



SPEC® CFP2006 Result

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NEC Corporation

SPECfp®2006 = **76.5**

Express5800/T110g-E (Intel Xeon E3-1271 v3)

SPECfp_base2006 = **75.3**

CPU2006 license: 9006

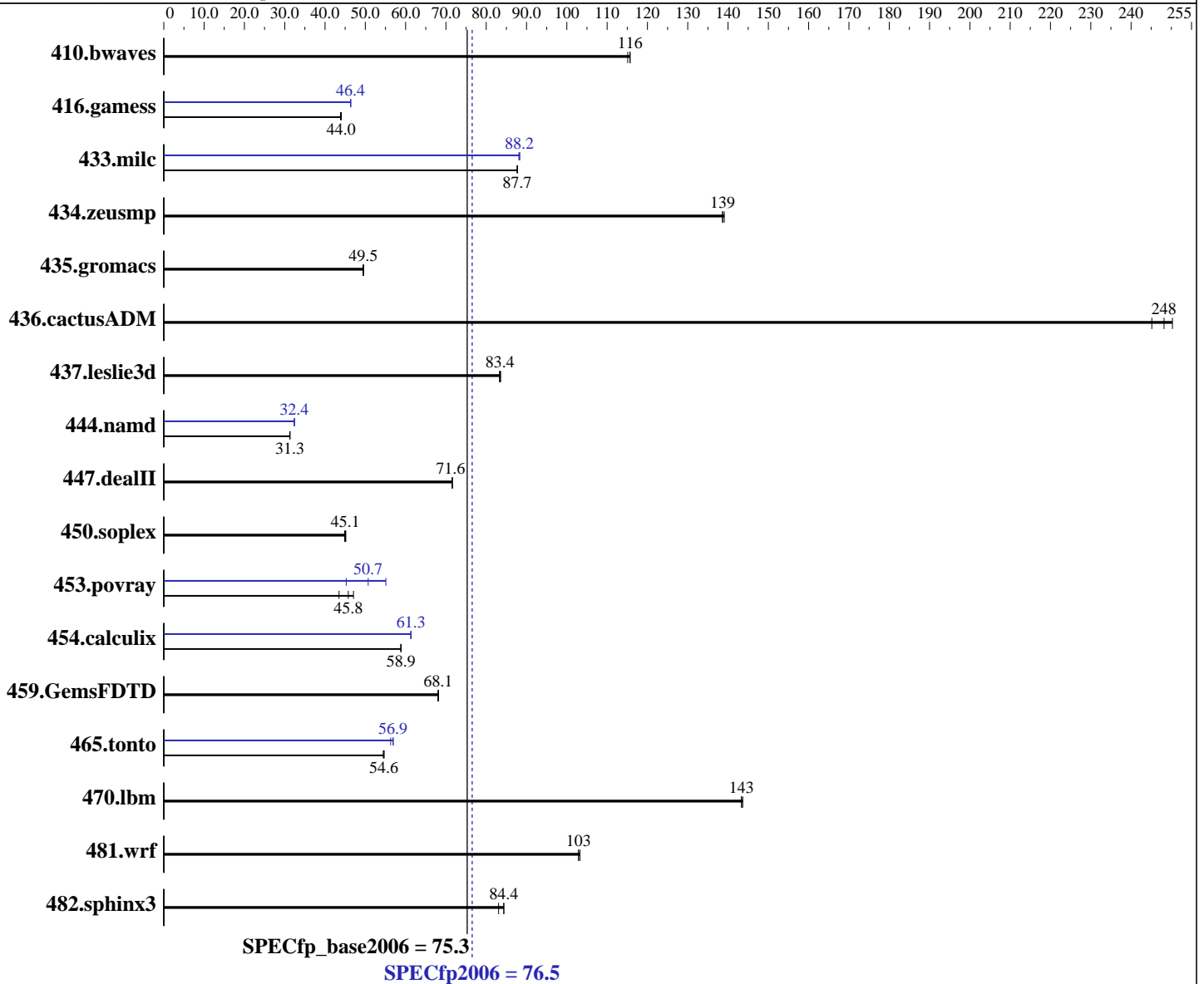
Test date: Sep-2014

Test sponsor: NEC Corporation

Hardware Availability: Jul-2014

Tested by: NEC Corporation

Software Availability: Jan-2014



Hardware

CPU Name: Intel Xeon E3-1271 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz
 CPU MHz: 3600
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
 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 6.5 (Santiago)
 Kernel 2.6.32-431.el6.x86_64
 Compiler: C/C++: Version 14.0.2.144 of Intel C++ Studio XE for Linux;
 Fortran: Version 14.0.2.144 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

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L3 Cache: 8 MB I+D on chip per chip
 Other Cache: None
 Memory: 16 GB (2 x 8 GB 2Rx8 PC3-12800E-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 | 118 | 115 | 117 | 116 | <u>117</u> | <u>116</u> | 118 | 115 | 117 | 116 | <u>117</u> | <u>116</u> |
| 416.gamess | 447 | 43.8 | <u>445</u> | <u>44.0</u> | 444 | 44.1 | 422 | 46.4 | 423 | 46.3 | <u>422</u> | <u>46.4</u> |
| 433.milc | 105 | 87.7 | <u>105</u> | <u>87.7</u> | 105 | 87.7 | 104 | 88.3 | 104 | 88.1 | <u>104</u> | <u>88.2</u> |
| 434.zeusmp | 65.6 | 139 | <u>65.6</u> | <u>139</u> | 65.4 | 139 | 65.6 | 139 | <u>65.6</u> | <u>139</u> | 65.4 | 139 |
| 435.gromacs | 144 | 49.5 | 144 | 49.4 | <u>144</u> | <u>49.5</u> | 144 | 49.5 | 144 | 49.4 | <u>144</u> | <u>49.5</u> |
| 436.cactusADM | 47.7 | 250 | 48.7 | 245 | <u>48.1</u> | <u>248</u> | 47.7 | 250 | 48.7 | 245 | <u>48.1</u> | <u>248</u> |
| 437.leslie3d | 112 | 83.6 | 113 | 83.3 | <u>113</u> | <u>83.4</u> | 112 | 83.6 | 113 | 83.3 | <u>113</u> | <u>83.4</u> |
| 444.namd | <u>256</u> | <u>31.3</u> | 256 | 31.3 | 257 | 31.3 | 247 | 32.4 | 248 | 32.4 | <u>248</u> | <u>32.4</u> |
| 447.dealII | 160 | 71.6 | 160 | 71.5 | <u>160</u> | <u>71.6</u> | 160 | 71.6 | 160 | 71.5 | <u>160</u> | <u>71.6</u> |
| 450.soplex | <u>185</u> | <u>45.1</u> | 186 | 44.9 | 185 | 45.2 | <u>185</u> | <u>45.1</u> | 186 | 44.9 | 185 | 45.2 |
| 453.povray | <u>116</u> | <u>45.8</u> | 113 | 47.1 | 122 | 43.5 | <u>105</u> | <u>50.7</u> | 118 | 45.3 | 96.6 | 55.1 |
| 454.calculix | <u>140</u> | <u>58.9</u> | 140 | 58.9 | 140 | 58.8 | 135 | 61.3 | 135 | 61.3 | <u>135</u> | <u>61.3</u> |
| 459.GemsFDTD | <u>156</u> | <u>68.1</u> | 156 | 68.2 | 156 | 68.0 | <u>156</u> | <u>68.1</u> | 156 | 68.2 | 156 | 68.0 |
| 465.tonto | 181 | 54.5 | 180 | 54.6 | <u>180</u> | <u>54.6</u> | 175 | 56.3 | <u>173</u> | <u>56.9</u> | 173 | 56.9 |
| 470.lbm | 95.7 | 144 | <u>95.9</u> | <u>143</u> | 95.9 | 143 | 95.7 | 144 | <u>95.9</u> | <u>143</u> | 95.9 | 143 |
| 481.wrf | 108 | 103 | <u>109</u> | <u>103</u> | 109 | 103 | 108 | 103 | <u>109</u> | <u>103</u> | 109 | 103 |
| 482.sphinx3 | 235 | 83.1 | 231 | 84.4 | <u>231</u> | <u>84.4</u> | 235 | 83.1 | 231 | 84.4 | <u>231</u> | <u>84.4</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

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 = "4"

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General Notes (Continued)

Added glibc-static-2.12-1.132.el6.x86_64
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.deallI: -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 -static -parallel -opt-prefetch
-ansi-alias

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Base Optimization Flags (Continued)

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -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: -xCORE-AVX2(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

C++ benchmarks:

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

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Peak Optimization Flags (Continued)

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- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

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-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 Wed Oct 8 19:40:23 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 8 October 2014.