



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## NEC Corporation

### SPECfp<sup>®</sup>\_rate2006 = 196

### Express5800/R120e-2M (Intel Xeon E5-2637 v2)

### SPECfp\_rate\_base2006 = 192

CPU2006 license: 9006

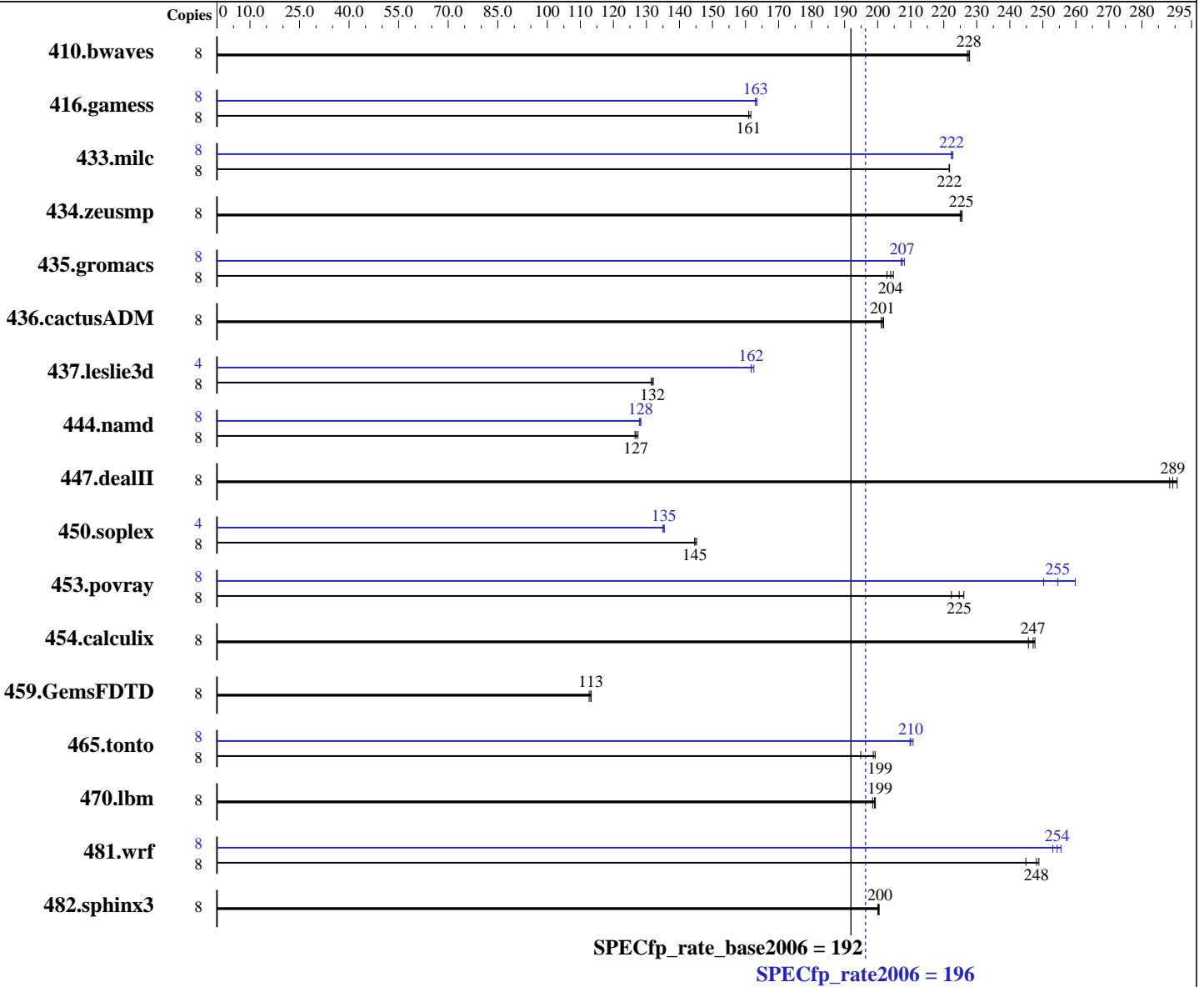
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Nov-2013

Hardware Availability: Sep-2013

Software Availability: Sep-2013



#### Hardware

CPU Name: Intel Xeon E5-2637 v2  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 3500  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 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

Continued on next page

#### 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: No  
 File System: ext4

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## NEC Corporation

SPECfp\_rate2006 = 196

Express5800/R120e-2M (Intel Xeon E5-2637 v2)

SPECfp\_rate\_base2006 = 192

CPU2006 license: 9006

Test date: Nov-2013

Test sponsor: NEC Corporation

Hardware Availability: Sep-2013

Tested by: NEC Corporation

Software Availability: Sep-2013

L3 Cache: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 64 GB (4 x 16 GB 2Rx4 PC3-14900R-13, ECC)  
 Disk Subsystem: 1 x 250 GB SATA, 7200 RPM  
 Other Hardware: None

System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

| Benchmark     | Base   |            |            |            |            |            |            | Peak   |            |            |            |            |            |            |
|---------------|--------|------------|------------|------------|------------|------------|------------|--------|------------|------------|------------|------------|------------|------------|
|               | Copies | Seconds    | Ratio      | Seconds    | Ratio      | Seconds    | Ratio      | Copies | Seconds    | Ratio      | Seconds    | Ratio      | Seconds    | Ratio      |
| 410.bwaves    | 8      | 479        | 227        | 477        | 228        | <b>478</b> | <b>228</b> | 8      | 479        | 227        | 477        | 228        | <b>478</b> | <b>228</b> |
| 416.gamess    | 8      | 973        | 161        | <b>973</b> | <b>161</b> | 969        | 162        | 8      | 961        | 163        | <b>961</b> | <b>163</b> | 958        | 163        |
| 433.milc      | 8      | <b>331</b> | <b>222</b> | 331        | 222        | 331        | 222        | 8      | 330        | 222        | 330        | 223        | <b>330</b> | <b>222</b> |
| 434.zeusmp    | 8      | <b>323</b> | <b>225</b> | 323        | 226        | 324        | 225        | 8      | <b>323</b> | <b>225</b> | 323        | 226        | 324        | 225        |
| 435.gromacs   | 8      | <b>280</b> | <b>204</b> | 279        | 205        | 282        | 203        | 8      | 275        | 208        | 276        | 207        | <b>275</b> | <b>207</b> |
| 436.cactusADM | 8      | <b>475</b> | <b>201</b> | 474        | 202        | 475        | 201        | 8      | <b>475</b> | <b>201</b> | 474        | 202        | 475        | 201        |
| 437.leslie3d  | 8      | 572        | 131        | <b>570</b> | <b>132</b> | 569        | 132        | 4      | <b>232</b> | <b>162</b> | 231        | 163        | 232        | 162        |
| 444.namd      | 8      | 507        | 127        | <b>506</b> | <b>127</b> | 503        | 127        | 8      | 500        | 128        | 502        | 128        | <b>500</b> | <b>128</b> |
| 447.dealII    | 8      | <b>316</b> | <b>289</b> | 315        | 291        | 317        | 288        | 8      | <b>316</b> | <b>289</b> | 315        | 291        | 317        | 288        |
| 450.soplex    | 8      | <b>461</b> | <b>145</b> | 461        | 145        | 460        | 145        | 4      | 247        | 135        | 246        | 135        | <b>247</b> | <b>135</b> |
| 453.povray    | 8      | 188        | 226        | 191        | 222        | <b>189</b> | <b>225</b> | 8      | 170        | 250        | <b>167</b> | <b>255</b> | 164        | 260        |
| 454.calculix  | 8      | 269        | 246        | <b>267</b> | <b>247</b> | 267        | 248        | 8      | 269        | 246        | <b>267</b> | <b>247</b> | 267        | 248        |
| 459.GemsFDTD  | 8      | <b>750</b> | <b>113</b> | 753        | 113        | 749        | 113        | 8      | <b>750</b> | <b>113</b> | 753        | 113        | 749        | 113        |
| 465.tonto     | 8      | 395        | 199        | <b>396</b> | <b>199</b> | 404        | 195        | 8      | 374        | 211        | <b>375</b> | <b>210</b> | 375        | 210        |
| 470.lbm       | 8      | <b>552</b> | <b>199</b> | 551        | 199        | 554        | 198        | 8      | <b>552</b> | <b>199</b> | 551        | 199        | 554        | 198        |
| 481.wrf       | 8      | 359        | 249        | 365        | 245        | <b>360</b> | <b>248</b> | 8      | <b>351</b> | <b>254</b> | 350        | 256        | 353        | 253        |
| 482.sphinx3   | 8      | 779        | 200        | <b>779</b> | <b>200</b> | 778        | 200        | 8      | 779        | 200        | <b>779</b> | <b>200</b> | 778        | 200        |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

BIOS Settings:  
Energy Performance: Performance



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 196

Express5800/R120e-2M (Intel Xeon E5-2637 v2)

SPECfp\_rate\_base2006 = 192

CPU2006 license: 9006

Test date: Nov-2013

Test sponsor: NEC Corporation

Hardware Availability: Sep-2013

Tested by: NEC Corporation

Software Availability: Sep-2013

## General Notes

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

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

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

Filesystem page cache cleared with:

```
echo 1 > /proc/sys/vm/drop_caches
```

runspec command invoked through numactl i.e.:

```
numactl --interleave=all runspec <etc>
```

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

```



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**NEC Corporation**

**SPECfp\_rate2006 = 196**

Express5800/R120e-2M (Intel Xeon E5-2637 v2)

**SPECfp\_rate\_base2006 = 192**

**CPU2006 license:** 9006

**Test date:** Nov-2013

**Test sponsor:** NEC Corporation

**Hardware Availability:** Sep-2013

**Tested by:** NEC Corporation

**Software Availability:** Sep-2013

## Base Optimization Flags

C benchmarks:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias  
-opt-mem-layout-trans=3

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias  
-opt-mem-layout-trans=3

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias  
-opt-mem-layout-trans=3

## Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak 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  
453.povray: -DSPEC\_CPU\_LP64  
454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
459.GemsFDTD: -DSPEC\_CPU\_LP64

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 196

Express5800/R120e-2M (Intel Xeon E5-2637 v2)

SPECfp\_rate\_base2006 = 192

CPU2006 license: 9006

Test date: Nov-2013

Test sponsor: NEC Corporation

Hardware Availability: Sep-2013

Tested by: NEC Corporation

Software Availability: Sep-2013

## Peak Portability Flags (Continued)

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

## 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) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

### C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -fno-alias -auto-ilp32

447.dealIII: basepeak = yes

450.soplex: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -opt-malloc-options=3

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -opt-mem-layout-trans=3(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-

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**NEC Corporation**

**SPECfp\_rate2006 = 196**

Express5800/R120e-2M (Intel Xeon E5-2637 v2)

**SPECfp\_rate\_base2006 = 192**

**CPU2006 license:** 9006

**Test date:** Nov-2013

**Test sponsor:** NEC Corporation

**Hardware Availability:** Sep-2013

**Tested by:** NEC Corporation

**Software Availability:** Sep-2013

## Peak Optimization Flags (Continued)

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

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>

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 Jul 24 17:59:38 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 3 December 2013.