



SPEC[®] CFP2006 Result

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NEC Corporation

SPECfp[®]2006 = **66.7**

Express5800/T110e-M (Intel Xeon E5-2420 v2)

SPECfp_base2006 = **64.9**

CPU2006 license: 9006

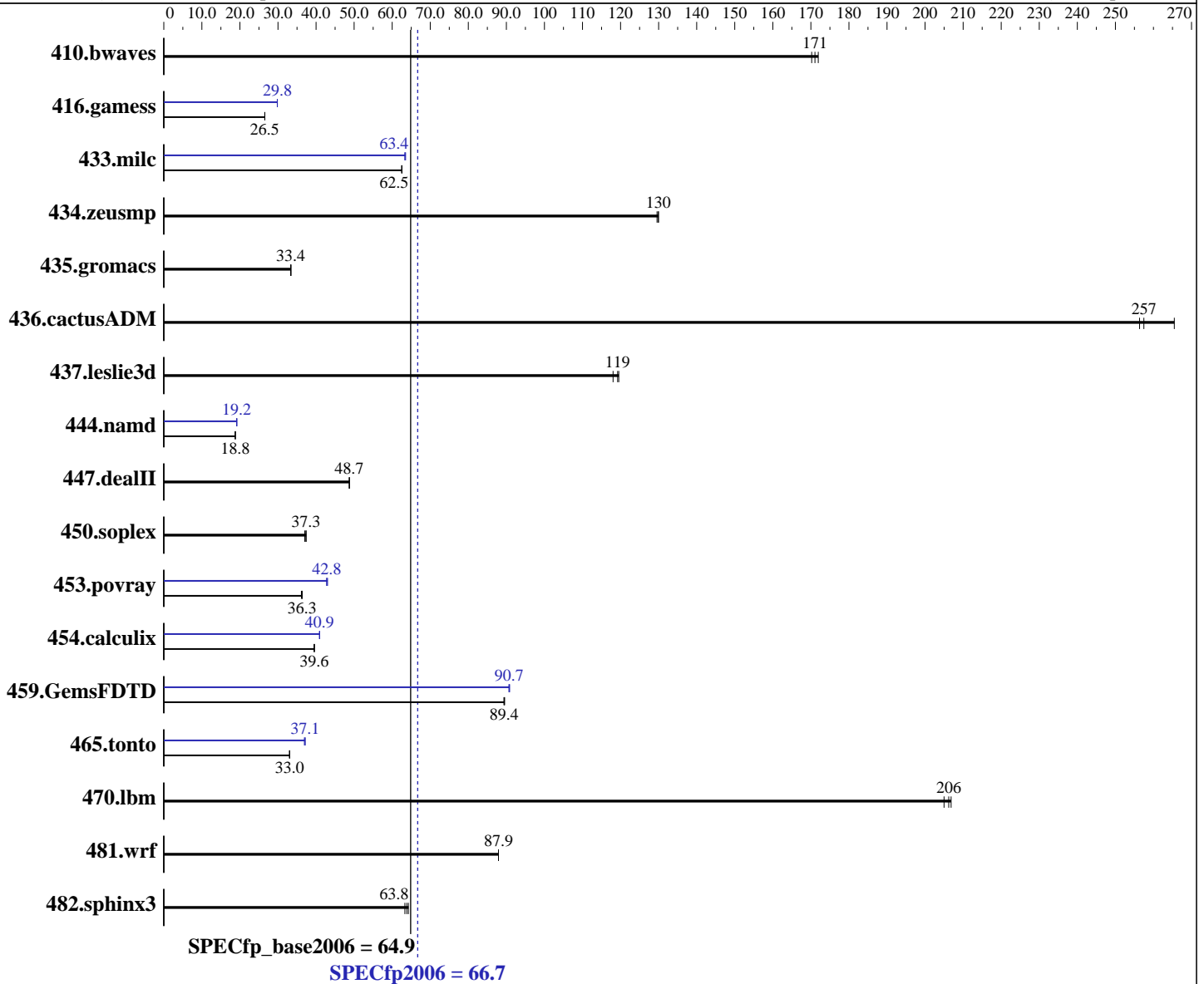
Test date: Jan-2014

Test sponsor: NEC Corporation

Hardware Availability: Jan-2014

Tested by: NEC Corporation

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2420 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 2.70 GHz
 CPU MHz: 2200
 FPU: Integrated
 CPU(s) enabled: 6 cores, 1 chip, 6 cores/chip
 CPU(s) orderable: 1 chip
 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: 15 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (3 x 16 GB 2Rx4 PC3L-12800R-11, ECC)
Disk Subsystem: 1 x 500 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	79.8	170	79.0	172	<u>79.4</u>	<u>171</u>	79.8	170	79.0	172	<u>79.4</u>	<u>171</u>
416.gamess	737	26.6	738	26.5	<u>738</u>	<u>26.5</u>	657	29.8	656	29.8	<u>656</u>	<u>29.8</u>
433.milc	<u>147</u>	<u>62.5</u>	147	62.6	147	62.5	144	63.5	<u>145</u>	<u>63.4</u>	145	63.3
434.zeusmp	<u>70.0</u>	<u>130</u>	70.0	130	70.2	130	<u>70.0</u>	<u>130</u>	70.0	130	70.2	130
435.gromacs	214	33.4	<u>214</u>	<u>33.4</u>	214	33.4	214	33.4	<u>214</u>	<u>33.4</u>	214	33.4
436.cactusADM	46.6	256	45.0	265	<u>46.4</u>	<u>257</u>	46.6	256	45.0	265	<u>46.4</u>	<u>257</u>
437.leslie3d	78.6	120	79.6	118	<u>78.8</u>	<u>119</u>	78.6	120	79.6	118	<u>78.8</u>	<u>119</u>
444.namd	427	18.8	<u>427</u>	<u>18.8</u>	427	18.8	419	19.2	418	19.2	<u>418</u>	<u>19.2</u>
447.dealII	235	48.8	235	48.7	<u>235</u>	<u>48.7</u>	235	48.8	235	48.7	<u>235</u>	<u>48.7</u>
450.soplex	225	37.0	223	37.4	<u>223</u>	<u>37.3</u>	225	37.0	223	37.4	<u>223</u>	<u>37.3</u>
453.povray	146	36.4	<u>146</u>	<u>36.3</u>	147	36.1	<u>124</u>	<u>42.8</u>	124	42.8	124	43.0
454.calculix	209	39.6	209	39.5	<u>209</u>	<u>39.6</u>	202	40.9	<u>202</u>	<u>40.9</u>	202	40.9
459.GemsFDTD	118	89.5	<u>119</u>	<u>89.4</u>	119	89.4	117	90.9	<u>117</u>	<u>90.7</u>	117	90.7
465.tonto	298	33.0	298	33.0	<u>298</u>	<u>33.0</u>	265	37.1	266	36.9	<u>265</u>	<u>37.1</u>
470.lbm	<u>66.6</u>	<u>206</u>	67.0	205	66.4	207	<u>66.6</u>	<u>206</u>	67.0	205	66.4	207
481.wrf	127	87.9	<u>127</u>	<u>87.9</u>	127	87.9	127	87.9	<u>127</u>	<u>87.9</u>	127	87.9
482.sphinx3	<u>305</u>	<u>63.8</u>	303	64.3	308	63.3	<u>305</u>	<u>63.8</u>	303	64.3	308	63.3

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
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,1,0"

LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

OMP_NUM_THREADS = "6"

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.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 20:25:04 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 11 February 2014.