



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## NEC Corporation

SPECfp<sup>®</sup>\_rate2006 = 363

Express5800/R120g-1E (Intel Xeon E5-2623 v4)

SPECfp\_rate\_base2006 = 356

CPU2006 license: 9006

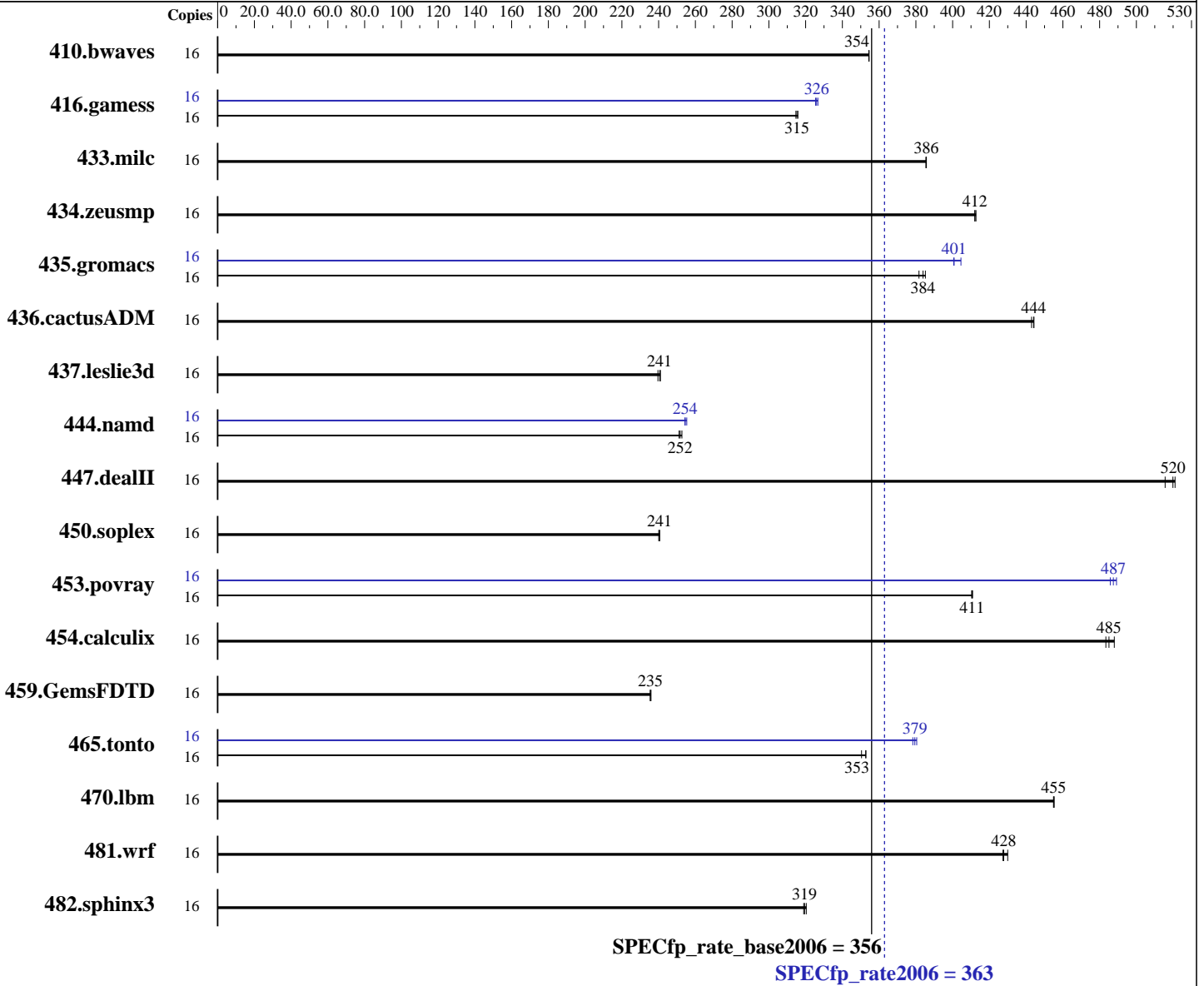
Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: May-2016

Hardware Availability: Jun-2016

Software Availability: Jan-2016



### Hardware

CPU Name: Intel Xeon E5-2623 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 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 7.2 (Maipo)  
 Kernel 3.10.0-327.4.5.el7.x86\_64  
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;  
 Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## NEC Corporation

SPECfp\_rate2006 = **363**

Express5800/R120g-1E (Intel Xeon E5-2623 v4)

SPECfp\_rate\_base2006 = **356**

CPU2006 license: 9006

Test date: May-2016

Test sponsor: NEC Corporation

Hardware Availability: Jun-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

L3 Cache: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)  
 Disk Subsystem: 1 x 1 TB 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	16	<b>613</b>	<b>354</b>	613	354	614	354	16	<b>613</b>	<b>354</b>	613	354	614	354		
416.gamess	16	996	315	<b>994</b>	<b>315</b>	992	316	16	963	325	959	327	<b>961</b>	<b>326</b>		
433.milc	16	381	386	<b>381</b>	<b>386</b>	381	385	16	381	386	<b>381</b>	<b>386</b>	381	385		
434.zeusmp	16	353	413	<b>353</b>	<b>412</b>	353	412	16	353	413	<b>353</b>	<b>412</b>	353	412		
435.gromacs	16	<b>298</b>	<b>384</b>	297	385	299	382	16	282	405	<b>285</b>	<b>401</b>	285	401		
436.cactusADM	16	432	443	430	444	<b>431</b>	<b>444</b>	16	432	443	430	444	<b>431</b>	<b>444</b>		
437.lelie3d	16	624	241	<b>625</b>	<b>241</b>	628	240	16	624	241	<b>625</b>	<b>241</b>	628	240		
444.namd	16	<b>510</b>	<b>252</b>	508	253	511	251	16	503	255	505	254	<b>504</b>	<b>254</b>		
447.dealII	16	355	516	351	521	<b>352</b>	<b>520</b>	16	355	516	351	521	<b>352</b>	<b>520</b>		
450.soplex	16	<b>555</b>	<b>241</b>	555	241	556	240	16	<b>555</b>	<b>241</b>	555	241	556	240		
453.povray	16	<b>207</b>	<b>411</b>	207	411	207	410	16	175	486	<b>175</b>	<b>487</b>	174	489		
454.calculix	16	273	483	<b>272</b>	<b>485</b>	270	488	16	273	483	<b>272</b>	<b>485</b>	270	488		
459.GemsFDTD	16	720	236	721	235	<b>721</b>	<b>235</b>	16	720	236	721	235	<b>721</b>	<b>235</b>		
465.tonto	16	449	350	<b>446</b>	<b>353</b>	446	353	16	<b>415</b>	<b>379</b>	414	380	416	378		
470.lbm	16	483	455	<b>483</b>	<b>455</b>	483	455	16	483	455	<b>483</b>	<b>455</b>	483	455		
481.wrf	16	416	430	418	427	<b>418</b>	<b>428</b>	16	416	430	418	427	<b>418</b>	<b>428</b>		
482.sphinx3	16	973	320	<b>976</b>	<b>319</b>	978	319	16	973	320	<b>976</b>	<b>319</b>	978	319		

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:  
Power Management Policy: Custom  
Energy Performance: Performance

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 363

Express5800/R120g-1E (Intel Xeon E5-2623 v4)

SPECfp\_rate\_base2006 = 356

CPU2006 license: 9006

Test date: May-2016

Test sponsor: NEC Corporation

Hardware Availability: Jun-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

## Platform Notes (Continued)

Patrol Scrub: Disabled  
Snoop Mode: Home Snoop with Directory

## 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"
```

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/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.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
```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 363

Express5800/R120g-1E (Intel Xeon E5-2623 v4)

SPECfp\_rate\_base2006 = 356

CPU2006 license: 9006

Test date: May-2016

Test sponsor: NEC Corporation

Hardware Availability: Jun-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

## Base 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

## Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-ansi-alias -opt-mem-layout-trans=3

Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:

-xCORE-AVX2 -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:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak Portability Flags

Same as Base Portability Flags



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 363

Express5800/R120g-1E (Intel Xeon E5-2623 v4)

SPECfp\_rate\_base2006 = 356

CPU2006 license: 9006

Test date: May-2016

Test sponsor: NEC Corporation

Hardware Availability: Jun-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

## 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:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -unroll4 -ansi-alias

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3

### Benchmarks using both Fortran and C:

435.gromacs: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)  
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)  
-par-num-threads=1(pass 1) -opt-mem-layout-trans=3(pass 2)  
-prof-use(pass 2) -opt-prefetch -auto-ilp32

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 363

Express5800/R120g-1E (Intel Xeon E5-2623 v4)

SPECfp\_rate\_base2006 = 356

CPU2006 license: 9006

Test date: May-2016

Test sponsor: NEC Corporation

Hardware Availability: Jun-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

## Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120g-RevC.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-120g-RevC.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 Jun 30 14:05:46 2016 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 14 June 2016.