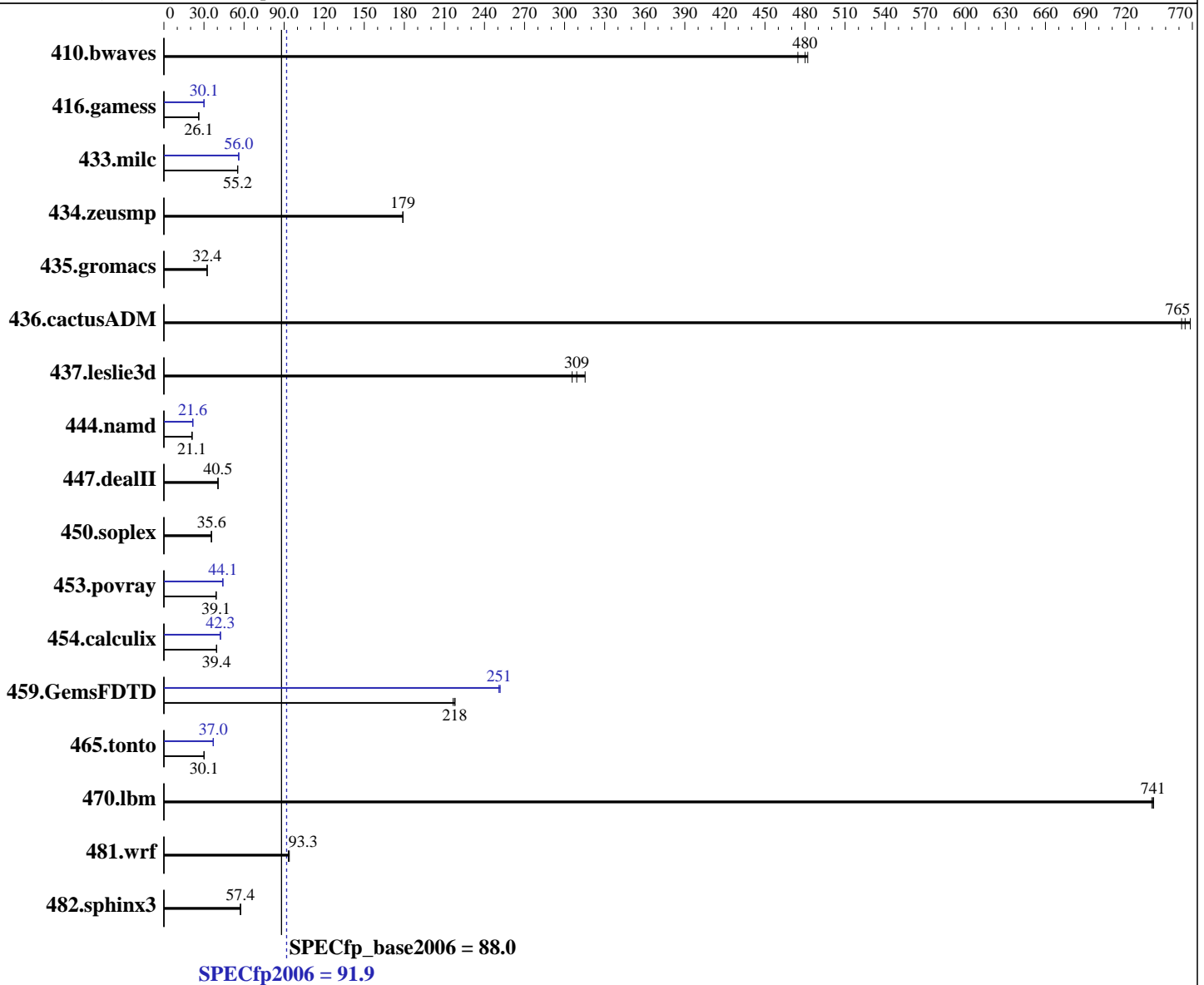
Test date: Jan-2015

Test sponsor: NEC Corporation

Hardware Availability: Feb-2015

Tested by: NEC Corporation

Software Availability: Jul-2014



Hardware

CPU Name: Intel Xeon E5-2650L v3
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz
 CPU MHz: 1800
 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 2.6.32-431.17.1.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: 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	<u>28.3</u>	480	28.2	482	28.6	475	<u>28.3</u>	480	28.2	482	28.6	475
416.gamess	750	26.1	<u>751</u>	<u>26.1</u>	752	26.0	<u>652</u>	<u>30.1</u>	653	30.0	651	30.1
433.milc	166	55.2	166	55.2	166	55.3	164	56.0	164	56.0	164	56.0
434.zeusmp	50.9	179	<u>50.9</u>	<u>179</u>	50.8	179	50.9	179	<u>50.9</u>	<u>179</u>	50.8	179
435.gromacs	<u>221</u>	32.4	221	32.3	220	32.4	<u>221</u>	32.4	221	32.3	220	32.4
436.cactusADM	15.6	768	<u>15.6</u>	<u>765</u>	15.7	762	15.6	768	<u>15.6</u>	<u>765</u>	15.7	762
437.leslie3d	29.8	315	30.8	306	30.4	309	29.8	315	30.8	306	30.4	309
444.namd	381	21.1	381	21.1	381	21.1	<u>371</u>	<u>21.6</u>	370	21.6	371	21.6
447.dealII	282	40.6	283	40.5	<u>282</u>	<u>40.5</u>	282	40.6	283	40.5	<u>282</u>	<u>40.5</u>
450.soplex	235	35.5	234	35.7	<u>234</u>	<u>35.6</u>	235	35.5	234	35.7	<u>234</u>	<u>35.6</u>
453.povray	136	39.1	137	39.0	136	39.2	<u>121</u>	<u>44.1</u>	121	44.1	121	44.1
454.calculix	209	39.5	<u>209</u>	<u>39.4</u>	209	39.4	195	42.3	195	42.3	<u>195</u>	<u>42.3</u>
459.GemsFDTD	48.7	218	48.8	218	49.0	217	<u>42.3</u>	<u>251</u>	42.3	251	42.1	252
465.tonto	327	30.1	327	30.1	<u>327</u>	<u>30.1</u>	266	37.0	<u>266</u>	<u>37.0</u>	267	36.9
470.lbm	18.6	740	18.6	741	18.5	741	18.6	740	18.6	741	18.5	741
481.wrf	120	93.2	119	93.9	<u>120</u>	<u>93.3</u>	120	93.2	119	93.9	<u>120</u>	<u>93.3</u>
482.sphinx3	341	57.2	340	57.4	340	57.4	341	57.2	340	57.4	340	57.4

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.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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