



# SPEC® CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation  
DX20a-X (Intel Xeon D-1571)

SPECfp®2006 = 59.8

SPECfp\_base2006 = 57.3

CPU2006 license: 9006

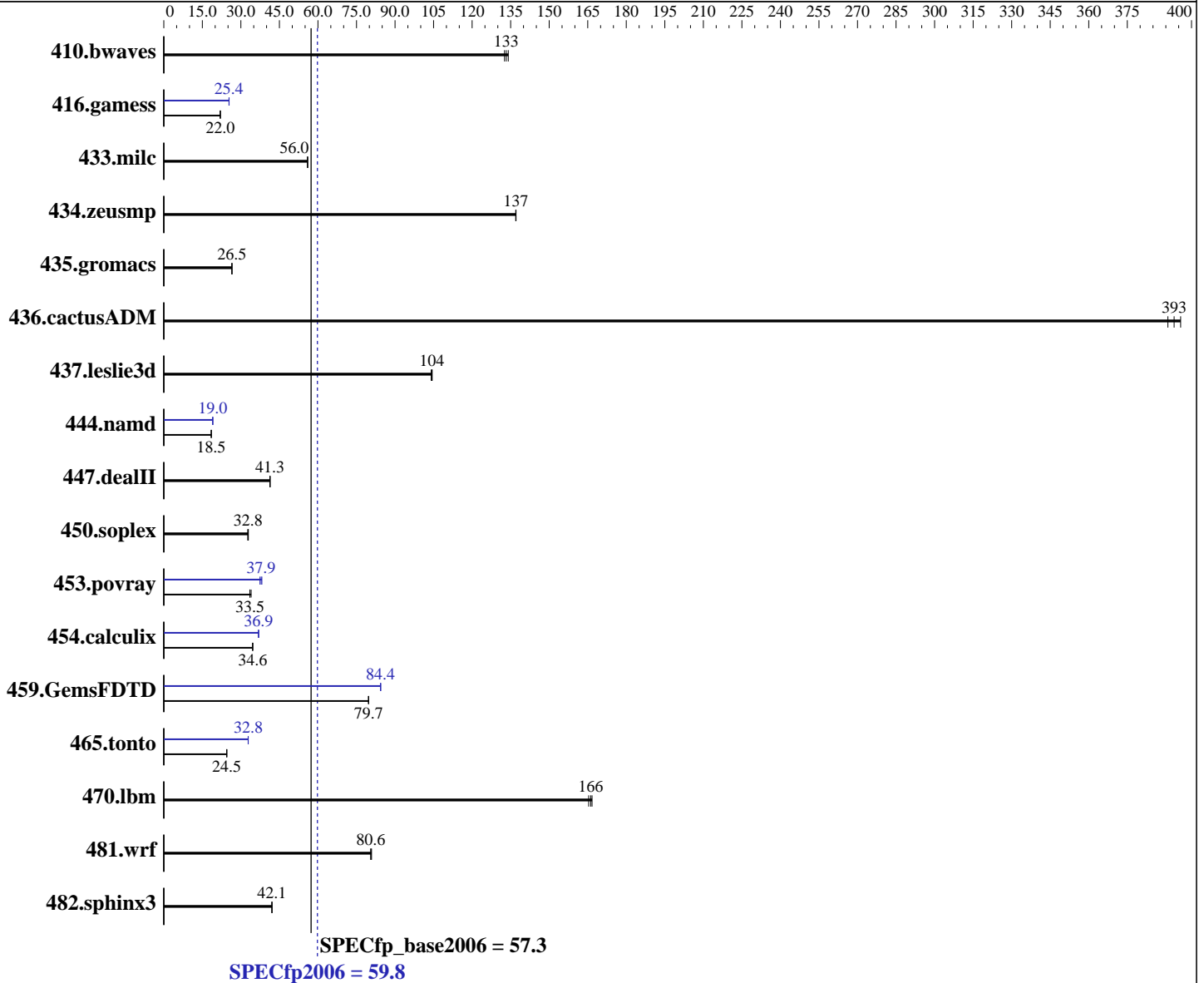
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Apr-2016

Hardware Availability: Apr-2016

Software Availability: Feb-2016



## Hardware

CPU Name: Intel Xeon D-1571  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.10 GHz  
 CPU MHz: 1300  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 1 chip, 16 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

Continued on next page

## Software

Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo)  
 Kernel 3.10.0-327.10.1.el7.x86\_64  
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;  
 Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation  
DX20a-X (Intel Xeon D-1571)

SPECfp2006 = 59.8  
SPECfp\_base2006 = 57.3

CPU2006 license: 9006  
Test sponsor: NEC Corporation  
Tested by: NEC Corporation  
Test date: Apr-2016  
Hardware Availability: Apr-2016  
Software Availability: Feb-2016

L3 Cache: 24 MB I+D on chip per chip  
Other Cache: None  
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2133P-T)  
Disk Subsystem: 1 x 512 GB SATA, SSD  
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>102</b>	<b>133</b>	101	134	102	133	<b>102</b>	<b>133</b>	101	134	102	133
416.gamess	889	22.0	<b>890</b>	<b>22.0</b>	891	22.0	771	25.4	770	25.4	<b>771</b>	<b>25.4</b>
433.milc	164	55.9	164	56.0	<b>164</b>	<b>56.0</b>	164	55.9	164	56.0	<b>164</b>	<b>56.0</b>
434.zeusmp	<b>66.4</b>	<b>137</b>	66.4	137	66.4	137	<b>66.4</b>	<b>137</b>	66.4	137	66.4	137
435.gromacs	<b>269</b>	<b>26.5</b>	269	26.5	269	26.5	<b>269</b>	<b>26.5</b>	269	26.5	269	26.5
436.cactusADM	30.2	396	30.6	391	<b>30.4</b>	<b>393</b>	30.2	396	30.6	391	<b>30.4</b>	<b>393</b>
437.leslie3d	90.3	104	90.0	104	<b>90.1</b>	<b>104</b>	90.3	104	90.0	104	<b>90.1</b>	<b>104</b>
444.namd	434	18.5	434	18.5	<b>434</b>	<b>18.5</b>	421	19.1	<b>421</b>	<b>19.0</b>	421	19.0
447.dealII	277	41.3	276	41.4	<b>277</b>	<b>41.3</b>	277	41.3	276	41.4	<b>277</b>	<b>41.3</b>
450.soplex	<b>254</b>	<b>32.8</b>	253	32.9	255	32.7	<b>254</b>	<b>32.8</b>	253	32.9	255	32.7
453.povray	156	34.0	<b>159</b>	<b>33.5</b>	159	33.5	142	37.4	<b>140</b>	<b>37.9</b>	139	38.2
454.calculix	238	34.6	<b>239</b>	<b>34.6</b>	239	34.6	224	36.9	<b>224</b>	<b>36.9</b>	224	36.9
459.GemsFDTD	133	79.7	<b>133</b>	<b>79.7</b>	133	79.7	126	84.4	126	84.4	<b>126</b>	<b>84.4</b>
465.tonto	402	24.5	401	24.5	<b>402</b>	<b>24.5</b>	<b>300</b>	<b>32.8</b>	300	32.8	299	32.9
470.lbm	82.4	167	<b>82.7</b>	<b>166</b>	83.1	165	82.4	167	<b>82.7</b>	<b>166</b>	83.1	165
481.wrf	138	80.9	139	80.5	<b>139</b>	<b>80.6</b>	138	80.9	139	80.5	<b>139</b>	<b>80.6</b>
482.sphinx3	463	42.1	463	42.1	<b>463</b>	<b>42.1</b>	463	42.1	463	42.1	<b>463</b>	<b>42.1</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:  
Power Management Policy: Custom  
Energy Performance: Performance  
Patrol Scrub: Disabled  
Hyper-Threading: Disabled



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

<b>NEC Corporation</b>	<b>SPECfp2006 =</b>	<b>59.8</b>
<b>DX20a-X (Intel Xeon D-1571)</b>	<b>SPECfp_base2006 =</b>	<b>57.3</b>

<b>CPU2006 license:</b> 9006	<b>Test date:</b> Apr-2016
<b>Test sponsor:</b> NEC Corporation	<b>Hardware Availability:</b> Apr-2016
<b>Tested by:</b> NEC Corporation	<b>Software Availability:</b> Feb-2016

## General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,compact"

LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

OMP\_NUM\_THREADS = "16"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/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



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = 59.8

DX20a-X (Intel Xeon D-1571)

SPECfp\_base2006 = 57.3

CPU2006 license: 9006

Test date: Apr-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Feb-2016

## Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -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: basepeak = yes

C++ benchmarks:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

<b>NEC Corporation</b>	<b>SPECfp2006 =</b>	<b>59.8</b>
<b>DX20a-X (Intel Xeon D-1571)</b>	<b>SPECfp_base2006 =</b>	<b>57.3</b>

<b>CPU2006 license:</b> 9006	<b>Test date:</b> Apr-2016
<b>Test sponsor:</b> NEC Corporation	<b>Hardware Availability:</b> Apr-2016
<b>Tested by:</b> NEC Corporation	<b>Software Availability:</b> Feb-2016

## Peak Optimization Flags (Continued)

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
 -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
 -par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias  
 -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
 -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
 -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4  
 -ansi-alias

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
 -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
 -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2  
 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
 -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
 -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2  
 -inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
 -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
 -par-num-threads=1(pass 1) -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



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

<b>NEC Corporation</b>	<b>SPECfp2006 =</b>	<b>59.8</b>
<b>DX20a-X (Intel Xeon D-1571)</b>	<b>SPECfp_base2006 =</b>	<b>57.3</b>

<b>CPU2006 license:</b> 9006	<b>Test date:</b> Apr-2016
<b>Test sponsor:</b> NEC Corporation	<b>Hardware Availability:</b> Apr-2016
<b>Tested by:</b> NEC Corporation	<b>Software Availability:</b> Feb-2016

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html>  
<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-DX-RevA.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>  
<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-DX-RevA.xml>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Jun 28 17:29:20 2016 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 28 June 2016.