



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]2006 = 49.3

Express5800/R120e-1E (Intel Xeon E5-2403 v2)

SPECfp_base2006 = 47.9

CPU2006 license: 9006

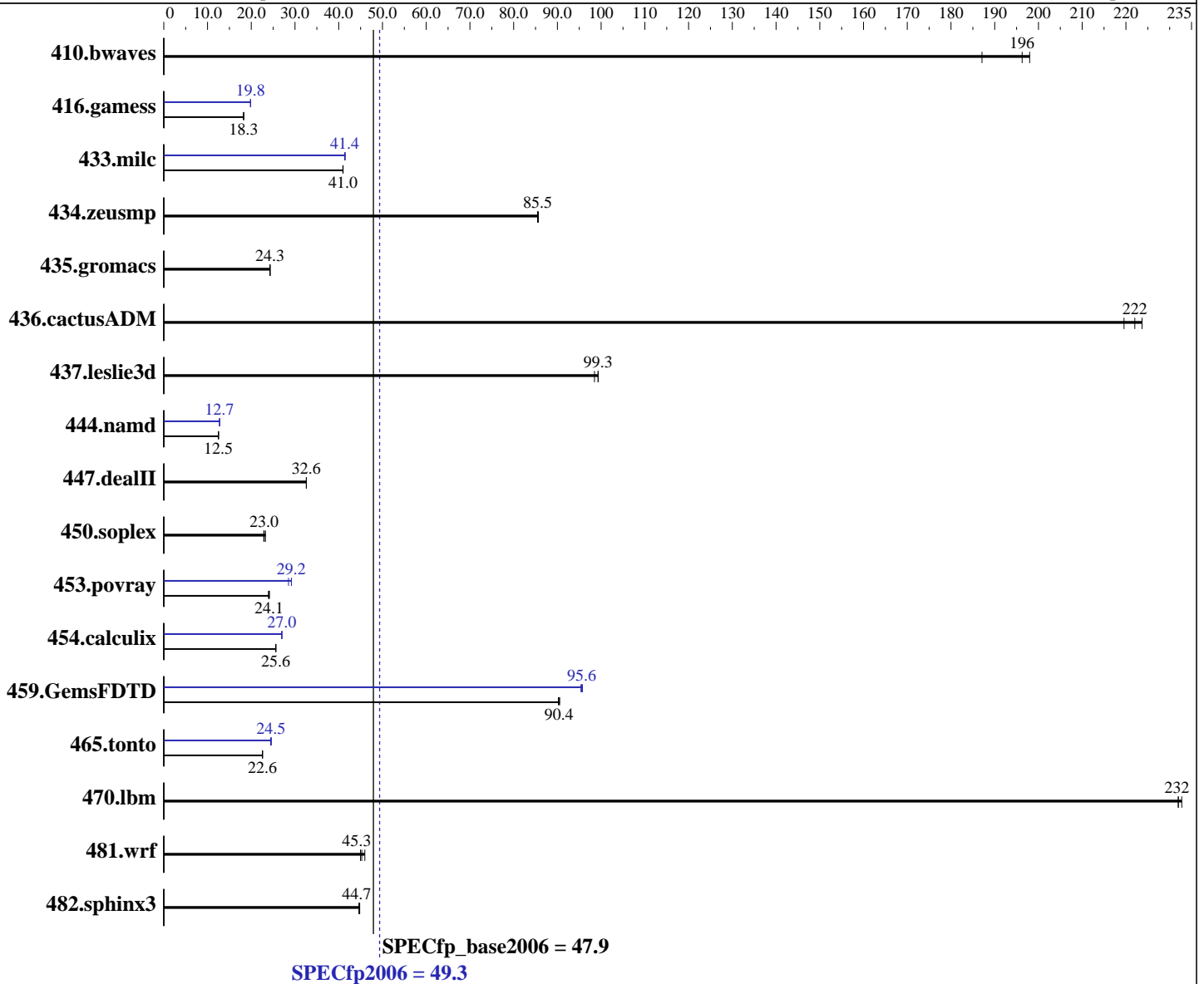
Test date: Feb-2014

Test sponsor: NEC Corporation

Hardware Availability: Jan-2014

Tested by: NEC Corporation

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2403 v2
 CPU Characteristics:
 CPU MHz: 1800
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 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 6.4 (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: 10 MB I+D on chip per chip
 Other Cache: None
 Memory: 192 GB (12 x 16 GB 2Rx4 PC3L-12800R-11, 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	72.6	187	<u>69.2</u>	<u>196</u>	68.6	198	72.6	187	<u>69.2</u>	<u>196</u>	68.6	198
416.gamess	1073	18.2	<u>1073</u>	<u>18.3</u>	1072	18.3	987	19.8	986	19.8	<u>987</u>	<u>19.8</u>
433.milc	224	40.9	224	41.0	<u>224</u>	<u>41.0</u>	<u>222</u>	<u>41.4</u>	221	41.5	222	41.4
434.zeusmp	<u>106</u>	<u>85.5</u>	106	85.5	106	85.6	<u>106</u>	<u>85.5</u>	106	85.5	106	85.6
435.gromacs	<u>294</u>	<u>24.3</u>	294	24.3	294	24.3	<u>294</u>	<u>24.3</u>	294	24.3	294	24.3
436.cactusADM	<u>53.8</u>	<u>222</u>	53.4	224	54.4	220	<u>53.8</u>	<u>222</u>	53.4	224	54.4	220
437.leslie3d	95.5	98.5	<u>94.7</u>	<u>99.3</u>	94.7	99.3	95.5	98.5	<u>94.7</u>	<u>99.3</u>	94.7	99.3
444.namd	<u>642</u>	<u>12.5</u>	641	12.5	642	12.5	629	12.7	629	12.7	<u>629</u>	<u>12.7</u>
447.dealII	351	32.6	<u>351</u>	<u>32.6</u>	351	32.6	351	32.6	<u>351</u>	<u>32.6</u>	351	32.6
450.soplex	365	22.9	<u>363</u>	<u>23.0</u>	359	23.2	365	22.9	<u>363</u>	<u>23.0</u>	359	23.2
453.povray	220	24.1	<u>221</u>	<u>24.1</u>	222	23.9	<u>182</u>	<u>29.2</u>	187	28.5	182	29.2
454.calculix	322	25.6	<u>322</u>	<u>25.6</u>	322	25.6	306	27.0	306	27.0	<u>306</u>	<u>27.0</u>
459.GemsFDTD	118	90.2	<u>117</u>	<u>90.4</u>	117	90.5	111	95.7	111	95.4	<u>111</u>	<u>95.6</u>
465.tonto	437	22.5	436	22.6	<u>436</u>	<u>22.6</u>	403	24.4	<u>401</u>	<u>24.5</u>	400	24.6
470.lbm	<u>59.2</u>	<u>232</u>	59.2	232	59.0	233	<u>59.2</u>	<u>232</u>	59.2	232	59.0	233
481.wrf	248	45.0	243	46.0	<u>247</u>	<u>45.3</u>	248	45.0	243	46.0	<u>247</u>	<u>45.3</u>
482.sphinx3	435	44.8	437	44.6	<u>436</u>	<u>44.7</u>	435	44.8	437	44.6	<u>436</u>	<u>44.7</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:
 Energy Performance: Performance
 Memory Voltage: 1.5 V

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"

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General Notes (Continued)

OMP_NUM_THREADS = "8"

The Express5800/R120e-1E and the Express5800/R120e-2E models are electronically equivalent. The results have been measured on the Express5800/R120e-2E model.

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

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-R120-RevB.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-R120-RevB.xml>



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

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