



# SPEC® CFP2006 Result

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## NEC Corporation

SPECfp®2006 = **75.2**

Express5800/R110f-1E (Intel Xeon E3-1270 v3)

SPECfp\_base2006 = **73.8**

CPU2006 license: 9006

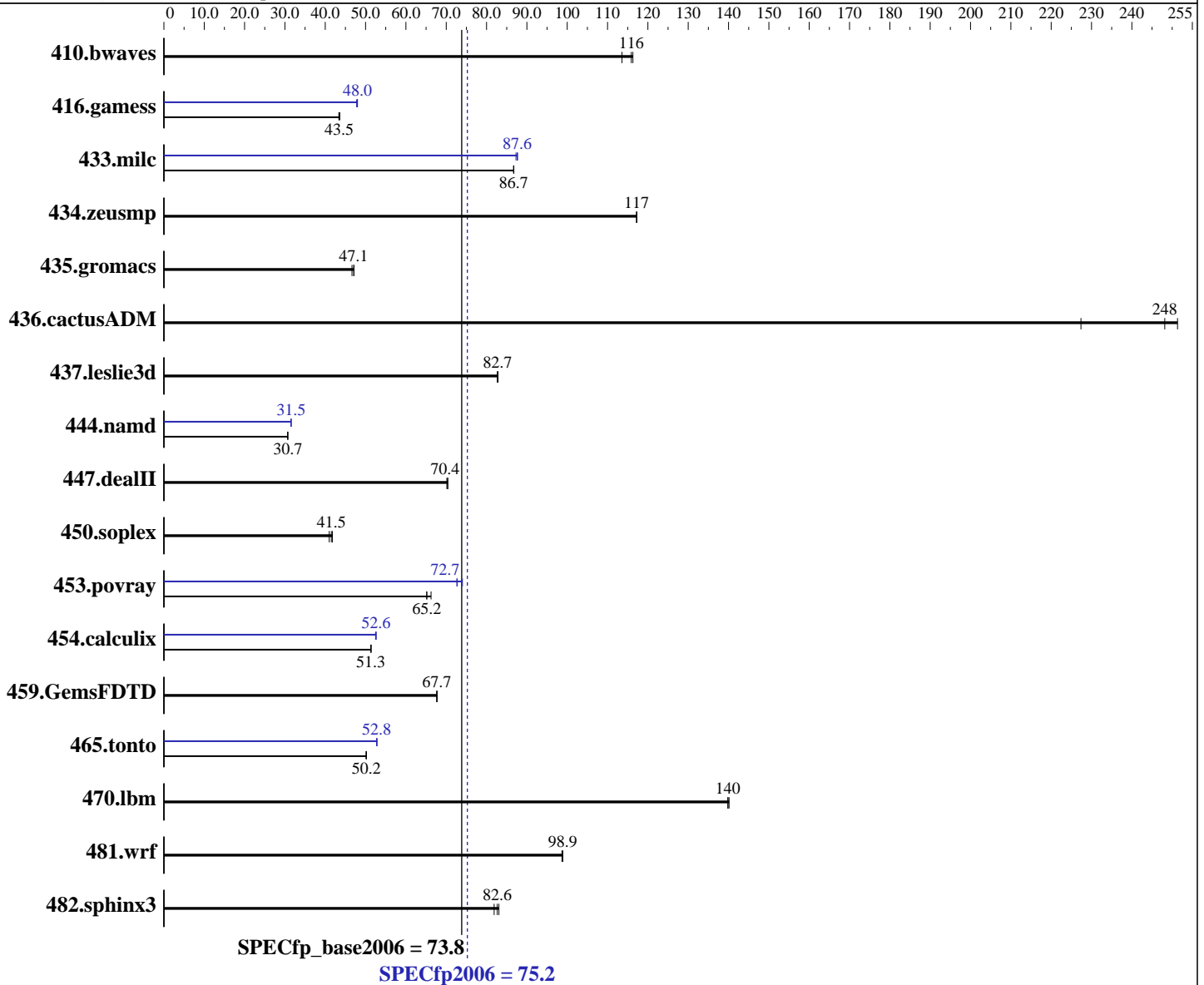
Test date: Jun-2013

Test sponsor: NEC Corporation

Hardware Availability: Jul-2013

Tested by: NEC Corporation

Software Availability: Mar-2013



### Hardware

CPU Name: Intel Xeon E3-1270 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.90 GHz  
 CPU MHz: 3500  
 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 6.4 (Santiago)  
 Kernel 2.6.32-358.el6.x86\_64  
 Compiler: C/C++: Version 13.1.1.163 of Intel C++ Studio XE for Linux;  
 Fortran: Version 13.1.1.163 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 PC3L-12800E-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	120	114	117	116	<b><u>117</u></b>	<b><u>116</u></b>	120	114	117	116	<b><u>117</u></b>	<b><u>116</u></b>
416.gamess	<b><u>450</u></b>	<b><u>43.5</u></b>	449	43.6	451	43.4	408	48.0	410	47.8	<b><u>408</u></b>	<b><u>48.0</u></b>
433.milc	<b><u>106</u></b>	<b><u>86.7</u></b>	106	86.7	106	86.8	105	87.7	<b><u>105</u></b>	<b><u>87.6</u></b>	105	87.3
434.zeusmp	<b><u>77.6</u></b>	<b><u>117</u></b>	77.6	117	77.6	117	<b><u>77.6</u></b>	<b><u>117</u></b>	77.6	117	77.6	117
435.gromacs	<b><u>152</u></b>	<b><u>47.1</u></b>	152	47.1	153	46.6	<b><u>152</u></b>	<b><u>47.1</u></b>	152	47.1	153	46.6
436.cactusADM	47.5	251	<b><u>48.2</u></b>	<b><u>248</u></b>	52.6	227	47.5	251	<b><u>48.2</u></b>	<b><u>248</u></b>	52.6	227
437.leslie3d	113	82.8	<b><u>114</u></b>	<b><u>82.7</u></b>	114	82.7	113	82.8	<b><u>114</u></b>	<b><u>82.7</u></b>	114	82.7
444.namd	261	30.7	<b><u>261</u></b>	<b><u>30.7</u></b>	261	30.7	254	31.5	254	31.5	<b><u>254</u></b>	<b><u>31.5</u></b>
447.dealII	<b><u>163</u></b>	<b><u>70.4</u></b>	163	70.4	163	70.2	<b><u>163</u></b>	<b><u>70.4</u></b>	163	70.4	163	70.2
450.soplex	203	41.0	200	41.8	<b><u>201</u></b>	<b><u>41.5</u></b>	203	41.0	200	41.8	<b><u>201</u></b>	<b><u>41.5</u></b>
453.povray	81.6	65.2	80.3	66.2	<b><u>81.6</u></b>	<b><u>65.2</u></b>	71.9	74.0	73.3	72.6	<b><u>73.1</u></b>	<b><u>72.7</u></b>
454.calculix	161	51.4	<b><u>161</u></b>	<b><u>51.3</u></b>	161	51.3	157	52.6	<b><u>157</u></b>	<b><u>52.6</u></b>	157	52.5
459.GemsFDTD	<b><u>157</u></b>	<b><u>67.7</u></b>	157	67.8	157	67.7	<b><u>157</u></b>	<b><u>67.7</u></b>	157	67.8	157	67.7
465.tonto	196	50.2	<b><u>196</u></b>	<b><u>50.2</u></b>	196	50.1	187	52.7	186	52.8	<b><u>186</u></b>	<b><u>52.8</u></b>
470.lbm	98.2	140	98.0	140	<b><u>98.2</u></b>	<b><u>140</u></b>	98.2	140	98.0	140	<b><u>98.2</u></b>	<b><u>140</u></b>
481.wrf	<b><u>113</u></b>	<b><u>98.9</u></b>	113	98.7	113	98.9	<b><u>113</u></b>	<b><u>98.9</u></b>	113	98.7	113	98.9
482.sphinx3	235	83.1	<b><u>236</u></b>	<b><u>82.6</u></b>	238	81.9	235	83.1	<b><u>236</u></b>	<b><u>82.6</u></b>	238	81.9

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:  
 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-2.12-1.107.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.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-ic13-official-linux64.20130702.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-ic13-official-linux64.20130702.xml>  
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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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