



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]2006 = **99.4**

Express5800/R120e-2M (Intel Xeon E5-2670 v2)

SPECfp_base2006 = **95.0**

CPU2006 license: 9006

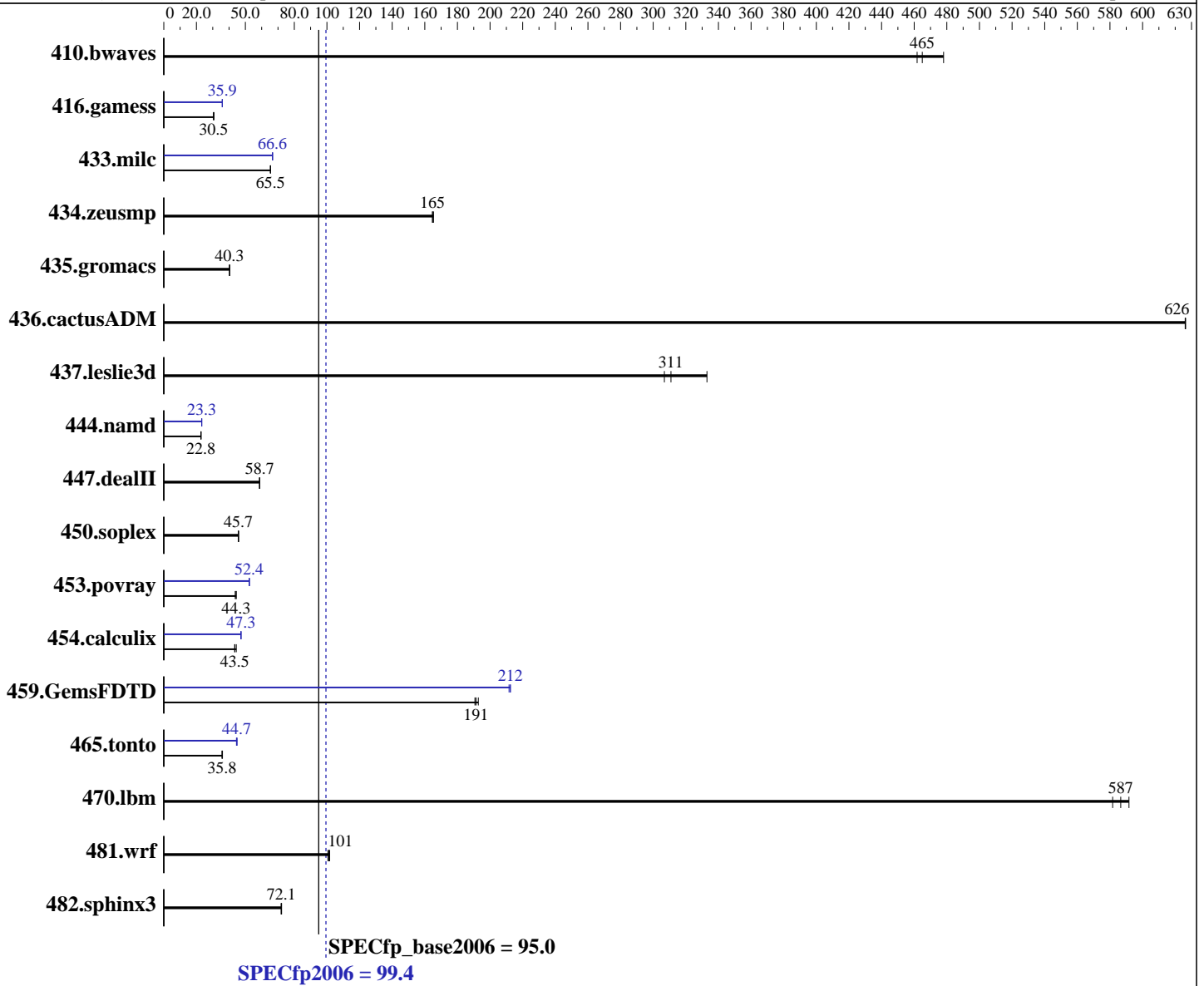
Test date: Oct-2013

Test sponsor: NEC Corporation

Hardware Availability: Sep-2013

Tested by: NEC Corporation

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2670 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip, 2 threads/core
 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 6.4 (Santiago)
 Kernel 2.6.32-358.18.1.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

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L3 Cache: 25 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
 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	478	29.4	462	<u>29.2</u>	<u>465</u>	28.4	478	29.4	462	<u>29.2</u>	<u>465</u>
416.gamess	643	30.4	<u>642</u>	<u>30.5</u>	636	30.8	<u>546</u>	<u>35.9</u>	546	35.8	546	35.9
433.milc	141	65.3	<u>140</u>	<u>65.5</u>	140	65.5	138	66.6	138	66.7	<u>138</u>	<u>66.6</u>
434.zeusmp	55.2	165	<u>55.2</u>	<u>165</u>	55.0	165	55.2	165	<u>55.2</u>	<u>165</u>	55.0	165
435.gromacs	<u>177</u>	<u>40.3</u>	177	40.4	177	40.3	<u>177</u>	<u>40.3</u>	177	40.4	177	40.3
436.cactusADM	19.1	626	19.1	626	<u>19.1</u>	<u>626</u>	19.1	626	19.1	626	<u>19.1</u>	<u>626</u>
437.leslie3d	30.6	307	<u>30.2</u>	<u>311</u>	28.2	333	30.6	307	<u>30.2</u>	<u>311</u>	28.2	333
444.namd	352	22.8	<u>352</u>	<u>22.8</u>	352	22.8	345	23.2	345	23.3	<u>345</u>	<u>23.3</u>
447.dealII	195	58.7	<u>195</u>	<u>58.7</u>	195	58.7	195	58.7	<u>195</u>	<u>58.7</u>	195	58.7
450.soplex	182	45.9	<u>182</u>	<u>45.7</u>	183	45.7	182	45.9	<u>182</u>	<u>45.7</u>	183	45.7
453.povray	<u>120</u>	<u>44.3</u>	120	44.4	122	43.8	101	52.5	<u>102</u>	<u>52.4</u>	102	52.3
454.calculix	<u>189</u>	<u>43.5</u>	186	44.4	190	43.4	174	47.3	174	47.3	<u>174</u>	<u>47.3</u>
459.GemsFDTD	55.6	191	55.0	193	<u>55.4</u>	<u>191</u>	50.1	212	49.9	212	<u>49.9</u>	<u>212</u>
465.tonto	274	36.0	<u>275</u>	<u>35.8</u>	276	35.7	221	44.5	<u>220</u>	<u>44.7</u>	219	44.9
470.lbm	<u>23.4</u>	<u>587</u>	23.6	582	23.2	592	<u>23.4</u>	<u>587</u>	23.6	582	23.2	592
481.wrf	<u>110</u>	<u>101</u>	110	102	111	101	<u>110</u>	<u>101</u>	110	102	111	101
482.sphinx3	<u>270</u>	<u>72.1</u>	270	72.2	271	71.9	<u>270</u>	<u>72.1</u>	270	72.2	271	71.9

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

General Notes

Environment variables set by runspec before the start of the run:
 KMP_AFFINITY = "granularity=fine,compact,1,0"
 LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
 OMP_NUM_THREADS = "20"

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General Notes (Continued)

Added glibc-static-2.12-1.107.el6.x86_64.rpm
to enable static linking

Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
The Express5800/R120e-1M and
the Express5800/R120e-2M models are electronically equivalent.
The results have been measured on the Express5800/R120e-1M model.

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



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Base Optimization Flags

C benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

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Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xAVX(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: -xAVX(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: -xAVX(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- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xAVX(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: -xAVX(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: -xAVX -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-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.xml>



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