



SPEC® CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp®2006 = 125

Express5800/R120g-2M (Intel Xeon E5-2690 v4)

SPECfp_base2006 = 119

CPU2006 license: 9006

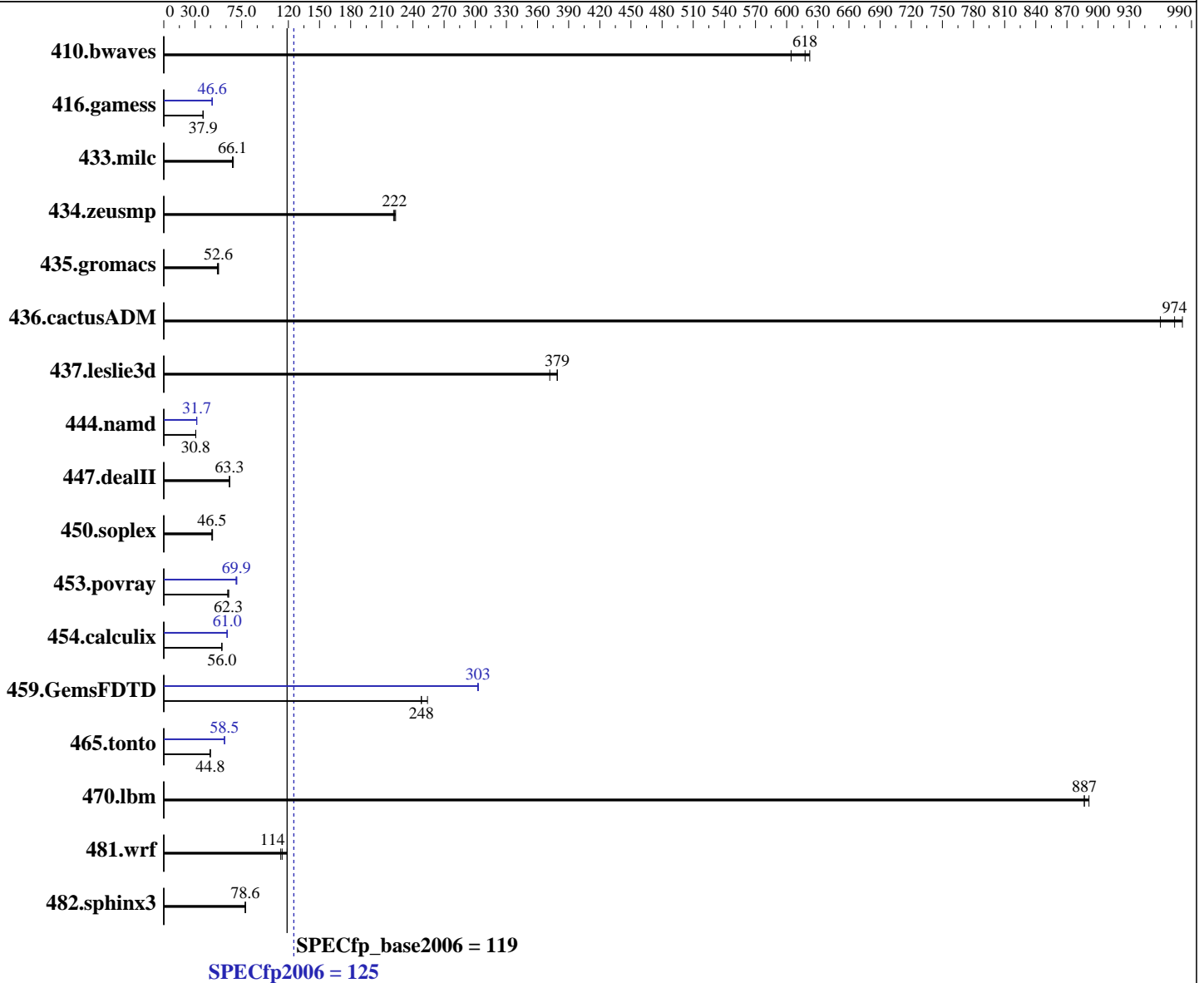
Test date: May-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Jan-2016



Hardware

CPU Name: Intel Xeon E5-2690 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 28 cores, 2 chips, 14 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 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = **125**

Express5800/R120g-2M (Intel Xeon E5-2690 v4)

SPECfp_base2006 = **119**

CPU2006 license: 9006

Test date: May-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

L3 Cache: 35 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)
 Disk Subsystem: 1 x 1 TB SATA, 7200 RPM
 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 | <u>22.0</u> | 618 | 22.5 | 604 | 21.8 | 622 | <u>22.0</u> | 618 | 22.5 | 604 | 21.8 | 622 |
| 416.gamess | <u>517</u> | 37.9 | 518 | 37.8 | 516 | 37.9 | 421 | 46.5 | 420 | 46.6 | <u>420</u> | 46.6 |
| 433.milc | 139 | 66.1 | 137 | 67.0 | 139 | 66.1 | 139 | 66.1 | 137 | 67.0 | 139 | 66.1 |
| 434.zeusmp | 41.1 | 221 | 40.9 | 222 | 40.8 | 223 | 41.1 | 221 | 40.9 | 222 | 40.8 | 223 |
| 435.gromacs | 136 | 52.6 | 138 | 51.6 | 136 | 52.7 | 136 | 52.6 | 138 | 51.6 | 136 | 52.7 |
| 436.cactusADM | 12.4 | 960 | 12.3 | 974 | 12.2 | 981 | 12.4 | 960 | 12.3 | 974 | 12.2 | 981 |
| 437.leslie3d | 25.3 | 372 | 24.8 | 379 | 24.8 | 379 | 25.3 | 372 | 24.8 | 379 | 24.8 | 379 |
| 444.namd | 260 | 30.8 | 260 | 30.8 | 260 | 30.8 | 253 | 31.7 | 253 | 31.7 | 253 | 31.7 |
| 447.dealII | 181 | 63.3 | 181 | 63.3 | 181 | 63.3 | 181 | 63.3 | 181 | 63.3 | 181 | 63.3 |
| 450.soplex | 177 | 47.0 | 180 | 46.4 | 179 | 46.5 | 177 | 47.0 | 180 | 46.4 | 179 | 46.5 |
| 453.povray | 85.1 | 62.5 | 85.4 | 62.3 | 86.5 | 61.5 | 76.4 | 69.7 | 76.1 | 69.9 | 75.6 | 70.4 |
| 454.calculix | 147 | 56.0 | 147 | 56.0 | 148 | 55.8 | 135 | 61.0 | 135 | 61.0 | 135 | 61.0 |
| 459.GemsFDTD | 42.7 | 248 | 41.8 | 254 | 42.8 | 248 | 35.1 | 303 | 35.0 | 303 | 35.1 | 302 |
| 465.tonto | 219 | 44.9 | 220 | 44.8 | 221 | 44.6 | 168 | 58.5 | 168 | 58.5 | 168 | 58.5 |
| 470.lbm | 15.4 | 891 | 15.5 | 887 | 15.5 | 887 | 15.4 | 891 | 15.5 | 887 | 15.5 | 887 |
| 481.wrf | 94.0 | 119 | 98.0 | 114 | 99.1 | 113 | 94.0 | 119 | 98.0 | 114 | 99.1 | 113 |
| 482.sphinx3 | 249 | 78.4 | 248 | 78.6 | 248 | 78.7 | 249 | 78.4 | 248 | 78.6 | 248 | 78.7 |

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:
 Power Management Policy: Custom
 Energy Performance: Performance
 Patrol Scrub: Disabled
 Snoop Mode: Home Snoop
 Hyper-Threading: Disabled



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = 125

Express5800/R120g-2M (Intel Xeon E5-2690 v4)

SPECfp_base2006 = 119

CPU2006 license: 9006

Test date: May-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-2016

Tested by: NEC Corporation

Software Availability: Jan-2016

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 = "28"

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

The Express5800/R120g-1M (Intel Xeon E5-2690 v4) and the Express5800/R120g-2M (Intel Xeon E5-2690 v4) models are electronically equivalent. The results have been measured on the Express5800/R120g-2M (Intel Xeon E5-2690 v4) model.

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.lelie3d: -DSPEC_CPU_LP64
 444.namd: -DSPEC_CPU_LP64
 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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = 125

Express5800/R120g-2M (Intel Xeon E5-2690 v4)

SPECfp_base2006 = 119

CPU2006 license: 9006

Test date: May-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-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 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = 125

Express5800/R120g-2M (Intel Xeon E5-2690 v4)

SPECfp_base2006 = 119

CPU2006 license: 9006

Test date: May-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-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 2006-2016 Standard Performance Evaluation Corporation

NEC Corporation

SPECfp2006 = 125

Express5800/R120g-2M (Intel Xeon E5-2690 v4)

SPECfp_base2006 = 119

CPU2006 license: 9006

Test date: May-2016

Test sponsor: NEC Corporation

Hardware Availability: Apr-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-V1.2-120g-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.

Tested with SPEC CPU2006 v1.2.

Report generated on Wed Jun 1 19:09:11 2016 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 1 June 2016.