



# SPEC® CFP2006 Result

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## NEC Corporation

SPECfp®2006 = **67.0**

Express5800/R120e-2M (Intel Xeon E5-2609 v2)

SPECfp\_base2006 = **65.1**

CPU2006 license: 9006

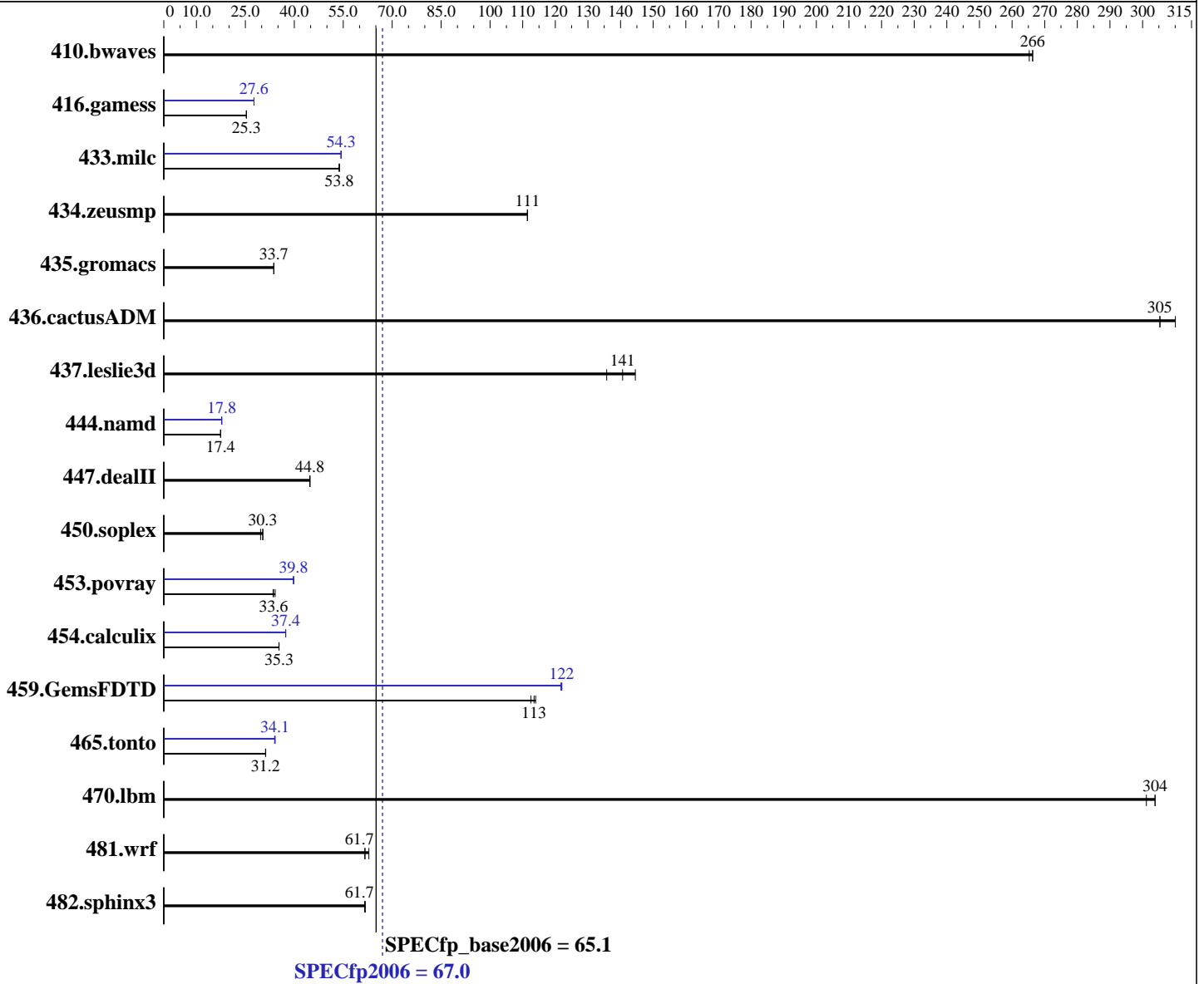
Test date: Nov-2013

Test sponsor: NEC Corporation

Hardware Availability: Sep-2013

Tested by: NEC Corporation

Software Availability: Sep-2013



### Hardware

CPU Name: Intel Xeon E5-2609 v2  
 CPU Characteristics:  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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 6.4 (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: 10 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (16 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1333 MHz and CL9)  
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	51.2	265	51.0	266	<b>51.0</b>	<b>266</b>	51.2	265	51.0	266	<b>51.0</b>	<b>266</b>
416.gamess	773	25.3	<b>773</b>	<b>25.3</b>	774	25.3	708	27.6	708	27.7	<b>708</b>	<b>27.6</b>
433.milc	171	53.8	<b>171</b>	<b>53.8</b>	171	53.8	<b>169</b>	<b>54.3</b>	169	54.4	169	54.3
434.zeusmp	<b>81.6</b>	<b>111</b>	81.6	111	81.6	111	<b>81.6</b>	<b>111</b>	81.6	111	81.6	111
435.gromacs	212	33.8	212	33.7	<b>212</b>	<b>33.7</b>	212	33.8	212	33.7	<b>212</b>	<b>33.7</b>
436.cactusADM	39.1	305	38.5	310	<b>39.1</b>	<b>305</b>	39.1	305	38.5	310	<b>39.1</b>	<b>305</b>
437.leslie3d	69.2	136	<b>66.8</b>	<b>141</b>	65.0	145	69.2	136	<b>66.8</b>	<b>141</b>	65.0	145
444.namd	460	17.4	461	17.4	<b>460</b>	<b>17.4</b>	452	17.8	452	17.8	<b>452</b>	<b>17.8</b>
447.dealII	255	44.8	256	44.8	<b>255</b>	<b>44.8</b>	255	44.8	256	44.8	<b>255</b>	<b>44.8</b>
450.soplex	<b>275</b>	<b>30.3</b>	275	30.4	281	29.7	<b>275</b>	<b>30.3</b>	275	30.4	281	29.7
453.povray	156	34.1	159	33.5	<b>158</b>	<b>33.6</b>	134	39.8	134	39.7	<b>134</b>	<b>39.8</b>
454.calculix	234	35.3	234	35.3	<b>234</b>	<b>35.3</b>	<b>221</b>	<b>37.4</b>	221	37.4	221	37.3
459.GemsFDTD	<b>93.5</b>	<b>113</b>	94.3	113	93.1	114	87.0	122	87.2	122	<b>87.0</b>	<b>122</b>
465.tonto	316	31.2	<b>315</b>	<b>31.2</b>	315	31.2	288	34.1	290	34.0	<b>289</b>	<b>34.1</b>
470.lbm	<b>45.2</b>	<b>304</b>	45.6	301	45.2	304	<b>45.2</b>	<b>304</b>	45.6	301	45.2	304
481.wrf	178	62.9	181	61.6	<b>181</b>	<b>61.7</b>	178	62.9	181	61.6	<b>181</b>	<b>61.7</b>
482.sphinx3	317	61.6	<b>316</b>	<b>61.7</b>	316	61.7	317	61.6	<b>316</b>	<b>61.7</b>	316	61.7

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 = "8"

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<b>Express5800/R120e-2M (Intel Xeon E5-2609 v2)</b>	<b>SPECfp_base2006 =</b>	<b>65.1</b>
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<b>CPU2006 license:</b> 9006	<b>Test date:</b> Nov-2013
<b>Test sponsor:</b> NEC Corporation	<b>Hardware Availability:</b> Sep-2013
<b>Tested by:</b> NEC Corporation	<b>Software Availability:</b> Sep-2013

## 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  
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.dealII: 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>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.xml>



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

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