



SPEC® CFP2006 Result

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NEC Corporation

SPECfp®2006 = 82.5

Express5800/A1020a (Intel Xeon E5-2643)

SPECfp_base2006 = 79.5

CPU2006 license: 9006

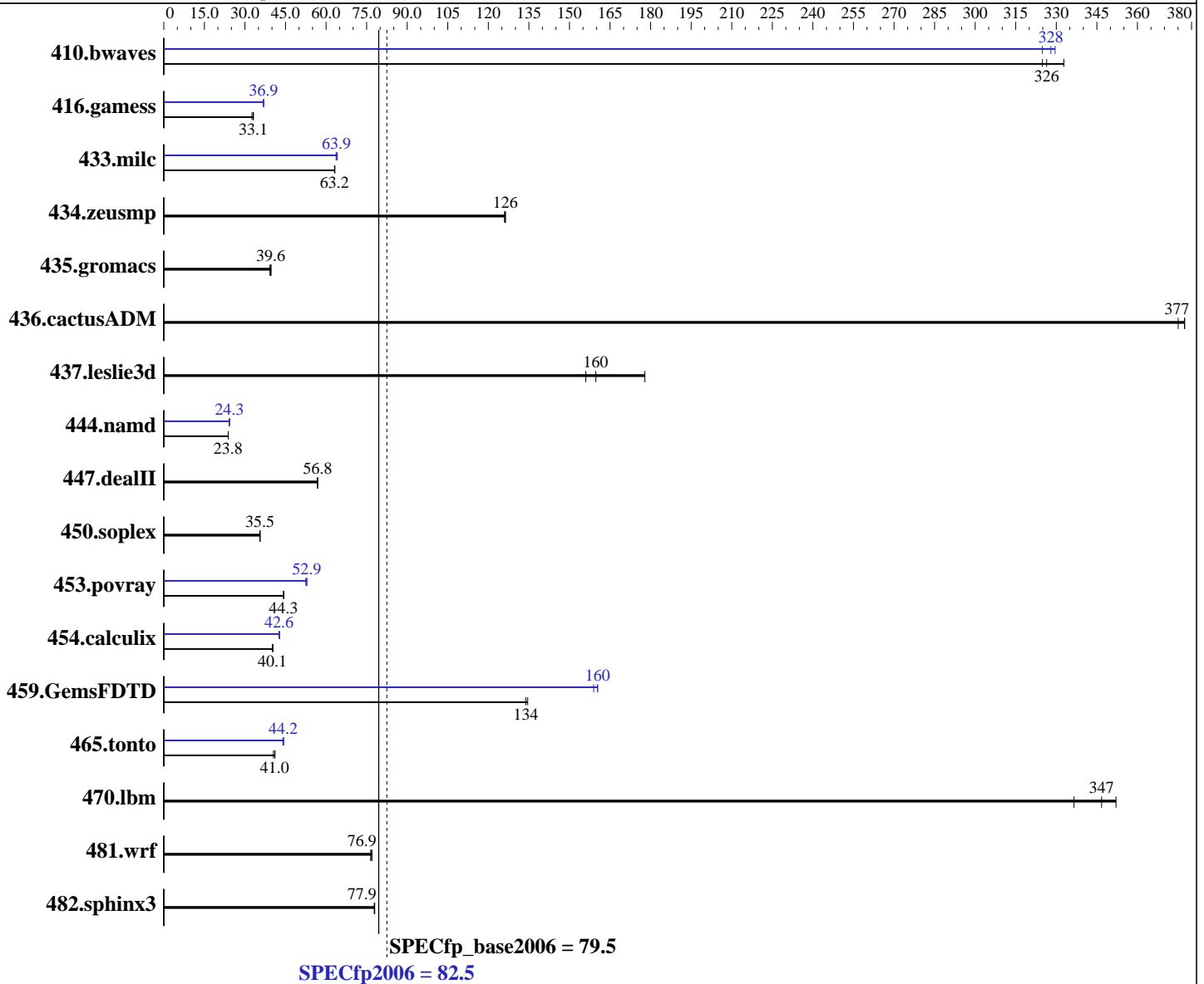
Test date: Apr-2013

Test sponsor: NEC Corporation

Hardware Availability: Mar-2013

Tested by: NEC Corporation

Software Availability: Feb-2012



Hardware

CPU Name: Intel Xeon E5-2643
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz
 CPU MHz: 3300
 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

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Software

Operating System: Red Hat Enterprise Linux Server release 6.2 (Santiago)
 Kernel 2.6.32-220.el6.x86_64
 Compiler: C/C++: Version 12.1.3.293 of Intel C++ Studio XE for Linux;
 Fortran: Version 12.1.3.293 of Intel Fortran Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4

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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)
 Disk Subsystem: 1 x 300 GB SAS, 15000 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 | 40.8 | 333 | 41.8 | 325 | 41.6 | 326 | 41.8 | 325 | 41.2 | 330 | 41.4 | 328 |
| 416.gamess | 591 | 33.2 | 592 | 33.1 | 601 | 32.6 | 530 | 36.9 | 530 | 36.9 | 532 | 36.8 |
| 433.milc | 145 | 63.1 | 145 | 63.2 | 145 | 63.3 | 144 | 63.9 | 144 | 63.7 | 143 | 64.2 |
| 434.zeusmp | 72.2 | 126 | 72.0 | 126 | 72.0 | 126 | 72.2 | 126 | 72.0 | 126 | 72.0 | 126 |
| 435.gromacs | 182 | 39.2 | 180 | 39.6 | 180 | 39.6 | 182 | 39.2 | 180 | 39.6 | 180 | 39.6 |
| 436.cactusADM | 31.7 | 377 | 31.9 | 375 | 31.7 | 377 | 31.7 | 377 | 31.9 | 375 | 31.7 | 377 |
| 437.leslie3d | 52.8 | 178 | 58.8 | 160 | 60.2 | 156 | 52.8 | 178 | 58.8 | 160 | 60.2 | 156 |
| 444.namd | 337 | 23.8 | 337 | 23.8 | 337 | 23.8 | 330 | 24.3 | 330 | 24.3 | 330 | 24.3 |
| 447.dealII | 201 | 56.9 | 201 | 56.8 | 201 | 56.8 | 201 | 56.9 | 201 | 56.8 | 201 | 56.8 |
| 450.soplex | 234 | 35.6 | 235 | 35.5 | 235 | 35.5 | 234 | 35.6 | 235 | 35.5 | 235 | 35.5 |
| 453.povray | 120 | 44.2 | 120 | 44.3 | 120 | 44.4 | 101 | 52.9 | 101 | 52.9 | 101 | 52.5 |
| 454.calculix | 206 | 40.1 | 204 | 40.4 | 205 | 40.1 | 194 | 42.6 | 193 | 42.8 | 194 | 42.6 |
| 459.GemsFDTD | 79.3 | 134 | 78.8 | 135 | 79.2 | 134 | 66.1 | 160 | 66.8 | 159 | 66.1 | 160 |
| 465.tonto | 243 | 40.5 | 239 | 41.1 | 240 | 41.0 | 222 | 44.3 | 223 | 44.0 | 223 | 44.2 |
| 470.lbm | 39.6 | 347 | 39.0 | 352 | 40.8 | 337 | 39.6 | 347 | 39.0 | 352 | 40.8 | 337 |
| 481.wrf | 145 | 76.9 | 145 | 76.9 | 146 | 76.5 | 145 | 76.9 | 145 | 76.9 | 146 | 76.5 |
| 482.sphinx3 | 250 | 77.9 | 250 | 77.8 | 250 | 78.0 | 250 | 77.9 | 250 | 77.8 | 250 | 78.0 |

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
 Memory Voltage: 1.5 V

General Notes

Environment variables set by runspec before the start of the run:
 KMP_AFFINITY = "granularity=fine,compact,1,0"
 LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

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General Notes (Continued)

OMP_NUM_THREADS = "8"

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

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

Base Optimization Flags

C benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

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Base Optimization Flags (Continued)

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -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: -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
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

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Peak Optimization Flags (Continued)

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: basepeak = yes

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 -ipo -O3 -no-prec-div -opt-prefetch -parallel
-static

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: basepeak = yes

459.GemsFDTD: -xSSE4.2(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 -opt-prefetch -parallel

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -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

454.calculix: -xAVX -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-ic12.1-official-linux64.20120425.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-linux64.20120425.xml>

<http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.xml>



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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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