



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## NEC Corporation

SPECfp<sup>®</sup>\_rate2006 = 362

Express5800/E120g-M (Intel Xeon E5-2640 v4)

SPECfp\_rate\_base2006 = 353

CPU2006 license: 9006

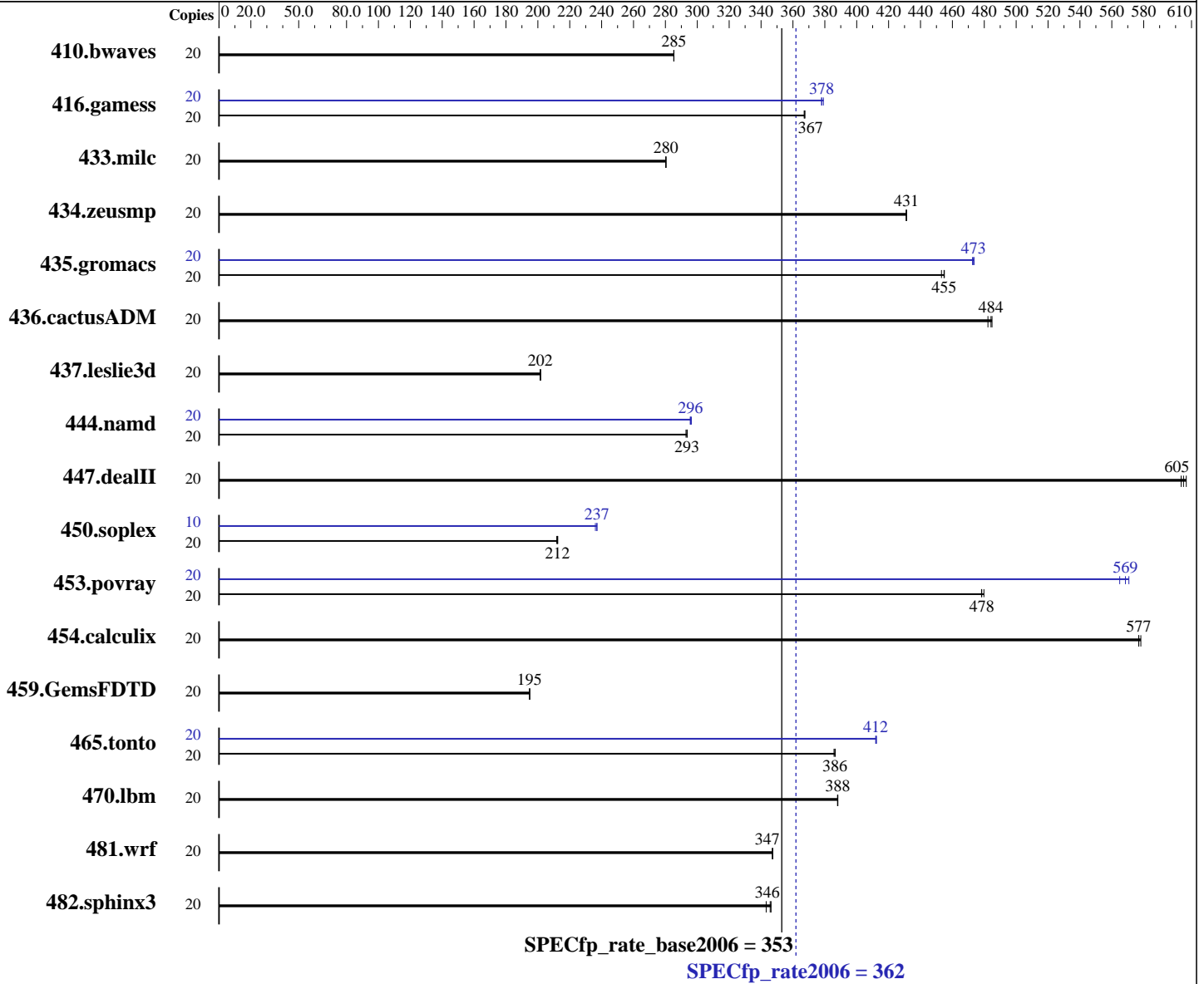
Test date: Feb-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Nov-2015



### Hardware

CPU Name: Intel Xeon E5-2640 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 10 cores, 1 chip, 10 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.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 = 362

Express5800/E120g-M (Intel Xeon E5-2640 v4)

SPECfp\_rate\_base2006 = 353

CPU2006 license: 9006

Test date: Feb-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Nov-2015

L3 Cache: 25 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (8 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	20	952	285	953	285	<b>953</b>	<b>285</b>	20	952	285	953	285	<b>953</b>	<b>285</b>		
416.gamess	20	1067	367	1066	367	<b>1066</b>	<b>367</b>	20	1036	378	<b>1036</b>	<b>378</b>	1033	379		
433.milc	20	<b>655</b>	<b>280</b>	655	280	655	280	20	<b>655</b>	<b>280</b>	655	280	655	280		
434.zeusmp	20	422	431	<b>422</b>	<b>431</b>	422	431	20	422	431	<b>422</b>	<b>431</b>	422	431		
435.gromacs	20	315	453	314	455	<b>314</b>	<b>455</b>	20	302	474	<b>302</b>	<b>473</b>	302	473		
436.cactusADM	20	493	485	<b>494</b>	<b>484</b>	496	482	20	493	485	<b>494</b>	<b>484</b>	496	482		
437.leslie3d	20	932	202	933	201	<b>932</b>	<b>202</b>	20	932	202	933	201	<b>932</b>	<b>202</b>		
444.namd	20	<b>547</b>	<b>293</b>	546	294	548	293	20	543	296	541	296	<b>542</b>	<b>296</b>		
447.dealII	20	377	607	<b>378</b>	<b>605</b>	379	604	20	377	607	<b>378</b>	<b>605</b>	379	604		
450.soplex	20	785	212	<b>786</b>	<b>212</b>	787	212	10	353	236	352	237	<b>352</b>	<b>237</b>		
453.povray	20	222	480	<b>222</b>	<b>478</b>	222	478	20	<b>187</b>	<b>569</b>	188	565	186	571		
454.calculix	20	286	577	285	578	<b>286</b>	<b>577</b>	20	286	577	285	578	<b>286</b>	<b>577</b>		
459.GemsFDTD	20	1089	195	1089	195	<b>1089</b>	<b>195</b>	20	1089	195	1089	195	<b>1089</b>	<b>195</b>		
465.tonto	20	<b>509</b>	<b>386</b>	510	386	509	387	20	477	412	478	412	<b>478</b>	<b>412</b>		
470.lbm	20	708	388	<b>708</b>	<b>388</b>	708	388	20	708	388	<b>708</b>	<b>388</b>	708	388		
481.wrf	20	643	347	<b>643</b>	<b>347</b>	644	347	20	643	347	<b>643</b>	<b>347</b>	644	347		
482.sphinx3	20	1136	343	1126	346	<b>1128</b>	<b>346</b>	20	1136	343	1126	346	<b>1128</b>	<b>346</b>		

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

## Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset 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 = 362

Express5800/E120g-M (Intel Xeon E5-2640 v4)

SPECfp\_rate\_base2006 = 353

CPU2006 license: 9006

Test date: Feb-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Nov-2015

## Platform Notes (Continued)

Patrol Scrub: Disabled

## 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

## 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 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 362

Express5800/E120g-M (Intel Xeon E5-2640 v4)

SPECfp\_rate\_base2006 = 353

CPU2006 license: 9006

Test date: Feb-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Nov-2015

## 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 (except as noted below):

icpc -m64

450.soplex: icpc -m32 -L/opt/intel/compilers\_and\_libraries\_2016/linux/compiler/lib/ia32\_lin

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  
450.soplex: -D\_FILE\_OFFSET\_BITS=64  
453.povray: -DSPEC\_CPU\_LP64  
454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp\_rate2006 = 362

Express5800/E120g-M (Intel Xeon E5-2640 v4)

SPECfp\_rate\_base2006 = 353

CPU2006 license: 9006

Test date: Feb-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Nov-2015

## Peak Portability Flags (Continued)

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

## 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.dealIII: basepeak = yes

450.soplex: -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-malloc-options=3

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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

**NEC Corporation**

**SPECfp\_rate2006 = 362**

**Express5800/E120g-M (Intel Xeon E5-2640 v4)**

**SPECfp\_rate\_base2006 = 353**

**CPU2006 license:** 9006

**Test date:** Feb-2016

**Test sponsor:** NEC Corporation

**Hardware Availability:** Apr-2016

**Tested by:** NEC Corporation

**Software Availability:** Nov-2015

## Peak Optimization Flags (Continued)

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-alloc -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

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-RevB.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-RevB.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 13:12:05 2016 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 19 April 2016.