



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]2006 = **99.4**

Express5800/T120f (Intel Xeon E5-2620 v3)

SPECfp_base2006 = **94.2**

CPU2006 license: 9006

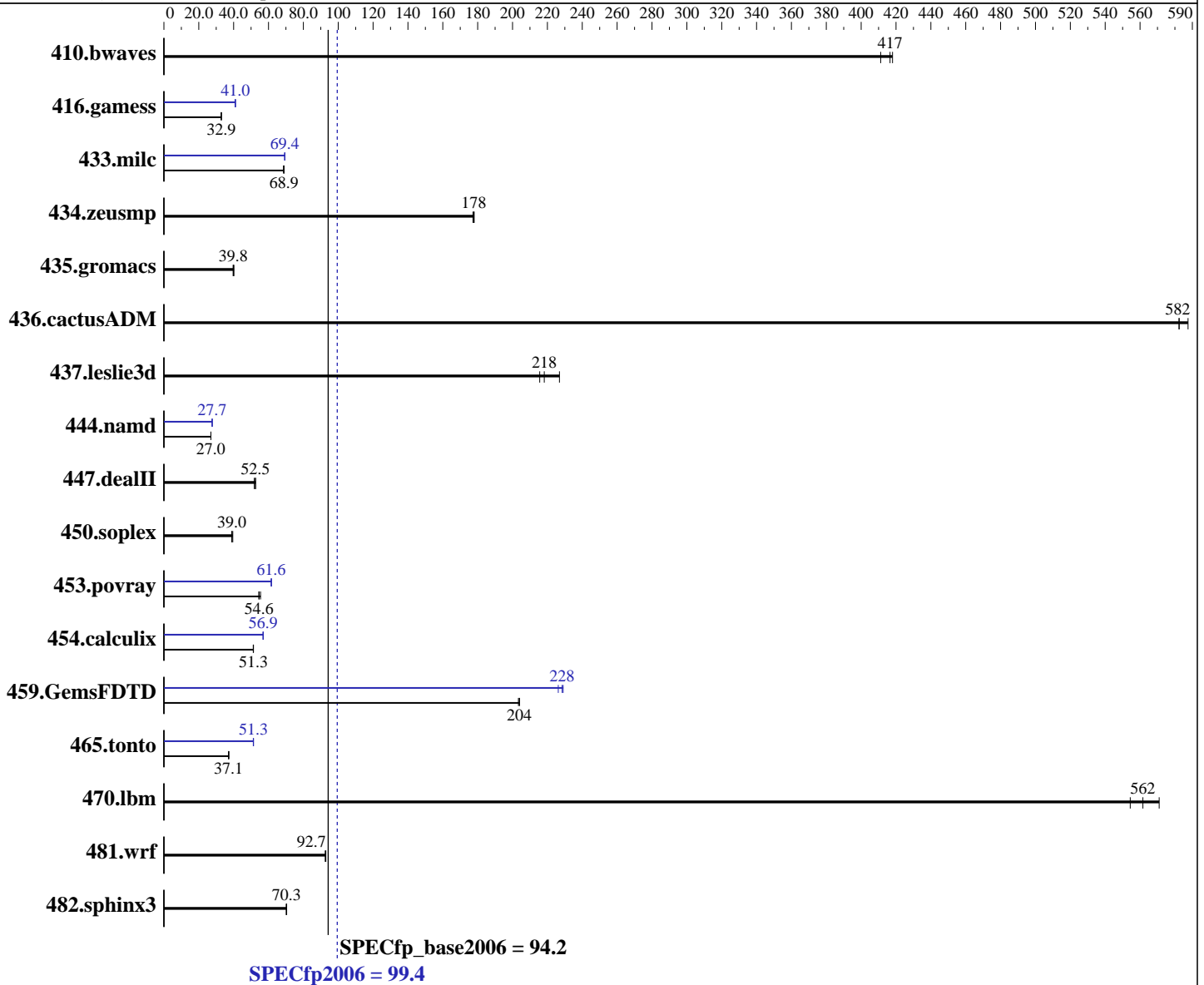
Test date: Mar-2015

Test sponsor: NEC Corporation

Hardware Availability: Jan-2015

Tested by: NEC Corporation

Software Availability: Jul-2014



Hardware

CPU Name: Intel Xeon E5-2620 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
 CPU MHz: 2400
 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 2.6.32-431.20.3.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: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
 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>32.6</u>	<u>417</u>	33.0	411	32.5	418	<u>32.6</u>	<u>417</u>	33.0	411	32.5	418
416.gamess	594	33.0	<u>594</u>	<u>32.9</u>	596	32.9	476	41.1	480	40.8	<u>478</u>	<u>41.0</u>
433.milc	133	68.9	<u>133</u>	<u>68.9</u>	134	68.6	132	69.4	<u>132</u>	<u>69.4</u>	133	69.3
434.zeusmp	<u>51.2</u>	<u>178</u>	51.1	178	51.3	177	<u>51.2</u>	<u>178</u>	51.1	178	51.3	177
435.gromacs	180	39.7	178	40.2	<u>179</u>	<u>39.8</u>	180	39.7	178	40.2	<u>179</u>	<u>39.8</u>
436.cactusADM	20.5	582	20.3	588	<u>20.5</u>	<u>582</u>	20.5	582	20.3	588	<u>20.5</u>	<u>582</u>
437.leslie3d	41.4	227	<u>43.1</u>	<u>218</u>	43.6	216	41.4	227	<u>43.1</u>	<u>218</u>	43.6	216
444.namd	298	27.0	297	27.0	<u>297</u>	<u>27.0</u>	290	27.7	<u>290</u>	<u>27.7</u>	290	27.7
447.dealII	221	51.8	218	52.6	<u>218</u>	<u>52.5</u>	221	51.8	218	52.6	<u>218</u>	<u>52.5</u>
450.soplex	211	39.5	<u>214</u>	<u>39.0</u>	214	39.0	211	39.5	<u>214</u>	<u>39.0</u>	214	39.0
453.povray	<u>97.4</u>	<u>54.6</u>	96.0	55.4	97.7	54.5	<u>86.4</u>	<u>61.6</u>	86.2	61.7	86.4	61.6
454.calculix	161	51.4	161	51.2	<u>161</u>	<u>51.3</u>	145	57.0	145	56.9	<u>145</u>	<u>56.9</u>
459.GemsFDTD	<u>52.1</u>	<u>204</u>	52.0	204	52.2	203	46.3	229	46.9	226	<u>46.4</u>	<u>228</u>
465.tonto	264	37.3	265	37.1	<u>265</u>	<u>37.1</u>	192	51.3	<u>192</u>	<u>51.3</u>	191	51.4
470.lbm	24.8	554	<u>24.5</u>	<u>562</u>	24.1	571	24.8	554	<u>24.5</u>	<u>562</u>	24.1	571
481.wrf	120	92.9	<u>121</u>	<u>92.7</u>	121	92.6	120	92.9	<u>121</u>	<u>92.7</u>	121	92.6
482.sphinx3	277	70.4	<u>277</u>	<u>70.3</u>	278	70.2	277	70.4	<u>277</u>	<u>70.3</u>	278	70.2

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-RevC.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-RevC.xml>



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