



# SPEC<sup>®</sup> CFP2006 Result

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## NEC Corporation

SPECfp<sup>®</sup>2006 = **95.1**

Express5800/R120f-1E (Intel Xeon E5-2630L v3)

SPECfp\_base2006 = **89.2**

CPU2006 license: 9006

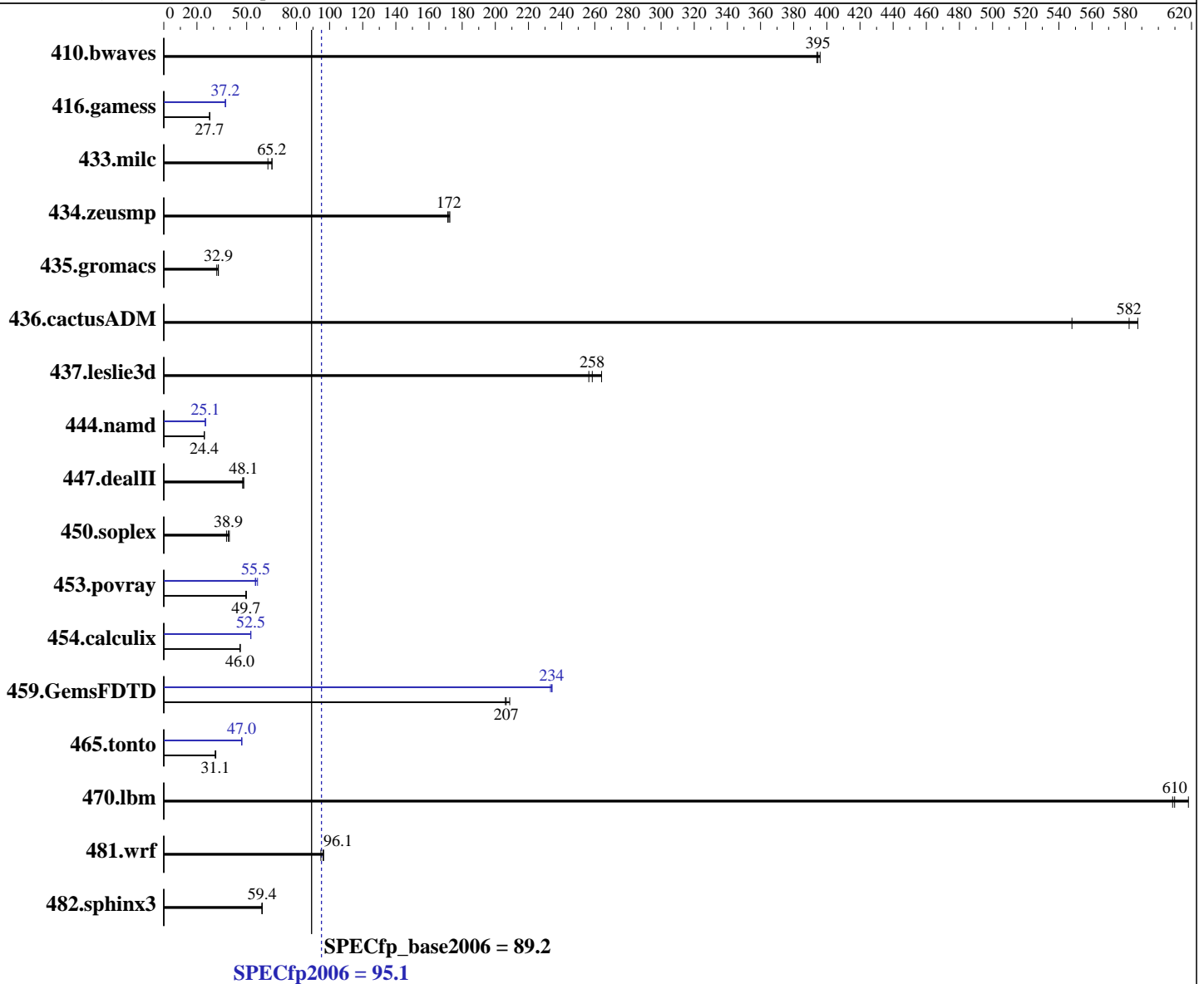
Test date: Apr-2015

Test sponsor: NEC Corporation

Hardware Availability: Jan-2015

Tested by: NEC Corporation

Software Availability: Jul-2014



SPECfp2006 = 95.1

### Hardware

CPU Name: Intel Xeon E5-2630L v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 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

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### Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
 Kernel 2.6.32-431.20.3.el6.x86\_64  
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux;  
 Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4

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L3 Cache: 20 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)  
 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	34.5	394	34.3	396	<b><u>34.4</u></b>	<b><u>395</u></b>	34.5	394	34.3	396	<b><u>34.4</u></b>	<b><u>395</u></b>
416.gamess	708	27.6	<b><u>708</u></b>	<b><u>27.7</u></b>	706	27.7	527	37.1	526	37.2	<b><u>526</u></b>	<b><u>37.2</u></b>
433.milc	146	62.8	141	65.3	<b><u>141</u></b>	<b><u>65.2</u></b>	146	62.8	141	65.3	<b><u>141</u></b>	<b><u>65.2</u></b>
434.zeusmp	52.7	173	<b><u>52.9</u></b>	<b><u>172</u></b>	53.1	171	52.7	173	<b><u>52.9</u></b>	<b><u>172</u></b>	53.1	171
435.gromacs	223	32.0	<b><u>217</u></b>	<b><u>32.9</u></b>	217	32.9	223	32.0	<b><u>217</u></b>	<b><u>32.9</u></b>	217	32.9
436.cactusADM	21.8	548	<b><u>20.5</u></b>	<b><u>582</u></b>	20.3	588	21.8	548	<b><u>20.5</u></b>	<b><u>582</u></b>	20.3	588
437.leslie3d	<b><u>36.4</u></b>	<b><u>258</u></b>	36.7	256	35.6	264	<b><u>36.4</u></b>	<b><u>258</u></b>	36.7	256	35.6	264
444.namd	329	24.4	328	24.4	<b><u>328</u></b>	<b><u>24.4</u></b>	<b><u>319</u></b>	<b><u>25.1</u></b>	320	25.1	319	25.1
447.dealII	241	47.6	237	48.2	<b><u>238</u></b>	<b><u>48.1</u></b>	241	47.6	237	48.2	<b><u>238</u></b>	<b><u>48.1</u></b>
450.soplex	220	37.8	211	39.6	<b><u>214</u></b>	<b><u>38.9</u></b>	220	37.8	211	39.6	<b><u>214</u></b>	<b><u>38.9</u></b>
453.povray	107	49.5	<b><u>107</u></b>	<b><u>49.7</u></b>	107	49.8	<b><u>95.9</u></b>	<b><u>55.5</u></b>	94.1	56.6	96.3	55.2
454.calculix	179	46.1	179	46.0	<b><u>179</u></b>	<b><u>46.0</u></b>	157	52.4	157	52.5	<b><u>157</u></b>	<b><u>52.5</u></b>
459.GemsFDTD	<b><u>51.4</u></b>	<b><u>207</u></b>	50.8	209	51.5	206	45.3	234	45.5	233	<b><u>45.3</u></b>	<b><u>234</u></b>
465.tonto	<b><u>316</u></b>	<b><u>31.1</u></b>	317	31.1	313	31.4	210	47.0	209	47.1	<b><u>209</u></b>	<b><u>47.0</u></b>
470.lbm	22.2	618	<b><u>22.5</u></b>	<b><u>610</u></b>	22.6	609	22.2	618	<b><u>22.5</u></b>	<b><u>610</u></b>	22.6	609
481.wrf	116	96.4	118	94.8	<b><u>116</u></b>	<b><u>96.1</u></b>	116	96.4	118	94.8	<b><u>116</u></b>	<b><u>96.1</u></b>
482.sphinx3	328	59.4	330	59.1	<b><u>328</u></b>	<b><u>59.4</u></b>	328	59.4	330	59.1	<b><u>328</u></b>	<b><u>59.4</u></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  
 Early Snoop: Disabled  
 Hyper-Threading: Disabled



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## 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"

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:

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

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## Base Optimization Flags (Continued)

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:

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-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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-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

The flags file that was used to format this result can be browsed at  
<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html>

You can also download the XML flags source by saving the following link:  
<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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