



# SPEC® CFP2006 Result

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## NEC Corporation

SPECfp®2006 = **80.5**

Express5800/R120e-1M (Intel Xeon E5-2630L v2)

SPECfp\_base2006 = **77.6**

CPU2006 license: 9006

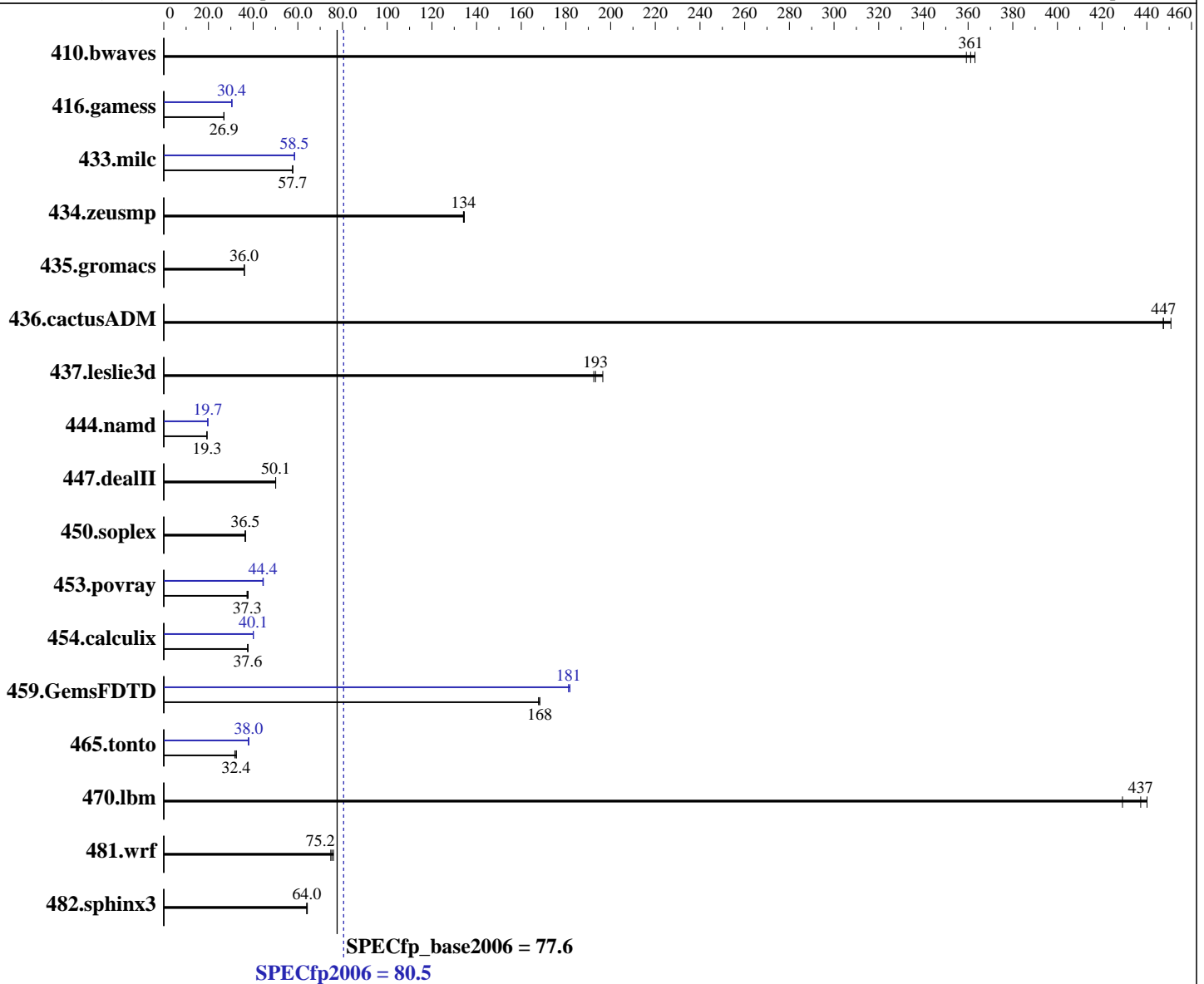
Test date: Nov-2013

Test sponsor: NEC Corporation

Hardware Availability: Sep-2013

Tested by: NEC Corporation

Software Availability: Sep-2013



**Hardware**

CPU Name: Intel Xeon E5-2630L v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core  
 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 6.4 (Santiago)  
 Kernel 2.6.32-358.18.1.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: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3L-12800R-11, ECC)  
 Disk Subsystem: 1 x 300 GB SAS, 10000 RPM, RAID 0  
 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	37.4	363	<b>37.6</b>	<b>361</b>	37.8	359	37.4	363	<b>37.6</b>	<b>361</b>	37.8	359
416.gamess	<b>727</b>	<b>26.9</b>	728	26.9	727	26.9	<b>644</b>	<b>30.4</b>	644	30.4	641	30.6
433.milc	<b>159</b>	<b>57.7</b>	159	57.7	159	57.7	157	58.4	157	58.6	<b>157</b>	<b>58.5</b>
434.zeusmp	<b>67.8</b>	<b>134</b>	67.8	134	67.6	135	<b>67.8</b>	<b>134</b>	67.8	134	67.6	135
435.gromacs	198	36.0	198	36.0	<b>198</b>	<b>36.0</b>	198	36.0	198	36.0	<b>198</b>	<b>36.0</b>
436.cactusADM	26.7	447	26.5	451	<b>26.7</b>	<b>447</b>	26.7	447	26.5	451	<b>26.7</b>	<b>447</b>
437.leslie3d	<b>48.6</b>	<b>193</b>	48.8	192	47.8	196	<b>48.6</b>	<b>193</b>	48.8	192	47.8	196
444.namd	<b>415</b>	<b>19.3</b>	415	19.3	415	19.3	<b>407</b>	<b>19.7</b>	407	19.7	407	19.7
447.dealII	229	50.1	<b>228</b>	<b>50.1</b>	228	50.1	229	50.1	<b>228</b>	<b>50.1</b>	228	50.1
450.soplex	<b>228</b>	<b>36.5</b>	229	36.4	228	36.6	<b>228</b>	<b>36.5</b>	229	36.4	228	36.6
453.povray	143	37.3	141	37.8	<b>143</b>	<b>37.3</b>	119	44.6	<b>120</b>	<b>44.4</b>	120	44.4
454.calculix	<b>219</b>	<b>37.6</b>	219	37.7	220	37.5	206	40.1	<b>206</b>	<b>40.1</b>	206	40.1
459.GemsFDTD	<b>63.1</b>	<b>168</b>	63.3	168	63.1	168	58.4	182	58.6	181	<b>58.6</b>	<b>181</b>
465.tonto	303	32.5	<b>304</b>	<b>32.4</b>	310	31.8	259	38.0	<b>259</b>	<b>38.0</b>	260	37.8
470.lbm	<b>31.4</b>	<b>437</b>	32.0	429	31.2	440	<b>31.4</b>	<b>437</b>	32.0	429	31.2	440
481.wrf	147	76.0	149	74.7	<b>148</b>	<b>75.2</b>	147	76.0	149	74.7	<b>148</b>	<b>75.2</b>
482.sphinx3	305	64.0	303	64.3	<b>305</b>	<b>64.0</b>	305	64.0	303	64.3	<b>305</b>	<b>64.0</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:  
 Energy Performance: Performance  
 Memory Voltage: 1.5 V

## 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"

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## General Notes (Continued)

OMP\_NUM\_THREADS = "12"

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  
The Express5800/R120e-1M and  
the Express5800/R120e-2M models are electronically equivalent.  
The results have been measured on the Express5800/R120e-2M model.

## 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



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## 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

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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

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## Peak Optimization Flags (Continued)

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

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

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

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

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

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