



# SPEC® CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## NEC Corporation

SPECfp®2006 = 94.9

Express5800/R120g-1M (Intel Xeon E5-2650L v4)

SPECfp\_base2006 = 89.3

CPU2006 license: 9006

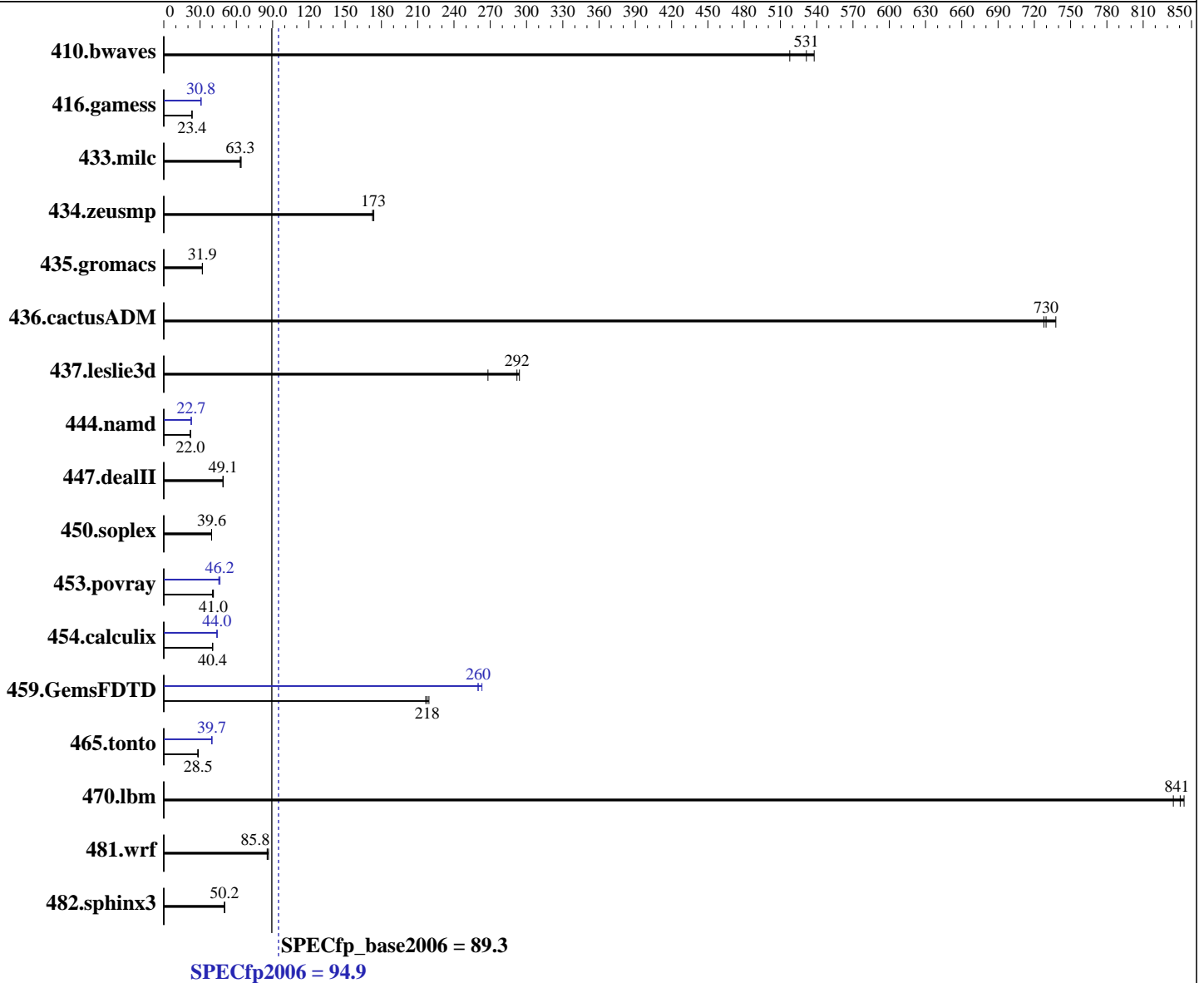
Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Jan-2016



### Hardware

CPU Name: Intel Xeon E5-2650L v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.50 GHz  
 CPU MHz: 1700  
 FPU: Integrated  
 CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip  
 CPU(s) orderable: 1,2 chips  
 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 3.10.0-327.4.5.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

SPECfp2006 = **94.9**

Express5800/R120g-1M (Intel Xeon E5-2650L v4)

SPECfp\_base2006 = **89.3**

CPU2006 license: 9006

Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

L3 Cache: 35 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)  
 Disk Subsystem: 1 x 1 TB 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><u>25.6</u></b>	<b><u>531</u></b>	25.3	538	26.2	518	<b><u>25.6</u></b>	<b><u>531</u></b>	25.3	538	26.2	518
416.gamess	838	23.4	<b><u>838</u></b>	<b><u>23.4</u></b>	842	23.2	636	30.8	636	30.8	<b><u>636</u></b>	<b><u>30.8</u></b>
433.milc	145	63.3	<b><u>145</u></b>	<b><u>63.3</u></b>	143	64.0	145	63.3	<b><u>145</u></b>	<b><u>63.3</u></b>	143	64.0
434.zeusmp	52.7	173	52.4	174	<b><u>52.5</u></b>	<b><u>173</u></b>	52.7	173	52.4	174	<b><u>52.5</u></b>	<b><u>173</u></b>
435.gromacs	<b><u>224</u></b>	<b><u>31.9</u></b>	224	31.9	223	32.0	<b><u>224</u></b>	<b><u>31.9</u></b>	224	31.9	223	32.0
436.cactusADM	<b><u>16.4</u></b>	<b><u>730</u></b>	16.2	738	16.4	728	<b><u>16.4</u></b>	<b><u>730</u></b>	16.2	738	16.4	728
437.leslie3d	<b><u>32.2</u></b>	<b><u>292</u></b>	35.1	268	32.0	294	<b><u>32.2</u></b>	<b><u>292</u></b>	35.1	268	32.0	294
444.namd	364	22.0	<b><u>364</u></b>	<b><u>22.0</u></b>	364	22.0	354	22.7	<b><u>354</u></b>	<b><u>22.7</u></b>	353	22.7
447.dealII	234	48.9	<b><u>233</u></b>	<b><u>49.1</u></b>	233	49.1	234	48.9	<b><u>233</u></b>	<b><u>49.1</u></b>	233	49.1
450.soplex	211	39.5	<b><u>211</u></b>	<b><u>39.6</u></b>	211	39.6	211	39.5	<b><u>211</u></b>	<b><u>39.6</u></b>	211	39.6
453.povray	132	40.3	130	41.0	<b><u>130</u></b>	<b><u>41.0</u></b>	115	46.5	117	45.5	<b><u>115</u></b>	<b><u>46.2</u></b>
454.calculix	204	40.4	204	40.3	<b><u>204</u></b>	<b><u>40.4</u></b>	<b><u>187</u></b>	<b><u>44.0</u></b>	187	44.1	188	44.0
459.GemsFDTD	<b><u>48.7</u></b>	<b><u>218</u></b>	49.0	217	48.4	219	40.8	260	40.3	263	<b><u>40.8</u></b>	<b><u>260</u></b>
465.tonto	345	28.6	351	28.0	<b><u>346</u></b>	<b><u>28.5</u></b>	247	39.8	248	39.7	<b><u>248</u></b>	<b><u>39.7</u></b>
470.lbm	<b><u>16.3</u></b>	<b><u>841</u></b>	16.3	844	16.5	835	<b><u>16.3</u></b>	<b><u>841</u></b>	16.3	844	16.5	835
481.wrf	131	85.5	129	86.6	<b><u>130</u></b>	<b><u>85.8</u></b>	131	85.5	129	86.6	<b><u>130</u></b>	<b><u>85.8</u></b>
482.sphinx3	<b><u>388</u></b>	<b><u>50.2</u></b>	387	50.4	389	50.1	<b><u>388</u></b>	<b><u>50.2</u></b>	387	50.4	389	50.1

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  
 Snoop Mode: Home Snoop with Directory  
 Hyper-Threading: Disabled



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = 94.9

Express5800/R120g-1M (Intel Xeon E5-2650L v4)

SPECfp\_base2006 = 89.3

CPU2006 license: 9006

Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Jan-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 = "28"

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 = 94.9

Express5800/R120g-1M (Intel Xeon E5-2650L v4)

SPECfp\_base2006 = 89.3

CPU2006 license: 9006

Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Jan-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

NEC Corporation

SPECfp2006 = 94.9

Express5800/R120g-1M (Intel Xeon E5-2650L v4)

SPECfp\_base2006 = 89.3

CPU2006 license: 9006

Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Jan-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

## NEC Corporation

**SPECfp2006 = 94.9**

Express5800/R120g-1M (Intel Xeon E5-2650L v4)

**SPECfp\_base2006 = 89.3**

**CPU2006 license:** 9006

**Test date:** Mar-2016

**Test sponsor:** NEC Corporation

**Hardware Availability:** Apr-2016

**Tested by:** NEC Corporation

**Software Availability:** Jan-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-V1.2-120g-RevC.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-V1.2-120g-RevC.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 Thu Jun 30 14:05:33 2016 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 14 June 2016.