



# SPEC® CFP2006 Result

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## NEC Corporation

SPECfp®2006 = **77.8**

Express5800/R110g-1E (Intel Xeon E3-1271 v3)

SPECfp\_base2006 = **76.5**

CPU2006 license: 9006

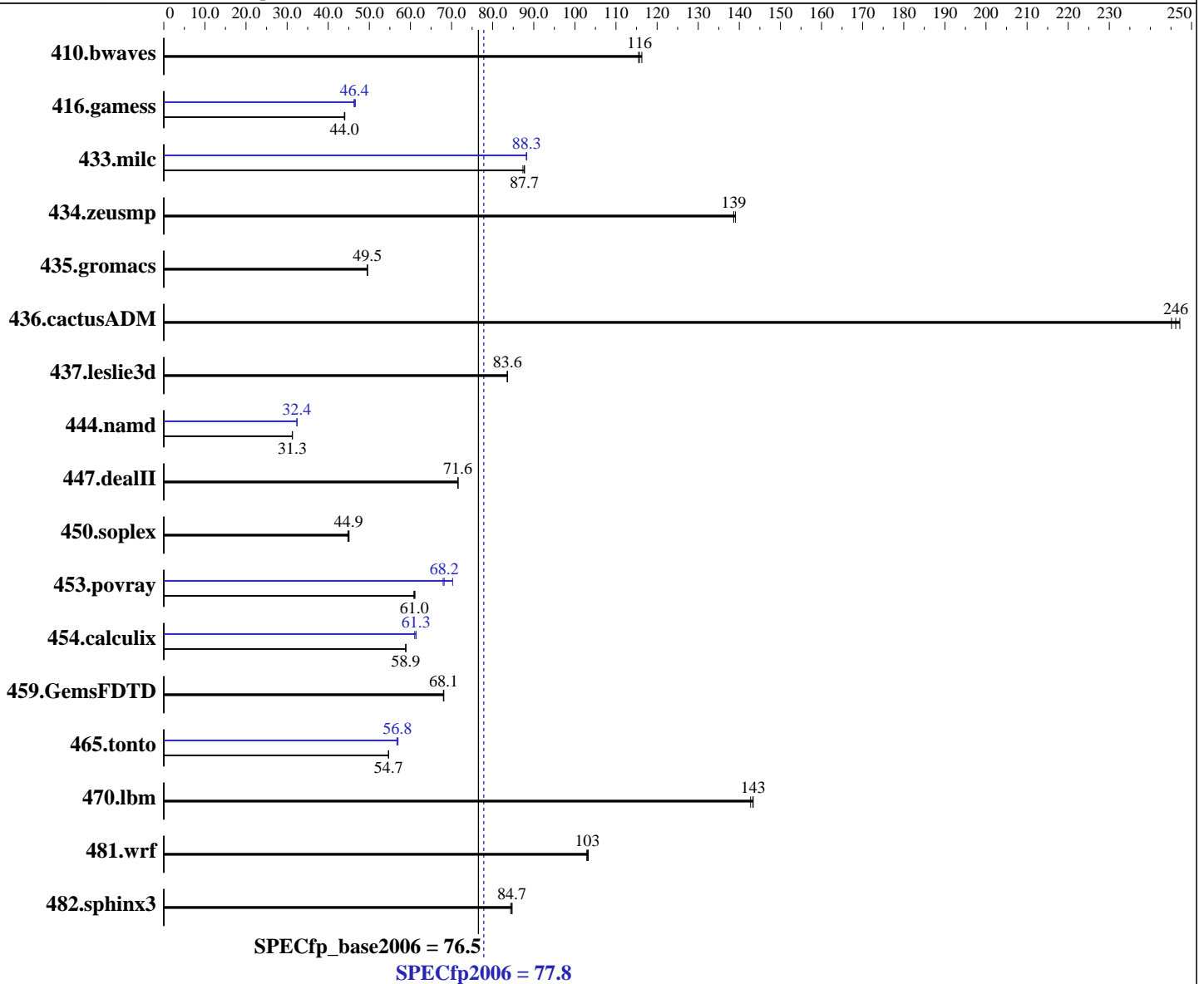
Test date: Jun-2014

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

Continued on next page

### 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 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	<b>117</b>	<b>116</b>	118	115	117	116	<b>117</b>	<b>116</b>	118	115	117	116
416.gamess	<b>445</b>	<b>44.0</b>	445	44.0	446	43.9	423	46.3	<b>422</b>	<b>46.4</b>	420	46.6
433.milc	105	87.4	<b>105</b>	<b>87.7</b>	105	87.7	104	88.2	104	88.3	<b>104</b>	<b>88.3</b>
434.zeusmp	<b>65.6</b>	<b>139</b>	65.6	139	65.4	139	<b>65.6</b>	<b>139</b>	65.6	139	65.4	139
435.gromacs	<b>144</b>	<b>49.5</b>	144	49.5	144	49.5	<b>144</b>	<b>49.5</b>	144	49.5	144	49.5
436.cactusADM	48.7	245	<b>48.5</b>	<b>246</b>	48.3	247	48.7	245	<b>48.5</b>	<b>246</b>	48.3	247
437.leslie3d	112	83.6	112	83.6	<b>112</b>	<b>83.6</b>	112	83.6	112	83.6	<b>112</b>	<b>83.6</b>
444.namd	256	31.3	256	31.3	<b>256</b>	<b>31.3</b>	248	32.4	248	32.4	<b>248</b>	<b>32.4</b>
447.dealII	160	71.6	160	71.6	<b>160</b>	<b>71.6</b>	160	71.6	160	71.6	<b>160</b>	<b>71.6</b>
450.soplex	185	45.1	<b>186</b>	<b>44.9</b>	186	44.8	185	45.1	<b>186</b>	<b>44.9</b>	186	44.8
453.povray	87.1	61.1	<b>87.3</b>	<b>61.0</b>	87.4	60.8	75.7	70.3	78.3	68.0	<b>78.0</b>	<b>68.2</b>
454.calculix	140	58.9	<b>140</b>	<b>58.9</b>	140	58.9	135	61.0	<b>135</b>	<b>61.3</b>	134	61.4
459.GemsFDTD	156	68.0	<b>156</b>	<b>68.1</b>	156	68.1	156	68.0	<b>156</b>	<b>68.1</b>	156	68.1
465.tonto	180	54.7	180	54.6	<b>180</b>	<b>54.7</b>	173	57.0	173	56.7	<b>173</b>	<b>56.8</b>
470.lbm	95.8	143	<b>95.9</b>	<b>143</b>	96.3	143	95.8	143	<b>95.9</b>	<b>143</b>	96.3	143
481.wrf	109	103	<b>108</b>	<b>103</b>	108	103	109	103	<b>108</b>	<b>103</b>	108	103
482.sphinx3	231	84.4	230	84.7	<b>230</b>	<b>84.7</b>	231	84.4	230	84.7	<b>230</b>	<b>84.7</b>

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.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-alloc -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](mailto:webmaster@spec.org).

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