



SPEC® CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp®2006 = **124**

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECfp_base2006 = **117**

CPU2006 license: 9006

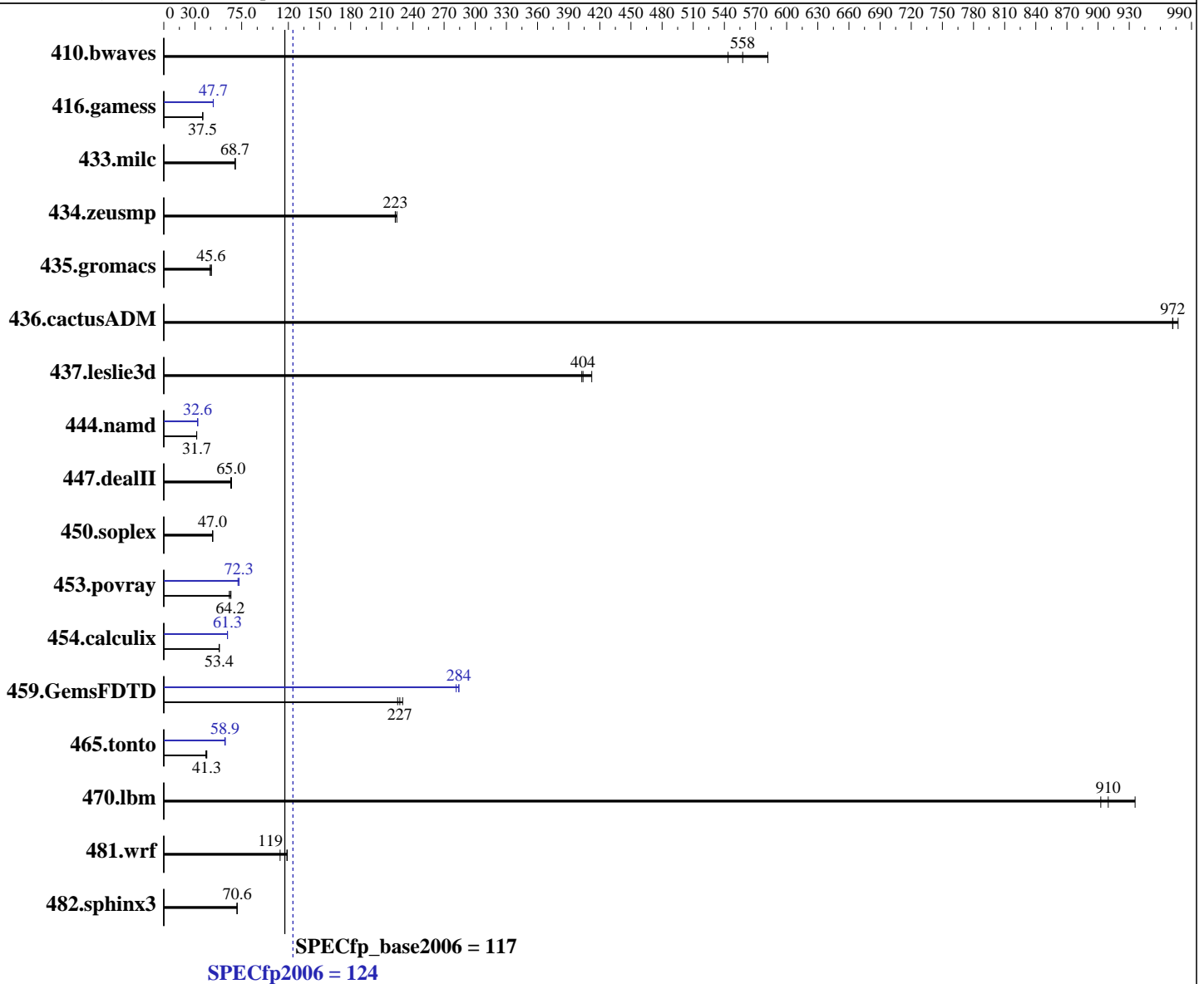
Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016



Hardware

CPU Name: Intel Xeon E5-2699 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2200
 FPU: Integrated
 CPU(s) enabled: 44 cores, 2 chips, 22 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 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: Yes
 File System: ext4

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = **124**

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECfp_base2006 = **117**

CPU2006 license: 9006

Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

L3 Cache: 55 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2400T-R)
 Disk Subsystem: NEC Storage M310 via Fibre Channel
 (See additional details below)
 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	23.4	582	24.4	558	25.0	544	23.4	582	24.4	558	25.0	544
416.gamess	523	37.5	524	37.3	521	37.6	410	47.7	411	47.7	411	47.6
433.milc	133	69.0	134	68.7	134	68.5	133	69.0	134	68.7	134	68.5
434.zeusmp	40.8	223	40.8	223	40.5	225	40.8	223	40.8	223	40.5	225
435.gromacs	160	44.6	156	45.8	156	45.6	160	44.6	156	45.8	156	45.6
436.cactusADM	12.3	972	12.2	977	12.3	972	12.3	972	12.2	977	12.3	972
437.leslie3d	22.8	412	23.3	403	23.3	404	22.8	412	23.3	403	23.3	404
444.namd	253	31.7	253	31.7	253	31.7	246	32.6	246	32.6	246	32.6
447.dealII	175	65.3	176	65.0	177	64.5	175	65.3	176	65.0	177	64.5
450.soplex	177	47.0	177	47.2	178	46.9	177	47.0	177	47.2	178	46.9
453.povray	84.3	63.1	82.2	64.7	82.9	64.2	73.6	72.3	73.4	72.5	74.5	71.4
454.calculix	154	53.5	155	53.4	155	53.4	134	61.4	135	61.3	135	61.3
459.GemsFDTD	46.7	227	47.1	225	46.1	230	37.3	284	37.7	282	37.3	284
465.tonto	238	41.3	243	40.5	238	41.4	167	58.8	166	59.3	167	58.9
470.lbm	15.1	910	14.7	936	15.2	903	15.1	910	14.7	936	15.2	903
481.wrf	94.2	119	99.7	112	93.9	119	94.2	119	99.7	112	93.9	119
482.sphinx3	276	70.6	276	70.6	276	70.6	276	70.6	276	70.6	276	70.6

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
 Patrol Scrub: Disabled
 Snoop Mode: Home Snoop
 Hyper-Threading: Disabled

Storage Configuration for Disk Subsystem:
 NEC Storage M310 has 4 x 600 GB 10000 RPM SAS disks under RAID-10 configuration
 mounted over 8Gbps Fibre Channel interface with these options

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = 124

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECfp_base2006 = 117

CPU2006 license: 9006

Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

Platform Notes (Continued)

"defaults" in the /etc/fstab.

General Notes

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

KMP_AFFINITY = "granularity=fine,compact"

LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"

OMP_NUM_THREADS = "44"

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = 124

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECfp_base2006 = 117

CPU2006 license: 9006

Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

Base Portability Flags (Continued)

482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -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: basepeak = yes

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = 124

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECfp_base2006 = 117

CPU2006 license: 9006

Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

Peak Optimization Flags (Continued)

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) -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) -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: -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 -opt-prefetch -parallel

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) -inline-calloc
-opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = 124

Express5800/B120g-h (Intel Xeon E5-2699 v4)

SPECfp_base2006 = 117

CPU2006 license: 9006

Test date: Mar-2016

Test sponsor: NEC Corporation

Hardware Availability: Dec-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

Peak Optimization Flags (Continued)

454.calculix: -xCORE-AVX2 -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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-B120g-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-B120g-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.

Tested with SPEC CPU2006 v1.2.

Report generated on Tue Feb 7 17:00:30 2017 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 7 February 2017.