



# SPEC® CFP2006 Result

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## NEC Corporation

SPECfp®2006 = **60.7**

Express5800/R110d-1E (Intel Xeon E3-1270)

SPECfp\_base2006 = **58.1**

CPU2006 license: 9006

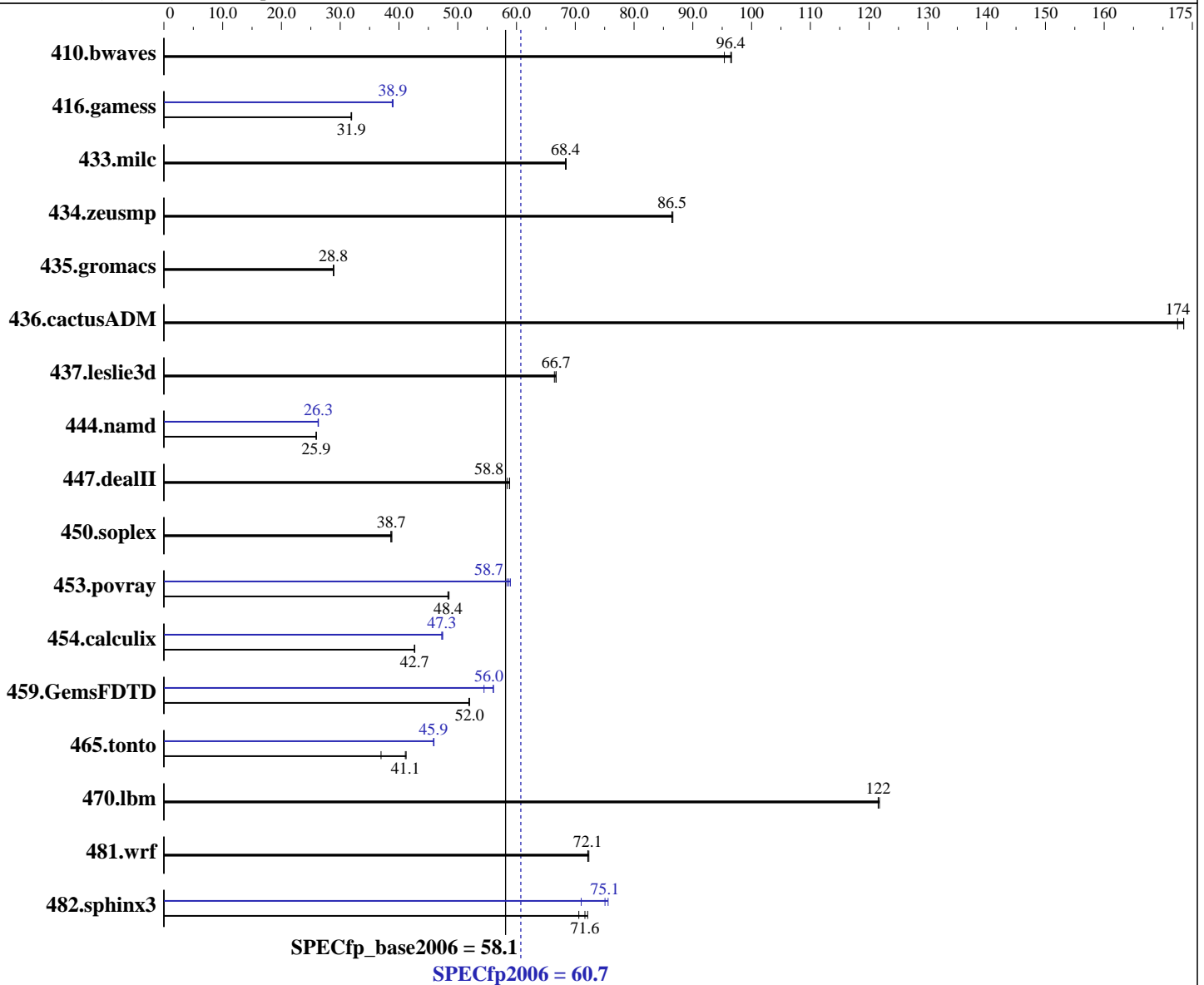
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Aug-2011

Hardware Availability: Jun-2011

Software Availability: Mar-2011



### Hardware

CPU Name: Intel Xeon E3-1270  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 3400  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 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: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64, Version 12.0.3.174 Build 20110309  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

Continued on next page



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L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC)  
 Disk Subsystem: 1 x 160 GB SATA, 7200 RPM  
 Other Hardware: None

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	143	95.4	141	96.6	<u>141</u>	<u>96.4</u>	143	95.4	141	96.6	<u>141</u>	<u>96.4</u>
416.gamess	613	32.0	615	31.9	<u>614</u>	<u>31.9</u>	504	38.9	502	39.0	<u>503</u>	<u>38.9</u>
433.milc	134	68.3	<u>134</u>	<u>68.4</u>	134	68.5	134	68.3	<u>134</u>	<u>68.4</u>	134	68.5
434.zeusmp	105	86.4	105	86.6	<u>105</u>	<u>86.5</u>	105	86.4	105	86.6	<u>105</u>	<u>86.5</u>
435.gromacs	248	28.8	247	28.9	<u>248</u>	<u>28.8</u>	248	28.8	247	28.9	<u>248</u>	<u>28.8</u>
436.cactusADM	69.3	172	68.9	174	<u>68.9</u>	<u>174</u>	69.3	172	68.9	174	<u>68.9</u>	<u>174</u>
437.leslie3d	<u>141</u>	<u>66.7</u>	141	66.4	141	66.7	<u>141</u>	<u>66.7</u>	141	66.4	141	66.7
444.namd	309	25.9	309	25.9	<u>309</u>	<u>25.9</u>	306	26.2	<u>305</u>	<u>26.3</u>	305	26.3
447.dealII	196	58.4	194	58.8	<u>195</u>	<u>58.8</u>	196	58.4	194	58.8	<u>195</u>	<u>58.8</u>
450.soplex	<u>216</u>	<u>38.7</u>	216	38.6	215	38.8	<u>216</u>	<u>38.7</u>	216	38.6	215	38.8
453.povray	110	48.5	110	48.3	<u>110</u>	<u>48.4</u>	91.1	58.4	90.2	59.0	<u>90.6</u>	<u>58.7</u>
454.calculix	193	42.7	<u>193</u>	<u>42.7</u>	194	42.6	<u>174</u>	<u>47.3</u>	174	47.3	174	47.4
459.GemsFDTD	204	51.9	<u>204</u>	<u>52.0</u>	204	52.0	<u>189</u>	<u>56.0</u>	195	54.5	189	56.1
465.tonto	266	36.9	239	41.2	<u>240</u>	<u>41.1</u>	214	45.9	<u>214</u>	<u>45.9</u>	214	46.0
470.lbm	113	122	<u>113</u>	<u>122</u>	113	122	113	122	<u>113</u>	<u>122</u>	113	122
481.wrf	154	72.3	155	72.1	<u>155</u>	<u>72.1</u>	154	72.3	155	72.1	<u>155</u>	<u>72.1</u>
482.sphinx3	270	72.1	276	70.6	<u>272</u>	<u>71.6</u>	<u>260</u>	<u>75.1</u>	258	75.6	274	71.0

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 1800 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

BIOS Settings:  
 Hyper-Threading Technology: Disabled



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<b>CPU2006 license:</b> 9006	<b>Test date:</b> Aug-2011
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## General Notes

OMP\_NUM\_THREADS set to number of cores

## 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

## 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

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## Base Optimization Flags (Continued)

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: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

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

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## Peak Optimization Flags (Continued)

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  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revF.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revF.xml>



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