



# SPEC® CFP2006 Result

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## NEC Corporation

SPECfp®2006 = **52.2**

### Express5800/T110f-E (Intel Pentium G3220)

SPECfp\_base2006 = **51.5**

CPU2006 license: 9006

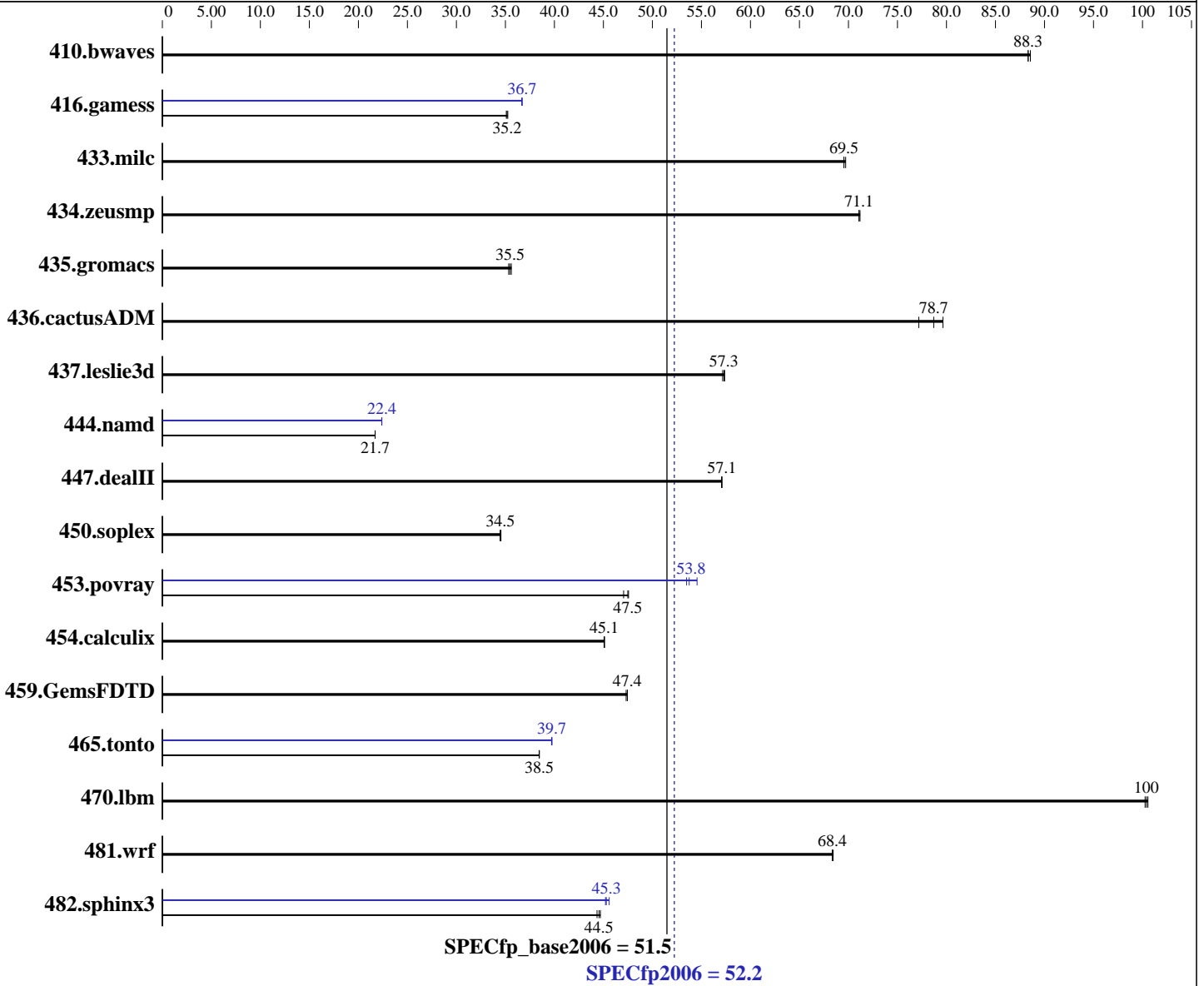
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Nov-2013

Hardware Availability: Oct-2013

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Pentium G3220  
 CPU Characteristics:  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 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.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: 3 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 16 GB (2 x 8 GB 2Rx8 PC3L-12800E-11, ECC, running at 1333 MHz and CL9)  
 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	153	88.6	<b>154</b>	<b>88.3</b>	154	88.3	153	88.6	<b>154</b>	<b>88.3</b>	154	88.3
416.gamess	558	35.1	<b>557</b>	<b>35.2</b>	556	35.2	534	36.7	<b>534</b>	<b>36.7</b>	534	36.7
433.milc	132	69.5	<b>132</b>	<b>69.5</b>	132	69.7	132	69.5	<b>132</b>	<b>69.5</b>	132	69.7
434.zeusmp	128	71.2	<b>128</b>	<b>71.1</b>	128	71.1	128	71.2	<b>128</b>	<b>71.1</b>	128	71.1
435.gromacs	201	35.6	<b>201</b>	<b>35.5</b>	202	35.3	201	35.6	<b>201</b>	<b>35.5</b>	202	35.3
436.cactusADM	<b>152</b>	<b>78.7</b>	155	77.2	150	79.6	<b>152</b>	<b>78.7</b>	155	77.2	150	79.6
437.leslie3d	<b>164</b>	<b>57.3</b>	164	57.4	164	57.2	<b>164</b>	<b>57.3</b>	164	57.4	164	57.2
444.namd	<b>369</b>	<b>21.7</b>	369	21.7	369	21.7	358	22.4	<b>358</b>	<b>22.4</b>	358	22.4
447.dealII	200	57.1	<b>200</b>	<b>57.1</b>	200	57.1	200	57.1	<b>200</b>	<b>57.1</b>	200	57.1
450.soplex	241	34.5	242	34.5	<b>242</b>	<b>34.5</b>	241	34.5	242	34.5	<b>242</b>	<b>34.5</b>
453.povray	<b>112</b>	<b>47.5</b>	113	47.1	112	47.6	<b>99.0</b>	<b>53.8</b>	97.5	54.6	99.5	53.5
454.calculix	<b>183</b>	<b>45.1</b>	183	45.1	183	45.1	<b>183</b>	<b>45.1</b>	183	45.1	183	45.1
459.GemsFDTD	224	47.3	224	47.4	<b>224</b>	<b>47.4</b>	224	47.3	224	47.4	<b>224</b>	<b>47.4</b>
465.tonto	256	38.5	<b>256</b>	<b>38.5</b>	256	38.5	248	39.7	248	39.8	<b>248</b>	<b>39.7</b>
470.lbm	137	101	137	100	<b>137</b>	<b>100</b>	137	101	137	100	<b>137</b>	<b>100</b>
481.wrf	163	68.4	<b>163</b>	<b>68.4</b>	163	68.4	163	68.4	<b>163</b>	<b>68.4</b>	163	68.4
482.sphinx3	<b>438</b>	<b>44.5</b>	436	44.7	439	44.3	428	45.6	<b>430</b>	<b>45.3</b>	431	45.2

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 = "2"

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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.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:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

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## Base Optimization Flags (Continued)

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.2 -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: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

C++ benchmarks:

444.namd: -xSSE4.2(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.dealll: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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: basepeak = yes

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-R120d-RevA.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>  
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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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