



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## NEC Corporation

### SPECfp<sup>®</sup>\_rate2006 = 222

### Express5800/R120d-2M (Intel Xeon E5-2609)

### SPECfp\_rate\_base2006 = 217

CPU2006 license: 9006

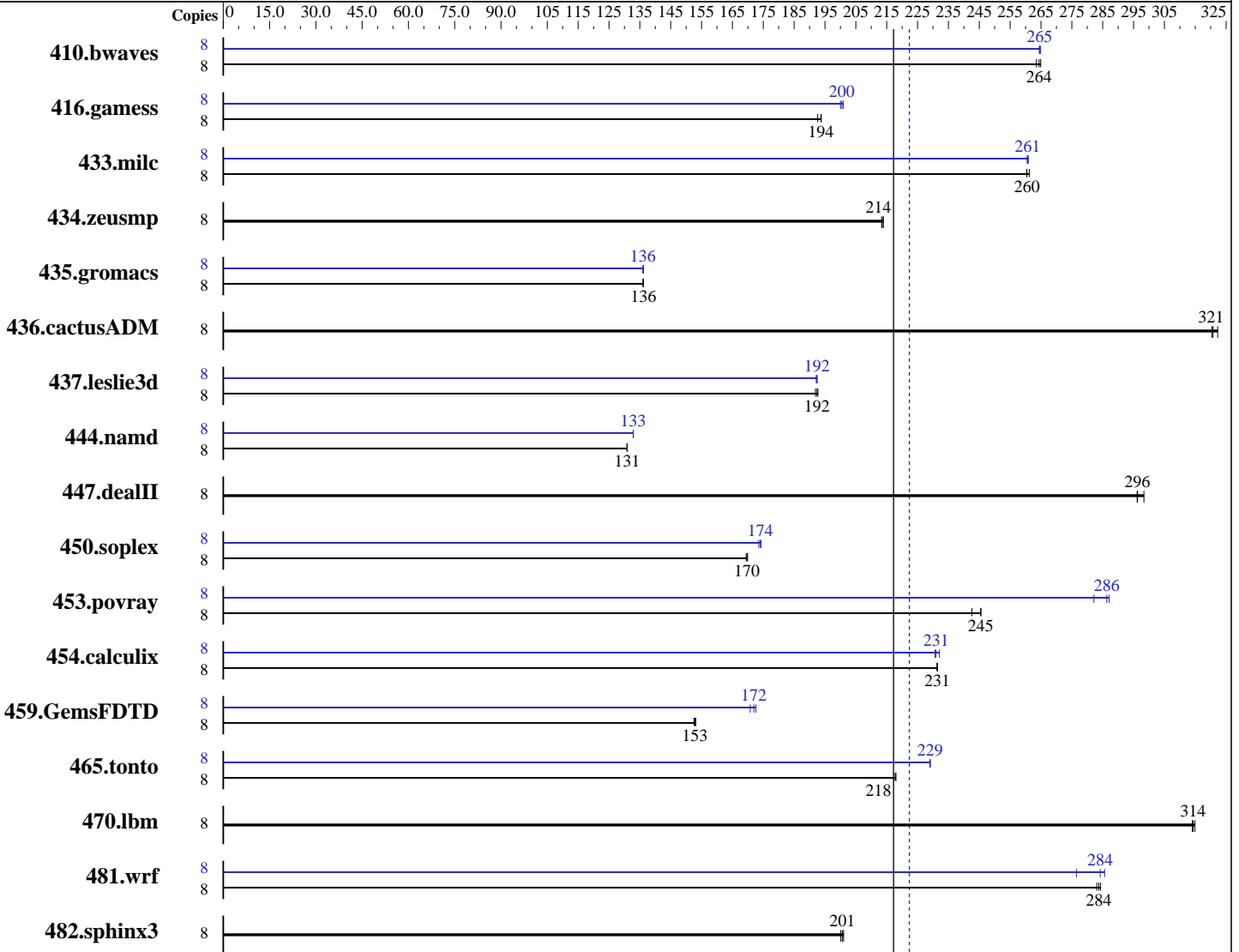
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Apr-2012

Hardware Availability: Apr-2012

Software Availability: Dec-2011



SPECfp\_rate\_base2006 = 217

SPECfp\_rate2006 = 222

#### Hardware

CPU Name: Intel Xeon E5-2609  
 CPU Characteristics:  
 CPU MHz: 2400  
 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

Continued on next page

#### Software

Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)  
 2.6.32-220.el6.x86\_64  
 Compiler: C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.2.273 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 = **222**

Express5800/R120d-2M (Intel Xeon E5-2609)

SPECfp\_rate\_base2006 = 217

CPU2006 license: 9006

Test date: Apr-2012

Test sponsor: NEC Corporation

Hardware Availability: Apr-2012

Tested by: NEC Corporation

Software Availability: Dec-2011

L3 Cache: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1066 MHz and CL7)  
 Disk Subsystem: 1 x 500 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	413	264	410	265	<b>411</b>	<b>264</b>	8	411	264	<b>411</b>	<b>265</b>	410	265
416.gamess	8	813	193	<b>809</b>	<b>194</b>	808	194	8	780	201	783	200	<b>781</b>	<b>200</b>
433.milc	8	282	260	281	261	<b>282</b>	<b>260</b>	8	282	261	<b>282</b>	<b>261</b>	281	261
434.zeusmp	8	341	213	<b>341</b>	<b>214</b>	340	214	8	341	213	<b>341</b>	<b>214</b>	340	214
435.gromacs	8	420	136	420	136	<b>420</b>	<b>136</b>	8	<b>420</b>	<b>136</b>	420	136	419	136
436.cactusADM	8	<b>298</b>	<b>321</b>	298	320	297	322	8	<b>298</b>	<b>321</b>	298	320	297	322
437.leslie3d	8	392	192	<b>391</b>	<b>192</b>	390	193	8	<b>391</b>	<b>192</b>	391	192	391	192
444.namd	8	<b>490</b>	<b>131</b>	490	131	490	131	8	483	133	<b>483</b>	<b>133</b>	483	133
447.dealII	8	<b>309</b>	<b>296</b>	309	296	307	298	8	<b>309</b>	<b>296</b>	309	296	307	298
450.soplex	8	394	169	<b>393</b>	<b>170</b>	393	170	8	<b>383</b>	<b>174</b>	383	174	384	174
453.povray	8	175	243	<b>173</b>	<b>245</b>	173	246	8	151	282	<b>149</b>	<b>286</b>	148	287
454.calculix	8	<b>285</b>	<b>231</b>	285	231	285	231	8	286	231	284	232	<b>286</b>	<b>231</b>
459.GemsFDTD	8	556	153	554	153	<b>555</b>	<b>153</b>	8	497	171	<b>494</b>	<b>172</b>	492	173
465.tonto	8	362	217	361	218	<b>361</b>	<b>218</b>	8	344	229	344	229	<b>344</b>	<b>229</b>
470.lbm	8	349	315	350	314	<b>350</b>	<b>314</b>	8	349	315	350	314	<b>350</b>	<b>314</b>
481.wrf	8	314	284	316	283	<b>315</b>	<b>284</b>	8	323	276	313	286	<b>314</b>	<b>284</b>
482.sphinx3	8	776	201	<b>777</b>	<b>201</b>	779	200	8	776	201	<b>777</b>	<b>201</b>	779	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"



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 222

Express5800/R120d-2M (Intel Xeon E5-2609)

SPECfp\_rate\_base2006 = 217

CPU2006 license: 9006

Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Apr-2012

Hardware Availability: Apr-2012

Software Availability: Dec-2011

## Platform Notes

BIOS Settings:  
Energy Performance: Performance

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

The Express5800/R120d-1M and the Express5800/R120d-2M models are electronically equivalent. The results have been measured on the Express5800/R120d-1M model.

Added glibc-static-2.12-1.47.el6.x86\_64.rpm to enable static linking

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>

## 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.lelie3d: -DSPEC\_CPU\_LP64  
444.namd: -DSPEC\_CPU\_LP64

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 222

Express5800/R120d-2M (Intel Xeon E5-2609)

SPECfp\_rate\_base2006 = 217

CPU2006 license: 9006

Test date: Apr-2012

Test sponsor: NEC Corporation

Hardware Availability: Apr-2012

Tested by: NEC Corporation

Software Availability: Dec-2011

## Base Portability Flags (Continued)

```
447.deallI: -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:

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

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

```
-xAVX -ipo -O3 -no-prec-div -static -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
```



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 222

Express5800/R120d-2M (Intel Xeon E5-2609)

SPECfp\_rate\_base2006 = 217

CPU2006 license: 9006

Test date: Apr-2012

Test sponsor: NEC Corporation

Hardware Availability: Apr-2012

Tested by: NEC Corporation

Software Availability: Dec-2011

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

```

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) -prof-use(pass 2) -fno-alias
         -auto-ilp32

```

447.dealII: basepeak = yes

```

450.soplex: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
         -no-prec-div(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) -prof-use(pass 2) -unroll4 -ansi-alias

```

Fortran benchmarks:

```

410.bwaves: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
         -no-prec-div(pass 2) -prof-use(pass 2) -static

```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 222

Express5800/R120d-2M (Intel Xeon E5-2609)

SPECfp\_rate\_base2006 = 217

CPU2006 license: 9006

Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Apr-2012

Hardware Availability: Apr-2012

Software Availability: Dec-2011

## Peak Optimization Flags (Continued)

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

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32  
-opt-mem-layout-trans=3

481.wrf: Same as 454.calculix

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.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-ic12.1-official-linux64.20111122.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 05:46:24 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 5 June 2012.